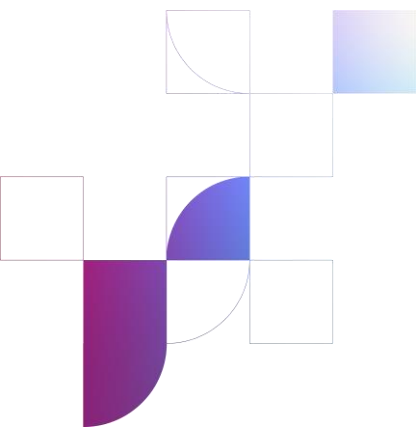


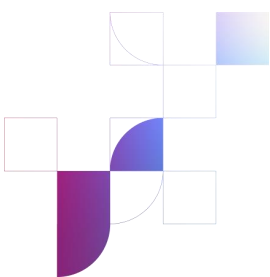
Stock taking of NRAs application of Article 52(2) for wholesale access obligations



5 June 2025

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Executive Summary

In March 2025, BEREC distributed a questionnaire (Annex 1) to all its members to gather national experiences with the provision of wholesale access when Member States grant, amend or renew rights of use for radio spectrum pursuant to Article 52(2) of the European Electronic Communications Code (EECC), which provides for NRAs/competent authorities upon the advice provided by national regulatory authorities to take appropriate measures including attaching conditions, such as the provision of wholesale access.¹

25 NRAs provided answers to this questionnaire. This inventory offers a snapshot of market conditions as of April 2025, compiling information from the NRAs' responses and presenting a fact-based overview of the situation they described.

Main findings

Based on the data provided by the NRAs, the main findings are:

- Before the introduction of Article 52(2) of the EECC or its transposition into national law, 11 NRAs imposed conditions for provision of wholesale access, while 14 NRAs did not impose conditions for provision of wholesale access when granting, amending, or renewing rights of use for radio spectrum during frequency authorization processes
- After the transposition of Article 52 into the national legislation, 10 NRAs held no spectrum award procedures since the transposition of Article 52 into the national legislation. 4 NRAs held at least one spectrum award procedure, with conditions for provision of wholesale access attached to at least one of them, while 11 NRAs held at least one spectrum award procedure but did not attach conditions for provision of wholesale access to any of them
- 2 NRAs designated a Mobile Network Operator (MNO) with Significant Market Power (SMP) under the market analysis procedure in accordance with Article 67(2) of the EECC, and obligated the provision of wholesale access. 22 NRAs have not designated an MNO with SMP, while 1 NRAs did not provide answer, and
- At the time of the questionnaire, 1 NRA set out that they intend to consider taking appropriate measures pursuant to Article 52(2) in their upcoming awards. 17 NRAs set out that they are uncertain at this time about taking appropriate measures pursuant to Article 52(2) in upcoming awards, or that their decisions will depend on market developments at the appropriate time and in the context of their deliberations on future potential awards. 7 NRAs did not provide an answer.

¹ In particular see Article 52(2) “...upon the advice provided by national regulatory authority may take appropriate measures such as: (a) limiting the amount of radio spectrum bands for which rights of use are granted to any undertaking, or in justified circumstances, attaching conditions to such rights of use, such as the provision of wholesale access...”



1. Introduction

Before and during BEREC's early call for stakeholder inputs when drafting the BEREC Work Programme 2025², some stakeholders set out that BEREC should continue to work on mobile wholesale connectivity, trends and issues for emerging mobile technologies and deployments³ and that it could also explore the extent to which NRAs apply conditions for the provision of wholesale access such as when granting, amending, or renewing rights of use for radio spectrum, in particular in the key bands of the public mobile telecommunications services.

In light of the above BEREC decided to conduct a stock taking exercise on the application of relevant provisions of Article 52 of the European Electronic Communications Code (EECC)⁴:

Article 52

Competition

1. *National regulatory and other competent authorities shall promote effective competition and avoid distortions of competition in the internal market when deciding to grant, amend or renew rights of use for radio spectrum for electronic communications networks and services in accordance with this Directive.*
2. *When Member States grant, amend or renew rights of use for radio spectrum, their national regulatory or other competent authorities upon the advice provided by national regulatory authority may take appropriate measures such as:*
 - (a) *limiting the amount of radio spectrum bands for which rights of use are granted to any undertaking, or, in justified circumstances, attaching conditions to such rights of use, such as the **provision of wholesale access**, national or regional roaming, in certain bands or in certain groups of bands with similar characteristics [emphasis added];*
 - (b) *reserving, if appropriate and justified with regard to a specific situation in the national market, a certain part of a radio spectrum band or group of bands for assignment to new entrants;*
 - (c) *refusing to grant new rights of use for radio spectrum or to allow new radio spectrum uses in certain bands, or attaching conditions to the grant of new rights of use for radio spectrum or to the authorisation of new uses of radio spectrum, in order to avoid the distortion of competition by any assignment, transfer or accumulation of rights of use;*
 - (d) *including conditions prohibiting, or imposing conditions on, transfers of rights of use for radio spectrum, not subject to Union or national merger control, where such transfers are likely to result in significant harm to competition;*

² <https://www.berec.europa.eu/en/all-documents/berec/reports/berec-report-on-the-outcome-of-the-public-consultation-on-the-draft-berec-work-programme-2025> and [Public consultation on the draft BEREC Work Programme 2025 | BEREC](#)

³ <https://www.berec.europa.eu/en/document-categories/berec/reports/study-on-wholesale-mobile-connectivity-trends-and-issues-for-emerging-mobile-technologies-and-deployments>

⁴ The focus of the work item was intended to be a survey around 52(2)(a) and the *provision of wholesale access*, see also <https://eur-lex.europa.eu/eli/dir/2018/1972/oj/eng>

- (e) *amending the existing rights in accordance with this Directive where this is necessary to remedy ex post a distortion of competition by any transfer or accumulation of rights of use for radio spectrum.*

National regulatory and other competent authorities shall, taking into account market conditions and available benchmarks, base their decisions on an objective and forward-looking assessment of the market competitive conditions, of whether such measures are necessary to maintain or achieve effective competition, and of the likely effects of such measures on existing and future investments by market participants in particular for network roll-out. In doing so, they shall take into account the approach to market analysis as set out in Article 67(2).

3. *When applying paragraph 2 of this Article, national regulatory and other competent authorities shall act in accordance with the procedures provided in Articles 18, 19, 23 and 35.*

The purpose of this inventory is to gauge the extent to which NRAs/competent authorities have utilised relevant provisions of Article 52(2) of the EEC.

In March 2025 BEREC distributed a questionnaire (Annex 1) to all of its members with a set of questions to collect:

- National experiences with the application of conditions for provision of wholesale access attached to the use of radiofrequency bands **before** the Article 52(2) was introduced or transposed into the national law
- National experiences with the application of conditions for provision of wholesale access attached to the use of radiofrequency bands **after** the Article 52(2) was transposed into the national law. The NRAs were asked to provide answers on the reasoning (justification and motive), auction design, conditions attached, and monitoring and enforcement mechanisms for the wholesale access requirements for each spectrum award procedures for key public mobile telecommunications services they had since the Article 52(2) was transposed into the national law. If a country had four or more relevant spectrum award procedures for key public mobile telecommunications services, NRAs were asked to provide information on the four most relevant procedures concerning Article 52(2) of the EEC, and
- Some additional questions regarding the designation (if any) of Mobile Network Operators (MNOs) with Significant Market Power (SMP) and their obligation to provide wholesale mobile access to third parties as per Market 15 of Commission Recommendation 2003/311/EC⁵, and national future plans to apply Article 52(2).

This inventory summarizes the information gathered from the responses provided by the NRAs and presents fact-based data on the situation as described by them.

In the text below, some links may appear multiple times because, for some NRAs, the same link applied to multiple questions. While this may seem repetitive, it can be highly beneficial for the readers of this inventory.

⁵ <https://eur-lex.europa.eu/legal-content/EL/TXT/PDF/?uri=CELEX%3A32003H0311>

2. Main findings: NRAs replies to the questionnaire

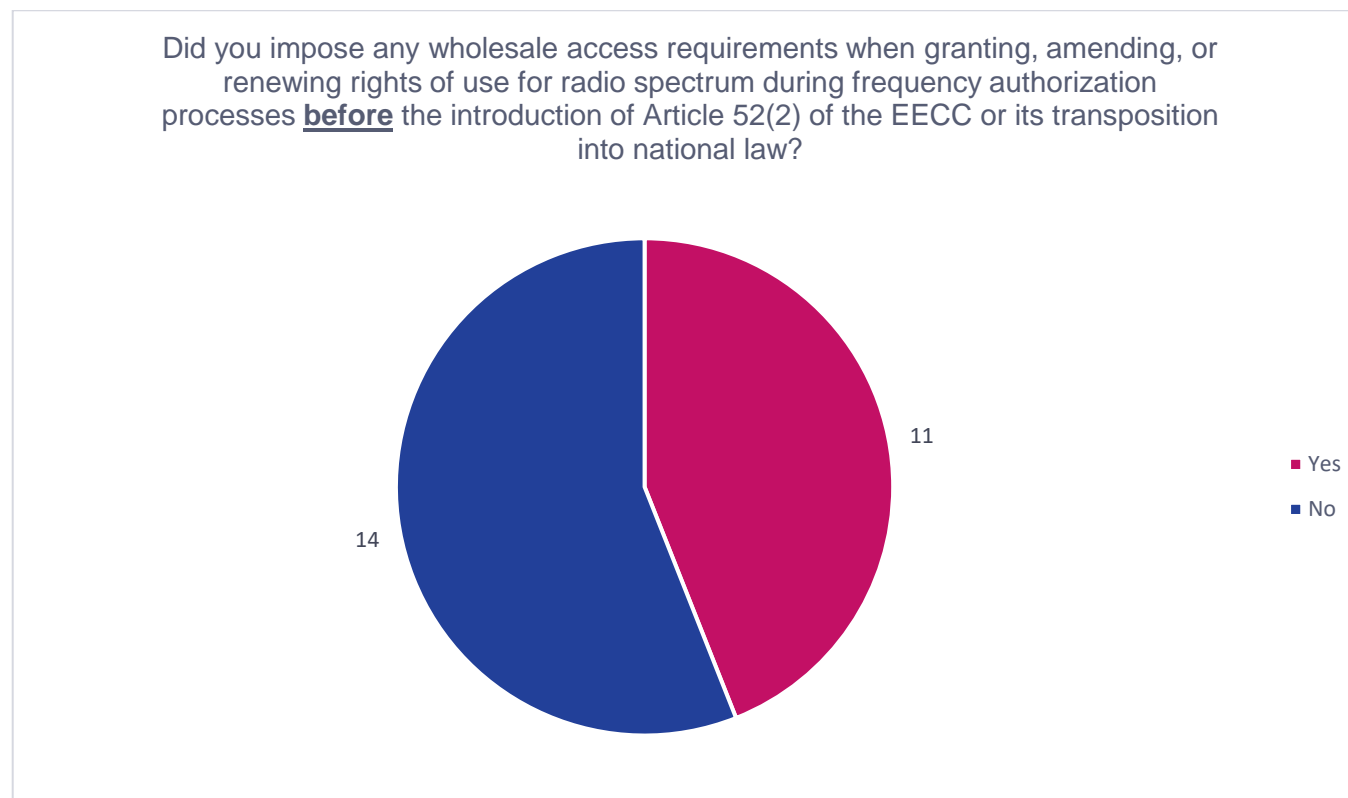
Question: Which year was Article 52 of the European Electronic Communications Code (EECC) transposed into national law in your country?

Austria	2021
Belgium	2022
Croatia	2022.
Cyprus	2022
Czech Republic	On September 15, 2021, the Chamber of Deputies of the Czech Republic approved the draft Act No.374 /2021 Coll., amending the Electronic Communications Act No. 127/2005 Coll.,. On October 18, 2020, the Amendment was published in the Collection of Laws of the Czech Republic and entered into force on January 1, 2022.
Denmark	21 December 2020, cf. EECC Article 124
Estonia	2022
Finland	21 December 2020
France	Article 52 of the European Electronic Communications Code (EECC) has been transposed by Ordinance n° 2021-650 of 26th of May 2021 which created Article L. 42-1-1 of the postal and electronic communications code.
Germany	01.12.2021
Greece	Article 52 of the EECC was transposed into national law in Greece in 2020.
Iceland	2022
Ireland	9 September 2022 - through the European Union (Electronic Communications Code) Regulations 2022.
Italy	In 2021. The directive was transposed into legislative decree of 8 November 2021, n. 207
Latvia	<p>Article 52 (2) of EECC has been transposed into Latvian legislation on July 29, 2022, through Articles 46 and 50 of the Electronic Communications Law.</p> <p>NRA'S REMARK</p> <p>According to the second part of Article 46 of the Latvian Electronic Communications Law, the Regulator grants the right to use the radio frequency spectrum to electronic communications operators for limited radio frequency bands, cancels these rights, extends the term of the rights, or allows them to be transferred or leased to another electronic communications operator or jointly used. Therefore, in Latvia, there are four procedures through which operators can obtain the rights to use limited bands:</p> <ol style="list-style-type: none"> 1. Initial granting of limited band usage rights through auction or competition; 2. Extension of limited band usage rights; 3. Transfer of limited band usage rights; 4. Joint use of limited band usage rights.

Malta	2021
Montenegro	October 2024
Netherlands	2022 (see link)
Norway	The Electronic Communications Act came into force 1 January 2025. Section 11-11 in the Act implements Article 51 and parts of Article 52 of the EECC.
Poland	2024
Portugal	2022
Romania	Law No 198/2022 (in force from July 2022) transposes the EECC provisions.
Slovenia	10.11.2022
Spain	2022. On 30 June 2022, General Telecommunications Law 11/2022 came into force. Article 52 of the EECC was incorporated, for the most part, into Article 90 of the Law.
Sweden	2022



Question: Did you impose any wholesale access requirements when granting, amending, or renewing rights of use for radio spectrum during frequency authorization processes before the introduction of Article 52(2) of the EECC or its transposition into national law?



Yes (11)	Belgium, Croatia, Czech Republic, France, Germany, Greece, Italy, Montenegro, Portugal, Romania, Spain
No (14)	Austria, Cyprus, Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Malta, Netherlands, Norway, Poland, Slovenia, Sweden

Figure 1 Application of any wholesale access requirements when granting, amending, or renewing rights of use for radio spectrum during frequency authorization processes before the introduction of Article 52(2) of the EECC or its transposition into national law

Complete NRAs' answers are provided in the following table:

Austria	No.
Belgium	<p>Article 52.2 of the Code is transposed by article 24/2 of the LEC (link). This article 24/2 came into force on January 10, 2022, i.e.:</p> <ul style="list-style-type: none"> - before the 2022 multi-band auctions; but - after the adoption of the royal decrees relating to these multi-band auctions. <p>Yes, example from Royal Decree of 2001, Art. 5. § 1. [Dutch] Het staat een operator vrij om met één of meerdere andere operatoren te onderhandelen met het oog op het afsluiten van een overeenkomst van nationale roaming onverminderd de wettelijke bepalingen en regelgeving die op iedere operator van toepassing zijn.</p> <p>Onverminderd het bepaalde in het eerste lid, heeft een operator die geen 2G-operator is en tot wiens relevante groep geen 2G-operator behoort, het recht om, conform de bepalingen en binnen de beperkingen vervat in §§ 2 tot 9 van dit artikel, een overeenkomst van nationale roaming af te sluiten met een 2G-operator die tevens een 3G-operator is of die behoort tot de relevante groep van een 3G-operator.</p> <p>Conform de bepalingen en binnen de beperkingen vervat in §§ 2 tot 9 van dit artikel, dient een 2G-operator die tevens een 3G-operator is of die behoort tot de relevante groep van een 3G-operator, nationale roaming aan te bieden.</p> <p>[Link]</p> <p>As has been the case during any other auction at a later date. Before transposition into national law, no 'objective and forward-looking assessment of the market competitive conditions' have been performed.</p>
Croatia	The first public auction was completed in 2021 and we applied the same conditions as in the auction completed in 2023. We impose Article 52 (2) in both auctions even it was formally transposed into national law in 2022,
Cyprus	NO. Please note that OCECPR has no competency in spectrum management as this is in the mandate of the Department of Electronic Communications (DEC) of the Deputy Ministry of Research Innovation and Digital Policy
Czech Republic	<p>YES</p> <p>2013, 800+1800+2600 MHz link - chapters 5.7.2+5.7.3, 3.2.2</p> <p>2014, 1800+2600 MHz link - chapters 7.7.1, 2.1.2</p>
Denmark	No
Estonia	No
Finland	No.
France	<p>Yes, Arcep implemented MVNO access obligations in 2010, in the 2.1 GHz band licenses.</p> <p>In 2005, as part of the implementation of Recommendation 2003/311/EC, which included Market 15, Arcep's analysis of the wholesale mobile market link led it to monitor the wholesale mobile market. This monitoring consisted of quarterly monitoring of new contracts or amendments between MNOs and MVNOs, market shares and price changes. In a 2008 Opinion on the brake on the development of MVNOs on the retail mobile market link at the request of the Competition Council, itself seized by the government, Arcep considered that the pricing</p>

and technical conditions offered to MVNOs, combined with contractual restrictions (exclusivity and preemption clauses), prevented them from pursuing independent commercial policies. As a result, MVNOs could not fully play the role of stimulating competition to which they aspired, and in particular could not effectively target customer segments neglected by network operators. Following this analysis, the Competition Council recommended significantly reducing the duration of contracts and exclusivity clauses, as well as regulating or even removing pre-emption clauses.

On four occasions in 2009 (award procedure to a new entrant for available frequencies in the 2.1 GHz band – [\[link\]](#)), in 2010 (award procedure for available frequencies in the 2.1 GHz band - [\[link\]](#)) and 2011 (award procedures for the 800 MHz – [\[link\]](#) – and 2.6 GHz bands - [\[link\]](#)), Arcep introduced provisions to help the development of MVNOs. Arcep considered that MVNOs could play a decisive role in stimulating competition in the market, provided they had sufficient contractual, technical and economic independence from their host operators. In particular, the full MVNO model enables virtual operators to gain greater autonomy towards their customers, greater responsiveness and greater control over the quality of their services and costs.

These award procedures included a bonus to be awarded to applicants if they committed to offer hosting conditions that did not restrict, without objective justification, competition on the wholesale MVNO hosting market and the commercial autonomy of MVNOs on the retail market (prohibition of clauses in wholesale agreements which restrict the MVNOs' commercial activity). As a result of these procedures, the four MNOs present on the national market have subscribed to these commitments, which have been incorporated into their licenses as wholesale access obligations, in particular:

- In 2010, the obligation to grant any reasonable request for hosting in light and full MVNO, and a ban on clauses restricting their commercial activities;
- In 2011, the obligation to provide reasonable economic conditions to hosted MVNOs, allowing an MVNO to have both a full and a light contract with the same MNO.

These obligations were renewed without change in 2015 for 700 MHz licenses.

In 2012, in an opinion on the situation of MVNOs in the French mobile market, Arcep considered that more favorable conditions were necessary to facilitate the transition to full MVNOs, a vector of MVNO independence. Following this opinion, the Competition Authority also insisted on the establishment of deadlines allowing MVNOs to be able to market comparable offers and within the same timeframe as their host MNO.

In 2020, the procedure for allocating the 3.5 GHz band [\[link\]](#) again included a provision for hosting MVNOs, with the aim of guaranteeing them access to the new services made possible by the allocation of the 3.5 GHz band. This provision took the form of a voluntary commitment, which applicants could make - in addition to other commitments included in the procedure - in order to obtain a 50 MHz block in the 3.5 GHz band without participating to an auction.

The obligations in force in the previous licenses have been supplemented with:

- The obligation to update the hosting offer to reflect all technical developments deployed on the network under reasonable conditions;
- The setting of deadlines to respond, as quickly as possible, to reasonable hosting requests;
- The obligation to propose to MVNO applicants already hosted a draft amendment to their contract within a timeframe that allows them to offer the resulting services within a timeframe equivalent to that of MNOs.

	<p>Monitoring and enforcement mechanisms: Arcep monitors the evolution of the wholesale mobile market on a quarterly basis. The market shares, net and gross sales, and revenues of MVNOs and MNOs on the wholesale market are analyzed. Contracts and amendments between MVNOs and MNOs are also analyzed. Particular attention is paid to the wholesale rates applied, as well as to the compliance of contract clauses with the onboarding obligations contained in each operator's licenses. Under Article L.36-11 of the postal and electronic communications code (PECC), Arcep can formally order operators that fail to comply with the obligations set out in the licenses to comply with them. Arcep can also, if necessary, fine the operator in question. MVNOs are also able to refer the matter to Arcep in the event of refusal of access to an operator's network, according to Article L.36-8 of the CPCE.</p> <p>Impact on the mobile market: After the implementation of MVNO hosting obligations in 2010, MVNO market share in terms of subscribers began to grow: - In Q1 2008, 5%. - In Q3 2010, 7% at the time of the integration of the first hosting obligations. - In Q3 2014, 12%. - In Q4 2020, 10%.- The rapid growth of some MVNOs has made them attractive to operators looking to strengthen their market position by increasing their subscriber base. Takeovers of MVNOs with the largest subscriber bases have followed one another since 2014. This policy of taking over certain MVNOs with a strong market share has accelerated since 2021.</p>
Germany	<p>Yes, there are several obligations to assignment holders.</p> <p>The Bundesnetzagentur intends to maintain and promote competition at the service level.</p> <p>Assignment holders have to negotiate with suitable service providers regarding the shared use of mobile capacities, so that they can provide these radio-based services in their own name and for their own account.</p> <p>The mobile services offered by service providers help to strengthen competition at the service level and thus promote the interests of consumers.</p> <p>This can be done if there is no discrimination by mobile network operators against service providers during negotiations on the capacities to be made available. The point at issue here is that the spectrum resources in question are available not in unlimited but in limited quantities. Hence it is only possible for a limited number of undertakings on the market to acquire spectrum themselves and offer mobile services.</p> <p>For detailed information please see: Bundesnetzagentur Electronic Communications Services [link]; Bundesnetzagentur Frequency Award 2019, Decision III and IV [link]</p>
Greece	<p>Yes, wholesale access requirements were imposed before the transposition of article 52(2) into national law.</p> <p>The obligations were imposed in order to facilitate MVNOs market entry in Greece. All relevant documents and award procedures are</p>

	<p>available in Greek at EETT's site at the following link</p> <p>1500 Mz: link</p> <p>1800 MHz: link</p> <p>24-5-26-5 MHz link</p>
Iceland	No
Ireland	<p>In ComReg's Multi Band Spectrum Award for the 700 MHz Duplex, 2.1 GHz, 2.3 GHz and 2.6 GHz Bands, potential wholesale access (MVNO) conditions were discussed in Section 8.7 of Document 19/59, Section 7.7 of Document 19/124 and Section 8.7 Document 20/122.</p> <p>ComReg1959R.pdf – link</p> <p>ComReg-19124.pdf - link</p> <p>ComReg20122.pdf - link</p> <p>In Document 20/122, ComReg's final position was that it was not appropriate to attach MVNO access obligations to some or all of the 700 MHz rights of use for the reasons set out in Document 19/59 and 19/124. In summary.</p> <ul style="list-style-type: none"> • First, a review on the merits of including MVNO access obligations would likely delay the MBSA award for up to 2 years, and could ultimately find that such an obligation is not justified. • Second, in attempting to design appropriate and effective MVNO licence conditions, there would be many non-trivial substantive and procedural issues to resolve • Third, a number of significant award distortions could arise depending on the type of MVNO access obligations, if any. Such distortions could compromise ComReg's ability to design an award in furtherance of its objectives to promote competition, and take all reasonable measures to encourage efficient use and ensure effective management of radio frequencies. • Fourth, the various design elements which ComReg has already provided preliminary views on (minimum prices, award type, coverage, lot size etc.) would potentially require reassessment, since those views were provided on the basis of a potentially costly MVNO obligation not being included • Fifth, a consideration of each of these items as described would delay the MBSA award and prolong timelines considerably. Such a delay would result in a significant delay in the release of the relevant spectrum bands leading to a delay in the deployment of new and improved infrastructure for mobile services, and in the resulting economic and consumer benefits. <p>Notwithstanding, ComReg was of the view that there would be benefit in commencing a study that considers the current and future role of MVNOs in the Irish mobile market.</p> <p>This study was published in 2021 WIK Consult Report link</p> <p>Section 8.7.4 of Document 19/59 also provide details of the 2002 3G Licence Award – “Retail Minus” MVNO approach.</p>
Italy	<p>Yes. For instance, with Decision n. 231/18/CONS adopted in May 2018 (available at the following link: Delibera 231/18/CONS Agcom) concerning the granting of the rights of use of the available frequencies in the 5G pioneer bands, AGCOM imposed the following access obligations on assignee operators:</p>

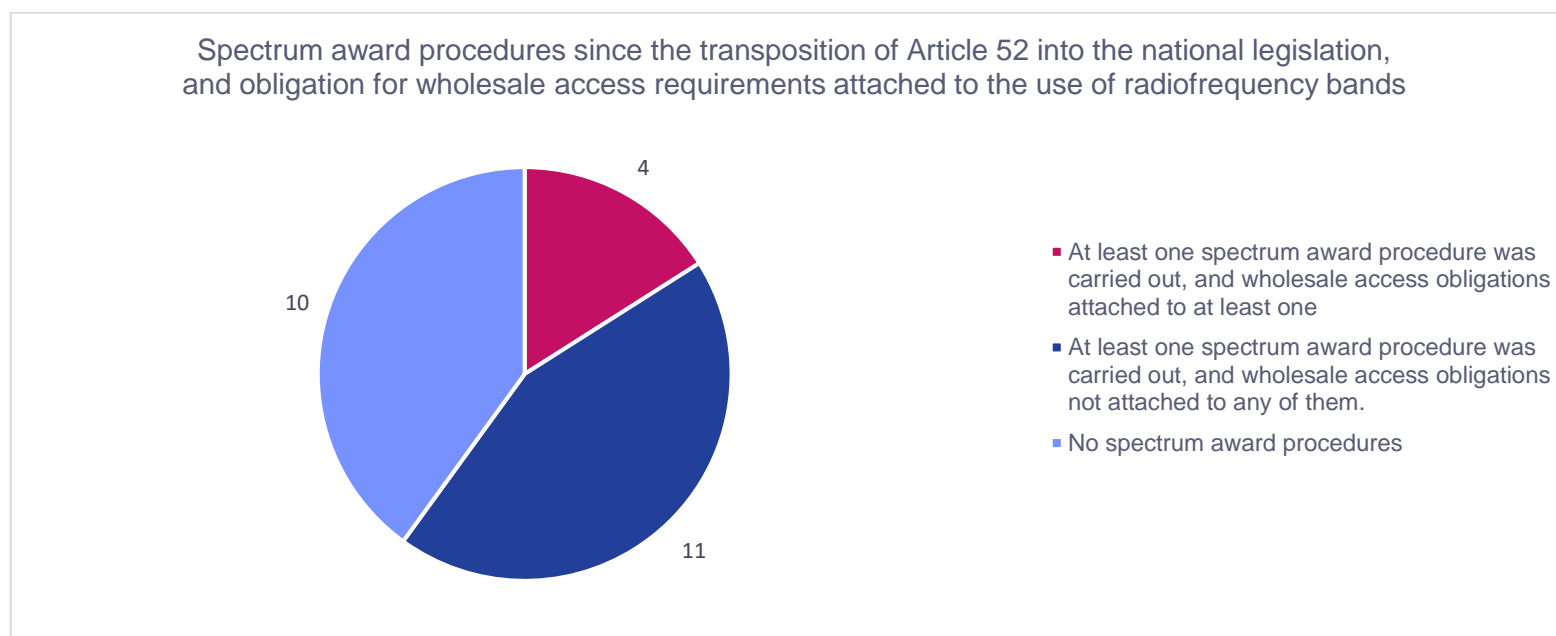
	<ul style="list-style-type: none"> • as for the 700 MHz FDD band, assignee operators must offer national roaming, at fair, nondiscriminatory and transparent conditions, on their 700, 800 and 900 MHz networks to a new entrant acquiring spectrum in this band (excluding Iliad, i.e. the remedy taker of the merger between Wind and H3G) for 30 months in the entire national territory and for 60 months in the areas not covered by the new entrant (this measure adopted by AGCOM was not implemented in practice, since no new entrants - but only the remedy taker - acquired frequencies in the 700 MHz reserved band); • regarding the 3600-3800 MHz band, each licensee MNO holding at least 80 MHz at national level in the 3.4-3.8 GHz band must provide access to other players not licensees in the bands up to 3.8 GHz (or licensees in 3.5 GHz but with rights of use covering less than 40% of the national population), e.g. other telco operators or service providers. The access for a specified area of interest must be aimed at the development of 5G services and based on commercial agreement with fair and non-discriminatory conditions. Moreover, if the licensee does not cover the area where the access seeker needs connectivity, the access seeker can deploy the network, upon agreement or even by leasing frequencies. This access obligation is also aimed at fostering both verticals to develop innovative business cases and new players to exploit high performance technologies (such as Massive-MIMO and beamforming) to offer future proof services enabling advanced business scenarios; • with reference to the 26 GHz band, other than the introduction of the so called “club use” model, AGCOM imposed on licensees the obligation to provide access (wholesale capacity) to other players (that shall be non telcos, e.g. service providers) for the development of 5G services. In order to avoid foreclosure mechanisms and duplication of investments, AGCOM also established that in closed lands with public attendance, where the spectrum use must be permitted by the land manager, the licensee MNO implementing coverage must offer access to the other licensees.
Latvia	No, so far the Latvian regulatory authority has not established any wholesale access requirements either before or after the introduction of Article 52(2) of the EECR or its transposition into national legislation when amending or renewing radio spectrum usage rights.
Malta	No such conditions were imposed on holders of grants of rights of radio spectrum prior to the introduction of Article 52(2).
Montenegro	<p>Yes. In spectrum auctions for the bands 800 MHz and 2.6 GHz in 2016 and 700 MHz, 3.6 GHz and 26 GHz in 2022 obligation of national roaming to new entrant was introduced for existing mobile operators within first five years. Also, number of frequency blocks in all bands were reserved for new entrant. Argumentation includes enabling direct access to the radio spectrum for new entrant if interested and providing the conditions for its efficient entry into the market</p> <p>Detailed information can be found in Tender Documentations (Chapter 5.6) which are available on the following links: [link] and [link]</p>
Netherlands	No, it was considered but advised against in the ACM advice for the multiband auction in 2019 (Advies frequentieverveiling 2019, [link] , see margin numbers 219 and 220)
Norway	No wholesale access requirements have been imposed in connection with spectrum allocations.
Poland	No
Portugal	<p>Yes.</p> <p>By decision of 30 October 2020, ANACOM approved the Auction Regulation for the allocation of frequency usage rights in the 700 MHz, 900 MHz, 1800 MHz, 2.1 GHz and 3.6 GHz bands (also known as 5G Auction – [link]).</p> <p>The Auction Regulation imposed some conditions in order to promote competition. Article 6 (b), as well as Section III (articles 16 to 24) of the Auction Regulation imposed a bidding phase reserved only for new entrants. Article 8 limited the amount of radio spectrum that could be</p>

	<p>allocated in the 700 MHz and 3,6 GHz bands. Article 45 of the Auction Regulation imposed network access obligations for «the holders of rights of use of frequencies that, at the end of the auction, hold 2x10 MHz in the 700 MHz band, or at least 50 MHz in the 3.6 GHz band». In addition, article 47 limited the transfer or leasing of rights of use for frequencies by the respective holders «2 years after the start date of the offer of electronic communications services accessible to the public».</p>
Romania	<p>The procedure for granting rights to use radio frequencies that took place in 2012 – link</p> <p>The document "Specifications for the organization of the competitive selection procedure for the granting of rights to use radio frequencies in the 800 MHz, 900 MHz, 1800 MHz and 2600 MHz bands" includes access obligations in chapter 3.3.3 on the provision of national roaming and network access for MVNOs. This allowed bidders to opt to offer network access to Mobile Virtual Network Operators (MVNOs) in order to obtain more favorable conditions in the auction, such as reducing the amount of the participation guarantee to 25% of the initial bid price or applying specific coverage conditions.</p> <p>National roaming obligations</p> <ul style="list-style-type: none"> • Negotiation and conclusion of agreements: Licensees must negotiate in good faith and conclude national roaming agreements for access to the single emergency call number 112. • Negotiation in good faith and entering into a national roaming agreement: Licensees must negotiate in good faith and conclude national roaming agreements with any other holder of a license to use radio frequencies for the provision of public electronic communications networks and mobile electronic communications services, granted under the selection procedure, for the provision of roaming services if the applicant met certain coverage requirements • Provision of roaming services: Agreements must allow the provision of electronic communications services in geographical areas not covered by the applicant's network. • Negotiation deadlines: The maximum negotiation deadline is 2 months after receipt of the application and implementation must be completed within 3 months of the agreement. <p>Mobile Virtual Network Operator (MVNO) access obligations</p> <ul style="list-style-type: none"> • Publication of access offer: Licensees that have assumed MVNO access obligations must publish an MVNO access offer when network coverage reaches 30% of the population. • Negotiation and implementation of agreements: The maximum negotiation period for the first MVNO access agreement is 6 months, and implementation must be completed within 4 months of the agreement. • Access conditions: Incumbents must offer MVNO access on non-discriminatory terms and allow MVNOs to operate their own network elements. <p>Access conditions</p> <ul style="list-style-type: none"> • Non-discriminatory treatment: Roaming agreements must ensure non-discriminatory treatment of subscribers of both networks. • Service provision: The agreements must allow the provision of all services available on GSM and UMTS technologies. <p>These obligations are designed to ensure fair and non-discriminatory access to mobile networks and to facilitate competition in the telecommunications market.</p>

Slovenia	Before implementation in Electronic Communications Law ZEKom-2 (Official Gazzete No 130/22 and 18/23 – ZDU-1O) the renew rights of use for radio spectrum for TRA-ECS or WBB-ECS was not possible, public tender was required. But in the public tender similar provisions as in Article 52(2) of the EECC were used, such as spectrum caps, conditions on transfers of rights of use for radio spectrum - not to exceed spectrum caps, coverage obligations - when transferring of rights of use for radio spectrum - the obligation transferred as well. No wholesale obligations was imposed.
Spain	<p>Yes.</p> <p>The 1998 Order for the 1800 MHz band auction stated in Clause 42 that the CMT could impose roaming agreements between operators in the 900 MHz band and the DCS 1800 service provider. These agreements, which had to be approved by the CMT, were limited to a maximum duration of 4 years, starting from the date the contract was formalized. This allowed Amena to have national coverage while expanding its own coverage in the 1800 MHz band. See link: [link]</p> <p>Also, certain additional obligations have been introduced in the past through parallel regulatory provisions, either in connection with or as a consequence of spectrum award procedures:</p> <ol style="list-style-type: none"> 1. The Order of 10 November 1999 established a temporary national roaming obligation, requiring incumbent 900/1800 MHz operators to provide national roaming services to new operators using the 2100 MHz band, facilitating the entry of Xfera (now Yoigo), which acquired spectrum in the 2100 MHz band in April 2000. The duration of the obligation was limited to a maximum duration of 3 years. Due to various reasons, the start of service provision was delayed until 2006. See link [link]. 2. Royal Decree 458/2011 introduced a wholesale access obligation in the 900 MHz band for operators holding 10 MHz or more and providing UMTS or next-generation services. This obligation was in force until 1 May 2015 but was never used by any operator. See link [link]. <p>None of these obligations are currently in force.</p> <p>Please note that the CNMC is not competent in spectrum management, which falls under the authority of the Ministry for Digital Transformation and Civil Service.</p>
Sweden	No



Question: National experience with wholesale access requirements attached to the use of radiofrequency bands after the Article 52(2) was transposed into the national law. The NRAs were asked to provide answers on the reasoning (justification and motive), auction design, conditions attached, and monitoring and enforcement mechanisms for the wholesale access requirements for each spectrum award procedures for key public mobile telecommunications services they had since the Article 52(2) was transposed into the national law. If a country had four or more relevant spectrum award procedures for key public mobile telecommunications services, NRAs were asked to provide information on the four most relevant procedures concerning Article 52(2) of the EEC.




no spectrum award (10)	Belgium, France, Ireland, Italy, Malta, Montenegro, Norway, Poland, Portugal, Sweden
≥ 1 , conditions for Wholesale Mobile Access (WMA) attached to at least one (4)	Croatia, Czech Republic, Germany, Greece
≥ 1 , WMA not attached to any (11)	Austria, Cyprus, Denmark, Estonia, Finland, Iceland, Latvia, Netherlands, Romania, Slovenia, Spain

Figure 2 Spectrum award procedures since the transposition of Article 52 into the national legislation, and obligation for wholesale access requirements attached to the use of radiofrequency bands

10 countries (Belgium, France, Ireland, Italy, Malta, Montenegro, Norway, Poland, Portugal, Sweden) had no spectrum award procedure since the transposition of Article 52 into the national legislation, while 15 countries (Austria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Iceland, Latvia, Netherlands, Romania, Slovenia, Spain) had at least one spectrum award procedure:

Country: Austria	
Number of spectrum award procedures: 2	
Spectrum Award Procedure 1	
FREQ band(s)	700. 1500 and 2100 MHz
Access Obl.	No
Considerations	A wholesale access obligation was still included in the tender consultation. The obligation was no longer included in the tender, as it was not considered necessary due to the market conditions. Link to tender-consultation-document: link Link to previous consultation (incl. competition analysis): link
Reasoning	see above. Link to tender-consultation-document: link
Spectrum Award Procedure 2	
FREQ band(s)	3600 MHz and 26 GHz
Access Obl.	No
Consideration	No.
Reasoning	Link to tender document: link

Country: Croatia	
Number of spectrum award procedures: 2	
Spectrum Award Procedure 1	
FREQ band(s)	700 MHz, 3600 MHz, 26 GHz
Access Obl.	Yes
Reasoning	HAKOM stipulates the obligation to provide wholesale access to mobile virtual network operators, i.e. enabling the provision of services to operators who do not own their own infrastructure, in order to encourage competition and the provision of innovative services.  With the introduction of MVNO, HAKOM sees advantages for further market development as well as competition such as: (i) better use

	<p>of the network of incumbent operators, (II) more efficient use of RF spectrum, (III) new wholesale revenues for incumbent operators, (IV) increased competition by the entry of new stakeholders into the market and (v) stimulation of those user segments and those services that have not been so far stimulated by incumbent operators.</p> <p>In terms of innovative services, such as the Internet of things (IoT), MVNO operators can play both an economic and industrial role through simple, innovative, flexible and scalable solutions. Additionally, in the context of the development of 5G technology, network slicing enabled by 5G technology, which is not possible through 4G technology, creates new market opportunities. Based on virtualised infrastructure, 5G technology offers the possibility of “slicing” the network. The aforementioned offers the possibility of targeting vertical applications and markets, thus opening up opportunities for MVNO operators to enter the market.</p>
Auction design	<p>Separate SMRA auction for each frequency band.</p> <p>700 MHz – 3 generic blocks of 2x10 MHz, reserved price 6 mEUR per block, spectrum cap 2x10 MHz per bidder.</p> <p>3600 MHz – 32 generic blocks of 10 MHz, reserved price 700 kEUR per block, spectrum cap 120 MHz per bidder.</p> <p>26 GHz – 5 generic blocks of 200 MHz, reserved price 1 mEUR per block, spectrum cap 400 MHz per operator with opportunity for club use.</p> <p>The obligation to provide network access to MVNO operators is prescribed for all operators who have been granted a license to use the RF spectrum at the national level, regardless of whether they are new operators or existing operators. The stated obligation to provide access to the network applies to all MVNO operator models. Also, operators who have a license to use the RF spectrum can request access to the network as MVNO operators.</p> <p>Licensees for the use of RF spectrum at the national level are obliged to negotiate in good faith with all parties interested in offering services on the market as an MVNO operator and, in case of a reasonable request, to prepare appropriate wholesale conditions within a period of 3 months from the acceptance of a reasonable request. Appropriate wholesale conditions must be prepared in the form of a Reference Offer for network access to mobile virtual network operators (further: Reference Offer).</p> <p>The scope and conditions of provision of wholesale services included in the Reference Offer must not lead to discrimination against the service seeker, i.e. the service seeker must be able to provide the same type of services of the same quality as those provided by operators who have been granted a license to use the RF spectrum through this procedure. The scope and conditions of provision of wholesale services included in the Reference Offer must be in line with the possibilities offered by 5G technology.</p> <p>Auction documentation is available at the following link only in Croatian language: [link]</p>

Monitoring	<p>Licensees at the national level are obliged to inform HAKOM in writing of each request for access as well as of the basic parameters of each request, within 15 working days from the date of receipt of such a request.</p> <p>In accordance with Article 170 para 1 of the Electronic Communications Act (Official Gazette no. 76/22, 14/2024), for the failure to comply with the conditions of the RF spectrum usage license, holder of the license can be fined.</p>
Spectrum Award Procedure 2	
FREQ band(s)	800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2600 MHz
Access Obl.	Yes
Reasoning	<p>HAKOM stipulates the obligation to provide wholesale access to mobile virtual network operators, i.e. enabling the provision of services to operators who do not own their own infrastructure, in order to encourage competition and the provision of innovative services.</p> <p>With the introduction of MVNO, HAKOM sees advantages for further market development as well as competition such as: (i) better use of the network of incumbent operators, (II) more efficient use of RF spectrum, (III) new wholesale revenues for incumbent operators, (IV) increased competition by the entry of new stakeholders into the market and (v) stimulation of those user segments and those services that have not been so far stimulated by incumbent operators.</p> <p>In terms of innovative services, such as the Internet of things (IoT), MVNO operators can play both an economic and industrial role through simple, innovative, flexible and scalable solutions. Additionally, in the context of the development of 5G technology, network slicing enabled by 5G technology, which is not possible through 4G technology, creates new market opportunities. Based on virtualised infrastructure, 5G technology offers the possibility of “slicing” the network. The aforementioned offers the possibility of targeting vertical applications and markets, thus opening up opportunities for MVNO operators to enter the market.</p>
Auction design	<p>One SMRA auction for all frequency bands.</p> <p>800 MHz – 6 generic blocks of 2x5 MHz, reserved price 7 mEUR per block, spectrum cap for 800 MHz and 900 MHz together 2x25 MHz per bidder.</p> <p>900 MHz – 7 generic blocks of 2x5 MHz, reserved price 7 mEUR per block, spectrum cap for 800 MHz and 900 MHz together 2x25 MHz per bidder.</p> <p>1800 MHz – 15 generic blocks of 2x5 MHz, reserved price 2 mEUR per block, spectrum cap 2x30 MHz per bidder.</p> <p>2100 MHz – 12 generic blocks of 2x5 MHz, reserved price 2 mEUR per block, no spectrum cap.</p> <p>2600 MHz – 14 generic blocks of 2x5 MHz, reserved price 700 kEUR per block, no spectrum cap.</p> <p>The total spectrum cap for all frequency bands in this auction is 2x105 MHz.</p> <p>The obligation to provide network access to MVNO operators is prescribed for all operators who have been granted a license to use</p>

	<p>the RF spectrum at the national level, regardless of whether they are new operators or existing operators. The stated obligation to provide access to the network applies to all MVNO operator models. Also, operators who have a license to use the RF spectrum can request access to the network as MVNO operators.</p> <p>Licensees for the use of RF spectrum at the national level are obliged to negotiate in good faith with all parties interested in offering services on the market as an MVNO operator and, in case of a reasonable request, to prepare appropriate wholesale conditions within a period of 3 months from the acceptance of a reasonable request. Appropriate wholesale conditions must be prepared in the form of a Reference Offer for network access to mobile virtual network operators (further: Reference Offer).</p> <p>The scope and conditions of provision of wholesale services included in the Reference Offer must not lead to discrimination against the service seeker, i.e. the service seeker must be able to provide the same type of services of the same quality as those provided by operators who have been granted a license to use the RF spectrum through this procedure. The scope and conditions of provision of wholesale services included in the Reference Offer must be in line with the possibilities offered by 5G technology.</p> <p>Auction documentation is available at the following link only in Croatian language: [link]</p>
Monitoring	<p>Licensees at the national level are obliged to inform HAKOM in writing of each request for access as well as of the basic parameters of each request, within 15 working days from the date of receipt of such a request.</p> <p>In accordance with Article 170 para 1 of the Electronic Communications Act (Official Gazette no. 76/22, 14/2024), for the failure to comply with the conditions of the RF spectrum usage license, holder of the license can be fined.</p>

Country: Cyprus	
Number of spectrum award procedures: 2	
Spectrum Award Procedure 1	
FREQ band(s)	800MHz, 900MHz, 1800MHz, 2100MHz, 2600MHz (This was a renewal procedure that took place in 2023) Answer provided by DEC
Access Obl.	No
Considerations	NO. Please note that OCECPR has no competency in spectrum management as this is in the mandate of the Department of Electronic Communications (DEC) of the Deputy Ministry of Research Innovation and Digital Policy
Reasoning	Individual rights of use of radiofrequencies do not include wholesale access obligations
Spectrum Award Procedure 2	
FREQ band(s)	2100MHz (spectrum award for granting one new license in 2024)
Access Obl.	No

Consideration	NO. Please note that OCECPR has no competency in spectrum management as this is in the mandate of the Department of Electronic Communications (DEC) of the Deputy Ministry of Research Innovation and Digital Policy
Reasoning	Individual rights of use of radiofrequencies do not include wholesale access obligations.

Country: Czech Republic	
Number of spectrum award procedures: 2	
Spectrum Award Procedures	
FREQ band(s)	2024 - DAB+ in band 174–230 MHz 2020 - 700 MHz + 3400-3600 MHz
Access Obl.	Yes
Reasoning	2020 - 700 MHz + 3400-3600 MHz [link] - chapters 8.2, 2.2.6
Auction design	Simultaneous Multiple Round Auction – SMRA
Conditions	[link]

Country: Denmark	
Number of spectrum award procedures: 1	
Spectrum Award Procedures	
FREQ band(s)	1500 MHz, 2100 MHz, 2300 MHz, 3410-3800 MHz and 26 GHz (2021)
Access Obl.	No

Country: Estonia	
Number of spectrum award procedures: 3	
Spectrum Award Procedure 1	
FREQ band(s)	3,6 GHz
Access Obl.	No
Considerations	Yes, within the NRA we have discussed the possibility of applying the obligations and we have concluded that it's not necessary. Estonia is a small country (population 1.3 million) and we already have three MNOs with their own frequency bands. So, competition in the mobile market is quite strong. Therefore, there is probably not the necessary volume of potential consumers for new and even smaller operators to enter the market. Nor has any operator approached the NRA with a request to start providing services on a national roaming basis.

Reasoning	Estonia is a small country (population 1.3 million) and we already have three MNOs with their own frequency bands. So, competition in the mobile market is quite strong. Therefore, there is probably not the necessary volume of potential consumers for new and even smaller operators to enter the market. Nor has any operator approached the NRA with a request to start providing services on a national roaming basis.
Spectrum Award Procedure 2	
FREQ band(s)	700 MHz
Access Obl.	No
Considerations	Yes, within the NRA we have discussed the possibility of applying the obligations and we have concluded that it's not necessary. Estonia is a small country (population 1.3 million) and we already have three MNOs with their own frequency bands. So, competition in the mobile market is quite strong. Therefore, there is probably not the necessary volume of potential consumers for new and even smaller operators to enter the market. Nor has any operator approached the NRA with a request to start providing services on a national roaming basis.
Reasoning	Estonia is a small country (population 1.3 million) and we already have three MNOs with their own frequency bands. So, competition in the mobile market is quite strong. Therefore, there is probably not the necessary volume of potential consumers for new and even smaller operators to enter the market. Nor has any operator approached the NRA with a request to start providing services on a national roaming basis.
Spectrum Award Procedure 3	
FREQ band(s)	26 GHz
Access Obl.	No
Consideration	Yes, within the NRA we have discussed the possibility of applying the obligations and we have concluded that it's not necessary. Estonia is a small country (population 1.3 million) and we already have three MNOs with their own frequency bands. So, competition in the mobile market is quite strong. Therefore, there is probably not the necessary volume of potential consumers for new and even smaller operators to enter the market. Nor has any operator approached the NRA with a request to start providing services on a national roaming basis.
Reasoning	Estonia is a small country (population 1.3 million) and we already have three MNOs with their own frequency bands. So, competition in the mobile market is quite strong. Therefore, there is probably not the necessary volume of potential consumers for new and even smaller operators to enter the market. Nor has any operator approached the NRA with a request to start providing services on a national roaming basis.

Country: Finland
Number of spectrum award procedures: 1
Spectrum Award Procedure

FREQ band(s)	700 MHz in Åland Islands (2024). The licenses were granted by a comparative selection procedure.
Access Obl.	No
Considerations	<p>Under the Finnish Act on Electronic Communications Services, which entered into force in 2014, it has already been possible to incorporate into a network licence requirements, which</p> <ul style="list-style-type: none"> - promote the aims of this Law, as defined in section 1 of the Law (e.g. access to communications networks and services at reasonable conditions, efficient and interference free use of radio frequencies, fostering competition, and to ensure that communications networks and services are technologically advanced, of high quality, reliable, safe, and inexpensive); - terms concerning the technical characteristics of communications networks or the efficient use of frequencies. <p>Web link to the Finnish Act on Electronic Communications Services: [link]</p>
Reasoning	The 700 MHz licences for the Åland Islands were granted to a very limited area in Finland. They were subject to the same conditions as other previously granted licences throughout the country.

Country: Germany	
Number of spectrum award procedures: 1	
Spectrum Award Procedure	
FREQ band(s)	<p>800 MHz, 1.800 MHz and 2.600 MHz</p> <p>further commentary:</p> <p>Spectrum usage rights in the bands at 800 MHz, 1800 MHz and 2600 MHz will expire at the end of 2025. This spectrum is currently being used by the three established mobile network operators, Telefónica Germany GmbH & Co. OHG, Deutsche Telekom GmbH and Vodafone Deutschland GmbH, and plays a role in the nationwide provision of high-performance broadband services to consumers.</p> <p>In view of the expiry of the spectrum usage rights, the President's Chamber of the Bundesnetzagentur is seeking to create planning and investment certainty for the market participants. Building on the responses to the papers published for consultation, in particular the demand survey update and framework for an interim decision, as well as the responses to the consultation draft of the decision and the views presented by various stakeholders at and after the public hearing on 9 January 2025.</p> <p>The President's Chamber of the Bundesnetzagentur has decided not to order spectrum award proceedings for the time being.</p> <p>Instead, the current spectrum usage rights will be extended for an interim period of five years on application (first stage of action). The Chamber has also decided to carry out competitive proceedings at a later point in time (second stage of action).</p>

	For detailed information please see: Bundesnetzagentur - Wireless access for the provision of telecommunications services [link] (at this time only available in German, but short summary in English)
Access Obl.	Yes
Reasoning	<p>Service providers help to strengthen competition at the service level and thus promote the interests of consumers. The conditions of the prolongation comprise an obligation of MNOs to engage into negotiations on request of service providers.</p> <p>As part of the proceedings Bundesnetzagentur assessed the competitive conditions in the mobile market, the basis of which were a report on the competitive conditions in the mobile market, Bundesnetzagentur's own experience from implementing the current service provider regulation, the recent switching between contracting partners in the wholesale market, the entry of new market players and some of the responses received in the consultation process, especially.</p> <p>The detailed reasoning behind the service provider regulation can be found in the president's chamber's decision (starting from page 111): [link] (at this time only available in German); short summary in English [link]</p> <p>Report on the competitive conditions in the mobile market (WIK/EY): [link] (only available in German)</p> <p>Aside from service provider regulation, Article 52 (2) EEC – respective § 105 German Telecommunications Act (TKG) – could also be applied to obligations regarding National Roaming and the cooperative, shared use of spectrum below 1 GHz. These obligations address the fourth MNO 1&1 Mobilfunk GmbH, that holds no usage rights in the 800-MHz-, 1800-MHz- or 2.600-MHz-bands, that could be prolonged. However, as the deferred possibility to acquire additional spectrum is a result of the prolongation (and not developments of the market), the decision is primarily based on another legal basis.</p>
Auction design	There is no auction design, because the usage rights are prolonged for five years as part of the first stage of action. As part of the second stage of action there may be an auction prior to the end of the prolonged usage rights.
Conditions	<p>The President's Chamber of the Bundesnetzagentur is attaching several requirements to the extension with the aim of securing the regulatory objectives:</p> <ul style="list-style-type: none"> - Negotiation requirement with respect to service providers and MVNOs: <p>Each assignment holder must engage in negotiations with suitable service providers and MVNOs on sharing wireless capacity. Negotiations should be non-discriminatory and should not restrict the capacity to be provided to certain services, wireless technologies or applications. The President's Chamber is laying down a standard for negotiations in the form of detailed provisions as guidelines aimed at promoting effective negotiations between assignment holders and service providers/MVNOs.</p>

	<p>The guidelines are intended to strengthen private autonomous negotiations in the mobile wholesale market and to form the framework for negotiations on wholesale mobile services. The guidelines address contractual aspects that are essential for the success of negotiations on wholesale access. These are fair and reasonable contract terms, fair and reasonable notice periods, fair and reasonable contractual conditions and no inappropriate binding effect. At the same time, the guidelines are sufficiently flexible as they do not set any rigid requirements.</p> <p>Further requirements are:</p> <ul style="list-style-type: none"> - Negotiation requirement with respect to national roaming - Cooperative shared use of spectrum below 1 GHz - Other requirements aimed at securing the regulatory objectives include an obligation requiring Telefónica Germany GmbH & Co. OHG to lease spectrum at 2600 MHz to 1&1 Mobilfunk GmbH for the duration of the extension period, a negotiation requirement to promote cooperation among the mobile network operators and reporting obligations relating to mobile network rollout and the negotiations on access to wholesale mobile services. <p>For detailed information please see: [link], [link] (at this time only available in German)</p>
Monitoring	<p>The President's Chamber of the Bundesnetzagentur introduces a report duty.</p> <p>Market participants (assignment holder, service providers and MVNO's) must report on an annual basis or on request of the Bundesnetzagentur the status of negotiations on access to mobile services.</p> <p>For detailed information please see: [link], [link] (at this time only available in German)</p>

Country: Greece	
Number of spectrum award procedures: 2	
Spectrum Award Procedure 1	
FREQ band(s)	700 MHz, 2100 MHz, 3600 MHz, 26 GHz
Access Obl.	Yes
Reasoning	<p>The obligations were imposed in order to facilitate MVNOs market entry in Greece and to foster competition in the Greek market.</p> <p>In addition in order to ensure the optimal use of the spectrum and at the same time to develop competition in the market for the benefit of consumers, EETT imposed a limitation on the maximum spectrum bandwidth per operator auctioned. Specifically:</p>

	<p>700 MHz: cap of 2x10MHz, 3400-3800MHz for 4 participants: cap of 90 MHz and a min of 70 MHz, for 3 participants: min of 100 MHz 26 GHz: cap at 400 MHz 2GHz: cap of 2x20 MHz</p> <p>All relevant documents and award procedures are available in Greek at EETT's site at the following link: [link]</p>
Auction design	<p>Simultaneous, multi-round, ascending auction:</p> <p>Bidders bid on multiple individual lots, of multiple bands at the same time. The highest bid on each lot became the provisional winning price. The auction continued until there was a round where no further bidding was made for any lot. Bidders were awarded the lots for which they had the standing higher bids.</p> <p>Participants needed to satisfy certain criteria (financial competency) to be eligible to participate.</p> <p>The award mechanism was a 2 stage process: In October 2020 an Administrative Award took place at the reserve price, since supply exceeded demand per band. Each participant could obtain a minimum amount of 5G spectrum at reserve prices, by stating their interest and the number of lots requested per spectrum band.</p> <p>In December 2020: the auction took place and rights of the remaining spectrum were granted through a simple clock auction per available band.</p> <p>The access obligation was not voluntary for the winning bidders.</p>
Conditions	<p>Radio frequency rights owners of all available bands are obliged to negotiate in good faith and provide access to their networks to any business wishing to operate as an MVNO, at reasonable terms, subject to the provisions of competition law.</p> <p>Radio frequency rights owners are obliged to publish in a prominent place on their website the conditions and terms (excluding prices) for the provision of access to its network, the technical specifications and network characteristics for the implementation of the access service, as well as the contact details for the submission of relevant requests from companies wishing to operate as MVNOs</p> <p>Based on the above the bargaining power of MVNOs increased resulting in an MVNO agreement in Greece in the end of 2021. The MVNO has not started offering its services yet.</p>
Monitoring	<p>According to EETT's decision 1103/2/11.3.2024 (B 1853) "Regulation regarding the determination of terms and conditions for the provision of access and interconnection services", if no agreement is reached, one party may submit a dispute resolution request to EETT and EETT shall issue a binding decision.</p>

Spectrum Award Procedure 2	
FREQ band(s)	410-430 MHz
Access Obl.	No
Consideration	Due to the limited total spectrum bandwidth available for auction (a mere 2x4MHz, with an existing network already utilizing a portion thereof, specifically 2x2MHz), it was concluded that a wholesale access obligation would be unfeasible within such a constrained bandwidth.
Reasoning	Please see response on considerations

Country: Iceland	
Number of spectrum award procedures: 1	
Spectrum Award Procedure	
FREQ band(s)	800, 900, 1800, 2100, 3600 renewal
Access Obl.	No
Considerations	Only obligations according to Article 61 (4), sharing of passive and active infrastructure in market failure areas. Already applied.
Reasoning	There has not been much demand from MVNOs and the few MVNOs have negotiated access without any difficulties. Coverage of network is similar so they don't seek access from each other. In market failure areas Article 61 (4) has been used.

Country: Latvia	
Number of spectrum award procedures: 3	
Spectrum Award Procedures	
FREQ band(s)	Since 2022, there have been two auctions for the allocation of the 1.8 GHz and 3.6 GHz limited bands, as well as one decision regarding the joint use of the 3.6 GHz and 1.8 GHz bands. However, none of these decisions included wholesale access requirements
Access Obl.	No
Consideration	No, so far no such circumstances have been identified, and during public consultations, none of the operators expressed a proposal for the establishment of access obligations that would serve as a basis for considering such a need. Additionally, it should be noted that Latvia has sufficiently developed infrastructure competition with comprehensive electronic communications networks throughout the country, therefore mobile operators do not have a pronounced need for the establishment of such obligations.
Reasoning	Please see the response on considerations



Country: Netherlands	
Number of spectrum award procedures: 1	
Spectrum Award Procedure	
FREQ band(s)	3,5 GHz
Access Obl.	No
Considerations	The ministry referred to the ACM advice of 2019 which was considered still valid.
Reasoning	<p>In summary, ACM did not see enough reasons to add a form of access obligation to the spectrum to be auctioned. An access obligation is a heavy measure which in general only is applied when there is a situation of significant market power (SMP). Such a situation was not considered to be applicable to the Dutch market of mobile communication services. It was also considered that the use of spectrum license requirements to enforce access obligations without ascertaining competition problems might disturb competition and might, as a measure, not be specific enough.</p> <p>(Advies frequentieverlenging 2019, link , see margin numbers 219 and 220)</p>

Country: Romania	
Number of spectrum award procedures: 1	
Spectrum Award Procedure	
FREQ band(s)	Award procedure held by ANCOM between 19.09.2022-15.11.2022 covered 700 MHz, 1500 MHz, 2600 MHz and 3400-3800 MHz bands.
Access Obl.	No

Country: Slovenia	
Number of spectrum award procedures: 4	
Spectrum Award Procedure 1	
FREQ band(s)	700, 1500, 2100 2300, 3600 MHz and 26 GHz
Access Obl.	No
Considerations	<p>Yes, A.5.5.1 Permission of frequency pooling and active sharing, including dynamic spectrum sharing and A.5.5.2 Passive infrastructure sharing and local agreements on national roaming (Art61 EECC)</p> <p>Link to tender documentation: link</p>

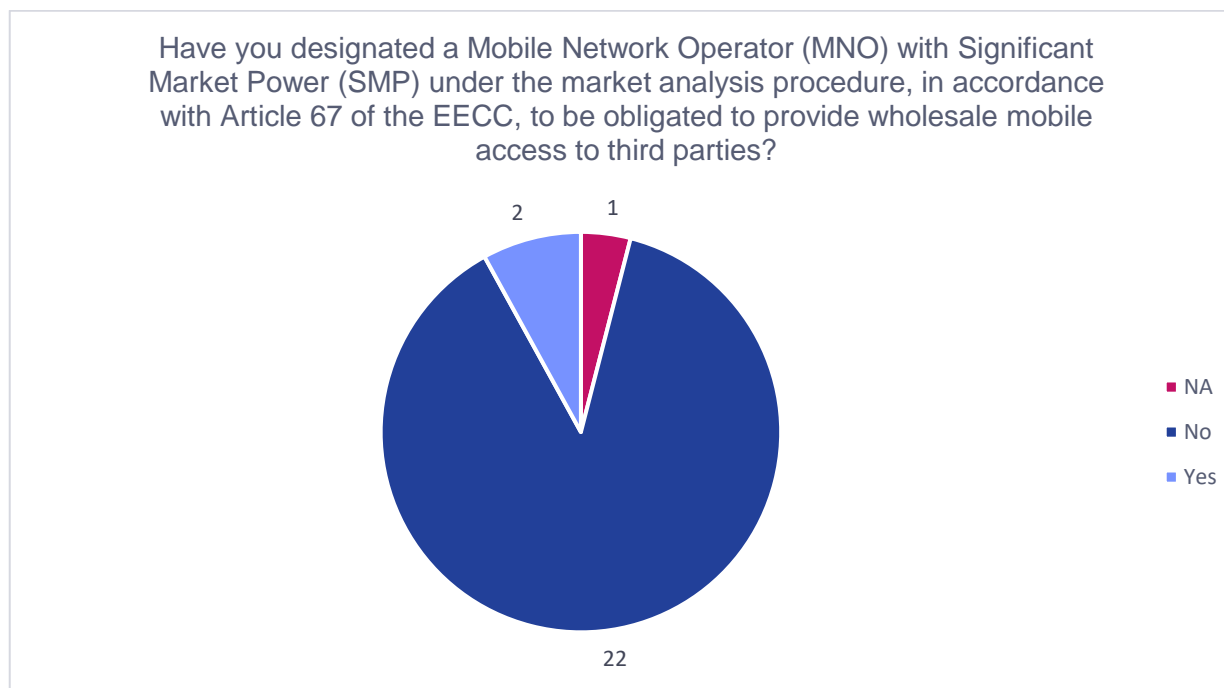
Reasoning	Market was competitive, see [link] , [link] All consultations: [link]
Spectrum Award Procedure 2	
FREQ band(s)	M2M 700 MHz 733-736/788-791 MHz
Access Obl.	No
Considerations	No
Reasoning	For M2M you cannot impose wholesale access obligations
Spectrum Award Procedure 3	
FREQ band(s)	2300-2320, 2390-2400 and 3400-3420 MHz Local
Access Obl.	No
Considerations	Yes, see: [link] A.5.5.1 Permission of frequency pooling and active sharing, including dynamic spectrum sharing and A.5.5.2 Passive infrastructure sharing and local agreements on national roaming (Art61 EECC) Link to tender documentation: [link]
Reasoning	Market was competitive, see [link]
Spectrum Award Procedure 4	
FREQ band(s)	10 GHz, 12 GHz BWA, MMDS
Access Obl.	No
Considerations	No, not relevant for MMDS and BWA
Reasoning	No

Country: Spain	
Number of spectrum award procedures: 3	
Spectrum Award Procedure 1	
FREQ band(s)	26 GHz
Access Obl.	No
Considerations	In the CNMC report IPN/CNMC/040/22 on the draft terms of the 26 GHz spectrum auction, it was explicitly proposed the inclusion of a wholesale access obligation. This proposal was supported by the observation that the 26 GHz band is particularly well-suited for high-capacity, low-latency applications, such as those required by Industry 4.0. The CNMC also pointed out that there could be demand for access from specialized operators who may not be able to acquire spectrum through existing transfer mechanisms. Furthermore,

	CNMC emphasized that 5G technologies—especially network slicing—facilitate the efficient provision of wholesale services to third parties. Link to the report [link]
Reasoning	The Ministry did not take the CNMC's proposal into account in the final version of the auction terms. Link to the auction: [link]
Spectrum Award Procedure 2	
FREQ band(s)	800, 900, 1800, 2100, 2600, 3500 Renewing rights of use for radio spectrum
Access Obl.	No
Consideration	No
Reasoning	The second transitional provision of the General Telecommunications Law (LGTel) states that rights of use for radio spectrum granted prior to its entry into force may have their duration extended up to a total of forty years, including renewals and modifications. However, this extension did not involve a review of the existing rights, and therefore, new wholesale access obligations that were not in force at the time of the modification couldn't be applied retroactively.
Spectrum Award Procedure 3	
FREQ band(s)	1800, 2100, 3500 Divestment after the MasOrange merger
Access Obl.	No
Consideration	No
Reasoning	As part of the MasOrange merger, spectrum divestments were made to comply with spectrum caps. Specifically, MasOrange transferred spectrum to Digi and sold 20 MHz in the 3.5 GHz band to Telefónica, while returning 10 MHz to the state. These transfers were carried out without imposing any wholesale access obligations. Although MasOrange offered a national roaming agreement during the merger clearance process, Digi ultimately chose to maintain its existing hosting agreement with Telefónica.



Question: Have you designated a Mobile Network Operator (MNO) with Significant Market Power (SMP) under the market analysis procedure, in accordance with Article 67 of the EECC, to be obligated to provide wholesale mobile access to third parties? (Market 15 from Commission Recommendation 2003/311/EC) (if yes please provide more details, like level of obligations, remedies, reference offers, access for national roaming etc.)



NA (1)	Ireland
No (22)	Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Italy, Latvia, Malta, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden
Yes (2)	Montenegro, Norway

Figure 3 Designation of Mobile Network Operator (MNO) with Significant Market Power (SMP) under the market analysis procedure, in accordance with Article 67 of the EECC, to be obligated to provide wholesale mobile access to third parties

Complete NRAs' answers are provided in the following table:

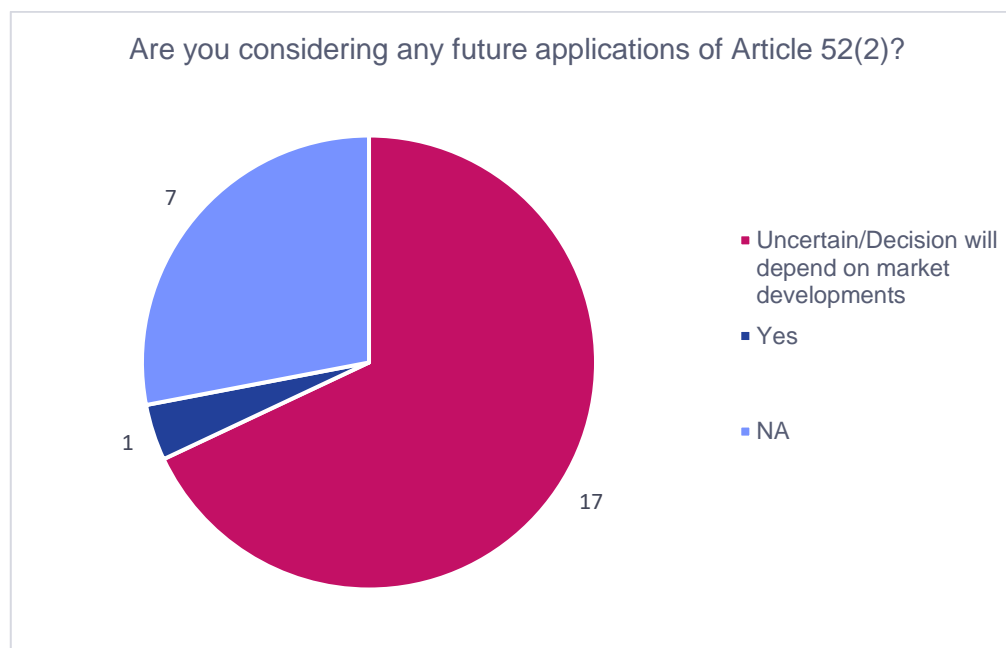
Austria	No
Belgium	Yes, all information is collected on the website. [link]
Croatia	<p>No.</p> <p>As we stated in previous answers, the obligation to provide MVNO access is already prescribed for all operators who have been granted a license to use the RF spectrum at the national level, regardless of whether they are new operators or existing operators. The stated obligation to provide access to the network applies to all MVNO operator models.</p> <p>Holders of RF spectrum use licenses at the national level are obliged to negotiate in good faith with all parties interested in offering services on the market as an MVNO operator and, in the event of a reasonable request, prepare appropriate wholesale conditions within a period of 3 months from the acceptance of a reasonable request. Appropriate wholesale conditions that enable competition must be prepared in the form of a Reference Offer for Network Access to MVNOs.</p>
Cyprus	No, Market 15 has been deregulated.
Czech Republic	NO
Denmark	Answer provided by the Danish Business Authority (DBA), the Danish telecoms NRA with responsibility for ex ante market regulation: "In Denmark, Article 67(2) has not been applied in regard to mobile wholesale access since the then Market 15 was deregulated in 2009.
Estonia	No
Finland	No.
France	No
Germany	No
Greece	No
Iceland	Yes in the past but market 15 is not regulated today. The remedies were at the time (2007-2012); national roaming, co-location, wholesale access, wholesale virtual access, non-discrimination, transparency and reference offer, accounting separation, cost orientation.
Ireland	NA
Italy	No
Latvia	No
Malta	<ul style="list-style-type: none"> • In 2006, the MCA conducted its first market review on the provision of wholesale mobile access and call origination services (ex Market 15/2003 Recommendation). At the time, Vodafone Malta Ltd. and Mobisle Communications Ltd. (owned by Maltacom plc, which was eventually rebranded as GO plc) were designated as having joint Significant Market Power (SMP) in this market. As a result, the MCA imposed several regulatory obligations on both operators, requiring them to: <ul style="list-style-type: none"> - Provide sufficient access to, and use of, specific network facilities to undertakings making reasonable requests for mobile access and call origination services. This included access to mobile network facilities for the deployment of a full MVNO and national roaming. - Offer access obligations on fair, reasonable, and timely terms and conditions, consistent with those provided to their own

	<p>respective retail operations.</p> <ul style="list-style-type: none"> - Apply a cost-oriented pricing methodology to ensure fair and efficient access to their networks and services, supported by a cost-based accounting system. - Implement accounting separation to guarantee that prices charged are non-discriminatory and transparent. <p>Regarding access to third parties, the 2006 market analysis decision required Vodafone Malta and Mobisle Communications Ltd. to negotiate in good faith with any access seeker requesting wholesale access for MVNO services. However, the MCA limited its regulatory intervention to cases where negotiations failed to secure access for full MVNOs. In 2008, Vodafone granted access to two MVNOs, Redtouch Fone and Bay Mobile, which adopted the Enhanced Service Provider Model. Their entry was negotiated on a commercial basis without regulatory involvement.</p> <p>All MVNOs have since ceased commercial operations, possibly also influenced by Melita's market entry as the third MNO in 2007 - 2008, which led to a completely changed retail paradigm and increased competition.</p> <p>Link to MCA 2006 Decision: [link]</p> <ul style="list-style-type: none"> • In 2012, the MCA found sufficient evidence to conclude that the wholesale mobile access and call origination market is effectively competitive and issued a decision withdrawing ex ante regulatory obligations that were implemented on GO and Vodafone Malta by way of its 2006 Decision. <p>Link to MCA 2012 Decision: [link]</p>
Montenegro	Three MNO operators have Joint SMP status, according to relevant market analysis (Market 15). Ekip imposed regulatory obligations, such as transparency and non-discrimination (Reference offers for access to mobile network are published on its web pages). Up to now there is no interest and no agreement concluded with potential MVNO operator. SMP operators are obliged to provide regulatory obligation of access to their networks, network elements and associated facilities, to provide resale of services, collocation etc. Finally, SMP operators have regulatory obligation of price regulation (Charge for call origination from mobile operators in Reference offers are based on BULRIC cost model).
Netherlands	No
Norway	<p>Yes, Nkom has designated Telenor ASA as operator with SMP in the wholesale market for access and call origination on public mobile telephone networks (former market 15). The SMP-decision in Market 15 from 9. April 2024 is our fifth SMP-decision in this market. This decision has a time frame of three years. Expectations for increased market dynamics as a result of the third network's expansion mean that Nkom considers it necessary to conduct a new market analysis earlier than the maximum time frame, which is five years.</p> <p>The main object for the decision is to facilitate infrastructure-based competition among at least three network operators. Norway has two established MNOs, Telenor and Telia, with national coverage. The regulation aims at achieving a third MNO that can discipline the wholesale offer from the two established MNOs. Lyse Tele is building the third network, they have entered into a (regulated) national roaming agreement with Telenor with effect from January 2025.</p>

	<p>Nkom has imposed access obligation for national roaming, MVNOs, service providers and co-location. The obligation is accompanied by requirements for non-discrimination between internal and external provisions, reference offer and public disclosure, accounting separation and price controls. The obligation to publish reference offer does not include publication of prices. Cost-oriented prices is imposed for co-location.</p> <p>The price regulation for MVNO and service provider access is designed as a prohibition against margin squeeze.</p>
Poland	No
Portugal	No.
Romania	No.
Slovenia	No, see link
Spain	Not currently. The 3 MNOs were designated in 2006 as having joint-SMP in Market 15 and an access obligation was in force from 2006 until 2017
Sweden	No



Question: Are you considering any future applications of Article 52(2)? If so, please briefly explain.



Uncertain/Decision will depend on market developments (17)	Austria, Belgium, Czech Republic, Estonia, France, Germany, Greece, Iceland, Italy, Latvia, Malta, Montenegro, Netherlands, Norway, Poland, Slovenia, Sweden
Yes (1)	Portugal
NA (7)	Croatia, Cyprus, Denmark, Finland, Ireland, Romania, Spain

Figure 4 Consideration for any future applications of Article 52(2)

Annex 1 - Art 52(2) questionnaire

Transposition of the EECC

Q1. Which year was Article 52 of the European Electronic Communications Code (EECC) transposed into national law in your country? (open question)

National experience with wholesale access requirements attached to the use of radiofrequency bands before the Article 52(2) was introduced or transposed into the national law

Q2. Did you impose any wholesale access requirements when granting, amending, or renewing rights of use for radio spectrum during frequency authorization processes before the introduction of Article 52(2) of the EECC or its transposition into national law? (if yes, please summarize the rationale or argumentation and provide any other key information in addition with links to relevant documents, award procedures, relevant spectrum bands, etc.) (open question)

National experience with wholesale access requirements attached to the use of radiofrequency bands after the Article 52(2) was transposed into the national law

Q3. How many spectrum award procedures have you conducted in the key public mobile telecommunications service bands since transposing Article 52 into your national legislation? (select one choice)

- ☐ none
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 or more

If there are more than 4 relevant spectrum award procedures in your country please select the 4 procedures that are most relevant in relation to article 52(2) of the EECC.

SPECTRUM AWARD PROCEDURE 1, 2, 3, 4 (repetitive for each spectrum award procedure)

Q4.1. Which frequency bands were covered by this award procedure? (open question)

Q5.1. Did you impose any wholesale access requirements when granting, amending, or renewing rights of use for radio spectrum during this spectrum award procedure? (select one choice)

- ☐ Yes
- ☐ No

Reasoning (answer this question if your answer to Q5.1. is Yes)



Q6.1. Please summarize the reasoning for applying Article 52(2) and provide further information and links to any publicly available documents that served as the basis for your decision to impose wholesale access requirements attached to the use of radio frequency bands (e.g., consultation documents, market analyses, studies, etc.). Please provide a summary of how Article 67(2) was applied and provide links to any publicly available documents. (open question)

Auction design (answer this question if your answer to Q5.1. is Yes)

Q7.1. Please describe the auction design and how the access obligation was implemented in the auction. If the access obligation was voluntary, please describe the incentives to take the voluntary obligation. Furthermore, please provide links to any publicly available documents on the auction design. (open question)

Conditions (answer this question if your answer to Q5.1. is Yes)

Q8.1. Please summarize the conditions attached and provide links to any documents about the conditions for wholesale access requirements attached to the use of radio frequency bands (e.g. prices, non- discrimination, transparency, deadlines, QoS, SLA, ability of the MVNO to change the host or end the contract, conditions related to technological developments and related to QoS, any conditions to address potential refusal to supply certain service, etc.) Please describe the impact on the bargaining power of MVNOs (open question)

Monitoring (answer this question if your answer to Q5.1. is Yes)

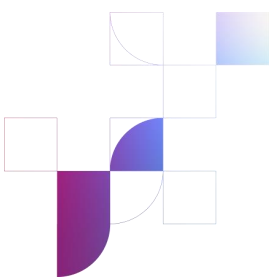
Q9.1. Please summarize the monitoring and enforcement mechanisms and provide links to any documents about monitoring and enforcement of the wholesale access obligations attached to the use of radio frequency bands (e.g. which entity is responsible for monitoring and enforcement, are there any mechanisms for adjustments of the wholesale prices over the time, ...) Please also summarize the legal implementation of the obligation after the award for example, does the authority have the ability to impose a fine if the licence obligation is not fulfilled and how does the authority decide on whether the substance of the obligation is passed on to the MVNO? (open question)

Reasoning (answer these questions if your answer to Q5.1. is No)

Q10.1. Has an access obligation been considered? If so, please summarize the considerations made and provide further information or links to any publicly available documents. (open question)

Q11.1. Please summarize the reasoning for not imposing wholesale access and provide links to any publicly available documents that served as the basis for your decision not to impose wholesale access obligations attached to the use of radio frequency bands (e.g., consultation documents, market analyses, studies, auction design, etc.). Please provide a summary if (and if so how) Article 67(2) was applied and provide links to any publicly available documents. (open question)

Lessons learned (answer this question if any answer of the Q5.1., ... is YES)



Q12. What are the lessons learned when applying Article 52(2)? Have you observed any impact on the mobile market at the wholesale and retail levels? If so, please describe. (open question)

Additional questions

Q13. Have you designated a mobile network operator (MNO) with significant market power (SMP) under the market analysis procedure, in accordance with Article 67 of the EECC, to be obligated to provide wholesale mobile access to third parties? (Market 15 from Commission Recommendation 2003/311/EC) (if yes please provide more details, like level of obligations, remedies, reference offers, access for national roaming etc.) (open question)

Q14. Are you considering any future applications of Article 52(2)? If so, please briefly explain. (open question)

Q15. If you have any confidential information that you would like to share with other BEREC NRAs, but that you don't want to be published outside BEREC please provide this information here. (open question)

