

BEREC Report on the outcome of the public consultation on the draft BEREC guidelines on common criteria for the assessment of the ability to manage numbering resources by undertakings other than providers of electronic communications networks or services and of the risk of exhaustion of numbering resources if numbers are assigned to such undertakings

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Introduction

This report summarises the responses received to the public consultation on the draft BEREC guidelines on common criteria for the assessment of the ability to manage numbering resources by undertakings other than providers of electronic communications networks or services (hereinafter non-ECN/ECS entities) and of the risk of exhaustion of numbering resources if numbers are assigned to such undertakings. The public consultation took place from 14 June 2019 to 28 August 2019.

In response to the consultation on the draft guidelines BEREC received contributions from the following nine stakeholders:

1. A1 Telekom Austria;
2. Asociación de Empresas Operadoras y de Servicios de Telecomunicaciones (ASTEL);
3. COLT;
4. European Competitive Telecommunications Association (ECTA);
5. European Telecommunications Network Operators (ETNO);
6. Fastweb;
7. GSM (Groupe Spéciale Mobile) Association (GSMA);
8. Krajowa Izba Komunikacji Ethernetowej (KIKE);
9. Zentralverband Elektrotechnik- und Elektronikindustrie (ZVEI).

BEREC welcomes the submissions received, has carefully considered them and sets out in this report a summary of such contributions and how they have been elaborated in view of the final Guidelines. The non-confidential versions of the responses are available on BEREC's website.

BEREC responses are focused on the contributions received in relation to the scope of the guidelines on common criteria for the assessment of the ability to manage numbering resources by non-ECN/ECS entities and of the risk to exhaustion of numbering resources if numbers are assigned to such undertakings, submitted to public consultation. Other contributions provided outside the mentioned scope were not taken into account in the guidelines, but may still be noted in this report.

BEREC received only one contribution from non-ECN/ECS entities [**ZVEI**] but this contribution did not provide answers to the questions asked in the public consultation and was related to a specific issue outside of the scope of the draft guidelines.

1. General considerations

In general terms, the stakeholders expressed themselves against the assignment of public numbering resources to non-ECN/ECS entities.

ETNO and **Fastweb** noted that there are no advantages or an objective need for this assignment because the non-ECN/ECS entities must necessarily rely on the electronic communications networks (ECN) or services (ECS) provider's infrastructure and the use of numbering resources must belong to the operation of networks and/or services. In this regard, **ETNO** also considered that ECN/ECS providers will incur an additional cost that needs prior evaluation.

COLT considered that the assignment of numbering resources to non-ECN/ECS entities would be discriminatory because these latter do not have to comply with any public regulatory obligation (legal intercept, emergency services, number portability, etc.) while ECN/ECS providers must ensure compliance with all public regulatory obligations set for in the legal framework with its corresponding costs.

In the case of Member States (MS) deciding to introduce in their own national legislation the possibility to assign public numbering resources to non-ECN/ECS entities, **GSMA** and **A1 Telekom Austria** called on BEREC for a level playing field between ECN/ECS providers and non-ECN/ECS entities when using numbering resources. **Fastweb** called for a coordinated and harmonized approach to foster the development of cross border services.

In the same vein, **ECTA** expressed concerns about the discretionary power of MS set out in Article 93(2) of the European Electronic Communications Code (EECC) and called BEREC to require preventing any competitive distortion which may arise between non-ECN/ECS entities and ECN/ECS providers and as a result of OTA (over the air) and embedded SIM (eSIM) developments. For **ECTA**, it was also important to preserve and develop opportunities for ECN/ECS providers to shape the future provisioning of number-based connectivity solutions.

ASTEL considered that there is no need to issue guidelines on the use of public numbering resources by non-ECN/ECS entities.

In relation with the scope of the BEREC guidelines, **A1 Telekom Austria** expressed the view that these should focus only on the criteria for assigning numbering resources to non-ECN/ECS entities and the criteria for assessing the risk of exhaustion, and shall not address recommendations on number ranges possibly assigned to non-ECN/ECS entities. **ETNO** remarked that interpersonal communications services (ICS) fall out of the scope of these guidelines.

ASTEL and **COLT** shared the understanding that the assignment of public numbering resources to non-ECN/ECS entities should only be envisaged for the provision of services which are not ECN/ECS and mentioned that National Regulatory or other Competent Authorities (NRAs/CAs) shall identify in advance which services might need these public numbering resources.

Moreover, **ASTEL**, **Fastweb**, **ECTA** and **COLT** considered that NRAs/CAs must ensure the fulfilment of different conditions previously defined on objective grounds, such as the use of numbering resources should be only limited to services used by themselves, and not for providing services to other parties. **ASTEL**, **COLT** and **ECTA** considered that NRAs/CAs must define a contractual framework relationship between the ECN/ECS providers and the non-ECN/ECS assignee, to avoid discrimination.

Regarding the number ranges which may be used by non-ECN/ECS entities, **ETNO** considered that, for the provision of Machine-to-Machine/Internet of Things (M2M/IoT) services, the rationale for E.164 number portability is unclear and suggested that M2M/IoT users would just configure new E.164 numbers during the service activation phase following any operator switch. This would also lessen any burdens to enable the lengthening of national E.164 numbers for the provision of the mentioned services.

On the other hand, **ECTA** and **GSMA** called on BEREC to define a mechanism to avoid the risk of exhaustion of numbering resources.

Falling out of the scope of the present BEREC guidelines, **ASTEL** asked for BEREC guidelines on the general use of numbering resources in order to ensure a real level playing field across the European Union (EU) on the conditions to be fulfilled by the ECN/ECS providers. **COLT** also called BEREC for an engagement to resolve the current market problem related to the efficient usage of numbering resources and further clarifications on other numbering issues (for instance, nomadic use of VoIP services and emergency obligations, among others).

BEREC Response:

To obtain the greatest benefit from developments across the EU, the EECC explicitly addresses the possibility for MS to grant rights of use for numbering resources to non-ECN/ECS entities in the light of the increasing relevance of numbering resources for various M2M/IoT services (Recital 250), if adequate numbering resources are available to satisfy current and foreseeable future demand. This possibility of assignment is also to support the development of services based on numbering resources that have a right of extra-territorial use in the case of non-interpersonal communications services (Recitals 246 and Article 93(4) of the EECC). It is to be mentioned that the previous regulatory framework did not explicitly forbid or allow the assignment of numbering resources to non-ECN/ECS entities. In this respect, some MS interpreted that it was possible to assign numbering resources also to such entities for the provision of specific services

However, the EECC does not foresee an obligation to assign and the MS are indeed still free not to assign numbering resources to non-ECN/ECS entities nationally, as they see fit.

In order to achieve a consistent implementation of these new provisions across the EU, the EECC mandates BEREC to adopt by 21 June 2020, after consulting stakeholders and in close cooperation with the Commission, guidelines on common criteria for the assessment of the ability to manage numbering resources by non-ECN/ECS entities and of the risk of exhaustion of numbering resources if numbering resources are assigned to such undertakings.

BEREC remarks that the aim of the guidelines is to focus on providing common criteria for the assessment of the ability of non-ECN/ECS entities to manage numbering resources and of the risk of exhaustion of numbering resources if numbering resources are assigned to such undertakings. In other words, these guidelines shall not apply to the provision of ECN/ECS and the primary assignment of numbering resources to ECN/ECS providers or to the secondary assignment to end users for the provision of ECS. NRAs/CAs may grant rights of use for numbering resources from the national numbering plans for the provision of specific services to non-ECN/ECS entities on a non-discriminatory basis pursuant to Article 93(2) of the EEC. In this regard, a mandatory pre-condition is that the non-ECN/ECS entities shall demonstrate their need for such numbering resources as well as their ability to manage the numbering resources. Those entities must also comply with any relevant requirements set by the respective NRA/CA.

Accordingly, BEREC considers crucial to ensure a fair level playing field between the ECN/ECS providers and the non-ECN/ECS entities in order to prevent competitive distortions within the market.

To avoid overlap throughout this report, please see BEREC responses to specific contributions hereinafter.

1.1. OTA

ETNO urged BEREC to provide indications to NRAs/CAs to privilege OTA solutions for eSIMs reconfiguration, avoiding other solutions that would artificially exhaust Mobile Network Codes¹ (MNCs) since they are scarce resources and should be preserved.

GSMA stated that when considering the need to extend the use of numbering resources, BEREC should safely assume that for M2M/IoT services, the OTA solution is already an available option to most providers and use cases. **GSMA** strongly advised against the assignment of MNCs to non-ECN/ECS entities due to the risk of scarcity and expressed the view that the remote provisioning of eSIMs would be more efficient and likely to imply lower implementation costs. The remote provisioning of eSIMs addresses the concerns regarding the ability to switch connectivity providers for IoT connected devices. The use of a remote provisioning capability provides a solution that enables providers to select a connectivity partner at a later stage in the product lifecycle as well as facilitates the ease of switching connectivity provider.

Fastweb shared the belief that growing availability of remote provisioning for eSIMs prevents the so-called lock-in effect, and ensures that the switching process is smooth, and compliant with all domestic applicable regulations. Moreover, **Fastweb** reported that at the same time, current regulatory framework ensures that players that intend to enter the market, can access a very favourable authorization regime. For the above reasons, there are currently no use cases demanding direct assignment to non-ECN/ECS entities: in fact, on the contrary if a non-ECN/ECS entity intends to provide services that require numbering resources, it already enjoys an entire variety of solutions to address the technical design of its services, without the objective need of seeking direct assignment of scarce resources without qualifying as ECN/ECS provider.

A1 Telekom Austria advised against assigning MNCs to non-ECN/ECS entities due to the risk of resource scarcity and because the promotion of OTA solutions regarding M2M services is considered as a good alternative. **A1 Telekom Austria** did not see any clear added value in sharing MNCs and, considering the possible risks as not entirely transparent, advised against it.

ECTA called upon BEREC to avoid creating a situation in which non-ECN/ECS entities could gain an undue advantage over ECN/ECS providers, due to differential treatment as regard access to numbering resources or the obligations and conditions attached to those numbering resources. Moreover, **ECTA** called upon BEREC to ensure that no distortions to competition arise as a result of OTA and eSIM developments. **ECTA** was very clear in considering that potential assignment of public numbering resources for specific service provision by non-ECN/ECS entities should not lead to a situation in which companies could be in a position to prioritise their own services on hardware/operating systems, or impose or give preference to their own choice of underlying network/service provider.

¹ ITU-T Recommendation E.212.

BEREC Response:

BEREC notes that three stakeholders [A1 Telekom Austria, ETNO, GSMA] believe that OTA solutions are readily available and that these should be used instead of assigning E.212 resources to non-ECN/ECS entities.

BEREC sees two main options in case a MS decides to assign numbering resources to non-ECN/ECS entities:

- 1) assignment of E.164 numbering resources to non-ECN/ECS entities and promotion/use of OTA; or
- 2) assignment of numbering resources needed to non-ECN/ECS entities without specifying the type and analysing what resources to assign on case by case basis.

BEREC believes that the choice of what types of numbering resources should be assigned to non-ECN/ECS entities should be up to each MS, hence this issue is held to be out of the scope of these guidelines.

One of the stakeholders [ECTA] alerted about the need to ensure that no distortions to competition arise as a result of OTA developments. Due to the assignment of numbering resources, non-ECN/ECS entities should not gain indeed an undue advantage over ECN/ECS providers. Considering that it is up to each MS to decide which numbering resources may be assigned to non-ECN/ECS entities, if any, BEREC believes that each MS is responsible to ensure that no distortions to competition arise as a result of OTA solutions and eSIM developments.

1.2. E.212 for private network

ZVEI produced as contribution part of a document sent to BNetza during a public consultation related to Mobile Country Code (MCC) 999. **ZVEI** pointed out that the MCC 999 has been defined by ITU-T to be employed for internal use within private networks. **ZVEI** explained that it is not possible to guarantee a unique Public Land Mobile Network IDentifier (PLMN ID), as the MCC 999 can be used by an entity without having to apply for it. Non-unique network IDs can lead to end-user devices having no reception or can negatively impact the performance of private networks.

ZVEI presented some options to be simultaneously explored and pursued for private networks.

ZVEI also raised the issue that in this specific case related to the IMSI numbering plan, non-ECN/ECS entities should be entitled to apply for their own public IMSI blocks for use in local networks and consequently an assignment of numbering resources should be foreseen.

BEREC Response:

BEREC notices that the contribution on MCC 999 is not related to the criteria for the assignment of numbering resources to non-ECN/ECS entities.

BEREC believes that judging on the solutions to be applied in this specific case is up to each MS. Consequently, each MS has to decide if and which numbering resources could be assigned to non-ECN/ECS entities.

2. Comments relating to question 1

In the consultation BEREC asked:

In your opinion, what could be the use cases in which a non-ECN/ECS entity manages the numbering resources by itself without becoming an ECN/ECS provider and without a support of an ECN/ECS provider in the two alternative scenarios a) and b) above?

ETNO expressed the opinion that *there are no use cases in which a non-ECN/ECS entity can manage the numbering resources by itself (without becoming an ECN/ECS provider) and without a support of an ECN/ECS provider in both the scenarios a) (OTA is used) and b) (OTA is not used)*. **ETNO** also emphasised that, if the assignees are not authorized operators or service providers, they will not be able to directly use the assigned numbering resources and consequently to ensure regulatory compliance.

ETNO also mentioned that the non-ECN/ECS entities are users from the point of view of operators and service providers and, if they have numbers, they have *to negotiate a commercial and voluntary numbering hosting agreement with an operator or service provider that will be able to configure and manage the numbers on behalf of the undertaking*. The numbers to be assigned must be compatible with the numbering structure managed by the operators in order to avoid unsustainable impacts on the operators' systems, instability in technical solutions and interoperability problems.

GSMA and **A1 Telekom Austria** mentioned that they have no knowledge of such use cases and **GSMA** also expressed the view that there is no current demand.

Fastweb noted that there are no use cases per se requiring the use of numbering resources without becoming an ECN/ECS provider or without the support of ECN/ECS providers irrespective of whether OTA is available or not. **Fastweb** also referred that the eSIM prevents the lock-in effect ensuring that the process of switching complies with the applicable legislation and regulation.

Fastweb requested that the guidelines should clarify that for the time being no use cases require the use of numbering resources without becoming an ECN/ECS provider or without the support of an ECN/ECS provider. However, the NRAs/CAs should, with a case by case approach, determine if there is a real need of this kind of direct assignment to non-ECN/ECS entities.

COLT considered that the ability of a non-ECN/ECS entity to manage the numbering

resources by itself is very limited or inexistent, because managing numbering resources is technically complex and requires significant administrative and organizational resources in order to comply with the regulatory requirements. Due to the inexperience of the non-ECN/ECS entities on numbering management and relatively limited resources, **COLT** expressed itself against extending assignment and sub-assignment to more parties, in particular if those numbering resources are to be used to provide voice services. However, should this approach not be considered, **COLT** presented three minimum conditions that should be met, as follows:

1. The service to be provided with such numbering should not be in any case a service under the category of ECN/ECS. Such services must be defined in advance by the NRA/CA.
2. The non-ECN/ECS entities must use such numbering for their own service, in other words, reselling and sub-assignment should not be allowed.
3. The NRA/CA must define a framework of relationships between the 'host' and the non-ECN/ECS entity to avoid any discrimination against the ECN/ECS providers.

ASTEL also expressed the need to establish criteria similar to the above mentioned minimum conditions presented by **COLT** if a NRA decides to assign numbering resources to non-ECN/ECS entities.

ECTA mentioned that Recital 250 of the EECC refers to the IoT services but does not detail their boundary with ECS. The examples identified by BEREC appear to be provided in exchange of remuneration, in particular if the services include a transmission component or the non-ECN/ECS entities take responsibility for transmission or adequate functioning toward their customers which, in their opinion, is likely to meet the definition of ECS. In the case of private networks and services provided to closed user groups, public numbering resources are not needed since they can use and manage their own addressing scheme.

From this information **ECTA** mentioned that legitimate use cases are difficult to identify and the examples given by BEREC are likely to qualify as ECS in accordance with Article 2(4) of the EECC; hence, they questioned whether the assignment to non-ECN/ECS entities would be justified.

ECTA set out that it is *fully satisfied that providers of specific non-ECN/ECS services in the Internet of Things and other areas can readily rely on numbering management services supplied to them by ECN/ECS providers. BEREC and the competent authorities in the Member States should therefore not curtail, but promote business opportunities for electronic communications providers.* Regarding the electronic communications providers, **ECTA** considered that they are, and have shown to be, *entirely capable of offering numbering management and provisioning solutions to new specialist providers, whether for Internet of Things services or for the examples given by BEREC and called upon BEREC to carefully validate any non-ECN/ECS use cases to objectively identify those special situations, if any, in which their providers might require public numbering resources from national numbering plans.*

BEREC Response:

BEREC notes that all the respondents to this question [A1 Telekom Austria, ASTEL, COLT, ECTA, ETNO, Fastweb, GSMA] believe there is no use case in which a non-ECN/ECS entity manages the numbering resources by itself without becoming an ECN/ECS provider or without the support of an ECN/ECS provider. This is for both the scenarios a) OTA is used and b) OTA is not used.

Some respondents shared doubts that any use cases may exist, either because such use cases would constitute an ECN/ECS (consequently the non-ECN/ECS entity would have to become an ECN/ECS provider) or because the non-ECN/ECS entity would need the support of an ECN/ECS provider to implement the use case.

Although none of the answers to question 1 identified any use case for assigning numbering resources to non-ECN/ECS entities and notwithstanding that no non-ECN/ECS entities replied to questions asked in the public consultation, BEREC guidelines provide the criteria for assigning numbering resources in the event that use cases arise in the future, e.g. eHealth services, truck fleets or connected cars services, i.e. with potentially a huge customer base.

This assignment to non-ECN/ECS entities, in particular for M2M services, can be either for national or extra-territorial use, ensuring support to the general objective of contributing to the development of the internal market set out in Article 3(2.c) of the EECC.

BEREC notes that one of the respondents [COLT] believed that a non-ECN/ECS entity may have a limited ability in managing the numbering resources by itself due to its complexity and to the fact that the managing of the numbering resources requires significant administrative and organizational resources in order to comply with the regulatory requirements.

With regard to COLT's concern, BEREC wishes to stress that in any case, the non-ECN/ECS entities would have to fulfil the European and national legal legislation and regulation associated with the assignment and usage of the numbering resources. Moreover, the respective NRA/CA should analyse the numbering request in order to determine if the non-ECN/ECS entity is eligible for the numbering assignment. Either way, if problems arise and if it is known that the entity is not fulfilling the regulatory requirements, the NRA/CA avails of the right instruments to act in that regard.

3. Comments relating to question 2

In the consultation BEREC asked:

In your opinion, what could be the use cases in which a non-ECN/ECS entity manages only certain aspects of the numbering resources without becoming an ECN/ECS provider and relies on the help of an ECN/ECS for the remaining management, based on a contractual agreement, in the two alternative scenarios of: a) Use of the assigned resources in a scenario where OTA is used; and b) Use of the assigned resources in a scenario where OTA is not used?

All respondents to this question [**A1 Telekom Austria, ASTEL, COLT, ECTA, ETNO, Fastweb, GSMA, KIKE and ZVEI**] agreed that it is not necessary for numbering resources to be assigned directly to non-ECN/ECS entities. It was argued that numbering provision was being managed satisfactorily by ECN/ECS providers.

ECTA commented that the specific services envisaged by the EECC and by BEREC would likely qualify them as ECS in accordance with Article 2(4) of the EECC and would seem to rely on a provider of ECN/ECS for all or parts of the transmission. The provider would be able to supply the necessary numbering resources from public national numbering plans, as is the case for M2M services today.

Within the overall position of not supporting the direct assignment of numbering resources to non-ECN/ECS entities, the following comments were provided, in the event that NRAs/CAs decide to proceed with such assignments:

1. the non-ECN/ECS entity should manage only certain aspects of the numbering resources and would need to rely on the help of an ECN/ECS provider for number management purposes based on a contractual hosting agreement to ensure interconnection and availability [**A1 Telekom Austria, COLT, ETNO**]. However, **COLT** did not see any use case in which an ECN/ECS provider could be incentivised to manage any aspect of a numbering resource that has been allocated to a non-ECN/ECS entity.
2. the NRA should define the regulatory regime applicable to the service and to the relationship between the holder of the numbering resources (i.e. the non-ECN/ECS entity) and the operator hosting the numbering resources on its network. The applicable rules and regulations should be subject to public consultation with all interested parties [**ASTEL**]. The NRA must define a framework of relationships between the 'host' provider and the non-ECN/ECS entity to set out the costs, responsibilities, the obligations and the liabilities of each party, on a fair and non-discriminatory basis to avoid any discrimination against the ECN/ECS provider [**COLT**]. However, **COLT** considered that such a framework would be unachievable.
3. if non-ECN/ECS entities are assigned numbering resources, they must use such numbering resources for their own service and not for reselling or sub-assignment [**A1 Telekom Austria and ASTEL**].

4. BEREC should carefully validate any use cases to objectively identify special situations, if any, in which non-ECN/ECS entities might require public numbering resources [ECTA]. This might include specific cases of M2M/IoT applications, if justified [ETNO]. GSMA commented that services related to utilities, smart metering and the automotive industry may have an interest in having a number associated, but that the preferred model is to cooperate with a provider of ECN/ECS on a contractual basis to provide numbering resources, ensure connectivity and coverage. KIKE noted that the draft BEREC guidelines indicated that IoT devices connected to telecommunication networks will have their own numbering resources. The numbering resources could be assigned directly to the production or management company of the equipment either sending or receiving messages. ICS should in principle be excluded from the guidelines [ETNO].
5. Entities requesting a direct assignment of numbering resources might choose to offer their services on the market in their proper name and under their own conditions. This could result in these undertakings becoming ECN/ECS providers [ETNO].

BEREC Response:

BEREC notes that the respondents [A1 Telekom Austria, ASTEL, COLT, ECTA, ETNO, Fastweb, GSMA, KIKE and ZVEI] are of the opinion that there are no use cases in which benefits can be identified associated to assigning numbering resources directly to a non-ECN/ECS entity. However, future use cases may arise and BEREC guidelines provide the criteria for assigning numbering resources to non-ECN/ECS entities by NRAs/CAs.

BEREC recognises that NRAs/CAs may decide to assign numbering resources for specific services to non-ECN/ECS entities, as this is provided for in the EECC. In the event that direct assignment of numbering resources is made, the model could be that the non-ECN/ECS entity manages only certain aspects of the numbering resources and relies on an ECN/ECS provider for the remaining numbering management, through a contractual agreement.

To avoid overlap throughout this report, please see below BEREC responses to question 4 about the conditions to be fulfilled by non-ECN/ECS entities.

4. Comments relating to question 3

In the consultation BEREC asked:

Please also indicate, for the presented use cases, what types of numbering resources (i.e. E.164, E.212, E.118, Signalling Point Codes (Q.708) and Operator identifiers (e.g. M.1400)) should be assigned to non-ECN/ECS entities. If possible, explain why or why not?

A1 Telekom Austria considered that this question should not be the subject of the guidelines. The guidelines should focus only on the criteria for assigning numbering resources to non-ECN/ECS entities and criteria for assessing the risk of numbering exhaustion.

Apart from arguing that non-ECN/ECS entities could not manage numbering resources without the support of ECN/ECS provider, **COLT** also claimed that such framework is not achievable as the assignments of numbering resources to non-ECN/ECS entities will necessarily lead to discrimination against ECN/ECS providers, with costs (including, for example, registration, notification fees) not applying to non-ECN/ECS entities. Moreover, assigning numbering resources directly to non-ECN/ECS entities would lead to an inefficient use of numbering resources. Firstly, assigning a number to a non-ECN/ECS entity will increase the complexity of numbering management (with the introduction of more parties into the contractual chain till the end-user). Secondly, using smaller blocks of numbers, as the non-ECN/ECS entities would likely need a relatively smaller amount of numbers, will lead to a greater fragmentation of number ranges (and consequently, there will be more unused sub-blocks). Therefore, this point could limit the ability of assigning long blocks to larger operators. Furthermore, assigning numbering resources to non-ECN/ECS entities will be inconsistent with NRAs' efforts to control unsolicited and nuisance calls.

ECTA reported that they have put *considerable effort* into thinking about use cases for which numbering resources from a public national numbering plan would legitimately be required, but where no ECN or ECS would be provided. **ECTA** concluded that legitimate use cases are difficult to identify, and therefore, it is highly questionable whether assignment of public national numbering resources for specific service provision by non-ECN/ECS entities can be justified. Furthermore, **ECTA** expressed full satisfaction in relation to the fact that *providers of specific non-ECN/ECS in the Internet of Things and other areas can rely on numbering management services supplied to them by ECN/ECS providers*. BEREC and the NRA/CA in the MS should therefore not curtail, but promote business opportunities for ECN/ECS providers. **ECTA** considered that ECN/ECS providers are entirely capable of offering numbering management and provisioning solutions to new specialist providers, either for IoT, or for the examples given by BEREC. **ECTA** therefore called upon BEREC to carefully validate any non-ECN/ECS use cases and to objectively identify special situations, if any, in which their providers might require public numbering resources from national numbering plans.

ETNO commented that there are neither evident scenarios nor advantages of direct assignment of numbering resources to users of public networks and services, apart from, possibly, the specific case of M2M/IoT applications, if duly justified. ICS should in principle be excluded from these guidelines regarding numbering assignment to non-ECN/ECS entities. According to **ETNO**, there are no use cases at present that justify assigning numbering

resources or identifiers of any kind to non-ECN/ECS entities. **ETNO** considered that all the numbering resources related to the availability of a network or internal to networks (point codes, M.1400), as well as those already assigned to entities which are not necessarily operators (E.118), should be excluded from these guidelines. For E.164 and E.212 numbering resources, the previous answers apply. In addition, E.212 identifiers can already be used extra-territorially, as defined in ITU-T Recommendation E.212. Therefore, to guarantee global interoperability, BEREC should indicate the obligation to comply with the ITU-T indications in Recommendation E.212.

In case a MS decides upon the possibility to assign numbering resources to entities which are not authorized under the current regime as ECN/ECS providers, **Fastweb** recommended that the NRA/CA should primarily assess the objective need for assigning such resources. In this sense, the NRA/CA should preliminarily investigate and assess if the request stemming from a non-ECN/ECS entity is objectively justified on a case by case basis, with specific reference to the use case and to the numbering resources requested. In order to provide appropriate guidance to NRAs/CAs, BEREC guidelines should avoid identifying classes of resources that might be made available, while on the other hand provide a clear methodology to help NRAs/CAs single out on a case by case basis those cases that can be adequately addressed with the provision of services by ECN/ECS providers. In the end of its response, as foreseen by the standardization process, **Fastweb** concluded that BEREC guidelines should provide appropriate guidance to NRAs/CAs that should assess whether numbering resources allocated to ECN/ECS providers are fit for being used by non-ECN/ECS entities based on management by the former; therefore, before NRAs/CAs allow for direct assignment to non-ECN/ECS entities, the effective necessity should be accurately verified.

GSMA considered that there is no need for the assignment of numbering resources to non-ECN/ECS entities by NRAs/CAs and so did not support it. Specifically, **GSMA** strongly advised against the assignment of MNCs to non-ECN/ECS entities due to the risk of scarcity. In consequence, the E.212 identification plans should not be modified, and in the case of assignment to non-ECN/ECS entities, compliance with international interoperability standards as defined by ITU-T, ETSI and GSMA should be nationally assured and preserved beforehand. **GSMA** held that the remote provisioning of eSIMs is more efficient and is likely to result in lower implementation costs. The remote provisioning of eSIMs addresses concerns regarding the ability to switch connectivity providers for IoT connected devices. The use of a remote provisioning capability provides a solution that enables providers to select a connectivity partner at a later stage in the product lifecycle as well as facilitates the ease of switching connectivity provider. According to **GSMA**, it is already possible for non-ECN/ECS entities to acquire E.164 and E.212 resources based on ITU and some NRA/CA decisions. In some jurisdictions, non-ECN/ECS entities already today acquire E.118 identifiers – principally for the manufacture of eSIMs, however this is an incorrect use of E.118 and **GSMA** is working to correct this. The E.118 values should be used for ICC-ID only to ensure the functioning of global mobility management and global roaming. BEREC is requested to indicate this in its guidelines. Finally, Signalling Point Codes (Q.708) and Operator Identifiers (M.1400) are all related to the availability of a network or are internal to networks, and should as such be excluded from the guidelines.

ETNO mentioned that there are no real cases in which E.118 identifiers can be used directly by end-users. **ETNO** also said that only the use of E.118 values (for ICC-ID use only) inside the mobile networks is technically restricted to entities that have a mobile network and/or provide mobile services, to guarantee the functioning of global mobility management systems and global roaming. **ETNO** considered that BEREC should indicate this in the guidelines, identifying use cases when E.118 identifiers can be used directly by end-users.

Fastweb referred that NRAs/CAs should primarily assess the objective need of assigning such resources and that in this sense, NRAs/CAs should preliminarily investigate and assess if the request stemming from a non-ECN/ECS entity is objectively justified on a case by case approach, with specific reference to the use case and with the numbering resources requested. In order to provide appropriate guidance to NRAs/CAs, BEREC guidelines should avoid identifying classes of resources that might be made available, while on the other hand, provide a clear methodology to help NRAs/CAs to single out on a case by case approach those cases that can be adequately addressed with the provision of services by ECN/ECS providers.

Regarding the assignment of various types of numbering resources, including E.118, **A1 Telekom Austria** expressed the view that this should not be addressed in the guidelines. Nor should the guidelines address which numbering resources should be assigned to non-ECN/ECS entities, because this should be up to individual decisions by each MS.

BEREC Response:

BEREC notes that no use cases were identified by the respondents and so, no types of numbering resources have been identified to be assigned to non-ECN/ECS entities.

One respondent [A1 Telekom Austria] mentioned that the guidelines should not specify which numbering resources should be assigned, while other respondents [ETNO, GSMA] mentioned that some numbering resources should be excluded from the guidelines. BEREC believes that MS or NRAs/CAs shall decide which type of numbering resources, if any, should be assigned to non-ECN/ECS entities on the basis of their need, hence it seems out of the scope of the present exercise to suggest in the guidelines to limit the assignment to some specific types of numbering resources. However, NRAs/CAs remain free to decide to limit the assignment only to ECN/ECS providers or decide to limit the assignment to non-ECN/ECS entities to specific types of numbering resources.

One respondent [Fastweb] recommended that NRAs/CAs should primarily assess the objective need of assigning such resources. In this sense, NRAs/CAs should preliminarily investigate and assess if the request stemming from a non-ECN/ECS entity is objectively justified with a case by case approach, with specific reference to the use case and with the numbering resources requested. BEREC agrees that this is one of the criteria that shall be fulfilled.

BEREC notes that for E.118 one stakeholder [ETNO] believed that there are no use cases where it is justified to assign such numbering resources to non-ECN/ECS entities and also

asked BEREC to identify such use cases. Another stakeholder [GSMA] asked BEREC to indicate that E.118 numbering resources should be only used for generating ICC-ID, while they should not be assigned to the manufacturer of eSIMs, as in the past, for generating the Embedded Universal Integrated Circuit Card Identifier (EID). Moreover, one respondent [A1 Telekom Austria] believed that the guidelines should not address which number ranges should be assigned to non-ECN/ECS entities, because this should be up to individual decisions by each MS.

BEREC agrees that it is up to each MS to decide which numbering resources, if any, can be assigned to non-ECN/ECS entities, on the basis of the necessity across different scenarios. For example, the assignment of E.118 numbering resources for the manufacture of eSIMs (that is the assignment of numbering resources for the EID) should be evaluated, also on the basis of what is decided by ITU-T.

5. Comments relating to question 4

In the consultation BEREC asked:

Please, describe your opinion on this section and in particular with respect to the proposed criteria for the assessment of the ability to manage numbering resources.

A1 Telekom Austria stressed that the criteria should be distinguished as either general criteria or number-specific criteria. The examination should always be made on a case by case basis in order to check whether the applicant complies with the relevant rules, at least also taking into account the need to ensure efficient use. Additionally, **A1 Telekom Austria** expressed that it is the matter of the NRA/CA (i) to identify any new numbering ranges and to take into account the extraterritorial use of numbering ranges in the process, (ii) to check or revise the length and quantity of the allocated numbering resources and (iii) to make specifications to non-ECN/ECS entities regarding cooperation in case of fraud and misuse of telephone numbers.

Concerning the term *ability to manage*, **A1 Telekom Austria** argued that interconnection is only possible through network operators and therefore there can be no direct interconnection obligation for non-ECN/ECS entities, but only an obligation to ensure interconnection, interoperability and thus accessibility for end-users through cooperation with ECN/ECS providers. The other requirements of the ability to manage are supported by **A1 Telekom Austria**.

A1 Telekom Austria noted that all sub items of the *basic information* to be provided by the applicant are meaningful and important. Additionally, **A1 Telekom Austria** expressed the opinion that it is inherent to the system that non-ECN/ECS entities should be obliged to provide more information during the application process than ECN/ECS providers. Nevertheless, **A1 Telekom Austria** raised the issue that it is practically not common today to be able to name the host at the time of a number application. Therefore, it would be sufficient and also economically more useful to conclude a contract with a host after the assignment of telephone numbers. With regard to *Evaluations to be made by the NRA/CA*, **A1 Telekom Austria** questioned when the evaluation has to take place and suggested more clarity.

ASTEL, **ECTA** and **Fastweb** generally stated that the non-ECN/ECS entity has to demonstrate that it can comply with the applicable regulations. According to **ECTA**, any non-ECN/ECS entity should be subject to a separate administrative determination establishing its capacity to manage numbering resources. This determination should be subject to monitoring and regular review.

Furthermore, the non-ECN/ECS entity shall be solely responsible for complying with the applicable conditions and obligations [**ASTEL**, **ECTA**, **ETNO**], even when it enters into a contract with an ECN/ECS provider for hosting the numbering resources. In this regard, **ECTA** requested BEREC for clarification regarding the criterion *ECN/ECS provider(s) that will host the numbering resources*. Other than that, **ECTA** broadly agreed with the criteria described in the draft BEREC guidelines.

According to **ASTEL** and **COLT** the following criteria should be established:

1. the service for which numbering resources are assigned should not be an ECN/ECS;
2. the assignees should use the numbering resources for their own use (no sub-assignment);
3. before the assignment of numbering resources, the NRA/CA should define (i) which IoT services need numbering resources and (ii) what are the conditions and the relationship between the non-ECN/ECS entity and the ECN/ECS providers that will host the numbers, including the respective responsibilities.

On top of that, **COLT** shared the view that non-ECN/ECS entities cannot manage resources without the support of an ECN/ECS provider and that the latter, however, would be discriminated against in case of having to assume all the administrative obligations and costs that numbering management brings. In addition, **COLT** considered that the proposed criteria for the *ability to manage* numbering resources do not address the risk of discrimination against ECN/ECS providers so that ECN/ECS providers have no incentives to technically manage the numbering resources. **COLT** cannot imagine a scenario where a fair and non-discriminatory framework may be achieved in case of assigning numbering resources directly to non-ECN/ECS entities, without reconsidering the actual obligations applied to telecom operators.

ETNO demanded that non-ECN/ECS entities should add an additional justification why the use of numbering resources allocated to ECN/ECS providers would not be sufficient.

Fastweb considered that the information to be provided by the applicant as listed in the consulted document may represent a minimum threshold. **Fastweb** had the opinion that NRAs/CAs should primarily verify if there is an objective need of direct assignment rather than other solutions involving the assignments to ECN/ECS providers. The application of the non-ECN/ECS entities should be denied if there is no evidence of the objective necessity. **Fastweb** stressed that the applicant needs to be recognized by law as a legal entity with a legal representative capable of being held liable for the appropriate use of the resources, and of being found accountable in the events of misuse or mismanagement of numbering resources.

GSMA noted that NRAs/CAs should ensure a level-playing field with regard to criteria applicable to ECN/ECS providers and non-ECN/ECS entities. According to **GSMA**, special attention should be given to the increased risk of fraud and security with the inclusion of entities, which are not subject to the same level of security demands as authorized ECN/ECS providers. Additionally, **GSMA** mentioned that NRAs/CAs can help communications providers reduce the risk of number resource misuse by enforcing stricter management of national numbering resources.

KIKE noted that the assignment of numbering resources to non-ECN/ECS entities for the purpose of IoT must be carried out on the same basis as the assignment of numbering resources to ECN/ECS providers.

ZVEI generally supported a streamlined allocation process that should be as simple as possible (minimal *bureaucratic red tape*). According to **ZVEI**, at a national level the allocation could be linked to the application for local frequencies.

BEREC Response:

BEREC observes that one stakeholder [ECTA] broadly agrees with the criteria for the assessment of the ability to manage numbering resources for non-ECN/ECS entities set out in the consulted draft guidelines. The other stakeholders [A1 Telekom Austria, ASTEL, ETNO, Fastweb GSMA, KIKE, ZVEI] neither supported nor rejected the individual criteria explicitly. In response to KIKE and to several general calls for a fair level playing field [COLT, GSMA] BEREC observes that several of the proposed criteria are the almost the same already applied to ECN/ECS providers before assigning numbering resources, complemented by some specific criteria that focus on non-ECN/ECS entities. In general, the criteria should be applied in a non-discriminatory manner, as already stated in the draft guidelines document published for public consultation. The assignment of numbering resources requires a case by case decision which implies an individual assessment of the prerequisites to be met by the applicant.

At the same time, BEREC takes note of the concerns expressed by some stakeholders about discrimination against ECN/ECS providers in case of assigning numbering resources to non-ECN/ECS entities and with regard to the risk of fraud and security with the inclusion of non-ECN/ECS entities in this process. BEREC's response to some of the specific points is as follows.

Regarding the contribution of one stakeholder [A1 Telekom Austria] BEREC remarks the following:

- BEREC has considered the suggestion to distinguish between general and number-specific criteria and that the criteria set out in the consulted draft guidelines shall present the minimum requirements which can be applied, regardless of the respective numbering range, in order to make the guidelines implementable in all MS. However, this does not exclude that a MS, which decides under national legislation to assign numbering resources to non-ECN/ECS entities, establishes specific criteria, taking into account number-intrinsic requirements.

- BEREC has also considered the point of A1 Telekom Austria on clarifying the term *ability to manage*. BEREC clarified the wording and emphasized that the non-ECN/ECS entity may also request an ECN/ECS provider to enable interconnection with other numbering resources' assignees, as it was also already intended in the consulted document.

- BEREC considers that it would be beneficial to the NRA/CA to know the name of the hosting provider with whom the non-ECN/ECS entity has established or envisages an agreement. BEREC also acknowledges that the name of such hosting provider might not be available to the applicant at the time of application, as noted by A1 Telekom Austria. Taking into account that the MS may follow different approaches in this regard, BEREC considers that the criteria should be more open to make the process feasible. Therefore, BEREC amended this point in the guidelines and left it up to the NRA/CA to determine the time of naming the host: this can be at the moment of the application, during the evaluation, or after the assignment.

- BEREC has taken up the comment on the *Evaluation to be made by the NRA/CA* and made a clearer distinction when the evaluation should be done.

Two respondents [ASTEL, COLT] proposed criteria on assigning numbering resources only for a service that is not an ECN/ECS and on prohibiting a sub-assignment, which was noted by BEREC. In BEREC's view, this point is included and clarified in the draft guidelines. As set out in paragraph 1 of the draft guidelines, the process is only applicable for non-ECN/ECS entities. As a consequence, services provided by these entities can solely be other than publicly available ECS. This implies also that non-ECN/ECS entities can only use the assigned numbering resources for their own purpose.

Regarding the request to define the respective responsibilities, conditions and the relationship between the non-ECN/ECS entities and the ECN/ECS providers in case that the latter hosts the numbering resources as a service for the non-ECN/ECS entities [ASTEL, COLT, ECTA, ETNO], BEREC believes that the non-ECN/ECS entities should basically be responsible for the compliance with the legal obligations. Further details of how the responsibilities are determined between these parties is up to the national regulation of the respective MS and are thus out of the scope of these guidelines.

Regarding a contribution [COLT] generally questioning the assignment of numbering resources to non-ECN/ECS entities, BEREC considers that in neither case a risk for discrimination exists. Furthermore, where ECN/ECS providers offer to host the numbering resources for the non-ECN/ECS entities, they provide a service subject to remuneration. BEREC has reflected on a point [ETNO] of requesting an additional justification by a non-ECN/ECS entity why the use of numbering resources allocated to ECN/ECS providers is not sufficient. The point [Fastweb] on assigning numbering resources to non-ECN/ECS entities only in case of objective necessity goes in the same direction. BEREC considers both points to be too restrictive and deems it sufficient that the assignment has to be carried out in a non-discriminatory way by the respective NRA/CA. The EECC does not make any further distinctions in this regard.

BEREC has also considered the point [Fastweb] that the non-ECN/ECS entities applying for numbering resources must be by law a legal entity with a legal representative and clarified the criteria regarding the identification of the applicant. BEREC believes that MS or NRAs/CAs will have to decide to which non-ECN/ECS entities (legal or private with a legal representative) may be assigned numbering resources.

6. Comments relating to question 5

In the consultation BEREC asked:

Please, describe your opinion on this section and in particular with respect to the proposed criteria for the assessment of the risk of exhaustion of numbering resources.

ETNO agreed in principle with the criteria described, taking into account the suggestions made in other answers, making particular reference to the lack of necessity to assign numbering resources to non-ECN/ECS entities and reporting as example the assignment of E.212 numbering resources.

ETNO stated that, when a numbering plan is approaching exhaustion, exhaustion is then inevitable. BEREC should indicate to NRAs/CAs the need to verify in advance with ITU-T the possibility of requesting further international numbering resources and evaluate such a solution. Moreover, **ETNO** pointed out that resource management by NRAs/CAs should respect the principle of efficient use of numbering resources, and if many countries run out of available national numbering resources at the same time, this could bring significant impacts on the entire international telecommunication system.

Fastweb also noted that the identified criteria appear to be fit for the assessment.

A1 Telekom Austria mentioned that the criteria to be applied should include the degree of allocation (share of the numbering resources that have been assigned) and a combination of actual use of assigned numbering resources and degree of allocation should be used. **A1 Telekom Austria** considered that the analysis of past developments in order to be able to create forecasts for the future would be certainly useful. In **A1 Telekom Austria's** view, the criteria should in any case be the same for the providers of ECN/ECS and non-ECN/ECS entities.

GSMA referred that for the assessment of the risk of exhaustion of numbering resources, the approach should be the same for non-ECN/ECS entities as for providers of ECN/ECS and that NRAs/CAs should in addition to monitoring already assigned resources, provide a forecast on the demand models on a regular basis in order to predict potential number exhaustion. In any case, **GSMA** strongly advised against the assignment of E.212 resources such as MNCs to non-ECN/ECS entities, due to the risk of scarcity recalling that an alternative is the use of OTA/eSIM.

COLT mentioned that assigning numbering resources directly to non-ECN/ECS entities will lead to an inefficient use of numbering resources and a higher risk of exhaustion of numbering resources and it will lead to a greater fragmentation and higher complexity in the numbering management.

BEREC Response:

BEREC observes that two answers were in line with the proposed criteria [ETNO, Fastweb].

Only one stakeholder [A1 Telekom Austria] provided a suggestion on the criteria and in particular, this stakeholder believes that the criteria to be applied should include the degree of allocation (share of the numbering resources that have been assigned) and a combination of actual use of assigned numbering resources and degree of allocation should be used.

Two stakeholders [A1 Telekom Austria, GSMA] believed the criteria should be the same for ECN/ECS providers and non-ECN/ECS entities

BEREC believes that the monitoring suggested is one of the possibilities. The other answers did not suggest any modifications on the proposed criteria and one respondent [GSMA] suggested to adopt the same criteria used for ECN/ECS providers. So, BEREC confirms the proposed criteria.

BEREC notes that one stakeholder [ETNO] suggested that the guidelines should clarify that in case of risk of exhaustion, NRAs/CAs should immediately trigger the process to identify new resources also requesting ITU-T for new numbering resources or modifying assignment rules, while restricting allocations that are not objectively necessary.

Two stakeholders [ETNO, GSMA] stressed that numbering resources should not be assigned to non-ECN/ECS entities due to higher risk of exhaustion [ETNO] in particular, for E.212 numbering resources [GSMA] and also as such assignments will lead to inefficient use of numbering resources. BEREC believes that the actions to be taken by NRAs/CAs in case of increasing risk of exhaustion of numbering resources is up to each MS and BEREC agrees that the principle of effective and efficient use of numbering resources should always be pursued, but at the same time it is up to the MS to decide about the assignment.

BEREC also welcomes some suggestions on what to do to reduce the risk of exhaustion of numbering resources (i.e. promote OTA/eSIM instead of assigning E.212 numbering resources to non-ECN/ECS entities) and what to do in case the exhaustion is approaching, but at the same time believes that this is outside the scope of these guidelines, whose only aim is to define the criteria in accordance with EECC.