

PUBLIC CONSULTATION

October 2004

Updating the numbering plan and its management rules

Public consultation

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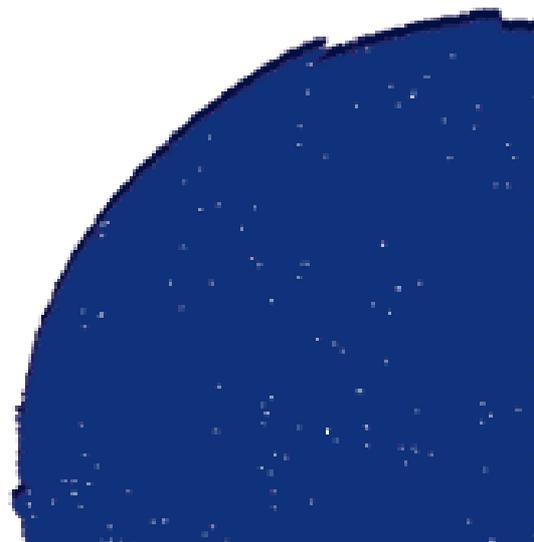


Table of contents

Practical information	2
Introduction	3
1 – MAJOR DEVELOPMENTS TO TELEPHONY AND NUMBERING	4
a. General questions	4
b. Uses of the plan and long-term developments	4
The consumer’s view	4
Roaming and personal numbers	5
Technical constraints weigh on the numbering plan	6
The numbering plan and other addressing systems	8
Private numbering plans	8
2 – NUMBERING RESOURCE MANAGEMENT RULES	10
a. The new regulatory framework	10
b. The numbers intended for interpersonal voice communications	11
Voice on broadband	11
Geographic numbers	12
Non-mobile non-geographic numbers	13
Mobile numbers	15
The special case of virtual private networks (VPN)	15
c. Numbers used to provide services	16
d. Carrier selection prefixes	16
“E” prefixes	17
“16XY” prefixes	18
e. Other parts of the numbering plan	18
General management rules	18
Multi-purpose numbers	19
f. Miscellaneous questions	20
Pan-European services: “116”, ETNS	20
Appendix 1: The current structure of the numbering plan	22
Appendix 2: Summary table of authorisations required to obtain numbering resources under the current regulatory framework until 25 July 2003	25

Practical information

Autorité de régulation des télécommunications (ART) is submitting for consultation this document on developments to the numbering plan and its management rules. It is available for downloading on ART's web site.

Contributions to this public consultation must be received by *Autorité de régulation des télécommunications* by 26th January 2005, at the latest. Contributions should be sent by e-mail to ACNumerotation@art-telecom.fr or by mail to the address below:

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ART plans to make public all contributions it receives. Therefore, should some elements contained in a contribution be confidential, ART asks that they be included in a document separate from the contribution.

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Introduction

The current management rules of the French numbering plan were drafted in 1998. They have been modified since that time in order to clarify the pricing of special numbers with the format 08AB, to include virtual private networks and to introduce 3BPQ short numbers. Today, ART wishes to review the experience acquired and to modify these management rules in order to adapt them to the new regulatory context, the competitive situation of the markets, the technical development of networks and the emergence of new technologies.

The market has evolved considerably since 1998, first with the development of competition on long distance calls, then on the local loop and finally on complete telephone service. Numbering resources are of major concern for all market players, whether operators, service providers and users.

In order to adapt the numbering plan to guarantee simple and efficient use for users, and in order to objectively, transparently, and non-discriminatingly attribute these resources, in accordance with article L. 44 of the Post and Electronic Communications Code, ART wishes to collect the opinions of players on the directions which should be taken to develop the numbering plan and the means of assignment, as well as important factors for the future development of the plan.

Following the conclusion of the consultation, the new means of assigning numbers, blocks of numbers and prefixes will be published. ART will also use this consultation to prepare certain decisions concerning numbering.

The first part of the consultation deals with long-term developments to telephony and numbering.

The second part presents questions regarding the management rules of the numbering plan.

1 – MAJOR DEVELOPMENTS TO TELEPHONY AND NUMBERING

ART's objective is to develop a coherent numbering system, which provides users with certain information elements when they see a number: price, type of service, location, etc. The plan must also simplify relations between operators and their customers and between operators themselves while taking into consideration their technical constraints. Finally, the plan's goal is to simplify the development of network and network-related service companies, by creating a framework that encourages competition.

a. General questions

ART wishes to know the sector's opinion of the numbering plan, its upgrading and the major factors which might affect it.

- (1) What general comments do you have on the current numbering plan?**
- (2) What are the concerns of operators, consumers, industry, etc. regarding the numbering plan? Within the next year? Within three to five years?**
- (3) Which technical, commercial, regulatory, etc. developments are likely to affect the numbering plan?**
- (4) What new services are likely to develop? What will their impact be on the numbering plan?**
- (5) What are the major factors for the evolution of a numbering plan?**

b. Uses of the plan and long-term developments

The directions chosen must be based on the representations which accompany a number. For the user, a number first of all identifies a place, person or company. Certain numbers also represent a service and a price. For the installer, the number identifies the physical line on which to work. For switched network equipment, the number is a call routing tool. Any upgrading of the numbering plan must therefore take account of all these representations and, if necessary, choose one over another.

The questions in this part are intended to provide a long-term view of certain subjects concerning the numbering plan. The conclusions of this part will help us compare the more operational problems, developed in the second part, with the issues of the numbering plan in five or ten years.

The consumer's point of view

Today, the numbering plan comprises several categories: fixed geographical numbers, fixed non-geographical numbers, mobile numbers, special service numbers (08AB) and short numbers. For each of these categories, the consumer receives a varying amount of information elements: if the first two digits are 01, 02, 03, 04, 05 or 06, the user has an idea of

the type of terminal he/she will be calling, the price to be paid, and, for geographic numbers, the location of the called party, except for calls with the DOM (overseas *départements*). On the other hand, short numbers and numbers beginning with 08 provide less information about the called party and the price to be paid.

Moreover, consumption habits have changed significantly in recent years, to the point that there are more mobile lines in France than fixed lines. ART seeks to know what information is relevant to users when they make or receive calls. The following information elements could be contained in a telephone number: price information, functional location (mobile, fixed, voice server, etc.), the geographic location (region, international, etc.), the operator used, the called party's operator, the type of terminal called (voice telephone, telematics, videophone, etc.).

(6) Do these information elements seem relevant today? For the long term? How would you rate these information elements in importance for the consumer? What other information elements would it be useful to know via the telephone number?

Roaming and personal numbers

The technical, commercial and regulatory developments of telephony networks also raise the question of prices and of the use that is made of a number. Thus, the possibility of porting a mobile number from one mobile operator to another allows the user to keep a single number, linked to the user's person, for his or her entire life. The convergence of fixed and mobile also leads us to believe that the formal differences between fixed and mobile numbers may soon be obsolete. Moreover, following the modernisation of the switched network and the emergence of technologies such as voice over IP, we are seeing the difference in price between local and national calls shrink.

These new conditions could encourage "nomadism", that is the possibility for a subscriber to make or receive calls with a given number, regardless of the place at which he or she receives them. Today, for example—and excluding mobile telephony which is by definition "mobile"—the most common "nomadism" situation is call forwarding. Still, the development of nomadism as a value-added service depends a great deal on its use and pricing.

This service can be managed entirely by the called party, who informs the network of the routing to be done and who may be billed for additional call routing. In call forwarding, there is no additional cost for the caller who does not have to change his/her habits.

Another possibility is to attribute a special "nomadic" number to the called party. In this case, the price of the call to this number can be different from the prices of calls to geographic or mobile numbers and the caller has to know this new number. The called party could also pay for this service and/or for part of the additional call routing cost. This type of service was offered in France with "Primo" numbers beginning with 0804 but was never marketed on a broad scale. It is better known under the name UPN for "Universal Personal Number". Its advantage is that it offers the caller more pricing information, which is necessary if the caller is to bear part of the nomadism cost.

In any case, "nomadism" is a phenomenon which is likely to affect all telephone numbers, in particular if the prices applied for this service are low.

- (7) Do you think that “nomadism” is likely to develop in coming years? In what form? With what numbers: current numbers or a new range of numbers?**
- (8) More generally, do you consider it pertinent to imagine a single number per subscriber? Conversely, do you think that the current situation where each subscriber has more than one number (fixed, mobile), in addition to other contact identifiers (address, email address, instant messaging identifier) can last?**

Technical constraints weigh on the numbering plan

The numbering plan is dependent on technical constraints, some of which will disappear, others which will remain, others still yet to appear.

- (9) On what technical constraints is the numbering plan still dependent? Are these constraints likely to disappear? If yes, when? Which constraints will not disappear or will appear with the arrival of new technologies and new services?**

ART wishes to know the opinions of the sector on some of these constraints.

Call routing

For operators, using the numbering plan meets a technical need for call routing by the switches. Its structure is also used as a basis for invoicing systems. The modernisation of switching networks has made it possible to relax the assignment rules for geographic numbers and to manage the appearance of non-geographic numbers (mobile or non-mobile). Moreover, for certain technologies, such as voice over broadband or for mobile networks, the number has become a simple user identifier. Finally, some incumbent operators have already replaced parts of their switched network with an IP network or are putting in place next generation networks (NGN).

- (10) Is the use of the numbering plan as a routing tool destined to disappear? In how much time?**

Portability

Portability is a right granted to all telephone number users by article L.44 of the Post and Electronic Communications Code:

“Operators are required to propose at a reasonable price to their subscribers offers allowing subscribers to keep their geographic number when they switch operators without changing geographic location, and to keep their non-geographic number, whether fixed or mobile, when they switch operators provided they remain in Metropolitan France, in the same overseas département (DOM), in Mayotte or in Saint-Pierre-et-Miquelon.”

By virtue of this right, a subscriber’s number will no longer necessarily be linked to the operator to which the corresponding block of numbers had been assigned. This significantly complicates routing mechanisms and may require the implementation of new measures to find a subscriber and his/her operator regardless of the number of times the number has been ported.

Portability also raises the question of the services between which a number can be ported.

(11) What constraints does portability provoke on the national numbering plan? What solutions would you propose?

Numbering per block

Even though such a change would currently require considerable investments, it is possible that in the future, numbers will be read as a single block and no longer as a sequence of digits, regardless of the network used. This is already the case for mobile networks. The advantage of this operating mode is that it does not immobilise resources which begin with numbers that have already been assigned. If the numbers are read by block, the numbers “19”, “192” and “1923456789” could be routed, thereby freeing up significant resources in the numbering plan.

(12) At what point in the future can we imagine that the telephone network will use numbers as blocks of digits rather than sequences?

Numbering to identify the physical line

Moreover, certain geographic numbers are currently used to identify a physical copper pair cable in an operator’s network, which can complicate access to the consumer’s line by other operators or prevent certain changes to the numbering plan, at least for the time being. This constraint could eventually be eliminated by using another system to identify physical lines.

(13) At what point could another system for identifying physical lines be implemented? What would this system be?

Hexadecimal codes

Finally, certain numbering plan resources are used by operators as technical codes to perform certain functions in their equipment (switches, in particular). Thus, a large share of numbers with the form 0Z0BPQMCDU are used as portability codes to allow operators to route their ported numbers to other operators. These technical codes are never used by consumers and yet they consume numbering plan resources (tens of millions of numbers) whereas other solutions exist. For example, for portability codes, Germany has decided to use values which are not used by hexadecimal numbering. This option is all the more justified in that equipment use hexadecimal values to process the twelve keys on a telephone pad: at least 4 bits are needed, therefore, 16 potential values.

(14) At what point in time would it be possible to assign hexadecimal codes to the technical codes used by operators?

The numbering plan and other addressing systems

Because of the development of Internet and interpersonal communications using this medium, we can expect a convergence of telephone E.164 and Internet DNS addressing systems, which could bring into question the national numbering plan.

(15) In the long term, do you think that other addressing systems will replace the numbering plan for interpersonal voice communications? How can the numbering plan interact with other addressing systems? Will it become a subsystem of a global system like IPv6, or have its own autonomous and parallel development?

ENUM

Certain systems already propose matching telephone numbers of the ITU E.164 international standard with other addressing systems (like the Internet addressing system). Using this system, it would be possible to contact someone via telephone using the Internet addressing system.

For example, the number 01 40 47 70 00 under the French plan, expressed as +33 1 40 47 70 00 under the international standard, becomes the DNS address: 0.0.0.7.7.4.0.4.1.3.3.e164.arpa where e164.arpa is the domain where E.164 telephone numbers are administered.

(16) What is your interest in the ENUM standard? What impact could this standard and its developments have on the numbering plan?

The increasing use of machines connected to communication networks (computers, fax, as well as home automation and heating, and surveillance systems) raises the issue of the role of the numbering plan: if the numbering plan is used for man-machine or even machine-machine communications, the consumption of resources could grow exponentially. Although other addressing systems play this role in part (IPv4, IPv6), certain functions may require numbering resources.

(17) Will part of the numbering plan have to be reserved for communications with or between machines? Which part?

Private numbering plans

The numbering plan is composed of all possible combinations of the 12 keys of a standard telephone: 1, 2, 3, 4, 5, 6, 7, 8, 9, *, 0, #. The national numbering plan, managed by ART, uses the 10 digits of the keypad. Moreover, each operator can have its own private numbering plan¹, giving its subscribers access to certain services reserved for them. Thus, mobile

¹ Cf. management rules: “Numbers for internal use of certain networks are not part of the national plan. If a number allocated by ART is already used, private use will be forfeited for use at the national level, within a reasonable time established by ART.”

operators propose their subscribers access to their voice mail or to customer service by dialling short numbers: 123, 888, 700, etc.

In certain cases, operators work together to establish a numbering plan which operates independently of the operator used: this the case of the SMS+ association, which allows mobile telephone users to send and receive text messages (SMS) with services identified by five-digit numbers, beginning with 3, 4, 5, 6, 7 or 8.

All these numbers are chosen to avoid interfering with the national numbering plan, since public telephone service operators cannot propose a new service on a number which has already been assigned in the numbering plan. Since the national numbering plan is upgraded on a regular basis, ART wishes to avoid any conflicts between the national plan and the private plans which are already in place and known to the general public. ART wishes to know the sector's interest in private numbering plans in the longer term.

(18) What comments and proposals can you make regarding private plans? In particular, what are the advantages and disadvantages of operators developing these private plans?

(19) In particular, how can the numbering needs of operators for numbers reserved for their own fixed or mobile local loop subscribers be taken into account in the numbering plan?

2 – NUMBERING RESOURCE MANAGEMENT RULES

The modification of the regulatory framework concerning electronic communications operators led ART to review the management rules for numbering resources. The simultaneous emergence of new technical possibilities requires that we consider the implications of these new rules on the numbering plan.

Indeed, numbering is an important issue. It is a resource that is still necessary for consumers-users but also for operators. Finally, it is a technical and competition issue.

a. The new regulatory framework

The law on electronic communications dated 9 July 2004 replaces the licensing system, which was required to obtain an operator's licence, with the "general authorisation" system:

Article L.33-1

I. – The establishment and operation of public networks and the provision to the public of electronic communications services are free subject to a preliminary report to Autorité de régulation des télécommunications.

Today, numbering resources concern at least four types of activity, which are not mutually exclusive:

- the provision of an electronic communications network (by a "network operator")
- the provision of an electronic communications service other than public telephone service
- the provision of public telephone service, which comprises, among other obligations, the free routing of emergency calls
- the provision of content accessible via an electronic communications network (proposed by a "publisher")

In this list, only the first three activities require a report to ART and grant access to numbering resources. In particular, no numbering resource can be assigned to an end user who is not a registered operator, such as an individual or content publisher. The obligations to which registered operators are subject are defined by the law's application decree, to appear in 2004.

Operators can request prefixes, numbers or blocks of numbers, but their assignment is subject to conditions of use, which depend on the type of service offered by the operator:

Article L.44, paragraph 3

The assignment decision stipulates the conditions of use of these prefixes, numbers or blocks of numbers which affect:

- a) The type of service to which the use of the assigned resources is reserved*
- b) The guidelines necessary to ensure good use of assigned resources*
- c) If applicable, the guidelines relative to the portability of the number*
- d) The duration of the assignment, which cannot be greater than 20 years*

ART is also authorised to monitor and sanction operators in order to ensure these conditions of use are respected.

Finally, article 8 of the directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services ("framework" directive) states:

Member States shall ensure that in carrying out the regulatory tasks specified in this Directive and the Specific Directives, in particular those designed to ensure effective competition , national regulatory authorities take the utmost account of the desirability of making regulations technologically neutral.

b. The numbers intended for interpersonal voice communications

The numbering plan has unused ranges which are reserved for the emergence of new services. Thus, without changing the fundamental structure of the plan, the range 086B has been dedicated to Internet access, the range 085B allocated to virtual private service networks, etc.

On the other hand, certain developments make it possible to propose an existing service using different technical means: this is the case of voice over broadband, and in particular, voice over IP (VoIP).

Voice over broadband

The first voice-over-IP services appeared in 2003, as a complement to high-speed Internet subscriptions. Unlike previously known voice services between two computers (IP-IP), these new services let users communicate with subscribers of classic telephone service (IP-PSTN) using the capacities of high-speed connections (ADSL, cable, WLL, etc.). For example, certain operators let their subscribers simply connect a traditional telephone to their ADSL modem. Operators proposing these services have received ranges of numbers for their subscribers who use voice over IP.

Currently, two types of numbers have been assigned to operators providing voice-over-IP services: traditional geographic numbers and portable non-mobile non-geographic numbers in the 087B range.

These numbers were assigned at the request of operators and based on their conditions of assignment and use. In particular, each block of geographic numbers was associated with a Elementary Numbering Area ("Zone de Numérotation Elementaire", ZNE). As a result, the user cannot keep the geographic number if he/she leaves the ZNE.

In revising management rules, ART has a number of options available to it to handle requests for numbers from operators providing voice-over-IP services: attributing existing numbers or attributing numbers in one or more new ranges of numbers, based on the service proposed.

<p>(20) As concerns numbering, what type of treatment would you suggest for the various voice-over-IP services?</p>

Next, this document discusses the topics of geographic numbers and non-mobile non-geographic numbers in general, focussing on their implications on voice-over-IP services.

Geographic numbers

Geographic numbers are currently assigned for different uses and technologies. Most of these numbers are assigned to public telephone services although, until recently, certain Internet access numbers were still geographic numbers. In the future, videophone services might use geographic numbers. Finally, certain geographic numbers are used as technical codes: such as, portability codes with the form 0Z0BPQMCDU.

As concerns technologies, geographic numbers are used primarily for calls in circuit mode, but voice-over-IP operators have been assigned blocks of geographic numbers.

In application of the principle of technological neutrality, the assignment of geographic numbers to operators proposing voice on broadband services should follow the same rules as for operators of switched telephone service. However, for these new operators, it is technically possible to allow users to keep their number, even if they move outside the ZNE to which the number is associated. Thus, a number of options are possible:

Option 1: The conditions of use of geographic numbers continue to stipulate that a number is linked to a ZNE, whose perimeter can be redefined, if appropriate.

Option 2: The conditions are modified to authorise users to keep their number when changing location.

Option 1 implies that the geographic distribution of numbers remains identical to the current distribution. However, a block of numbers will have to be assigned to every operator and every area in order to allow operators to guarantee service continuity for their subscribers. Even with number portability, if the number of operators which might offer telephone service increases significantly, geographic number resources may be depleted more quickly than expected.

Option 2 brings into question the numbering plan based on the geographic location of subscribers, with the risk of disrupting the habits acquired by the population and companies with this plan. It implies that the area numbers ($Z=1, 2, 3, 4, 5$) will eventually be distributed throughout the entire country. It could also create problems for existing switched networks and generate costs for operators. Finally, this option requires that prices be revised. On the other hand, it would protect numbering resources.

ART plans to use option 1 initially, in a concern for continuity.

In this case, the needs of operators could be better met by reducing the minimum size of blocks or by extending the geographic coverage of a ZNE.

The minimum granularity of blocks of numbers is currently limited to 10 000 numbers because of constraints of the incumbent operator. The size could be reduced to 1 000 numbers, depending on the incumbent operator's technical capacities.

Another solution would entail expanding the area in which a block of numbers can be used. This solution would also have the advantage of extending mobility for numbers using voice

over broadband. This solution could be a reasonable intermediate step between the current geographic locking of numbers and the total elimination of any geographic element.

- (21) Do you feel it pertinent to consider eliminating the geographic element in the numbering plan (option 2)? If yes, at what point in the future and why? Other than option 1 (keeping ZNE, which might be extended), do you feel another option might be possible?**
- (22) For option 1, which maintains the geographic element by using ZNE, do you think there might be a risk of over-consumption of geographic numbers, because of the large number of blocks needed by an operator to cover all of France, for example? What else might cause over-consumption of geographic numbers?**
- (23) For option 1, do you feel it necessary to modify the minimum granularity of blocks of numbers or to extend the geographic coverage of a ZNE? What is the most pertinent solution, in your opinion?**
- (24) What are the technical problems that these solutions would cause? How do you see them being resolved and within what timetable?**

Means of assignment and qualification of operators

The new regulatory framework requires that ART adapt the assignment rules for geographic numbers. In particular, if option 1 is kept, operators might have to meet service quality (e.g.: providing public telephone service and therefore route emergency numbers for free) and location constraints (obligation to link a number to a given area) in order to obtain geographic numbers. Moreover, ART wants to take account of the use of geographic numbers for other potentially eligible services such as videophony. For these services, ART could define eligibility conditions or simply require that suppliers respect public telephone service obligations.

- (25) Should the use of geographic numbers be limited to public telephone services? If not, what should be the perimeter for services eligible for geographic numbers? What definitions would you propose for these services?**
- (26) Should technical constraints be introduced in the assignment rules and the conditions of use for geographic numbers? Or on the contrary, should the assignment of numbers depend simply on meeting objectives (quality of service, location), regardless of the resources used? Please support your answer.**
- (27) Is access to geographic numbers indispensable for the development of certain activities?**

Non-mobile non-geographic numbers

The opening of the 087B range as a range of portable, non-mobile, non-geographic numbers has allowed the establishment of voice-over-IP telephone services using these numbers.

This range comprises 7 million numbers available for this use in Metropolitan France, which meets current demand from operators wishing to offer these numbers to their customers. Moreover, the possibility for voice-over-IP operators of obtaining geographic numbers limits

the need for numbers in the 087B range following the development of telephony via broadband access.

On the other hand, certain players have already expressed their views on the disadvantage of proposing their telephone service on a number that is seen by users as being expensive (Z=8 range), when the cost of calls to these numbers is similar to that of calls to geographic numbers. Another disadvantage of this range is that it is not always available from outside the country. Finally and above all, calls made by subscribers with a 087B number are covered by direct interconnection, under which the local loop operator of the caller sets the cost of the call based on the price of call termination of the operator having given out the 087B number, whereas the other 08AB ranges are covered by indirect interconnection, under which the called party's operator determines and imposes the price of the call on the caller.

In this context, we can wonder how advantageous it would be to open a new range of numbers for subscribers to telephony over broadband which replaces switched telephone service. This new range would be used, for example, to receive all public telephone services which might replace traditional telephone service, also in terms of prices. It would therefore be useful to characterise the services eligible in this range which would not include any geographic constraint, possibly by defining a distinction with mobile numbers.

Moreover, certain providers of electronic communications service—other than public telephone service—might also require numbering resources. To help end users distinguish between the services offered, the numbers allocated for these services could be distinguished from non-geographic numbers allocated for public telephone services.

Two ranges are currently available for this use: Z=7 and Z=9, each of which represents 100 million numbers. It is also possible to open just part of one of these two ranges. In this case, the use of other sub-ranges would have to be easily distinguishable from public telephone services.

- (28) Are non-mobile non-geographic numbers open for interpersonal voice calls (087B) suited to the needs of users and companies? Do you feel it necessary to open a new range of numbers for interpersonal voice calls without geographic location? Please support your answer.**
- (29) For what use would this range be created? In particular, what would the perimeter be of the services eligible for the assignment of numbers in this range? Finally, what range would you prefer to see allocated for this use?**
- (30) If a range is opened, do you feel it would be necessary to distinguish between numbers allocated for electronic communications services and numbers allocated for public telephone services? What ranges of numbers should be allocated to each category of service?**

The following questions suppose that one or more ranges of non-geographic numbers would be opened for public telephone services and electronic communications services.

- (31) If a new range were opened, should existing numbers with the form 087B be migrated? Under what conditions should this migration take place? What timetable should operators be permitted?**

- (32) Should this range be subdivided? If yes, what criteria should be used for subdivision: price, operator, service (e.g. videophony), etc.? Should one or more price caps be set?**
- (33) Should non-geographic numbers and UPN numbers in the same range be distinguished? Do these two characteristics seem compatible, or even convergent? (cf. question (7))**

Mobile numbers

Mobile numbers beginning with 06 are currently assigned to operators providing public telephone service on a mobile network.

The emergence of new wireless technologies, such as WiFi and WiMax, brings into question the definition of mobile telephone service. While these technologies do not have the same properties as GSM or UMTS, the implementation of voice over IP on terminals using WiFi or WiMax will require the assignment of telephone numbers. It is therefore advisable to define the concept of mobility and the conditions of use for mobile numbers.

- (34) What services are eligible to be assigned mobile numbers? How would you define them?**
- (35) How should the needs of new uses developing on new wireless technologies be handled?**

The special case of virtual private networks (VPN)

The development of networks using the IP protocol facilitates the implementation of innovative solutions for business, such as the IP-Centrex technology. This solution allows operators to help companies implement a virtual private network—which can be voice—with remote management on the operator’s site. This type of virtual private network uses fixed terminals distributed on different geographic sites and mobile terminals.

In the numbering plan, the 085B range is dedicated to virtual private networks. However, ART wishes to know the opinions of the sector on which numbers can be used for this type of network and more generally, on the needs of companies with respect to the developments proposed for geographic, non-geographic and mobile numbers.

- (36) Are the needs of companies well covered in the numbering plan? If not, what developments would you suggest to improve this situation?**
- (37) Are you satisfied with the numbering plan as concerns virtual private networks? In particular, should the assignment of geographic numbers to IP-Centrex services be authorised?**

c. Numbers used to provide on-line services

The numbers used by operators, publishers and industry to provide on-line services are located in different ranges of the numbering plan: 10XY for network operators; 3BPQ for short numbers; and 08ABPQMCDU for so-called special numbers. The case of 3BPQ is dealt with separately by ART.

Special numbers beginning with 08 are currently used by operators and publishers to propose services at different prices, from toll-free services (080B) to freely-set charges (0899). Most services in this range are invoiced under an indirect interconnection scheme: the called party sets the price paid by the caller and buys call origination from the caller's local loop operator. However, certain numbers, such as 087B, follow the direct interconnection scheme: the caller's local loop operator buys call termination from the operator of the 087B subscriber.

Moreover, ART has established in this range a distinction between shared cost services and shared revenue services as well as price scales for the different ranges open in the 08AB range. The decline in the cost of routing calls raises the question of the pertinence of this distinction and these thresholds.

Finally, mobile operators currently surtax calls to 08AB special numbers and it may be appropriate to define an organisation and pricing which are valid for all networks.

(38) Do you feel it is necessary to clarify the qualification of the 08AB range? In what way (indirect interconnection, etc.)?

(39) Are you in favour of eliminating the current distinction between "shared-cost services" and "shared revenue services" in the 08AB range? Do you feel it is pertinent to structure this range only along pricing thresholds? Do the current thresholds suit you? What other criteria could be used to distinguish the services in this range?

(40) Do you have any comments on the means of applying pricing thresholds to consumer access to numbers in the 08AB range from mobile phones?

Finally, ART wishes to receive the sector's opinions on increasing the level of information available to consumers, by taking into account the initiatives taken at the European level. Some countries plan to increase this information by including an audio message at the beginning of the call, providing information on the cost of the call, if it is greater than the local price. Other means could also be used.

(41) Is it necessary to increase information to the consumer? If yes, why and what solutions would you recommend?

(42) What other general comments do you have on special numbers?

d. Carrier selection prefixes

In order to facilitate the emergence of competition on the telephony market, ART decided to assign carrier selection prefixes in 1997. These prefixes, originally used only for long-distance calls and which had to be dialled on a call-by-call basis, were extended to local calls and can be dialled automatically if the subscriber chooses pre-selection.

Two types of prefixes have been assigned:

- single-digit “E” prefixes, which replace the first “0” of traditional 10-digit numbers
- “16XY”, followed by the ten-digit number

“E” prefixes

Seven “E” prefixes were assigned in 1997 to operators which agreed to deploy infrastructures: the 2, 4, 5, 6, 7, 8 and 9, under the assignment procedure described in ART decision no. 97-196. Other operators received “16XY” prefixes. At the date of the call for comments, the prefixes 5 and 6 have been returned to ART and the prefix 2 will be returned in coming months.

The “E” prefixes were created to facilitate the entry on the market of operators competing with France Telecom, at a time when pre-selection was not available. Today, the strong development of pre-selection and the emergence of other means such as unbundling mean that “E” is not as important as it was in 1997. Indeed, the number of subscriptions to call-by-call carrier selection has been stagnating in the past four years, while the number of subscriptions to pre-selection is growing strongly. Moreover, the use of “E” as a selection prefix consumes significant resources in the numbering plan.

The use of the prefix “E” as a carrier selection prefix will have to be reconsidered in 2012 at the latest, upon the termination of the assignment period of the “E” prefixes². Indeed, it seems less and less pertinent to maintain a situation where two different formats (“E” and “16XY”) are used to provide the same service.

Therefore, ART seeks to know the market’s interest in these resources and this use in order to decide how the returned prefixes should be used.

- (43) Do you think that the “E” prefixes should still be used for call-by-call carrier selection after 2012, in addition to the “16XY” prefixes?**
- (44) If the “E” prefixes are given another use in 2012, do you feel it appropriate to assign today the prefixes returned for call-by-call carrier selection, in addition to “16XY” prefixes?**
- (45) What other use would you propose for the resources freed by the return of “E” prefixes?**
- (46) If the “E” prefixes are not given another use, do you plan to request a one-digit selection prefix? If yes, which one and why do you prefer an “E” prefix over a “16XY” prefix?**
- (47) Finally, how do you see the end of the assignment period for “E” prefixes? Do you think it would be appropriate to move up the end of this period to 2007 rather than 2012?**

If at least one of the returned prefixes is kept for a use other than carrier selection, ART could use it to create new five- or six-digit short numbers, for value-added services, but for which the numbering fee would be lower than that of 3BPQ numbers. This new range would complete the 3BPQ range, which contains just 1 000 numbers.

Still, it is important to remember that short numbers not beginning with “0” (XYZAB, for example) are generally not accessible from outside France, in particular when a ten-digit

² The prefixes “E” were allocated in 1997 for a period of five years, tacitly renewable twice.

number with the form 0XYZAB MCDU is assigned. This new category of numbers beginning with 2, 5 or 6 would therefore not be necessarily accessible from other countries.

(48) Do you feel it appropriate to use one of the returned “E” prefixes to open a new range of short numbers? For what use? With which format?

“16XY” prefixes

The “16XY” prefixes were also created for carrier selection but with a fee just one-tenth of that of “E” prefixes. Thirty-one “16XY” prefixes were assigned at 1st September. In order to avoid over-consumption of this resource, which is limited to 92 numbers, ART initially permitted operators to have just one prefix, then a second for public procurements. Still, mergers of operators led to a situation where some operators temporarily had more than two “16XY” prefixes and some operators requested several prefixes for generic uses.

The use of “16XY” prefixes is not in question, but the management and assignment rules can be changed.

(49) Is the limit of one prefix “16XY” per operator still pertinent? For what reasons? If not, does the number of prefixes per operator need to be changed? To how many?

(50) Should any electronic communications service operator be authorised to have access to these prefixes or should access be limited only to public telephone service operators?

e. Other parts of the numbering plan

General management rules

The management rules were established by ART decision no. 98-75 dated 3 February 1998 and modified primarily by decision 98-1046 with regard to the clarity of pricing of the range of 08AB special numbers; decision 98-1047 which introduced a range of numbers for access to virtual private networks (085B); decision 98-1054 which instituted the “first come, first served” rule for number, number block and prefix assignment; decision 98-170 which introduced 3BPQ short numbers; and decisions 02-957, 02-958 and 04-331 which attributed 087B resources for portable non-geographic numbers.

Numbers are assigned by blocks of 10 000 numbers except for short numbers and prefixes, which are assigned individually. Prefixes, numbers and blocks of numbers are assigned as requests are received.

(51) What general comments do you have regarding the numbering plan management rules?

The current system comprises two separate procedures in managing numbering resources: assignment and reservation. The assignment procedure allows the recipient operator to use the resource according to the conditions of use linked to the number. The operator pays an annual fee for each resource assigned.

Under the reservation procedure, operators reserve a resource but do not have the right to use it. Operators pay a lower fee than for assignment and are not required to state in details the future use of the reserved resource.

ART could consider eliminating the reservation procedure, which complicates numbering resource management, and does not guarantee good use of numbers, blocks of numbers and prefixes.

(52) Do you feel it pertinent to eliminate the reservation procedure?

Finally, the question of reducing the minimum assignment modularity for blocks of numbers has been raised for geographic numbers. However, it could also be appropriate to reduce this modularity to 1 000 numbers for other ranges (mobile, special services, etc.).

(53) Depending on the category of number, is it technically possible to reduce the minimum modularity of the blocks of numbers from 10 000 to 1 000 numbers for all number categories? If not, at what point in the future might this reduction be foreseeable?

Multi-purpose numbers

Certain numbers in the national numbering plan were assigned to France Telecom to provide line-related services: this is the currently case today of 3131 for caller identification, 3651 for call-by-call secrecy, etc. These numbers are not accessible from outside France Telecom's network, but have been put in place by some local loop operators to provide a service, whether equivalent or not, to their own subscribers. Still, France Telecom pays a fee for the assignment of these numbers, whereas other operators do not. Therefore, ART wishes to rectify this situation, and proposes three options:

Option 1: ART and operators identify the services concerned and decide which numbers in the numbering plan can be reserved and used by local loop operators to provide services.

Option 2: ART decides to reserve part of the numbering plan for operator services to their subscribers. Each operator would therefore be free to use this resource, although for internal use only. It would be preferable for operators to agree to assign the same numbers to the same services. Moreover, this option is of interest only if there is a large number of services.

Option 3: Operators decide to use the * and # keys to exit the national numbering plan and access their private numbering plans. ETSI and its "Human Factor" standard for man-machine communication have defined certain standardised numbers, which function on all switches.

In the case of options 1 and 2, a range such as that of numbers beginning with 19 or 14 could be proposed for functions such as call-by-call secrecy, sending the CLI on a call-by-call basis, the number of the most recent caller, consumption monitoring, the duration of the most recent call, etc. The numbers could also be chosen in the 3BPQ range.

In the case of option 3, these standardised codes are already used for certain services such as call forwarding (*21*) or for identifying the IMEI code of a mobile phone (*#06#). The number 3651 which is currently used to hide one's identity before making a call can be

replaced by the Human Factor code “31”. The Human Factor code “92” corresponds to the service currently offered by 3131.

Most line-related services have this type of code and new codes can be created for new services at the request of operators. ART is not competent to define these standardised codes. The ETSI document ETS 300-738 clearly describes this standard and provides a list of existing codes.

- (54) Which line-related services are concerned?**
- (55) Based on this list, what option do you prefer?**
- (56) In the case of option 1, what numbers do you propose for the services you have identified?**
- (57) In the case of option 2, what numbering range would you prefer to see allocated to this use?**
- (58) In the case of option 3, is it foreseeable to use the * and # keys for operator services for their subscribers? Do you feel the “Human Factor” standard is sufficient to provide the services concerned?**

f. Miscellaneous questions

Pan-European services: “116”, ETNS

Number “116”

European works are underway for the use of numbers beginning with “116” for the provision of pan-European services of general interest. The best-known example is the credit card stop service. The number format and related services are determined in a European framework outside ART’s authority. However, ART does represent France’s position in this framework and therefore wishes to receive sector suggestions on the format, services and structuring of the range in order to pass on this information at the Community level.

Moreover, a pan-European numbering plan has been put in place: ETNS (European Telephony Numbering Space), which is to host pan-European services usable in all countries with same number. This space uses the country code 3883. Although it is used little, it could be a good way of offering pan-European commercial services.

- (59) What services would you suggest including in the “116” numbers? Other comments on this subject.**
- (60) What are your comments on the ETNS?**
- (61) Is it necessary to develop services other than general-interest services at the European level? Comment.**

Unless otherwise mentioned above, the management rules will simply be transposed into the new regulatory structure, and may continue to restrict access to some numbers to certain categories of operators. For example, the range 10XY is currently reserved for operators operating a network and will probably remain so.

(62) Do you have any observations you wish to share with ART on the parts of the numbering plan which have not been specifically mentioned?

Appendix 1: The current structure of the numbering plan

The French numbering plan is a closed plan with nine digits preceded by a “prefix”, such as (E)ZABPQMCDU. It was created to meet the technical constraints of the incumbent operator’s switching equipment, which for many years routed calls by sequentially reading numbers’ digits. Although this constraint has been eliminated, the structure of the plan continues to reflect this construction: the digit Z between 1 and 5 designates one of the five major zones of Metropolitan France and of the overseas *départements*, and one range of numbers, ZABPQ, is still linked to a ZNE. The operators’ invoicing systems are also based on numbering.

Other Z numbers have been allocated for new services: Z=6 corresponds to mobile non-geographic telephone; Z=8 corresponds to “service” numbers. The breakdown of this range is particularly complicated in that it includes toll-free numbers, shared-cost and premium-rate numbers, numbers providing Internet access, numbers corresponding to an individual telephone service, etc.

Finally, the prefix “E”, which can be used to select a network on a call-by-call basis, includes certain reserved values: E=1 for emergency numbers, certain numbers of services related to the operation of a network and the “16XY” prefixes; E=3 for short service numbers. The values 4, 7, 8, 9 have been assigned and are used for carrier selection by Tele 2, Cegetel, France Telecom and neuf telecom, respectively. Finally, the value E=0 is not attributable because it is the default value, used by all consumers to select the local loop operator.

Numbering plan review (at 28 May 2004):

Numbering resources	Uses	Portable numbers?
010BPQ	Portability prefixes Area Z = 1	N/A
01ABPQ	Geographic numbers	yes
020BPQ	Portability prefixes Area Z = 2	N/A
02ABPQ	Geographic numbers	yes
030BPQ	Portability prefixes Area Z = 3	N/A
03ABPQ	Geographic numbers	yes
040BPQ	Portability prefixes Area Z = 4	N/A
04ABPQ	Geographic numbers	yes
050BPQ	Portability prefixes Area Z = 5	N/A
05ABPQ	Geographic numbers	yes
06ABPQ	Mobile non-geographic numbers	yes
0800PQ	Toll-free numbers	yes
0805PQ	Toll-free numbers	yes
0809PQ	Free-access operator services	no *
0810PQ	Shared-cost numbers (< Local (Originating LLO))	yes

0811PQ	Shared-cost numbers (< Local (Originating LLO))	yes
0819PQ	Operator services (< Local (Originating LLO))	no *
0820PQ	Shared-cost numbers (<€0.12/min.)	yes
0821PQ	Shared-cost numbers (<€0.12/min.)	yes
0825PQ	Shared-cost numbers (<€0.15/min.)	yes
0826PQ	Shared-cost numbers (<€0.15/min.)	yes
0836PQ	Miscellaneous services	no
0840PQ	Portability prefixes for non-geographic numbers	N/A
0841PQ	Technical routing numbers for ETNS	N/A
0842PQ	Portability prefixes for premium-rate numbers	N/A
085BPQ	Access prefixes to virtual private network services	N/A
0860PQ	Dial-up Internet access (<Local (Originating LLO))	no #
0868PQ	Dial-up Internet access	no #
0870PQ	Portable non-geographic numbers in Metropolitan France (Price: cf. decision no. 02-958)	yes
0871PQ	Portable non-geographic numbers in Metropolitan France (Price: cf. decision no. 02-958)	yes
0872PQ	Portable non-geographic numbers in Reunion (Price: cf. decision no. 02-957)	yes
0873PQ	Portable non-geographic numbers in Metropolitan France (Price: cf. decision no. 04-331 of 8 April 2004)	yes
0874PQ	Portable non-geographic numbers in Metropolitan France (Price: cf. decision no. 04-331 of 8 April 2004)	yes
0876PQ	Portable non-geographic numbers in the overseas <i>départements</i> of Guadeloupe, Guyana and Martinique (Price: cf. decision no. 02-957)	yes

0890PQ	Premium-rate numbers (<€0.15/min.)	yes
0891PQ	Premium-rate numbers (<€0.30/min.)	yes
0892PQ	Premium-rate numbers (<€0.45/min.)	yes
0893PQ	Premium-rate numbers (<€0.75/min.)	yes
0897PQ	Premium-rate numbers (<€0.60/call)	yes
0898PQ	Premium-rate numbers (<€1.20/call)	yes
0899PQ	Premium-rate numbers, other prices	yes
10XY	Special numbers for services related to network operation (<Local (Originating LLO))	N/A
16XY	Prefixes for carrier network selection	N/A
30PQ	Short numbers (free for caller line)	N/A
31PQ	Short numbers (free for caller line)	N/A
32PQ	Short miscellaneous service numbers	N/A
36PQ	Short miscellaneous service numbers	N/A
39PQ	Short miscellaneous service numbers, not free	N/A

** = ranges of numbers for operator's internal use*

= hidden numbers with no value for display

Appendix 2: Summary table of authorisations required to obtain numbering resources under the current regulatory framework until 25 July 2003

Category of provider →	Operators of public telecommunications networks providing public telephone service (L.33-1 and L.34-1)	Operators of public telecommunications networks (L.33-1)	Providers of public telephone service (L.34-1)	<ul style="list-style-type: none"> ■ Providers to the public of telecommunications service other than telephone service ■ Providers of telecommunications service using radio frequencies ■ Providers of telecommunications service other than telephone service on cable networks³ (L.34-2, etc) 	Providers to the public of telephone service on cable networks ³ (L.34-4 and L.34-1)
Category of numbers ↓					
geographic	yes	yes ⁴	no	no	yes
mobile non-geographic	yes	yes ⁴	no	no	yes
non-mobile non-geographic excluding access numbers to virtual private network services	yes	yes	yes	yes	yes
short numbers	yes	yes	yes	yes	yes
special operator numbers	yes	yes	no	no	yes
carrier network selection codes	yes ⁵	no	yes	no	no
access numbers to virtual private network services	yes	no	yes	no	yes

³ Established and used in application of law no. 82-652 of 29 July 1982 on audiovisual communication and article 34 of law no. 86-1067 of 30 September 1986

⁴ For a service other than public telephony service

⁵ This type of resource can be allocated only to an operator whose network architecture (or service architecture) allows the routing of national long-distance and/or international calls.