

PART 6

Regulation of scarce resources

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Frequencies

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A. Regulatory framework

The freedom offered by wireless (or radio) technologies depends on the availability of frequency resources, which are physically limited. Therefore, as demand increases the regulator responsible for this resource has to take into account potential shortages when setting the conditions for accessing radio frequency spectrum. Scarcity means sharing, which is therefore a key principle governing spectrum management: spectrum sharing may take the form of dividing spectrum into multiple bands, each of which is dedicated to a distinct use, or allowing multiple uses of a band when technical studies have shown the uses to be compatible.

1. International, European and national frequency management

In France, planning for the frequency bands which are administered by ARCEP is governed by international, European and national frameworks. International rules are established by ITU-R and are broken down at the European level by CEPT and the European Commission's two spectrum committees - the Radio Spectrum Policy Group (RSPG) and the Radio Spectrum Committee (RSCoM) - in which ARCEP participates. At the national level, ANFr (*Agence Nationale des Fréquences*) coordinates the management of the various bodies responsible for administering the radio frequency spectrum (ARCEP, CSA, the civil aviation authority, national space agency CNES, certain government ministries, etc.).

The Authority is involved at all three of these levels in the working groups and conferences that deal with matters that concern the Authority so that it can contribute to the rules governing frequencies.

1.1. Frequency harmonisation activity

In 2005, ARCEP, in collaboration with ANFr, continued contributing to the work of the CEPT Electronic Communications Committee (ECC) on frequency harmonisation. In certain cases, this was in the context of a European Commission mandate, especially as concerns the principles that should govern frequency management operations and spectrum engineering. ECC decisions adopted in 2005 addressed the conditions under which fixed services and fixed-satellite services may share the 28GHz band, the identification of frequency bands for high-density fixed-satellite service systems, the definition of conditions under which frequencies for earth stations on board ships may be used, reallocation of the "ERMES" band (formerly used by the pan-European ERMES paging system), use of the 2500-2690MHz band for IMT-2000 and UMTS, and digital PMR at 466MHz.

The Authority was actively involved in the CEPT Frequency Management Working Group and in the various subgroups on PMR, fixed services, fixed-satellite services, mobile-satellite services at 2GHz, broadband wireless

access systems (such as “mobile WLL”), review of the ERMES band, and short-range radio equipment. The group’s main activity covered not only preparation of the ECC decisions mentioned above but also preparation of ECC reports, especially those produced in response to European Commission mandates on the strategic plan for using short-range equipment, automotive anti-collision radars, review of the ERMES band, IMT-2000 and UMTS at 2.5-2.69GHz, and WLANs at 5GHz. Downstream of the process, ARCEP began preparing its decisions which would allow the European decisions to be implemented in France (such as the ARCEP draft decision on 5GHz WLANs).

1.2. Spectrum engineering

In conjunction with ANFr, ARCEP also participates in the CEPT Spectrum Engineering Working Group. Electromagnetic compatibility studies are underway to define the conditions under which radiocommunication services may coexist in the 3.4-3.8GHz band with a view to facilitating the harmonious introduction of broadband access systems. The studies also are examining more flexible conditions of use for earth stations on ships and mobile systems on aircraft. This group’s work has resulted in particular in the adoption of recommendations and reports for use in defining methods to ensure that fixed-service point-to-multipoint systems can coexist at 3.4-3.8GHz and for coordinating cross-border point-to-multipoint systems.

1.3. Identification of frequency bands for new uses

The Authority has also participated in work aimed at identifying frequency bands for the introduction of new ultra wideband (UWB) technologies and the conditions governing their use. In addition, ARCEP is involved in discussions about more flexible spectrum management, innovative systems for 2GHz mobile satellite services, the introduction of broadband wireless access systems (especially WiMAX-type), future uses of the band formerly reserved for TETS (Terrestrial Flight Telephone System) aeronautical telephony services, and conditions governing access to the new bands for short-range equipment.

In ITU-R, as a part of the working group responsible for preparing the 2006 Regional Radiocommunication Conference (RRC-06) on broadcast frequency planning for digital terrestrial television, ARCEP introduced the issue of the “digital dividend” (see “C” below), inviting the players concerned to open a debate on the optimal use of frequencies when analogue television is taken out of service. ARCEP’s initiative was consistent with a similar one taken by the European Commission.

Furthermore, in preparing for the 2007 World Radiocommunication Conference (WRC07), the Authority and ANFr worked together on certain points of direct concern to the Authority, such as the identification of new

frequency bands for IMT-2000 (3G mobile) and beyond that the identification of frequency bands for aeronautical telemetry, the identification of a frequency band for satellite broadband Internet, the introduction of high-elliptical-orbit (HEO) satellite networks at 17.7-19.7GHz, 1.4GHz mobile-satellite connection links and conditions for shared use, regulatory provisions for the introduction of high-altitude platform stations (HAPS -- stratospheric balloons providing wide-area antenna coverage at 28GHz, 31GHz and 48GHz), and evolving the regulatory framework for a more flexible approach to spectrum management.

At international, European and national level, ARCEP contributes to work that in the medium and long term aims to encourage the use of European technological innovations in response to new issues such as UWB and to take account of increased service convergence (of telecom and broadcasting, WLAN and WLL, and mobility and roaming).

2. Discussions about spectrum management in the future

The Authority faces two basic strategic questions with regard to spectrum management: how to introduce greater flexibility into spectrum management and how to address the need to make new resources available, particularly in the lower bands such as those currently reserved for television.

ARCEP has adopted a pragmatic approach and has examined the question of flexibility on a case-by-case basis considering that for the major categories of service (mobile, satellite, radio broadcasting, etc.) frequency harmonisation remains absolutely necessary. The Authority believes also that in certain cases the harmonised use of frequencies by standardised technologies is essential as demonstrated by the success of GSM, first in Europe and then in the rest of the world. However, for numerous other applications, certain flexibility in the form of technological neutrality may be desirable.

In 2005, ARCEP contributed to the Wireless Access Policy for Electronic Communication Services (WAPECS) debate initiated by the European Commission, which aims to offer a more flexible approach to spectrum management. One of the objectives of this project is to facilitate rapid access to new technologies, especially European ones, by promoting principles of technological neutrality in services whenever appropriate.

B. Secondary markets for spectrum

The possibility of transferring spectrum-use rights was introduced by the 9 July 2004 law on electronic and audiovisual communication services¹, which transposed Article 9 of the Framework Directive². This authorisation mechanism is commonly called the “secondary market for spectrum” in contrast to the “primary” mechanism of assignment. The law specifies that the general mechanisms for transferring spectrum rights in secondary markets are defined by decree of the *Conseil d'État* and the list of frequencies for which authorisations may be transferred is established by the minister responsible for electronic communications.

Rapid technological change and growth in certain markets can be problematic in cases where licences are awarded for terms of 15 to 20 years. Secondary markets respond to continually changing supply and demand in matters relating to spectrum resources. Consequently, they allow innovation to occur and new players, who did not receive primary frequency assignments, to enter the market without hindrance. Furthermore, they encourage better use of the resource by enabling reallocations to players in a better position to exploit the resource efficiently.

ARCEP participates in work to implement a secondary market and with the DGE (the MINEFI directorate general for enterprise) has co-chaired a working group composed of the players concerned and designed to collect input on mechanisms for managing secondary markets (whether transfers should be partial or total, notification methods, rights and obligations of beneficiaries, etc.). Thus, in December 2005, a draft decree was submitted to France's radio consultative committee, the CCR (*Commission Consultative des Radiocommunications*), for opinion. ARCEP had been consulted and had rendered a favourable opinion of the draft³.

1. Frequency bands affected

At the European level, the identification by certain Member States of frequency bands subject to secondary market activity is the first step toward more flexible spectrum management. For its part, ARCEP delivered a report to the minister responsible for electronic communications in July 2005 in which it recommended that certain frequency bands be opened to resale (see below).

The Authority has proposed a general opening of those bands for which authorisations are awarded site by site, especially for PMR and microwave links. For this type of authorisation, the only bands not opened to resale in the short term are those currently undergoing reallocation. Also, all bands used for satellite services could be opened quickly to the secondary market. For both of these types of authorisation, the option to transfer rights will in essence simplify the administrative process associated with changing the authorisation holder.

1 CPCE Article L.42-3.

2 Directive 2002/21/EC of the European Parliament and Council of 7 March 2002, concerning a common regulatory framework for electronic communication networks and services (Framework Directive).

3 ARCEP Opinion No. 06-0046 of 19 January 2006, concerning the draft decree implementing CPCE Article 42-3 and relating to the transfer of frequency-use authorisations.

Among the frequency bands for which authorisations are awarded geographically without specifying where site equipment is to be installed, ARCEP proposes that the WLL and PMR bands be opened rapidly to secondary markets. Transfers in these bands could cover the whole of an authorisation or just a part since authorisations are divisible by frequency, geographically, or by time. In this way, the secondary market could make the radio-frequency spectrum accessible to innovative, small-scale players specialised in providing services in a limited geographic area or using limited frequency resources.

2. Frequency bands proposed

The following tables summarise the frequency bands for which the Authority proposes opening secondary markets in the short term.

2.1. WLL bands

Overseas <i>départements</i> and collectivities		Metropolitan France	
Total and partial transfers may be authorised in these bands anywhere in the overseas <i>départements</i> and collectivities.		Total transfers may be authorised in these bands.	
Bands proposed	Current authorisations	Bands proposed	Current authorisations
WLL at 3.4 - 3.8 GHz 3410 - 3494 / 3510 - 3594 MHz	WLL and Fixed P-P in public network and broadcast transport networks	WLL at 3.4 - 3.8 GHz 3432.5 - 3447.5 MHz 3465 - 3495 MHz 3532.5 - 3547.5 MHz 3565 - 3595 MHz	WLL and Fixed P-P in public network and broadcast transport networks
		BLR 26 GHz 24549 - 24997 MHz 25557 - 26005 MHz	WLL

Source: ARCEP

2.2. PMR bands

Overseas départements and collectivities		Métropolitan France	
Total and partial transfers of allotted authorisations may be authorised in these bands anywhere in the overseas <i>départements</i> and collectivities.		Total transfers may be authorised in these bands.	
Bands proposed	Current authorisations	Bands proposed	Current authorisations
68 MHz - 83 MHz band	PMR	68 MHz - 83 MHz band	PMR
406.1 MHz - 430 MHz band	PMR	406.1 MHz - 430 MHz band	PMR
406.1 MHz - 408 MHz	PMR	406.1 MHz - 408 MHz	PMR
410 MHz - 430 MHz	PMR	410 MHz - 430 MHz	PMR
		441 MHz - 450 MHz band	PMR

Source: ARCEP

2.3. Mobile Satellite Service bands

Bands proposed	Current authorisations
Mobile satellite service bands (MSS)	
137 MHz - 138 MHz	MSS
148 MHz - 150,05 MHz	MSS
1525 MHz - 1559 MHz	MSS
1613.8 MHz - 1626.5 MHz	MSS
1626.5 MHz - 1660 MHz	MSS
2483.5 MHz - 2500 MHz	MSS

Source: ARCEP

2.4. Fixed Terrestrial and Fixed Satellite Service bands

Bands proposed	Current authorisations	Bands proposed	Current authorisations
Fixed Terrestrial and Fixed Satellite Service bands		Fixed Terrestrial and Fixed Satellite Service bands	
1375 MHz - 1377 MHz	Fixed P-P in independent and public networks	1375 MHz - 1452 MHz	Fixed P-P in independent and public networks
1384 MHz - 1400 MHz		except for	
1429 MHz - 1452 MHz		1384 - 1400 MHz	
3.4 GHz - 4.2 GHz	WLL FSS	1436 - 1452 MHz	WLL (under study) in public networks and broadcast transport networks FSS
5091 MHz - 5250 MHz	FSS	3.4 GHz - 3.8 GHz	
5850 MHz - 5925 MHz	FSS	5091 MHz - 5250 MHz	FSS
5.925 GHz - 6.425 GHz	Fixed P-P in public network FSS	5850 MHz - 5925 MHz	FSS
6.425 GHz - 7.110 GHz	Fixed P-P in public network FSS		
10.7 GHz - 11.7 GHz	Fixed P-P in public network FSS		

Bands proposed	Current authorisations	Bands proposed	Current authorisations
Fixed Terrestrial and Fixed Satellite Service bands		Fixed Terrestrial and Fixed Satellite Service bands	
13.75 GHz - 13.25 GHz	Fixed P-P in independent and public networks FSS	5.925 GHz - 6.425 GHz except for	
13.75 GHz - 14 GHz	FSS	6048.975 - 6078.625 MHz	Fixed P-P in public networks
17.7 GHz - 19.7 GHz	Fixed P-P in public networks FSS	6108.275 - 6137.925 MHz	FSS
22 GHz - 23.6 GHz	Fixed P-P in independent and public networks	6301.015 - 6330.665 MHz	
42.5 GHz - 43.5 GHz	FSS	6360.315 - 6389.965 MHz	
47.2 GHz - 50.5 GHz except for		6420 - 6425 MHz	
47.5 - 47.9 GHz	FSS	10.7 GHz - 11.7 GHz except for	Fixed P-P in independent networks FSS
48.2 - 48.54 GHz		10.5 - 10.68 GHz	
49.44 - 50.2 GHz		12.75 GHz - 13.25 GHz except for	
		12779 - 12835 MHz	Fixed P-P in independent networks FSS
		12891 - 12975 MHz	
		13045 - 13101 MHz	
		13157 - 13241 MHz	
		13.75 GHz - 14 GHz	FSS
		17.7 GHz - 19.7 GHz except for	Fixed P-P in public networks FSS
		18112.5 - 18552.5 MHz	
		19122.5 - 19562.5 MHz	
		24.5 GHz - 26.5 GHz	Fixed P-P in independent and public networks
		37 GHz - 39.5 GHz except for	Fixed P-P in independent, public, and broadcast transport networks FSS
		37268 - 37814 MHz	
		38528 - 39014 MHz	
		42.5 GHz - 43.5 GHz	FSS
		47.2 GHz - 50.5 GHz except for	
		47.5 - 47.9 GHz	FSS
		48.2 - 48.54 GHz	
		49.44 - 50.2 GHz	

Source: ARCEP

C. The digital dividend

Today, new applications are developing strongly and there is an abundance of new and evolving wireless systems: UMTS, WiMAX, DVB-H (mobile television), new TDD mobile systems, etc. There is no doubt that other innovations will appear in the coming months and years. The powerful growth dynamic driving new wireless broadband applications cannot be sustained or developed further unless the necessary frequency resources are identified and made available.

These frequency resources should be sufficient to allow full-coverage implementation, which is a top priority for consumers. This means that coverage cannot be limited just to high-population areas but must be nationwide and available inside buildings as well as outdoors.

In this respect, the release of frequencies that will result from the migration from analogue to digital television provides an exceptional opportunity.

In effect, modernising microwave television service will make considerably more efficient use of the spectrum since digital broadcasting is approximately six times more efficient than analogue broadcasting. This technological evolution not only allows more channels and high-definition television to be offered on less spectrum, it also releases a potentially crucial number of frequencies for other uses, and this is called the “digital dividend”.

Unleashing this “digital dividend” creates an even greater opportunity because the bands are below 870MHz, which is the most interesting part of the entire radio frequency spectrum. Indeed, the frequencies below 870MHz are considered “golden” frequencies for their particularly attractive radio propagation characteristics, which provide both long range and good in-building penetration.

Today, these frequencies are used for analogue television in accordance with the frequency plan established some 50 years ago when there were few alternative uses for this spectrum. New radio applications that have appeared in the interim have had to be introduced in other frequency bands that were ever-higher and therefore less and less suited to wide-area or in-building coverage, which has made network deployment extremely burdensome. For example, second-generation mobile systems (GSM) were introduced first at 900MHz and then at 1800MHz, and third-generation systems (UMTS) are deployed today at 2GHz with an extension envisaged in the 2.7GHz band. The impossibility of accessing lower bands and the forced recourse to higher and higher bands clearly inhibit the economic development of new broadband wireless access systems capable of offering extended coverage.

This is the reason why ARCEP believes it is important that Europe seize the exceptional opportunity created by the migration to digital television broadcasting and undertake work to identify, and if possible harmonise, all or part of the “digital dividend” frequencies for new wireless broadband applications by the time analogue television becomes extinct.

Identifying these frequencies early and in a sufficiently harmonised way would send a strong signal to European and French industry to undertake the R&D necessary to prepare for new-generation superfast broadband radio access.

This opportunity is an important economic and social issue that will shape the course of events over the coming years as the content world and the network world converge. It falls to policymakers to deal with them now. ARCEP's contributions in 2005, which relied in particular on Commission

communications on the topic, allowed a debate on this question to be opened with CSA, DDM (the prime minister's media development directorate) and ANFr. The president of the Republic, in his address before the *Forces Vives de la Nation* on 5 January 2006, established the objectives of developing mobile broadband Internet access and deploying mobile and high-definition television by mid-2007, converting from analogue to digital television within five years, and defining a coordinated strategy for frequency use in line with forthcoming international commitments.

In the immediate near term, as recommended by the European Commission in its 29 September 2005⁴ communication to the European Parliament and Council, it is essential that the agreements that result from the next Regional Radiocommunication Conference (RRC), to be held in May 2006 for purposes of planning for digital television, be flexible enough to avoid compromising the future possibility of a digital dividend that can be exploited effectively. At the end of 2005, in preparation for this conference, a consensus was achieved at national level in France with respect to this objective of flexibility.

In addition, giving mobile services access to all or some of the frequencies in the digital dividend will entail modifying ITU Radio Regulations (RR) at a World Radiocommunication Conference (WRC) where a specific agenda item is reserved for this issue. Preparations which are already under way for the next two WRCs in 2007 and 2010 should incorporate this objective.

<http://europa.eu.int/eurlex/lex/LexUriServ/LexUriServ.do?uri=COM:2005:0461:FIN:FR:PDF>

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D. Wireless local loop and WiMAX

A wireless local loop (WLL) employs radio technology to allow a fixed or roaming subscriber equipped with an antenna terminal to connect wirelessly to an Internet network access point. Commercial offerings to date support speeds up to 34Mbps.

Wireless local loop technologies⁵ today constitute an attractive alternative to wireline solutions for connecting customers and providing them with medium- and high-speed fixed electronic communication services. Two key features of these solutions are flexible implementation and the ease of phasing investments.

Principal WLL technologies: WiMAX (generic term for IEEE 802.16 standard - of the Institute of Electrical and Electronics Engineers - and the ETSI HiperMAN standard) and WiFi (IEEE 802.11 standard).

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1. WLL market

To set up a fixed point-to-multipoint wireless local loop system, ARCEP's authorisation is required to use the frequencies associated with that system. Two frequency bands are available to providers wishing to offer services on a wireless local loop network. These are the 3.5GHz and 26GHz bands.

The 3.5GHz band, in which new solutions backed by the WiMAX Forum (which promotes the Worldwide Interoperability for Microwave Access standard) are being developed, supports fixed and roaming broadband access services. The 26GHz band is more particularly adapted to providing very high-speed services to businesses.

1.1. Operators in place

After the telecom sector was consolidated in the early 2000s and as certain players retreated from the market, the number of WLL operators dropped drastically compared to the 54 licences awarded by the Authority in July 2000 (2 for all of Metropolitan France at 3.5GHz and 26GHz, 44 for regional operations in Metropolitan France at 26GHz, and 8 for operations in the overseas *départements* at 3.5GHz). By the end of December 2005, no more than 5 WLL operators remained in the 3.4-3.6GHz band (with one covering all of Metropolitan France) and 3 in the 26GHz band.

Operator	Coverage area	Frequency bands
IFW (Iliad Group)	22 regions in Metropolitan France	3.4-3.6 GHz
Médiaserv	Guadeloupe, French Guiana, Martinique	3.4-3.6 GHz
WLL French Antilles-French Guiana	Guadeloupe, Martinique	3.4-3.6 GHz
WLL Réunion	Réunion	3.4-3.6 GHz
Guétali Haut Débit	Réunion	3.4-3.6 GHz
Altitude Développement	Basse et Haute Normandie	26 GHz
Neuf Telecom	21 regions in Metropolitan France	26 GHz
IFW (Iliad Group)	Ile-de-France	26 GHz

Source: ARCEP

To evaluate the true capabilities of new equipment available at 3.4-3.6GHz, the Authority authorised the launch of technical testing. Thus, in 2004, the Authority decided to allow interested manufacturers and operators to perform technical tests of new 3.4-3.8GHz wireless local loop equipment until the end of January 2006. The purpose of these authorisations was to allow temporary testing with a view to preparing, from the technical point of view, the new round of spectrum authorisations for the deployment of wireless local loop networks at 3.4-3.6GHz. The following companies performed technical tests: France Telecom, Satisfaction, Cegetel, ADW, Bouygues Telecom, Axione, TDF, Alcatel, E-Qual, Hub Telecom, E-Tera, Arteria, Susi, Telecom Italia, HR Net, and Orcalys.

1.2. New requirements

The revival of interest in WLL, as confirmed by calls for applications in other European countries, appears to be linked to the emergence of the American IEEE 802.16 (WiMAX) standard, which defines solutions for broadband wireless access networks operating at 3.4-3.6GHz.

The wireless local loop public consultation launched by the Authority at the end of June 2004 enables the various types of projects that could use the 3.4-3.6GHz band to be identified. These projects aim either to provide medium- and high-speed access services to areas not reached by ADSL or to develop innovative service offerings, some of which may compete with existing offerings even in relatively populous areas.

1.3. Frequencies available in the 3.4-3.6GHz band

The wireless local loop (WLL) frequencies at 3.4-3.6GHz first were assigned in July 2000 to two operators to serve all of Metropolitan France. Following the consolidation of telecommunication players in 2000 and 2002, some WLL frequencies in this band were returned to the Authority.

Currently, one of the two 15MHz duplex blocks, assigned to Firstmark Communications France and Fortel in 2000 for 3.4-3.6MHz operations in the 22 regions of Metropolitan France, is operated by IFW (Iliad Group). The other is unassigned. In addition, the Authority worked with 3.4-3.6GHz spectrum users in 2004 to release an additional 15MHz duplex block. Therefore, a total of two duplex blocks are now available for assignment in this frequency band.

ARCEP Decision No. 2005-1082, issued in December 2005 and approved by ministerial order on 1 February 2006 (see the 6 February 2006 edition of the *Journal Officiel*), set the general technical and operating conditions for fixed-service point-to-multipoint transmission links in the 3.4-3.6GHz frequency band. Operators authorised on these frequencies already have the option to use FDD or TDD radio transmission equipment in this band (Frequency Division Duplex supports duplex channelisation by frequency on paired frequencies and Time Division Duplex supports duplex channelisation by time on unpaired frequencies).

Technical conditions were defined to prevent users from experiencing interference from other services and other WLL operators on adjacent frequencies in the 3.4-3.6GHz band. (A WLL operator whose coverage area is adjacent to that of another WLL operator may use the same frequencies as the other WLL operator.)

1.4. Authorisation principles

In 2004, after consulting market players on a number of occasions to define how available WLL frequencies should be assigned, ARCEP adopted certain principles it deemed best for addressing two key objectives:

- to contribute to the regional development of fixed broadband electronic communication services;
- to encourage the development of competition beneficial to users in the broadband market.

1.4.1. General provisions

The Authority's approach is driven first of all by one fact: because the amount of spectrum available in the 3.4-3.6GHz band is finite, the number of WLL frequency-use authorisations that can be awarded at any given time is limited. Indeed, it is technically impossible for these frequencies to be shared by several operators for point-to-multipoint system deployments in the same geographic area. This problem is not specific to WLL technologies, but affects most technologies that use radio frequencies, especially those based on the GSM mobile telephony standard.

The call-for-application mechanism was decided upon to respond in the best way possible to the challenges of introducing WLL given the inherent constraints on spectrum availability. This is why three of the overseas *départements* – Guadeloupe, Martinique and Reunion – are not included; WLL operators are present there already and all of the frequencies in the 3.4-3.6GHz band have been assigned.

The frequencies available at 3.4-3.6GHz allow no more than two new frequency holders per region in Metropolitan France in addition to IFW, which is authorised to use its frequencies throughout Metropolitan France. A maximum of two authorisations each is available for Mayotte, Saint-Pierre-et-Miquelon and French Guiana (alongside Médiaserv). In total, 50 regional authorisations can be awarded.

Where authorisations are assigned case-by-case – meaning where frequencies are not scarce – the Authority can award authorisations at the sub regional level to cover a *département* or several communes. Furthermore, secondary-market and subletting mechanisms also allow the level of granularity to be reduced for geographic authorisations.

Use of these frequencies is strictly limited to fixed WLL applications and explicitly excludes the provision of mobile services.

Authorised frequencies are to be used within 24 months of award or the authorisation may be revoked.

1.4.2. Local authority involvement

By virtue of the new responsibilities accorded to them by Article L.1435-1 of the *Code Général des Collectivités Territoriales* with respect to electronic communications, some local authorities have announced that they wish to have WLL frequencies awarded to them. The question has been raised as to the conditions under which they could participate in this procedure and receive authorisations. Following an ARCEP request for expert legal opinion, Daniel Labetoulle, former president of the disputes division of the *Conseil d'État*, indicated in his report that:

- local authorities can be awarded and hold authorisations to use frequencies;
- where there are competing applications for award of a single authorisation to use frequencies, local authorities cannot be given preferential treatment neither should the award method adopted penalise them;
- ARCEP is at total liberty to define the geographic granularity of frequency-use authorisations but these authorisations should not be proposed within a geographic framework that local authorities cannot access;
- no conceivable award method is *a priori* legally incompatible with the filing of an application by a local authority;
- concerning the choice of selection method, the texts in force require that multiple criteria be applied and indicate that one of the criteria may be performance under a bidding system.

2. A three-stage award process

The Authority, upon receiving the favourable opinion of the CCR (*Radiocommunication Consultative Commission*) on 1 July 2005, gave the minister-delegate for Industry its proposal for the mechanism that was adopted for awarding authorisations⁶. By orders⁷ issued on 28 July 2005 (see 6 August 2005 edition of the *Journal Officiel*), the minister affirmed the methods and conditions that ARCEP had proposed and thereby formally launched the process.

The process comprises a preparatory phase in which future applicants submit letters of intent followed by a confirmation of their applications before the final selection of new WLL operators.

2.1. Phase 1: call for letters of intent

The process began with letters of intent being sent to the Authority. By the 18 October 2005 deadline, 175 applicants had filed such letters. Of these, 32 expressed interest in deploying WLL infrastructure throughout all 22 regions of Metropolitan France, 67 were filed by local authorities (18 regions, 32 *départements*, 9 major urban areas, and 8 associations), 76 by operators, and 32 by various other players.

ARCEP decisions No. 05-0646 and No. 05-647 of 7 July 2005, proposing to the minister responsible for electronic communications methods and conditions for authorising the use of available wireless local loop frequencies in the 3.4-3.6GHz band in Metropolitan France, Guyane, Mayotte, and Saint-Pierre-et-Miquelon.

Orders of 28 July 2005, concerning the methods and conditions for authorising the use of available wireless local loop frequencies in the 3.4-3.6GHz band in Metropolitan France, Guyane, Mayotte, and Saint-Pierre-et-Miquelon.

The aim of this first stage was to allow parties interested in authorisations for these frequencies to envisage the various options for sharing use of the frequencies. On 27 October, the government instructed regional prefects to organise coordination meetings with the public and private players in their prefectures to encourage them to work together and submit joint applications.

2.2. Phase 2: determination of scarcity

The second stage of the process ended on 6 January 2006 with the submission of formal requests for frequency assignments. The aim of this phase was to allow the Authority to render a precise and detailed region-by-region account of the parties' requests and establish whether there was a scarcity of frequencies in the 3.4-3.6GHz band, which would be the case if more than two authorisations were requested per region.

A total of 45 requests were submitted by 45 players or groups of players:

- 8 companies made requests for more than 18 regions;
- 5 companies made requests for more than 5 regions;
- 18 players made requests for one region;
- 4 players made a request for a sub regional area;
- 10 players made requests for only French Guiana, Mayotte or Saint-Pierre-et-Miquelon.

A comparison of requests and available resources confirmed no scarcity in Saint-Pierre-et-Miquelon; therefore, no formal selection process was necessary there. Consequently, on 9 February 2006, in application of Article L.42 of the CPCE, frequencies were assigned to the three players that had filed applications (France Telecom, Médiaserv SARL and Omtel SPM).

On the other hand, the comparison of requests and available resources confirmed a scarcity of frequencies in the 22 regions of Metropolitan France and in Mayotte and French Guiana.

2.3. Phase 3: applicant selection

As a result of the scarcity which had been determined for the 22 regions of Metropolitan France and for French Guiana and Mayotte, a formal selection process was undertaken for 35 of the players that had submitted applications on 1 February 2006:

- 6 players filed applications for more than 18 regions in Metropolitan France (including one for French Guiana and for Mayotte);
- 4 players filed applications for more than 5 regions in Metropolitan France;
- 18 players filed applications for only one region in Metropolitan France;
- 7 players filed applications for either French Guiana or Mayotte or both.

Applicants as of 1 February 2006

Applicants	Metropolitan France coverage area
Bolloré Télécom	Alsace, Aquitaine, Auvergne, Basse-Normandie, Bourgogne, Bretagne, Centre, Champagne-Ardenne, Corse, Franche-Comté, Haute-Normandie, Ile-de-France, Languedoc-Roussillon, Limousin, Lorraine, Midi-Pyrénées, Nord-Pas-de-Calais, Pays-de-la-Loire, Picardie, Poitou-Charente, Provence-Alpes-Côte-d'Azur, Rhône-Alpes
Clearwire France SAS	Alsace, Aquitaine, Auvergne, Basse-Normandie, Bourgogne, Bretagne, Centre, Franche-Comté, Haute-Normandie, Ile-de-France, Languedoc-Roussillon, Lorraine, Midi-Pyrénées, Nord-Pas-de-Calais, Pays-de-la-Loire, Poitou-Charente, Provence-Alpes-Côte-d'Azur, Rhône-Alpes
Collectivité Territoriale de Corse	Corsica
Comium Services Ltd	Alsace, Aquitaine, Bretagne, Ile-de-France, Languedoc-Roussillon, Midi-Pyrénées, Nord-Pas-de-Calais, Provence-Alpes-Côte-d'Azur, Rhône-Alpes
Conseil Régional Alsace	Alsace
Conseil Régional Aquitaine	Aquitaine
Conseil Régional Auvergne	Auvergne
Conseil Régional Bourgogne	Bourgogne
Conseil Régional Bretagne	Bretagne
Conseil Régional Centre	Centre
Conseil Régional Franche-Comté	Franche-Comté
Conseil Régional Haute Normandie	Haute-Normandie
Conseil Régional Languedoc Roussillon	Languedoc-Roussillon
Conseil Régional Lorraine	Lorraine
Conseil Régional Picardie	Picardie
Conseil Régional Poitou-Charente	Poitou-Charente
Conseil Régional Rhône-Alpes	Rhône-Alpes
e-Qual	Aquitaine, Bretagne, Centre, Midi-Pyrénées, Pays-de-la-Loire, Poitou-Charente
France Télécom	Alsace, Aquitaine, Auvergne, Basse-Normandie, Bourgogne, Bretagne, Centre, Champagne-Ardenne, Corse, Franche-Comté, Haute-Normandie, Ile-de-France, Languedoc-Roussillon, Limousin, Lorraine, Midi-Pyrénées, Nord-Pas-de-Calais, Pays-de-la-Loire, Picardie, Poitou-Charente, Provence-Alpes-Côte-d'Azur, Rhône-Alpes, Guyane, Mayotte
Guet@li Haut Debit	Mayotte
GULFSAT France	Mayotte
Guyatel	French Guiana

Applicants	Metropolitan France coverage area
HDRR Centre Est SAS	Centre
HDRR Ile de France	Ile-de-France
HDRR Multi Régions	Alsace, Aquitaine, Auvergne, Basse-Normandie, Bourgogne, Bretagne, Champagne-Ardenne, Corse, Franche-Comté, Haute-Normandie, Languedoc-Roussillon, Limousin, Lorraine, Midi-Pyrénées, Nord-Pas-de-Calais, Pays-de-la-Loire, Picardie, Poitou-Charente, Provence-Alpes-Côte-d'Azur, Rhône-Alpes
I.M.T.S International Microwaves Telecom Solutions	Rhône-Alpes
INTERGSM.NET	Aquitaine, Basse-Normandie, Bourgogne, Bretagne, Centre, Languedoc-Roussillon, Lorraine, Midi-Pyrénées, Nord-Pas-de-Calais, Pays-de-la-Loire, Picardie, Provence-Alpes-Côte-d'Azur, Rhône-Alpes
Maxtel	Alsace, Aquitaine, Auvergne, Basse-Normandie, Bourgogne, Bretagne, Centre, Champagne-Ardenne, Corse, Franche-Comté, Haute-Normandie, Ile-de-France, Languedoc-Roussillon, Limousin, Lorraine, Midi-Pyrénées, Nord-Pas-de-Calais, Pays-de-la-Loire, Picardie, Poitou-Charente, Provence-Alpes-Côte-d'Azur, Rhône-Alpes
Media Overseas	French Guiana
Mediaserv SARL	Mayotte
Nomotech	Basse-Normandie
Shaktiware	Aquitaine, Corse, Ile-de-France, Languedoc-Roussillon, Midi-Pyrénées, Provence-Alpes-Côte-d'Azur, Rhône-Alpes
Société du Haut Débit	Alsace, Aquitaine, Auvergne, Basse-Normandie, Bourgogne, Bretagne, Centre, Champagne-Ardenne, Corse, Franche-Comté, Haute-Normandie, Ile-de-France, Languedoc-Roussillon, Limousin, Lorraine, Midi-Pyrénées, Nord-Pas-de-Calais, Pays-de-la-Loire, Picardie, Poitou-Charente, Provence-Alpes-Côte-d'Azur, Rhône-Alpes
STOI INTERNET	Mayotte
XTS Telecom	French Guiana, Mayotte

Source: ARCEP.

Three applicant-selection criteria were adopted:

- contribution to the regional development of broadband services;
- project potential to encourage broadband competition;
- financial sum applicant is willing to pay for the award in addition to the annual fee due for the assignment and use of WLL frequencies.

The authorisations to use the WLL frequencies will specify the rights and obligations pertaining to this use. They will also treat as obligations any commitments that applicants make during the selection process.

Thus, 2006 will see the arrival of new wireless local loop players in Metropolitan France, French Guiana and Mayotte, each contributing to the

development of fixed electronic communication services in its region of operation and strengthening competition in this market segment.

Moreover, working with users in the 3.6-3.8GHz band has allowed the Authority to identify the future availability of this band. Therefore, the Authority may launch a complementary process when appropriate to award WLL frequency-use authorisations based on the initial assessment and new needs expressed by interested parties.

E. Mobile satellite

The regulatory framework requires that all systems providing satellite-based mobile services to the public in territory belonging to the French government must, in application of Articles L.33-1 and L.42-1 of the CPCE, register with ARCEP and request an authorisation for frequency use. To accommodate these requirements, it has been necessary to regularise certain cases and award authorisations to systems such as those that belong to Inmarsat and Boeing Connection.

In Europe, new mobile satellite network projects are being developed in the 1980-2010/2170-2200MHz duplex bands identified internationally for IMT-2000 and UMTS systems. These 2GHz MSS (Mobile Satellite Service) projects feature an original architecture which associates the satellite with terrestrial infrastructure (the Complementary Ground Component or CGC) in such a way as to allow access to offered services by overriding restrictions caused by dead zones in the satellite coverage area (particularly in cities) and by improving spectral efficiency.

In this context, the CEPT ECC decided to create a working group to study the regulatory framework governing these systems and to stimulate development. Over the course of 2005, this group, in which ARCEP participates worked to prepare a decision aimed at finalising the definition of a harmonised and binding framework for the European Union in 2006. Without a doubt, the most sensitive task of this group is to study a possible new procedure for selecting applicants in light of the likely lack of frequencies. At the national level, this raises specific questions that affect plans to provide television programme broadcasting services.

F. PMR and PAMR

PMR networks are independent mobile communication networks reserved for business and government use, especially for purposes of public safety, industrial safety, and transportation activities.

1. Broadband PAMR at 450-470MHz

ARCEP launched a public consultation from 12 April to 30 May 2005 concerning the introduction of networks supporting broadband PMR/PAMR (Professional Mobile Radio/Public Access Mobile Radio) in the 450-470MHz frequency band.

Three main points were clear from the 16 contributions received:

- No demand was expressed for deployment of a PAMR-type public mobile network.
- The need for frequencies to support independent broadband PMR networks is not immediate and is not expected to materialise before the end of the decade. Also, certain players reaffirmed their interest in implementing independent narrowband PMR networks in the 450-470MHz band especially to complement operations on the 410-430MHz band, which is open already.
- One contributor cited a possible new use of this band to complement WLL and WiMAX networks.

In this context, given the lack of express demand from market players, the Authority decided to stop work on the introduction of a PAMR public mobile network.

Ultimately, approved uses for the contiguous 1.5MHz duplex block that the Authority has available in the 450-470MHz band will be defined according to a timetable consistent with the real needs of the market.

To that end, the need for independent PMR networks will be reassessed in due course based on an evaluation of the case-by-case procedure used since January 2005 to award authorisations for narrowband networks at 410-430MHz and on an updated forecast of the evolution of independent networks toward broadband.

In addition, bearing in mind the development of WLL networks in the 3.4-3.8GHz band (see above), access to lower-frequency bands will be studied for networks deployed complementary to WiMAX networks.

2. PMR market

In 2005, ARCEP commissioned IDC France to study the Professional Mobile Radio (PMR) market in France to determine the structure of this activity, its economic importance, and the outlook for its development.

The PMR market value chain is made up of manufacturers, which take the lead in research and development, installers, which provide the link with the market, and users, who respond to a need or requirement for secure, available communications.

PMR turnover from civilian systems was approximately € 300 million in 2004. Installers accounted for the largest share (€ 170 million), providing evidence of the market's strong orientation toward services such as integration and maintenance to the detriment of hardware. However, according to this study, installers are highly dependent on manufacturers, which determine the timing of innovations and the content of product portfolios. IDC estimates that about one thousand direct employees at installation firms and one hundred at manufacturing firms are involved in civilian PMR systems. This market is estimated to be growing at a rate of less than 5% per year.

The need to provide secure, dedicated communication resources to meet public safety requirements even in the event of a major crisis will remain at the forefront in the coming years. Two market segments that are sensitive to this need but remain under-equipped seem particularly promising: local authorities serving 30 000 to 200 000 inhabitants and regional surface transport, such as the urban transport networks that serve large provincial towns – for them security and real-time communications have become a major issue.

The growth potential represented by these new markets could be addressed by existing digital technologies, such as TETRA, or by emerging technologies, such as Digital Mobile Radio (DMR). The activity whereby networks are managed by “frequency-managing operators” (sometimes identified by the acronym RPX) that have obtained authorisation to use one or several channels in a region for purposes of providing communication to third parties also harbours significant economic potential.

G. Frequency assignments

In 2005, operational activity relating to authorisations for the use of frequencies, which required technical and administrative investigations directly by ARCEP, resulted in:

- 5833 new assignments
- 1283 modifications to existing assignments
- 2202 revoked assignments
- 895 cases requiring international coordination
- 21118 verifications of geographic coordinates and registrations with ANFr (*Agence Nationale des Fréquences*).

ARCEP Spectrum Unit ISO 9001 certified

In 2004, the ARCEP unit responsible for this activity implemented an approach aimed at formalising the frequency assignment process under the ISO 9001 certification framework. The approach, which responds to requirements for transparency, objectivity and non-discrimination set forth by ARCEP, resulted in certification by the French certification body AFAQ (*Agence Française de l'Assurance de la Qualité*) on 5 October 2005.

Thus, any applicant requesting frequencies is guaranteed that its application will be handled according to a clearly-defined process regardless of the applicant's status or size. The quality management system established under the ISO 9001 framework is designed to reduce the time it takes to award authorisations for frequency use, ensure greater legal certainty for the benefit of users, and improve the clarity of instructional information, via the ARCEP website, about the process for authorisations for frequency use.

Numbering

- A. ARCEP's missions
- B. Numbering plan update
- C. Changes and innovations in management rules
- D. Release of the 09 block

The year 2005 was characterised by important changes in numbering: the numbering plan and the rules for number management were revised, the 09 block was made available for non-geographic numbers, and 118 numbers were introduced for directory information services.

Definitions

E and 16XY format prefixes: Prefixes of one or four numbers to be dialled in place of 0 or before the called party's number. Used to select the preferred local or long distance operator.

Geographic numbers: Numbers reserved for fixed lines (assigned to operators in blocks of 10 000 numbers).

Non-geographic numbers: 08AB type numbers (except for 087B) allowing access to value-added services (free or paid calls with different rate levels).

Non-geographic numbers: Numbers (being phased out) of the 087B type reserved for fixed lines (especially those assigned to operator "boxes").

Non-geographic numbers: Numbers (newly created) of the 097B type reserved for fixed lines equipped with operator "boxes".

Mobile numbers: Numbers beginning with 06 and reserved for mobile-operator customers.

3BPQ short numbers: Numbers reserved for card services, carrier selection using two-step dialling, value-added services, etc.

10XY special numbers: Numbers reserved by operators to provide services to their customers (such as fault-reporting service).

A. Les missions de l'ARCEP

The Authority is responsible for establishing the national numbering plan (operational management of the plan, definition of management rules, and designing changes) and assigning to operators the numbering resources they need for their activities in accordance with Articles L.36-7 7 and L.44 of the CPCE, which transposed into French law certain European Council and Parliament directives, specifically Article 10 of the Framework Directive and Article 6 of the Authorisation Directive⁸. This responsibility involves assigning telephone numbers that can be used on the switched telephone network (geographic numbers, non-geographic numbers, short numbers, special numbers and prefixes) and authorising addressing resources for data networks, numbers for postpaid cards, signalling point codes⁹, and MCC+MNC codes (for SIM cards used on GSM networks and SIM cards used on TETRA networks).

Directive 2002/21/EC of 7 March 2002 (called the Framework Directive) and Directive 2002/20/EC of 7 March 2002 (called the Authorisation Directive).

These codes correspond to the technical addresses used to identify signalling resources on CCITT Signalling System No. 7 switched telephone networks. They are similar to the X.25 addresses used in packet-switched networks.

10 Decree No. 2005-605 of 27 May 2005, modifying the second part (concerning Conseil d'État decrees) of the CPCE (see 29 May 2005 edition of the Journal Officiel).

ARCEP is responsible also for ensuring that numbers are used correctly and that the facilities necessary to perform this function (such as files and databases) are implemented.

The conditions under which ARCEP may assign numbers to operators are defined by Article L.44 of the CPCE, which in particular, makes provision for rental charges. The amounts and methods of these rental charges are established by decree¹⁰. For example, a block of 10 000 conventional numbers (such as 01 40 47 MC DU) costs € 200 per year and a 4-digit prefix costs € 40 000 per year. For a single-digit prefix, called an E prefix, the beneficiary is required to pay an annual fee of €400 000 euros.

ARCEP monitors European and international technical and regulatory activity related to numbering. Indeed, it should be remembered that the national numbering plan used in France is part of a global plan implemented on a worldwide basis by the International Telecommunication Union (ITU) and regionally by the European Conference of Postal and Telecommunications Administrations (CEPT).

B. Numbering plan update

Updating the numbering plan was a major project for the Authority in 2005. As the entity responsible for the numbering plan, ARCEP revised the 1998 rules governing number management to bring them into compliance with the new regulatory framework. In addition, the Authority created two new categories of number: 118XYZ for directory information services (see Part VIII) and numbers beginning with 09 for interpersonal communications.

1. Reasons for revision

Three key factors gave rise to the in-depth revision of the numbering plan:

- From a regulatory standpoint, the 1998 management rules had to be adapted to the new regulatory framework for general authorisations following the transposition of the Telecom Package Directives into French law.
- The emergence of alternative telephony offerings, particularly those based on voice over IP (VoIP), clearly established the need for new numbering resources. This need will grow with the spread of IP technology across all existing networks and with the foreseeable appearance of new innovative services in coming years.
- The French numbering plan, established in 1996 and governed by management rules dating from 1998, needed to be re-examined so that number management could be improved.

2. Coordination with affected players

The process of revising the numbering plan involved several stages. First of all, a public consultation on the evolution of the numbering plan was launched in October 2004. In January 2005, study of the contributions received revealed the sector's opinion about the long-term evolution of numbering and about more precise matters such as carrier selection, voice over IP, the 087B block, and numbers for general-purpose functions.

This first stage ended with the establishment of a CCRSCE (*Commission Consultative des Réseaux et Services de Communications Électroniques*) working group on the evolution of numbering. This group, chaired by Antoine Weil and comprising operators, manufacturers and academics, submitted its final report to CCRSCE, the consultative commission for electronic communication networks and services, in June 2005. The report explores the uses, techniques and regulatory constraints affecting numbering and identifies the key elements to bear in mind in revising the plan for the future.

Finally, the first draft decisions were prepared and submitted for consultation -- to the consultative committee for numbering (*Comité Consultatif de la Numérotation*, CCN) in October and November 2005, to the CCRSCE in November, and to the consultative commission for radiocommunication (*Commission Consultative des Radiocommunications*, CCR) in December. The ensuing debates allowed the draft decisions to be fine-tuned before they were adopted in December 2005.

3. Hierarchical organisation of ARCEP decisions

The primary objective of the decisions adopted on 15 December 2005 was to provide better visibility into the numbering plan. Thus, two umbrella decisions were adopted: the first covered the overall organisation of the numbering plan¹¹ and the second established the rules for number management¹². These decisions preserve all of the numbering decisions made in 1998 and 2005 and include some important innovations.

Both umbrella decisions are complemented by decisions of general application, such as the decision to open the 097 block of numbers¹³. Finally, the hierarchy has a third level. It involves the individual decisions that allow operators to use resources under conditions established by the various decisions of general application.

Thus, the hierarchical structure of numbering decisions was clarified and will give operators a better understanding of the rights and obligations associated with number assignments. Finally, since numbers are assigned only to operators that have completed ARCEP's declaration procedure, these rights and obligations are additional to the ones operators have by virtue of their activity as operators.

ARCEP Decision No. 05-1085 of 15 December 2005, establishing how the categories of numbers in the national numbering plan are to be used.

11

ARCEP Decision No. 05-1084 of 15 December 2005, approving management rules for the national numbering plan.

12

ARCEP Decision No. 05-1086 of 15 December 2005, opening the 097BPQMCDU number block to be awarded for interpersonal communication services.

13

The decision about how to structure the numbering plan consolidates all decisions concerning the various categories of resources. In this document, numbering resources are divided into three categories:

- numbers for interpersonal communications, which are the numbers in the 01 to 05 blocks for geographic numbers, the 06 block for mobile numbers, and the new 09 block for non-geographic numbers (see below);
- numbers for access to value-added services, either the numbers in block 08 or short numbers (3BPQ, 118XYZ, 10YT, etc.);
- codes, which are numbers used for technical functions (carrier selection prefixes, portability prefixes, etc.).

Moreover, for each category of numbers, the decision covering the plan's structure makes clear the specific conditions of use and the activity that needs to be declared to the Authority in order to receive a number assignment.

In addition, the umbrella decision establishing the rules for number management, which was made in application of Article L.36-7 7 of the CPCE, defines the conditions governing the admissibility of requests and describes the process for making information available and the procedures for formally revoking assignments. The rules specify the documents and information to be provided with the request for assignment. These may change as needs evolve.

These clarifications will make it possible to exercise better control over how numbers are used by penalising, if need be, operators using numbers in ways other than those prescribed.

C. Changes and innovations in management rules

The rules for managing the numbering plan are not very different from those defined in 1998¹⁴. However, in order to address market expectations and tighten controls over the scarce resource of numbers, the December 2005 decision¹⁵ introduced several important changes.

1. Withdrawal of reservation procedure

The reservation procedure has been withdrawn. This procedure allowed a number or block of numbers to be reserved without any rights of use for half the fee required for an assigned resource. The mechanism was used very little and was no longer attractive given the introduction of numbering fees prorated by time. Indeed, as of 2006, fees due are calculated with reference to the date of assignment. As a result, operators can request a resource assignment mid-year without having to pay a fee for the full year.

14 ART Decision No. 98-75 of 3 February 1998, approving management rules for the national numbering plan.

15 ARCEP Decision No. 05-1084 of 15 December 2005, approving management rules for the national numbering plan.

2. Availability to third-party operators

The Authority has introduced into the management rules a third-party depositary procedure. This procedure allows an operator awarded number resources to entrust another operator, called the depositary operator, with assigning these resources to end users. In such cases, the depositary operator must have completed ARCEP's declaration procedure. This measure will give the Authority a better understanding of how numbers are used once they are made available. It does not affect distributors, meaning those companies that distribute services on behalf of operators.

3. Tighter controls over use

The management rules adopted in 2005 complete certain provisions aimed at achieving better control over the use of numbering resources. Assigned numbers must be managed by operators if the national numbering plan is to operate efficiently, which is to say that the numbers must be put to commercial use and not stockpiled. ARCEP appraises management performance by means of annual usage reports which beneficiaries of numbering resources must submit by 31 January of each year. These reports must include various types of information (resource usage statistics, inventory of numbers in service, forecasts of use, etc.).

D. Release of the 09 block

The main innovation resulting from the numbering decisions adopted in December 2005 was the launch of a new block of numbers (0Z) for interpersonal communications for which Z=9 was chosen. This block contains 100 million numbers. It is additional to the three major categories of numbers defined by the numbering plan: fixed geographic numbers (01 to 05 blocks), mobile numbers (06 block), and value-added service numbers (08 block).

1. Addressing new needs

This decision addresses several objectives. In the short term, these new 09 numbers will replace the current 087B numbers. In effect, the 087B block, opened in 2002 and comprising 10 million numbers, was very quickly occupied by voice-over-broadband services. Saturation is expected during 2006, even if all awarded numbers are not assigned to end users. In addition, the 087B numbers may be confused with and assimilated into other numbers that begin with 08 and are used for value-added-services. Consequently, as of June 2006, ARCEP will no longer award any numbers in the 087B format. Replacing 087B numbers with 09 numbers therefore will correct the saturation problem and make the number's use clear to consumers.

In the medium term, the 09 block is intended to support all telephony services that are non-geographic and not specifically mobile, such as voice over IP services from a computer equipped with ad hoc software. The 09 block will be suitable also for roaming services, allowing a user who changes location to still receive calls at his or her number. The block can also accommodate the fixed-mobile convergent services that will appear in the coming years. Fixed and mobile tariff changes brought about by technological progress (as the result of implementing NGN networks) and changes in the economic model (which is evolving steadily away from communication-based tariffs toward flat-rate tariffs and always-on services) will in effect allow operators to offer, for a moderate charge, services combining fixed-network communications and mobile-network communications.

In the longer term, this block could include mobile numbers. Indeed, of the 100 million numbers in the 06 block dedicated to mobile services, 70% have been awarded already and the continued development of mobile services suggests that saturation will be reached around 2010. When that happens, ARCEP will study the relevance of creating a new block specifically for mobiles (07) and of including mobile services in the 09 block.

2. Methods of releasing the 09 block

Thus, the scope of services authorised for the 09 block is broad enough to allow operators to launch innovative services. However, ARCEP is approaching this cautiously: an initial sub-block, 097B, was released in 2005, making 10 million numbers available. Other sub-blocks will be released as the need arises. In addition, to maintain consumer visibility into the numbering plan, provisions have been made to maintain relatively homogeneous tariffs.

E Resources awarded as of 31 December 2005

Status of numbering resources at the end of 2005

	Quantity of numbers
E prefixes awarded	4
16XY prefixes awarded	38
10XY special numbers awarded	17
Short numbers (3BPQ) awarded	177
Mobile numbers awarded	71 790 000
Fixed non-geographic numbers awarded	22 171 000
Fixed geographic numbers awarded	166 150 000

Source: ARCEP

Distribution of short numbers awarded or reserved per service category

	Quantity of numbers
Short numbers (3BPQ) for card services or similar	21
Short numbers (3BPQ) for two-step dialling carrier network selection	6
Short numbers (3BPQ) for other uses	150
Total	177

Source: ARCEP

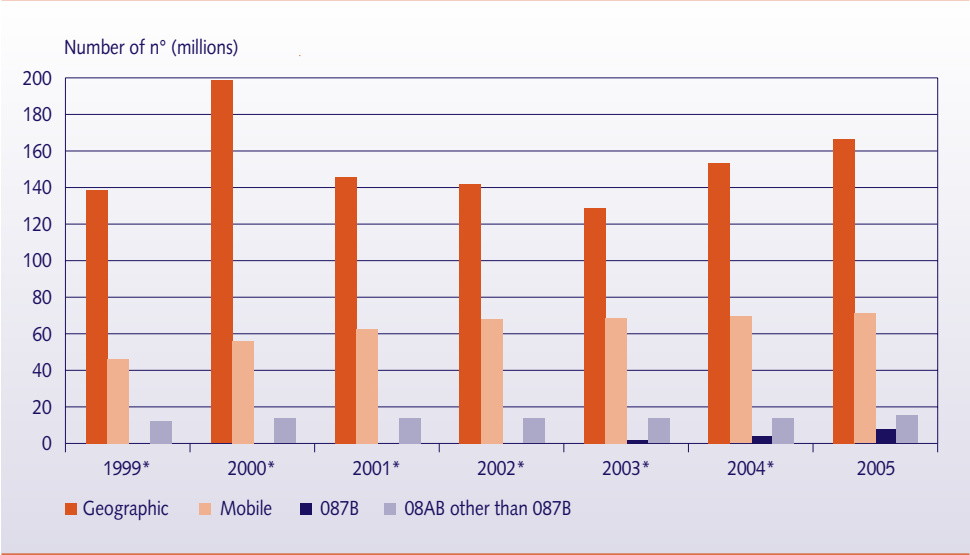
Other resources

	Quantity of numbers
National signalling code points awarded	5317
International signalling code points awarded	116

Source: ARCEP

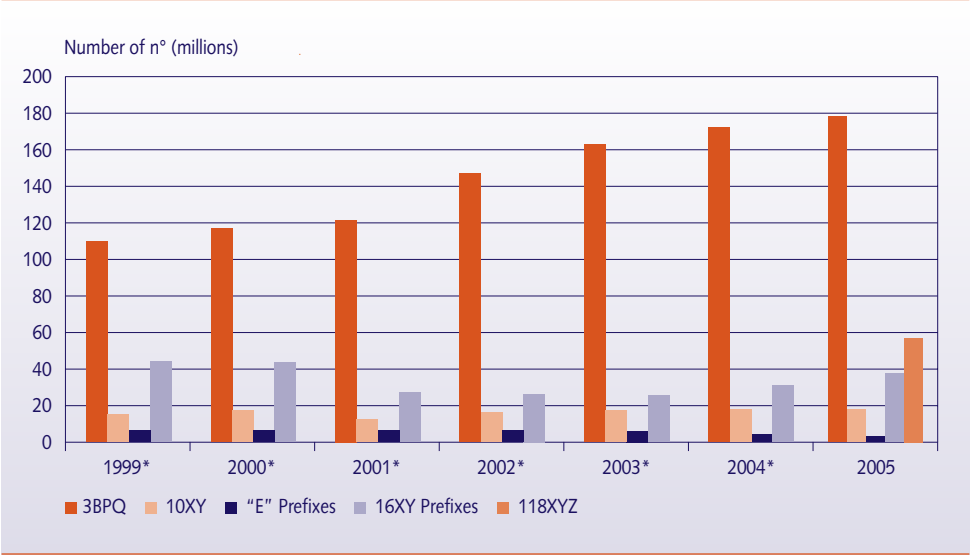
Changes since 1999

Quantity of numbers awarded (Numbers awarded by blocks)



*awarded and reserved
Source: ARCEP.

Short numbers awarded



*awarded and reserved
Source: ARCEP.

Tools available to the public

ARCEP offers telecommunication sector players a service accessible via the Internet: the G'NUM database. Sector professionals can consult an ARCEP server for certain operational information about interpersonal service numbers.

G'NUM database information (about management status, name of beneficiary, primary numbering area name, local sorting zone, local exchange for blocks of geographic numbers, etc.) will prove very useful for deploying services and establishing billing tools.

Currently, 22 companies subscribe to the tool. The G'NUM database is updated as information is submitted by the various local loop operators.

Access to the G'NUM database costs € 1500 per year. A demonstration version is available on the ARCEP website.

Another tool, designed for all users, is also available free-of-charge on the Internet website. Typing in the first three, four or five digits of a telephone number returns information confirming whether the numbering resource is valid and the name of the operator to whom the number has been awarded. Web users also can download the list of numbering resources that have been awarded.

