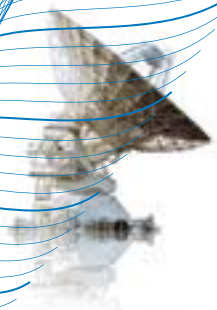
Agence Nationale des Fréquences



# 2008 ANNUAL REPORT

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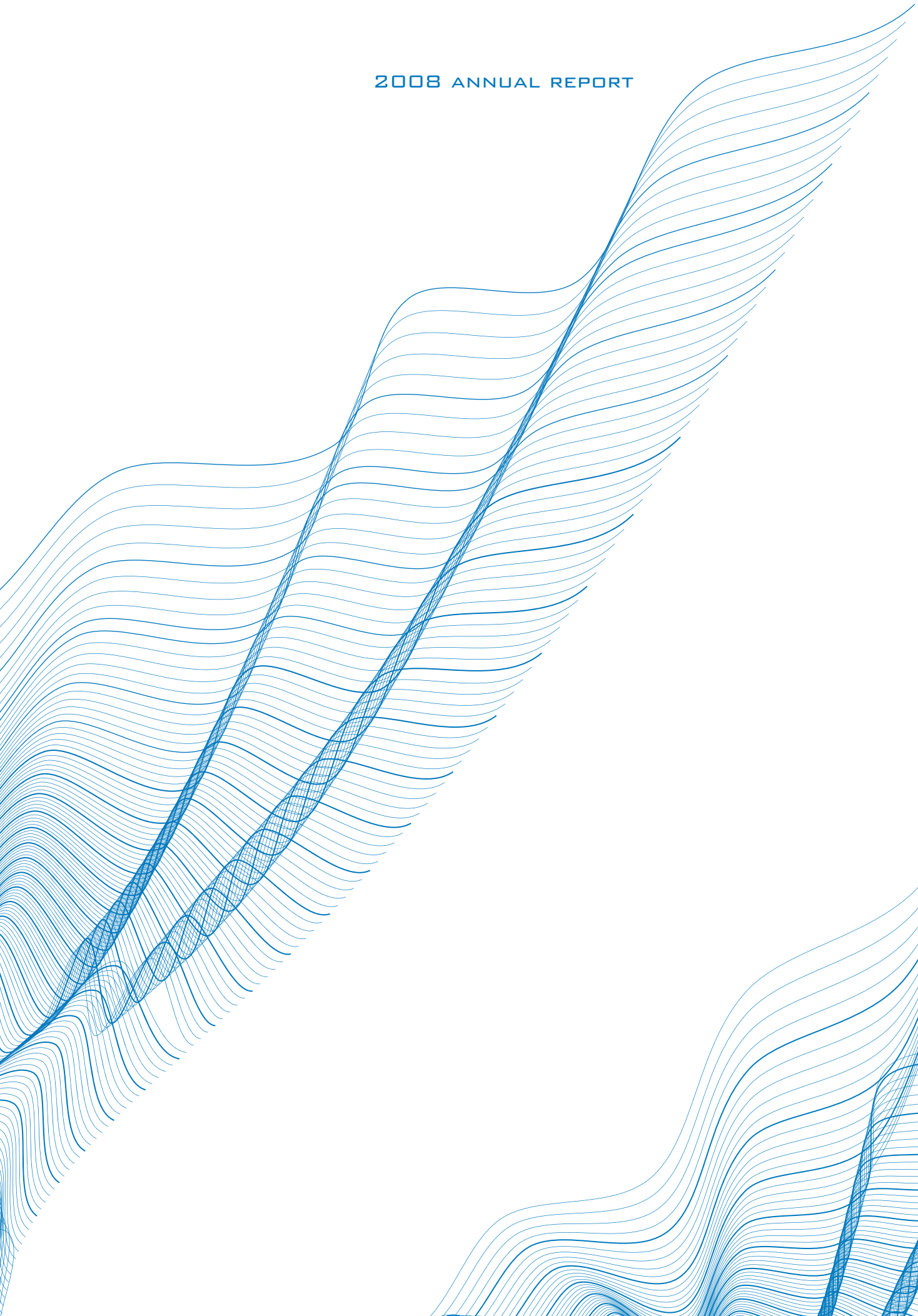


# Summary

# Editorial

## As in previous years, 2008 was especially

marked by audiovisual issues relating to the development of Digital Terrestrial Television (DTT) and its acceleration, the prospect of the end of analog television and its switch-over to digital, and finally to the digital dividend. On all these points, ANFR has continued its activities in support of the Comité stratégique pour le numérique (CSN, strategic committee for digital broadcasting, State committee chaired by the Prime Minister), to the State Secretariate in charge of the development of the digital economy and to the Parliamentary Committee on the digital dividend, in close collaboration with all stakeholders: the Direction du développement des medias (DDM, Directorate of media development, ministry of culture and communication), the Conseil supérieur de l'audiovisuel (CSA, the broadcasting regulatory authority), the France Télé Numérique group (French Digital Television, in charge of communication for digital switchover), analog and digital program providers, the Ministry of Defence, the Direction générale des enterprises (DGE, General Directorate of Enterprises, part of the Ministry in charge of Industry), the Autorité de Régulations des Communications Electroniques et des Postes (ARCEP, the regulator of electronic communications and post office), electronic communications operators and manufacturers. The Agency was therefore particularly involved in the preparation and implementation of the "France digital 2012 Plan", published in October, and of the decisions taken by the Prime Minister in December on the digital dividend and on the analog switchover to DTT.

From 2007 until the end of 2011, the deployment of DTT to reach the coverage objectives required by Law, the implementation of high definition television and mobile television, the transition to frequencies freed from the constraints of analog broadcasting, the disappearance of the latter, the harmonization and coordination of the digital dividend with other countries, will impose a permanent and multiformed pressure on spectrum in the UHF band. All efforts will be made to minimise the effect of this pressure on present users of the spectrum.

Since 2006, ANFR is in charge, jointly with CSA, of ensuring the protection of television reception. It also manages two funds (FRS and FAN) intended to ease the transition to digital. It is striving to reconcile the above objective with the inevitable adjustments to frequency planning in an environment which is undergoing a complete revolution. At the same time, ANFR dedicates itself to identifying, through negotiations with neighbouring countries that have now become permanent, the frequencies required to ensure, at the time of analog switchoff, successful switch-over to fully digital television broadcasting and materialization of the digital dividend for broadcasting and mobile services.

Summary return

**François Rancy**
Director General

**Arnaud Miquel**
Chairman

At the international level, major advances were recorded in the community negotiation under the French Presidency on the "Telecom package". The new text is expected in 2009 and should lead to a greater implication of the European Parliament in spectrum management strategy. This should strengthen the role of the Radio Spectrum policy group (RSPG), to which the Agency is actively participating. With increased involvement in institutional cooperation, ANFR international activity was marked by the realization of a number of studies in support of European harmonisation and preparation of the 2011 World Radiocommunication Conference, relating in particular on the coexistence between broadcasting and mobile services, ultra-wide band applications and frequency requirements for unmanned aircraft systems.

In 2008, ANFR strengthened its preemptive actions in spectrum monitoring, which resulted in a strong increase in the results obtained for monitoring of private mobile radio networks and shipborne radio stations. This action is now facilitated by the delivery, since end-2008, of the data application "FCS" (Spectrum Monitoring File) for all ministerial departments and frequency allocation authorities. After several years, ANFR efforts in the field of radio and telecommunications terminal equipment (R&TTE) market control have resulted in increasing response from stakeholders (manufacturers, importers, retailers) to the Agency's requests to ensure compliance or withdraw equipment from the market. In 2008, ANFR also benefited from the delivery of a software application specifically developed for this activity.

Recording of information relating to spectrum use in ANFR data bases continues with an annual growth rate of 20% for radio stations and 30% for frequency assignments, which mainly results from the accelerated deployment of 3G mobile networks and DTT, and to the removal of the "white spaces" of 2G mobile service areas. In 2008, ANFR has pursued its efforts to ensure consistency between these data bases and actual use, in particular for mutualised infrastructures, through close cooperation with operators, ministerial departments and authorities in charge of frequency allocation.

Concerning the compliance with the limits of public exposure to electromagnetic fields, working groups have been formed by ANFR, involving technical participation from public and private sectorts, for improved information of the general public and update of the Agency's measurement protocol to reflect the new CENELEC standard, published in December 2008.

The Agency's activity under contract with ministerial departments and regulatory authorities was marked by a significant increase in studies and measurements in support of CSA frequency planning for the deployment of the DTT secondary network and by the recording of several thousands of frequency assignments of the ACROPOL network for the Ministry of the Interior, Overseas and territorial collectivities.

The activity of invoicing spectrum fees carried out by ANFR for the Ministry in charge of electronic communications underwent a significant evolution with the introduction of a new order changing the mode of calculation of fees and payment. This required upstream work for information of spectrum users and downstream work for responding to the many complaints received.

Concerning general matters, ANFR has continued its efforts to rationalize manpower and budgetary resources, in close concertation with staff delegates. A contract was passed with the Ministry of Defence, in order to establish a general framework for managing military staff made available to the Agency and reimbursing associated costs. The information system was further strengthened by the implementation of a plan to recover operations in case of major facilities breakdown.

Finally, year 2008 was marked by the complete deployment of quality management within the Agency, in sinergy with the establishment of a performance contract with the State and ANFR. This contract was validated at the end of 2008 after several months of discussions with ministerial departments and regulatory authorities on the French spectrum management strategy. Within this strategy, the performance contract determines the strategic orientations and objectives of the Agency.

# The ANFR and audiovisual issues

*Year 2008 was marked by very important Government decisions, taken as a consequence of the provisions of the Law of March 5th, 2007, relating to modernization of audiovisual broadcasting and television of the future. These decisions were prepared by the "Digital France 2012 Plan", introduced on October 20th, 2008 at the Elysée (the French Presidency) and encompass three large projects: extension of the DTT coverage and development of new broadcasting services, analog switchover and digital dividend. These three projects rely on the same frequency domain and are thus very widely interdependent.*
*The Agency is a contributor to these projects and devotes an important part of its resources to support them. All divisions of the Agency are invoiced in this activity, which covers multilateral negotiations, cross-border coordinations, prospective studies, spectrum planning and monitoring.*

Summary return

## DTT extensions

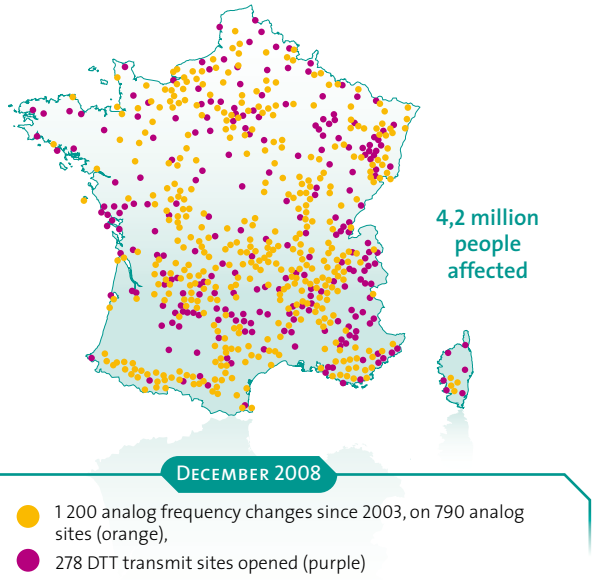
In November 2008, ANFR finalized all bilateral agreements relating to sharing of frequencies for digital terrestrial television (DTT) with neighbouring countries during the "transitory period" corresponding to coexistence between analog and digital terrestrial broadcasting: after the agreements concluded in 2006 with Switzerland and in 2007 with Germany and Luxemburg, the signature of an agreement with the Governments of the Communities and the Federal Authorities of Belgium marked the finalization of all the required formal agreements to ensure the implementation of the first five multiplexes of the DTT for more than 85% of the French population, among which about 14 million persons located in the border areas of the North and East of France. These agreements concluded a stage of sensitive negotiations led by the Agency with these countries since the beginning of 2006, the negotiations with the United Kingdom and Spain having ended in 2005.

To achieve this objective, a number of frequencies used by analog stations in these border regions had to be modified, wherever possible, to ensure their compatibility with the frequencies used for DTT. As in other French regions, these modifications have been pre-financed by the spectrum reallocation fund (FRS), which will be repaid by the beneficiaries of these operations, i.e. DTT program providers.

By end-2007, the extension of DTT coverage has been initiated, from the 85% of population reached with 110 primary transmitters up to the 95% coverage required by the Law of March 5th, 2007 by end-2011. For this purpose, the CSA has published a list of 1 626 geographic areas intended to be served by secondary DTT transmitters. 168 of these transmitters started operation in 2008, using the frequency plan developed by CSA and to which ANFR contributed for 42 frequency assignments corresponding to 7 transmitters. The CSA also requested the Agency, within the framework of the on-going contractual activities, to conduct a series of measurements concerning the implementation of DTT in about twenty geographical areas, to verify the absence of interference to analog broadcasting or to identify alternative channels, if required.

On the whole metropolitan territory, between 2004 and end-2008, the deployment of DTT necessitated the retuning of nearly 1,200 analog frequencies, supported by FRS for 55 M€ and concerning
a population of 4.2 million persons, which is in line with the estimations made in 2003 in the Report from Mr. Michel Boyon's (64 M€).

Given the shortage in spectrum, it was not possible, in about a hundred cases, to identify substitute frequencies for the analog transmissions likely to be interfered by foreign broadcasting stations, and the households affected received compensations from the digitisation support fund (FAN), according to the provisions of Decree no. 2007-957 (15 May 2007). In order to evaluate as accurately as possible the risks of interference, the Agency carried out in 2007 and 2008 detailed analyses over 257 analog frequencies and 154 sites likely to be affected by this interference and also carried out 112 site studies in the corresponding geographic areas, among which 18 were treated by the GIE frequences (an economic interest group formed by the analog program providers). In 2007 and 2008, these risks materialised for only thirty households, as a result of the relatively slow start of DTT in neighbouring countries.




In 2008, CSA authorized an additional DTT multiplex, intended for TVHD and which was brought ins service on October 30th, 2008. Its coverage was then of approximately 40% of the population. The process for licensing a multiplex for Personal Mobile Television (TMP) was somewhat delayed in 2008 but is expected to be resumed in 2009. The implementation of the corresponding networks requires new cross-border negotiations and additional changes in analog frequencies.

## Digital dividend

Since 2006, the ANFR has actively participated to the work of the Comité Stratégique pour le Numérique (CSN) on the Digital Dividend. This work led the Government to set to ANFR detailed objectives in the negotiation on this issue held in 2006 and 2007 at regional and worldwide levels. These objectives have been met in the decision of the World Radiocommunications Conference of 2007 (WRC-07) which offers to every country the possibility to make available to the mobile service up to 20% of the spectrum previously allocated to broadcasting, i.e. the sub-band 790-862 MHz, subject to coordination with neighbouring countries.

On 22nd December 2008, pursuant to the provisions of the Law of 5th March 2007 and consistent with the July 2008 recommendations of the Parliamentary Commission on the Digital Dividend, the Prime Minister issued two orders formalizing the governmental decisions on the digital Dividend:

- Allocation of the entire sub-band 790-862 MHz to the mobile service for all Metropolitan territory, as of the date of the analog switchover, i.e. 1st December 2011. This choice aims at reducing the digital divide by facilitating the development of mobile broadband access, taking advantage of the favourable propagation characteristics of the UHF band. Taking into account that the part of the sub-band 790-862 MHz above 830 MHz was previously allocated to the Ministry of Defence, this decision allows broadcasting services to keep 89% of the spectrum previously allocated to them in the UHF band;
- Densification of the use of the band 470-790 MHz for the deployment and growth of DTT: widening of DTT services by offering more programs, for local or national coverage, for High Definition TV of for mobile TV, though the adoption of a target frequency Plan, complementing the current GE-06 Plan as established in 2006 by the Regional Radiocommunications Conference (RRC-06, Geneva) between 120 countries of Europe, Africa and Middle-East, which enables the deployment of only six DVB-T multiplexes for fixed reception and one DVB-H multiplex for mobile reception;


- Allocation of band III (174-220 MHz, currently used by the Canal Plus analog network) for exclusive use by digital sound broadcasting.

For this purpose, the Prime minister has given ANFR a mandate to negotiate with neighbouring countries the spectrum resources corresponding to an objective of eleven DTT multiplexes for fixed reception and two multiplexes for mobile reception within the Metropolitan territory and to seek with other European countries the best possible degree of harmonisation of the use of the sub-band 790-862 MHz.

The preliminary discussions for these negotiations have continued in 2008 with Germany and have begun with Italy, the United Kingdom, Switzerland, Belgium and Luxembourg (see Box). This work of densification of the use of the UHF band, through the establishment of a target frequency plan, has required 21 meetings, for a total of 60 days of discussions. It will be widened in 2009 to multilateral meetings and may take several years.

In order to free up the sub-band currently allocated to the Ministry of Defence (830-862 MHz), ANFR has identified, in cooperation with the latter and with CNES, a new band suitable for the systems that were previously envisaged in that part of the spectrum.

All the decisions taken by the government at the end of 2008 were announced on 20th October during the presentation at the Elysée of the "France Digital 2012" plan, which also requested ANFR to carry out, before the beginning of year 2009, a study on the use of the "white spaces" of the digital TV broadcasting, in consultation with CSA and ARCEP. The Ministry of the Interior and the Ministry of Defence have also been associated to this study, which aims at identifying to which extent and under which conditions the spectrum not utilized by broadcasting in a given geographical area could be allocated locally to other uses on a secondary basis.

## Analog switch-off and switch-over to digital broadcasting

The first part of the national scheme for analog switch-off and switch over to digital broadcasting was the subject of an order of the Prime Minister on December 22nd, 2008, after the public consultation which was organized by CSA in the first half of 2008. The process of analog switch-off and switchover to digital broadcasting will begin in 2009 on the experimental sites of Coulommiers, Kaysersberg and Cherbourg and will carry on in 2010 with Alsace, Basse-Normandie, Lorraine, Pays-de-Loire, Champagne-Ardenne, Brittany and Franche-Comté, to end on November 30th, 2011, as required by the Law of March 5th, 2007.

In 2008, the Agency contributed to the preparation of this process within the framework of the Comité stratégique pour le numérique.

From the point of view of spectrum usage, this process consists in moving from the current transitory frequency plan, which is used by six DTT multiplexes and soon by the personal mobile TV multiplex (TMP), to the target frequency plan which is being elaborated through international negotiations.

The transitory frequency plan was established to insure a complete compatibility between the digital broadcasting service and the analog one. It is therefore very much constrained by the requirement to protect analog TV reception. The purpose of the analog frequency changes undertaken since 2003 and pre-financed by the FRS was precisely to achieve this protection when the constraint became impossible to satisfy otherwise for the deployment of DTT.

The target frequency plan corresponds to the situation after the end of analog broadcasting. It is therefore freed from the constraints of protection of analog reception, and aims at the objective to allow eleven DTT multiplexes and two mobile TV multiplexes in a band reduced by 11% with respect to that where broadcasting of six DTT multiplexes and a mobile TV multiplex had been planned by RRC-06. It is therefore a space of frequencies densified by a factor two with regard to what had been foreseen in 2006.

From the beginning of the analog switch off, that is from 4 February 2009 in Coulommiers, the space of frequencies used for analog broadcasting will start to reduce, allowing materialization of the digital dividend for broadcasting through switchover to the target frequency plan, which will coincide with analog switch off. Materialization of the digital dividend for mobile will come into effect only on December 1st, 2011, once the entire TV broadcasting network has switched over to the target frequency plan. The process of switch off and switch over thus covers all the period between these two dates

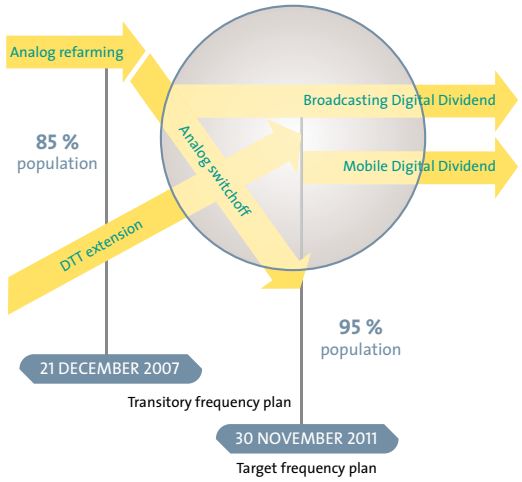
The switch over of DTT transmissions within a given geographic zone towards the target frequency plan assumes that the six or seven corresponding frequencies (six for the DTT and one for mobile

Summary return

TV) are compatible with those of the nearby areas which still use the transitory frequency plan and the analog frequency plan (if these areas have not switched over yet) or which already use the target frequency plan (if these zones have already switched over). This constraint is valid whether nearby areas are located in France or in another country. In this context, the role of the Agency is therefore two-fold:

- to negotiate with neighbouring countries the constraints ensuring, as far as possible, compatibility between the transitory frequency plan on one side of the border and the target frequency plan on the other side, which corresponds to the constraints resulting from the lack of synchronisation in switch over processes on each side of the border;
- when the GE-06 plan foresees, within a given geographic area, a number of frequencies lower than six or seven outside the 790-862 MHz band, to negotiate with neighbouring countries the necessary additional frequencies, anticipating on the negotiation of target plan, or to assist the CSA, in areas remote from borders, in identifying the necessary channels.

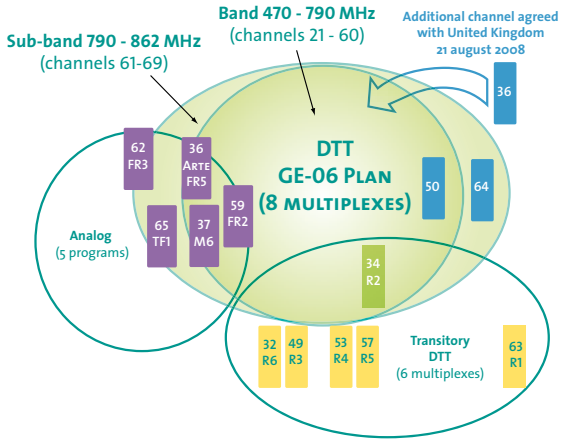
**Figure 1 :**
**Analogue switch-off and switch-over to DTT**




During the summer of 2008, the preparation of switch over to digital at the transmitting site of Cherbourg-Digosville gave the opportunity to illustrate this role within the framework of the negotiations with the United Kingdom (see figure): only five of the eight channels assigned to this site in the GE-06 plan are located outside of the sub-band 790-862 MHz, which corresponds to channels 61-69. Furthermore, the use of one of the channels (channel 50) is subject to important limitations on this site in order to protect the transitory DTT and the analog TV networks in the United Kingdom until their switchover date (July, 2012). The negotiations carried out with the United Kingdom allowed retaining channel 36 for the target plan, under conditions which require a modification of the antenna of this site. This modification also permits to meet the constraints imposed on channel 50, while supplying coverage at least equal to that of the analog or transitory digital networks. The six frequencies planned for switch over of Cherbourg-Digosville correspond to channels 35, 37, 59 (inherited from analog), 34 (inherited from transitory digital), 50 (in the GE-06 plan) and 36 (added to the plan by agreement with the United Kingdom).

As regards the harmonization of the digital dividend for mobile services in the sub-band 790-862 MHz, after the decision of WRC-07 at the end of 2007, an increasing number of European countries made the choice allowed by this decision to allocate this sub-band to the mobile service: Sweden, Norway, Finland,

**Figure 2 :**
**Switchover of Cherbourg site**




Switzerland and France. The United Kingdom and Germany announced at the beginning of 2009 their intention to take the same decision. These decisions facilitate the progress of cross-border negotiations concerning the use of this sub-band.

Besides, ANFR participated actively in the European and world discussions about the channelling of the harmonized frequency plan intended for the mobile service in this sub-band. This plan should be finalized in mid-2009, which should allow the bringing in service of networks and terminals for the end of 2011.

### Protection of television reception

According to the Law of August 1st, 2006, the Agency insures, within the framework of an agreement with the CSA, the protection of TV reception over the national territory. The number of complaints received by the Agency stabilized since 2007 on an annual rate of 1200.

**Table 1 - Contribution of ANFR (full time staff) to television broadcasting issues in 2008**

| Subject | Contribution of ANFR (ETPT) |
|---|---|
| Support to the CSA on the frequency planning and associated on-site measurements | 6.7 |
| International negotiations | 4.4 |
| Administrative treatment of coordination requests | 2.0 |
| Studies | 2.7 |
| Protection of television reception | 15.4 |
| Management of financial funds (FRS and FAN) | 3.0 |
| Studies and measurements for the FAN | 7.5 |
| CAF (Frequency Assignment Committee) | 2.0 |
| Sites and easements | 0.5 |
| Total | 44.2 ETPT |

# INTERNATIONAL ACTIVITIES AND SPECTRUM PLANNING

## *In Summary*

- *Under the French Presidency, unanimous adoption at the Council of a political compromise on the review of the Community regulation on electronic communications,*
- *ANFR actions in the framework of the "France Numérique 2012" plan: transition from analog to digital TV, new frequency bands for the mobile service, white spaces ...*
- *Evolution in spectrum management and European harmonisation,*
- *Update of the National Table of Frequency Allocations.*

Summary return

## 1. The Review of the Community regulations on electronic communications

### The European Commission proposals on spectrum and the opinion of the Council and the European Parliament

At the end of 2007, the European commission presented three texts in order to revise the "Telecom Package" adopted in 2002. As regards spectrum, the Commission wished to reinforce the principles of technology and service neutrality and to force administrations to introduce secondary market mechanisms into certain frequency bands. Lastly, it wished to encourage unlicensed use of spectrum by harmonizing authorisation conditions. The Commission also proposed the establishment of a European Electronic Communications Market Authority (EECMA) to control the activities of national authorities of regulation.

These proposals were considered with caution by the European Parliament and Council, which wished to limit any additional power given to the Commission, to constrain the principles of technology and service neutrality by a number of exceptions, to include a provision on strategic spectrum planning and to reject the creation of EECMA. The corresponding amendments were prepared by the two "rapporteurs", Mrs Trautmann and Mrs Del Castillo, from the Commission on industry, transport, research and energy (ITRE) of the European Parliament, respectively on the framework directive and on ECCMA, and by the Council under the Slovenian presidency. Under French presidency, which started in July 2008, a unanimous political compromise was reached at the Council on 27 November 2008. This compromise was based on the conclusions of the Slovenian presidency and on the report of the European Parliament adopted in September. Most of the European Parliament's positions were taken into account by the Council.

### The French position

Although it had to observe a certain neutrality because of its Council presidency during the second part of 2008, France strongly objected to the creation of EECMA and supported maintaining the RSPG (Radio Spectrum Policy group) on spectrum strategy and the RSC (Radio Spectrum Committee) on spectrum harmonization, which was supported by a broad consensus within the Council. It ensured that the neutrality principle be limited in order to guarantee an effective management of spectrum. It finally took care that the revised framework does not adversely affect the preparation and coordination of international negotiations within the ITU.

### The compromise of the presidency

The presidency's compromise, which was adopted unanimously, includes all the elements of the French position. In accordance with the wishes of many European countries, it has not retained the possibility of a harmonized European licensing procedure for trans-European and trans-border networks. To respond to the request of the European Parliament to be involved in spectrum issues, whose political dimension was highlighted by the digital dividend, the compromise includes the establishment of a multi-annual program on spectrum policy. ANFR will therefore pursue an active participation in the corresponding discussions, in particular within the RSPG.

### The second phase

For the second phase of the negotiation, the European Council is placed under the presidency of the Czech Republic, which is expected to lead, by the first quarter of 2009, to the adoption of the new regulatory package, before the European elections of June 2009, which will result in a renewal of the Parliament and European commission. The main outstanding questions as regards spectrum are the role and status of the Strategic committee of spectrum (RSPC) and the Community measures regarding international negotiations.

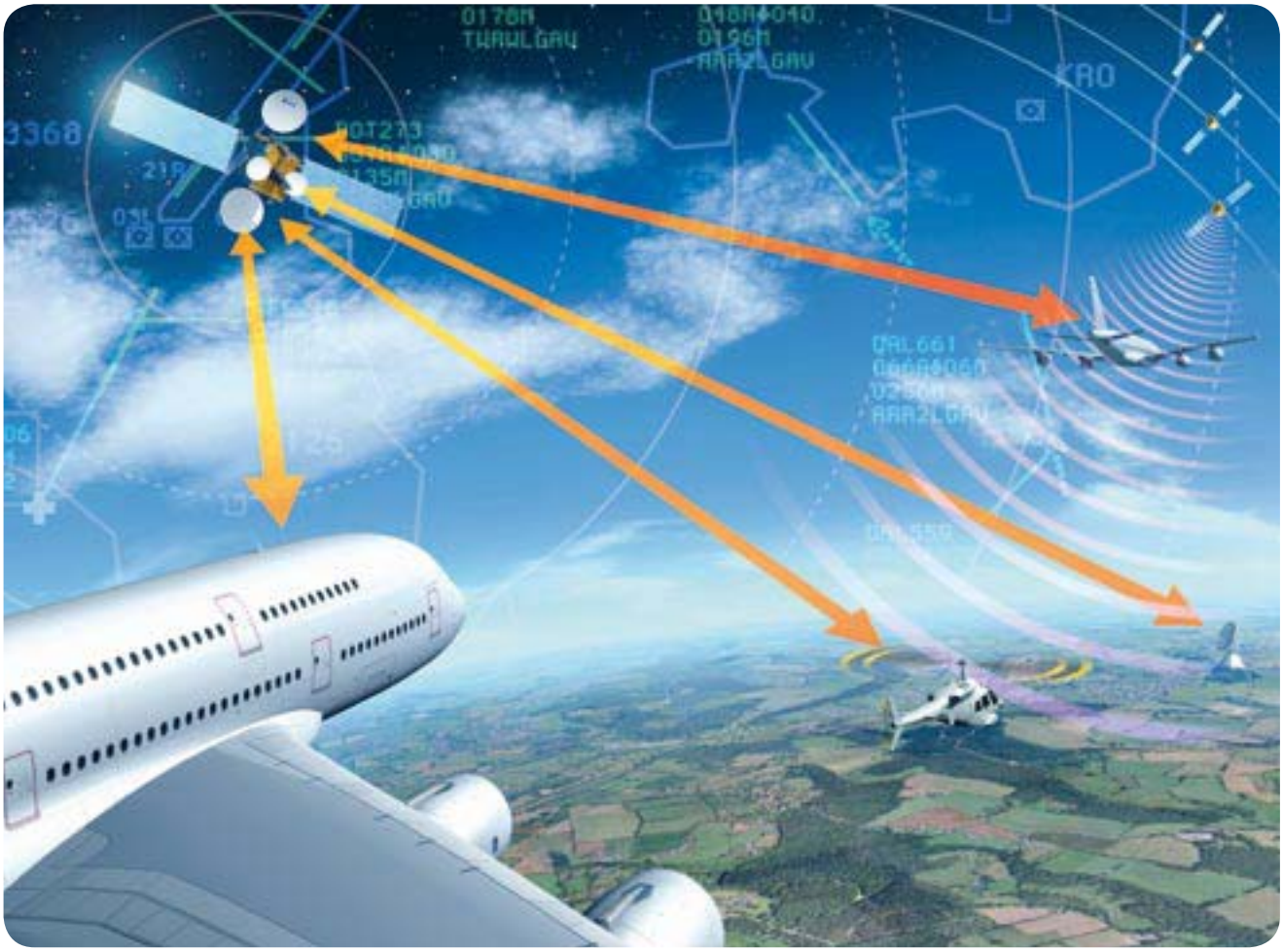
## 2. France Numérique 2012 Plan

In 2008, ANFR was actively involved in the preparation of the "France Numérique 2012" plan and in the implementation of its actions, in particular concerning the digital dividend, the digital switchover, the white spaces and the 2.6 GHz frequency band. Although adopted in November, this plan includes several actions which were initiated at the end of 2007 and will continue in 2009 and 2010.

### The band 790-862 MHz

The work of ANFR on the digital dividend was carried out with the support of many stakeholders in France and succeeded in reconciling the two objectives set in the "France Numérique 2012" plan: on the one hand, the allocation of a new frequency band for the mobile service, in order to facilitate mobile broadband access for everyone, on the other hand, the introduction of new TV multiplexes in order to ensure the development of new TV services (TVHD and mobile TV). This work included careful consideration of the most critical cases for TV spectrum planning, i.e. in border areas. It has also been brought to the attention of our European partners through joint contributions with Germany.

Harmonised conditions for the use of the UHF band in Europe are being defined with the adoption, by the end of 2008, of a draft frequency arrangement for the band 790-862 MHz, with most of its parameters stabilized in accordance with the expectations of the French mobile community. Initial contributions have been submitted to CEPT groups to support the studies on the technical constraints applicable to the mobile service. These studies aim at ensuring coexistence among mobile networks and broadcasting networks. ANFR has also initiated a round of discussion at national level on the additional measures that may be taken in the vicinity of base stations in order to protect broadcasting reception in certain critical cases.



### The 2.6 GHz frequency band

Implementation of the WAPECS concept was particularly successful in this frequency band in terms of technical conditions for spectrum use, i.e. power limitations and emission masks. Very detailed and complex technical studies were required in order to ensure compatibility between FDD and TDD systems in adjacent bands, given the risk of interference between base stations.

These studies also showed the limits of the concept of technology neutrality, by relying only on the characteristics of the UMTS system for FDD and the WiMax system for TDD and turning the discussions on standards into a dispute on the spectrum to be made available for FDD and TDD systems.

The RSC adopted a Decision of the European Commission requesting administrations to apply these conditions. This Decision let Administrations decide between the implementation of the harmonised channelling arrangement defined in the ECC Decision (05)05 or a channelling arrangement less spectrally efficient but offering more spectrum capacity to TDD.

### The "White spaces"

The "France Numérique 2012" plan requested ANFR to report on the possible use of "white space" for broadband access, in relation with the Conseil supérieur de l'audiovisuel (CSA) and the Autorité de régulation des communications électroniques et des postes (ARCEP). "White spaces" correspond to the "holes" in the frequency planning of the broadcasting service. They are currently used by wireless microphones. However, several industries have proposed to use them for applications such as "WiFi" or for broadband internet access, in particular in rural areas.

In cooperation with the concerned administrations and authorities, ANFR analysed in detail the decisions taken by the FCC in November 2008, which are opening the door to placing on the market white space devices, providing they comply with rather stringent requirements: in addition to power limitations, the obligation to connect to a centralised database before any transmission in order to check the available frequency taking into account the need to protect broadcasting, and the obligation to implement cognitive techniques in order to detect any potential use of the spectrum by broadcasting or wireless microphones. ANFR has also carried out studies to assess the availability of "white spaces" in different regions, depending on the intended use (WiFi or broadband access).

### The switchover from analog to digital terrestrial television broadcasting and the negotiation of the target plan for DTT

In order to enable switchover from analog to digital TV, several teams of ANFR have worked together to progress in the negotiation of cross-border agreements with our neighbours (see Box below), to support the definition of the target frequency plan taking into account the objectives set up by the Government and to enable the publication of the switchover plan.

Summary return

## CROSS-BORDER COORDINATION FOR THE DTT TARGET FREQUENCY PLAN

The target frequency plan corresponds to the situation after analog switchoff, thus in a space of frequencies released from the constraints imposed by the coexistence with the latter. During the Regional Radiocommunication Conference in 2006 (RRC-06), this spectrum had been planned by 120 countries of Europe, Africa and the Middle East, in order to share it on an equitable basis between neighbouring countries, and the plan which was agreed (the GE-06 Plan) generally ensures a complete coverage of each country by seven multiplexes.

Since then, the decisions taken at national and international levels on the digital dividend have made the GE-06 plan partially unsuitable and it has to be adapted with our neighbors with the following objectives:

- to reconstitute the frequencies corresponding to the sub-band 790-862 MHz, which have to be released to the mobile service by November 30th, 2011;
- to obtain additional frequencies for broadcasting eleven DTT multiplexes and two mobile TV multiplexes, in a space of frequencies reduced by 11%.

The frequency resources to be identified through this negotiation thus correspond to a densification of use of this band by a factor two with regard to what was achieved in the GE-06 Plan.

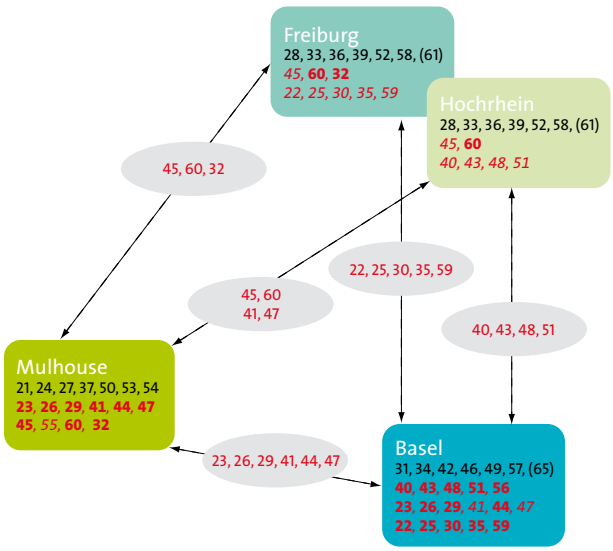
21 coordination meetings took place in 2008 to discuss the issue with Germany, Italy, the United Kingdom, Switzerland, Belgium and Luxembourg, for a total of 60 meeting days. The approach adopted consists, for every geographical area, in identifying the additional channels which could be added to those already included in the GE-06 Plan for this area, avoiding the frequencies above 790 MHz (i.e. above channel 60). These additional channels must be chosen in order to have the least possible effect on the uses already planned by the GE-06 Plan. This approach is imposed by the necessity of protecting the GE-06 plan in order to minimize the modifications to this plan and thus the time necessary to carry out the corresponding negotiations.

In most cases, the use of a potential new channel in a geographic area leads to important constraints. It is exactly the reason why this channel was not retained in the RCC-06 process. There are two categories of constraints:

- the transmit antennas of the broadcasting sites must be tilted downward (the tilt may reach several degrees) to reduce the interference towards other areas using the same channel in the GE-06 Plan. For example, the use of a 3° "tilt" at the antenna of the Cherbourg-Digosville site allows a reduction of the power radiated towards the United Kingdom to the horizon by a factor close to 1000, and thus to share the same channels with areas located on the South coast of England. The application of a "tilt" to a transmit antenna has to be done with great care to avoid reducing the wanted service area. Antenna engineering is therefore a key element to support the negotiation since it conditions the feasibility of the technical solutions envisaged.
- the use of a "potential" channel within an area may be interfered by transmissions within nearby areas to which this channel is allocated by the GE-06 Plan. Avoiding this interference requires constraining the choice of broadcasting sites and can thus lead to increased costs for broadcasting (new broadcasting stations) or reception (receive antenna repointing or additional receive antenna) to avoid service disruptions at switchover, or in a few years, when transitioning to HDTV.

The Figure below gives an example of the distribution of "potential" channels between four broadcasting stations in the area of Mulhouse, Basel, Freiburg and Hochrhein, where the sharing of the frequencies between three countries (France, Germany and Switzerland) leads to a particularly difficult situation. Channels assigned by the GE-06 Plan appear in black, and "potential" channels in red, with, inside bubbles, channels which are incompatible with those of another area and thus must be split between the two areas. The objective is to find a distribution where the potential channels are spread in such a way that every broadcasting transmitter obtains at the end an equitable number of channels. Once this is achieved, the distribution still has to be compatible with the other adjacent areas, which are not indicated in the Figure.

**Example of distribution of channels in a border area**




To avoid retaining solutions which would lead to prohibitive costs for broadcasters or for viewers, or conversely to avoid rejecting solutions which could bring additional channels at the price of a marginal additional cost or a of non significant reduction of coverage, ANFR conducts systematic detailed analysis in cooperation with broadcasting operators, and if necessary, carries out on-site measurements.

## 3. Evolution in Spectrum Management and European Harmonisation

ANFR is involved in the European harmonisation process by contributing to the following entities: the RSPG, for spectrum policy, the RSC (for implementing community measures on spectrum use in relation with the Spectrum Decision) and the ECC (Electronic Communication Committee of the CEPT). ANFR also attends certain ETSI meetings and is involved in the European research project E3.

### RSPG Opinions

RSPG Opinions serve as a reference for CEPT administrations but also for other regions of the World. The RSPG 2008 Work Program covered 4 topics: spectrum issues concerning outer EU borders, collective use of spectrum (CUS), streamlining the EU regulatory environment for the use of spectrum, public use of spectrum (PUS). Moreover, under the RSPG's Swedish presidency, cooperation between RSPG and ERG has been initiated on competition issues in the framework of a flexible use of the spectrum (transitional radio spectrum issues, management of radio spectrum in order to prevent anticompetitive hoarding, definition of the relevant market in a fixed-mobile convergence environment, dominant position further to secondary market process).

ANFR contributed to the development of the relevant Opinions and Reports in consultation with interested parties at national level. ANFR chaired the RSPG ad hoc group on streamlining the EU regulatory environment. The relevant Opinion raises the key role of CEPT in the definition of sharing conditions between various spectrum users and clarified how these conditions may be reflected in community measures (either EC Decisions or harmonised standards) and CEPT deliverables. ANFR took care that the PUS opinion mentioned the role of Government services and the variety of usages of these services, often under-estimated at European level. ANFR also led the discussions on possible improvement in spectrum management for these services. The CUS opinion recalls the respective roles of individual and general authorisations and recommends that advantage be taken of the current relatively light use of the frequency bands above 30 GHz to identify opportunities for "licence exempt" usages in these bands.

### European harmonisation, measures adopted by the European Commission

On the basis of the CEPT reports carried out in response to EC mandates, the European Commission elaborates regulatory measures to harmonise the technical conditions of spectrum use. In addition to the annual revision of the EC Decision on short range devices (SRD) (2008/432/EC), the Commission adopted the following measures:

- harmonised conditions of spectrum use for the operation of mobile communication services on aircraft (MCA services) (2008/294/EC) ;
- harmonisation of the 3400-3800 MHz (2008/411/EC) and the 2500-2690 MHz (2008/477/EC) frequency bands for terrestrial systems capable of providing electronic communications services;
- harmonised use of radio spectrum in the 5875 - 5905 MHz frequency band for safety related applications of Intelligent Transport Systems (ITS) (2008/671/EC);
- selection and authorisation conditions of systems providing mobile satellite services (MSS) (2008/626/EC)

Moreover, the European Commission launched the review process of the EC Decision on short range radars (2005/50/EC).

### CEPT activities paving the way for European harmonisation

CEPT/ECC plays a key role in European spectrum harmonisation by providing responses to EC mandates. In 2008, ECC carried out work in response to the first EC mandate on the "Digital Dividend" and provided first technical conclusions (CEPT reports 21 to 25). It also started the preparation of the relevant reports to respond to the second EC mandate on a tight time schedule. CEPT/ECC provided to the EC its proposals on Intelligent Transport Systems (ITS) (CEPT report 20) and finalised its response to the first WAPECS mandate (CEPT report 19). By the end of 2008, CEPT launched public consultations on CEPT reports on SRD and ultra wide band (UWB) devices. ECC approved 10 decisions, 4 recommendations and 11 reports.

In addition to its participation in CEPT technical studies, ANFR was also involved in ERO/ETO Council and contributed to the discussions on the evolution of CEPT structure and the role of ERO/ETO.

### Involvement in European research on cognitive and software defined radio

ANFR maintained its participation within the European research program E3, a follow on to E2R on cognitive and software defined radio. Interest in this field is growing among the various radiocommunications stakeholders since it may help in responding to increasing demands of spectrum use in the future. ANFR is also involved in the relevant ETSI technical committee (TC RRS) to assess the possible impact of these technologies on ETSI deliverables having regulatory implications (harmonised standards, System Reference Documents).

Summary return

## 4. Technical studies conducted by the ANFR

### Spectrum requirements for Unmanned Aircraft Systems (UAS)

The ability to integrate UAS in the general aerial navigation will partly depend on the completion of WRC-11 related activities on the spectrum required for remote operation of unmanned aircraft while complying with the security rules defined by Civil Aviation Authorities.

In this context, a work plan has been set up by ANFR. On the basis of the civil and governmental applications expected at European level between 2015 and 2030, ANFR has estimated with the pertinent regulatory authorities the density of unmanned aircrafts likely to be deployed and the corresponding spectrum requirements for terrestrial and satellite links. Once these requirements have been consolidated, potential frequency bands to satisfy them will be listed and the relevant sharing studies with other services will be performed.

The usefulness of unmanned aircraft is determined by its ability to fulfil it assigned tasks. It is therefore necessary to also consider spectrum requirements for the implementation of payloads on-board UAS. These studies are currently performed by ANFR on a national basis.

### Safety perimeters surrounding transmitting stations

ANFR carried on with its work on updating of its guide to determine the typical values for safety perimeters surrounding transmitting stations. Version 2 of this guide has been released in February 2008. This version addresses the mobile telephony (GSM at 900 and 1800 MHz, UMTS at 2 GHz), terrestrial broadcasting (analog and digital television, FM sound broadcasting), professional mobile radio (digital PMR at 400 MHz), wireless access systems such as WiMAX at 3.5 GHz and WiFi type radio local area networks at 2.45 GHz.

The development of version 3 has also been initiated. In addition to the systems previously mentioned, it will include UMTS at 900 and 1800 MHz, WiFi type radio local area networks at 5 GHz and personal mobile television. This version should be published during the first half of 2009.

### Technical studies conducted within CEPT

Within CEPT, a number of technical studies were completed in 2008 in the form of Reports or Recommendations. This work, to which ANFR made a considerable contribution, constitutes the technical basis for the regulatory decisions adopted by ECC and RSC.

The most noteworthy results are as follows:

- Establishment of the technical and operational conditions for the use of GSM on-board vessels in order to ensure the protection of land mobile networks ;
- Definition of the technical conditions for specific applications using ultra-wide band (UWB) technology and of the technical requirements for the implementation of mitigation techniques in generic UWB systems in order to protect the radiolocation and broadband wireless access systems such as WiMAX ;
- Development of channelling arrangements and technical conditions for the fixed service in certain frequency bands above 57 GHz.

### Standardisation activities within ETSI

ANFR is involved in standardisation activities within ETSI, in particular for the development of European harmonised standards covering the essential requirements of article 3.2 of the R&TTE Directive. ANFR objective is mainly to ensure that the technical conditions defined in the CEPT studies are properly implemented in the harmonised standards.

In 2008, ANFR was particularly involved in two areas:

- Revision of the harmonised standard EN 301893 for 5 GHz RLANs in order to implement the necessary corrections to ensure the protection of radars. This was required as a result of actual cases of interference from RLAN into meteorological radars in 2007;
- Development of the harmonised standards EN 302544 for broadband TDD mobile systems (e.g. WiMAX) at 2.6 GHz.

## 5. The preparation of the World Radiocommunications Conference (WRC-11)

### Preparatory framework

The preparation cycle for the next World Radiocommunications Conference, which will be held in 2011, has begun in 2008. Within ITU-R, France has been given the chairmanship of Study Group 7 (scientific services) and the vice-chairmanship of the Study Group 4 (space services), of the Special Committee on regulatory and procedural matters and of the Coordination Committee for Vocabulary. The technical work has begun in the ITU-R working parties, notably for aeronautical issues, scientific issues or for the frequency band 790-862 MHz. Although the initial discussions were mainly to organize the studies to be carried out, the objectives pursued by the administrations present or by the regional organizations have emerged from these discussions.

ANFR plays an important role in the European framework for WRC-11 negotiations, since it has been assigned the chairmanship of the CEPT Conference Preparatory Group (CPG), together with the European coordination of 7 topics out of 25. European coordinators have the responsibility to coordinate the European positions and to speak on behalf of CEPT during the Conference. CEPT is the first regional group to have adopted its draft briefs and preliminary positions on all agenda items, on the basis of the work of two CPG meetings and of several project teams responsible for the drafting activity.

### Main agenda items

The workload for the preparation of WRC-11 is roughly equivalent to that of WRC-07, in spite of a slight increase in the number of agenda items. Although an early determination of the importance that will be taken by any given item during WRC-11 is difficult, the main areas which will be impacted by the WRC-11 decisions are as follows:

- electronic communications, with the item on the UHF band (1.17), for which ANFR will have to ensure that WRC-11 decisions will not adversely impact the decisions made at national level concerning the digital dividend, and the very wide item on the services ancillary to broadcasting (1.5) ;
- space services, notably agenda item 1.25 on the new allocations for the mobile-satellite service, that might open new opportunities for the French space community ;
- aeronautical issues, with items on unmanned aircraft systems (UAS) (1.3) and aeronautical communications (1.4) ;
- scientific services, with several items which aim at securing the use of certain frequency bands and responding to new requirements ;
- radiolocation service, with many items (1.14, 1.15 and 1.21) ;
- several horizontal subjects, like the international regulatory framework (1.2), often misunderstood and which has to continue to offer the greatest freedom of choice in spectrum use by each country while ensuring the protection against interference and enabling harmonised worldwide use of frequencies where it is desired.

Other important items relate to areas such as maritime communications or cognitive radio.

## 6. Institutional Cooperation

Institutional co-operation of ANFR consists of:

- bilateral actions (exchanges of views, training courses and specific assignments);
- multilateral actions in the form of training seminars and participation of experts in international meetings and symposiums.

### Bilateral actions

2008 was a very active year in bilateral cooperation, with the visit of 22 foreign delegations, including 110 high-level representatives and foreign experts from around the World. Discussions related to issues such as DTT, digital dividend and spectrum monitoring.

ANFR received the visit of the Minister of Communications of Colombia for the signature of a cooperation agreement. Two other agreements were signed, one with the Agency of Regulation of Telecommunications of Cameroon and the other with the Ministry for Information and Communication technologies of Seychelles. The latter is part of a regional co-operation policy with the South-West Indian Ocean region, where ANFR is present through its premices in la Réunion.

ANFR also received the visit of a delegation from the Russian Federation, led by the Vice-minister of Communications and Information, for an exchange of views on the digital dividend.

ANFR also intervened in a seminar on spectrum monitoring in Cyprus, and in a training course on international spectrum management policy in Greece. ANFR also visited the communications regulator of the Czech Republic (CTU) for an exchange of views on digital switchover and digital dividend.

Summary return

| Countries | Organisation | Topics | Period |
|---|---|---|---|
| Russian Federation | Ministry of Communications and Information | Digital dividend | December 10, 2008 |
| Côte d'Ivoire | ATCI | Automated Spectrum Management | December 1-2, 2008 |
| China | BCR | "Great Events" | November 24, 2008 |
| South Korea | KORPA | FRS and FAN | November 12, 2008 |
| Federation of Russia | Centres for radiofrequencies | Spectrum monitoring | November 10, 2008 |
| Cameroon | ART | Spectrum monitoring | October 27, 2008 |
| Venezuela | Ministry of Telecommunications and Informatics | Bilateral Committee on DTT | September 29 to October 3, 2008 |
| Thailand | NTC | Management of frequencies<br>Spectrum monitoring<br>International cooperation | September 18, 2008 |
| Czech Republic | CTU | Digital switchover<br>Digital dividend | July 3, 2008 (Prague) |
| Gabon | ARTEL et GABTEL | Spectrum monitoring<br>Management of independent radio networks | June 23-27, 2008 |
| Colombia | CNTV | Meeting with the Colombian Commission in charge of defining a standard for DTT | June 17, 2008 |
| Morocco | ANRT | Spectrum monitoring<br>Relations with administrations and authorities using spectrum | June 9-13, 2008 |
| Côte d'Ivoire | ATCI | Spectrum monitoring | May 21, 2008 |
| Germany | BNetzA | Spectrum monitoring | May 16-20, 2008 (Nancy) |
| Senegal | ARTP | Spectrum monitoring | April 8, 2008 |
| Japan | Embassy of Japan | Regulatory framework on the calculation of fees for management and use of frequencies | April 7, 2008 |
| Gabon | ARTEL | Assignments and organisation of ANFR | March 7, 2008 |
| China | Ministry of Information and Industry | Conference organised by ITU: spectrum planning and monitoring for great events in preparation for the Olympic Games in Beijing | March 2-8, 2008 (Shenzen) |
| Cameroon | ART | Protection of TV reception<br>Management of independent radio networks<br>Organisation of a regional office<br>Spectrum monitoring | February 18-20, 2008 |
| Colombia | Ministry of communications | Signature of a cooperation agreement | February 11, 2008 |
| Thailand | NTC | Spectrum monitoring | February 11, 2008 |
| Kurdistan | Ministry of communications | Domestic spectrum management<br>Spectrum monitoring | January 21-25, 2008 |
| Vietnam | Ministry of Information and Communications | Planning and management of frequencies | January 21, 2008 |
| Vietnam | Ministry of Information and Communications | Planning and management of frequencies | January 21, 2008 |
| Greece | EETT | International spectrum management policy | January 17-18, 2008 |

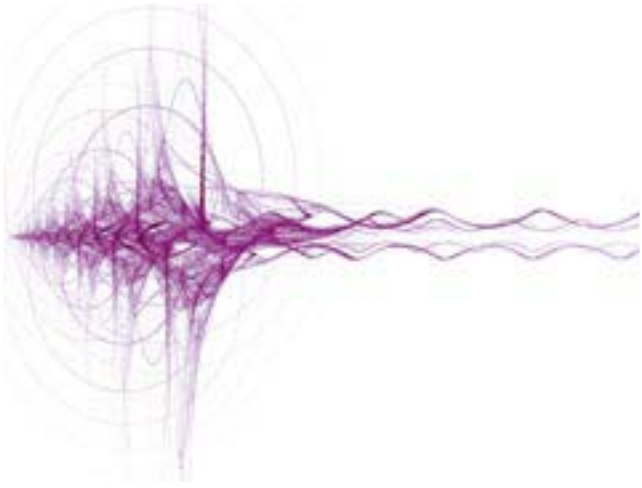
### Multilateral actions

In 2008, ANFR intensified its actions in support of developing countries. It took part in several meetings of the ITU Development Sector, such as the annual meeting of ITU-D Study Group 1 and the 8th Global Symposium for Regulators, on spectrum sharing issues. ANFR also took part in the 6th Annual meeting of FRATEL on the effects of regulation on the development of competition.

An agreement was signed with TELECOM ParisTech, the Agency of Telecommunications Regulation of Burkina Faso (ARTEL) and ARCEP, within the scope of an annual training cycle leading to a master degree in regulation of telecommunications and spectrum management (BADGE), recognized by the Conference of the French Schools and Universities, at the attention of the professionals in charge of regulating telecommunications/broadcasting, spectrum managers, public and private operators from the French-speaking sub-Saharan African countries.

ANFR also organized, in November 2008, a seminar on spectrum management and spectrum monitoring, with the support of its office in la Réunion. This seminar was attended by French-speaking countries of the Indian Ocean (Seychelles, Maurice and Madagascar) and was supported by the Regional Fund for Co-operation in the Indian Ocean (RFC) and by the European Regional Development Fund (ERDF).

## 7. The National Table of Frequency Allocations (TNRBF)



Updates of the TNRBF are prepared by the Commission de planification des fréquences of ANFR (CPF, Frequency Planning Committee). In 2008, the CPF proposed to the Board of ANFR a new complete version of the TNRBF (edition 2008), taking into account WRC-07 decisions, with the exception of those dealing with the 470-862 MHz frequency band, in the expectation of the decisions to be taken by the Prime Minister on the use of frequencies which will be made available by the analog broadcasting switchover. The Board of ANFR approved this new edition on 10th July 2008 and forwarded it to the Prime Minister, according to the relevant procedure, which provides for formal consultation with ARCEP and CSA. This new edition was published by a decree of the Prime Minister of 30 October 2008.

The TNRBF was then modified to take into account the decisions of the Prime Minister concerning the allocation of frequencies which will be made available by the switchoff of analog broadcasting in the 174-223 MHz and 790-830 MHz frequency bands, the allocation of the 830-862 MHz frequency band and the associated transitional provisions. This modification was published by a decree of the Prime Minister dated 22 December 2008.

The CPF also proposed to the Board of ANFR other modifications relating to:

- the harmonisation of the 169.4-169.8125 MHz frequency band (Decision of the European Commission n°2008/673/EC);
- the harmonisation of the 3 400-3 800 MHz frequency band for terrestrial systems capable of providing electronic communications services (Decision 2008/411/EC);
- the harmonised use of radio spectrum in the 5 875-5 905 MHz frequency band for safety-related applications of Intelligent Transport Systems (Decision 2008/671/EC);
- update of the frequencies to be used by low power and short range devices (Decision 2008/432/EC and allocation of frequencies to model control equipment).

The Board of ANFR approved these modifications on 11th December 2008.

As part of its spectrum planning activities, ANFR is also conducting prospective analyses on the use of radio frequencies. The Commission des revues de spectre of ANFR (CRdS, Advisory Committee on Spectrum Reviews) is in charge of conducting surveys on current use of spectrum and to collect information on long-term spectrum requirements. Its work program is defined annually and takes account of the activity of international organisations (CEPT, ITU). In 2008, it was related to:

- spectrum demand for the fixed service until 2015;
- spectrum demand for civilian UAS (Unmanned Aircraft Systems);
- broadband access systems.

## 8. Use of the Spectrum Reallocation Fund (FRS) and the Digitisation Support Fund (FAN)

### The Spectrum Reallocation Fund (FRS)

As in previous years, 2008 was particularly marked by spectrum reallocation operations, in relation to the deployment of the Digital Terrestrial Television (DTT). Many frequencies used by analog broadcasting stations had to be retuned, whenever possible, to ensure their compatibility with those used by DTT. These modifications were pre-financed by the Spectrum Reallocation Fund (FRS), which is reimbursed, according to the provisions of Decree n°2003-620, by the beneficiaries of these operations, i.e. the DTT program providers.

By end-2008, the deployment of DTT had necessitated 1 200 analog frequency changes, taken into account by the FRS for an amount of 55 M€. Extension of the DTT coverage and deployment of HDTV and mobile TV networks will require continuation of such operations.

Summary return

Within the framework of two reallocation agreements signed by ANFR with the aim of deploying mobile telephony networks (UMTS) in French overseas "départements", the Ministry of Defence released the band 1 900 - 1 980 MHz in Martinique (on July 1st, 2008) and half of the band in la Reunion (on January 1st, 2008). The whole band must be available on July 1st, 2010.

The extension band for UMTS in Metropolitan France (2 500-2 690 MHz) is currently used by about 700 radio relay links of the Gendarmerie's RUBIS network. The reallocation schedule will spread over a period of 4-5 years for a cost estimated to 65 M€ and the conditions of FRS intervention are still to be defined. The FRS could also be used to support the implementation of the digital dividend by facilitating the release of the band 830-862 MHz by the Ministry of Defence. The associated cost is currently 118 M€. These two operations are closely associated, in calendar and financial terms, to the allocation of the fourth UMTS license at 2, 1 GHz.

### The Digitisation Support Fund (FAN)

The FAN is designed to ensure continuity of the reception of analog terrestrial television broadcasting when it may be affected in order to deploy DTT, as a result of spectrum scarcity. It may be used when analog terrestrial broadcasting reception is either interrupted by early switch-off of analog transmitters requested by CSA, or affected by interference caused by DTT transmitters located in other countries and which have been subject to border coordination agreements (Decree n°2007-957 of 15 May 2007).

On the basis of the proposals by the Commission du fonds d'accompagnement du numérique of ANFR (CFAN, Advisory Committee on FAN), the Board of ANFR decides on the geographical areas where the FAN is to be used and on the expenses and costs to be incurred.

Five agreements were signed with the GIE Fréquences to enable the operational implementation of the FAN in border regions with Germany, Belgium, Italy and Switzerland.

Since its creation, the FAN has ensured continuity of the analog broadcasting service of about 170 sites serving more than 14 million inhabitants. The financial amounts committed to date for these operations amounted to € 5.6 million.

At this point however, the FAN was used for the financial compensation of only about 30 households, following the introduction of 29 DTT assignments in Germany in July and December 2007: 25 households in individual homes and 4 households in buildings have benefited from an intervention (installation of a parabolic dish) and 4 viewers asked for the a financial package.

## 9. Management of satellite system frequencies

The "France numérique 2012" Plan adopted by the French Government in October 2008 foresees that all French inhabitants will be able to receive personal mobile television and defines the French regulatory framework for the allocation of frequencies in the 2 GHz band by the first quarter of 2009, taking into account the European selection process. This European process started in July 2008 in order to select the satellite systems that will be authorised to use parts of the 1 980-2 010 MHz band in the Earth-to-space direction and of the 2 170-2 200 MHz band in the space-to-Earth direction for the mobile-satellite service (MSS). This process should be completed by the summer of 2009.

In 2007, ANFR had processed an application for authorising the operation of a satellite system at 10° East in the 2 GHz band, based on the assignments submitted by France to the International Telecommunication Union (ITU). The project has since been taken over by another company (Solaris Mobile Ltd.) which submitted to the European Commission, like three other companies, an application for the European selection process. The 2007 authorisation was therefore abrogated in order to be able to deliver a new authorisation to this company. ANFR has examined the corresponding requests and the authorisation was delivered by the Minister in charge of electronic communications on 24 December 2008.

In 2008, ANFR further received and processed two other authorisation applications for satellite systems at the orbital positions 4° West and 10° East. At the end of 2008, three satellite system operators hold ten authorisations at six different geostationary orbital positions.

ANFR has also signed an arrangement with the Ministry of Defence so as to allow the advanced payment of processing fees and ITU costs for the ATHENA satellite project.

ANFR is also the notifying administration to the ITU for three intergovernmental organisations, two governmental satellite operators and seven commercial operators. In 2008, it transmitted to the ITU, for the benefit of these satellite operators, 212 notices for advanced publication of information on satellite networks (API), 16 coordination requests, 16 requests for inclusion in the broadcasting-satellite Plans governed by Appendices 30 and 30A, 23 notification requests under Article 11 and 18 notices required by Resolution 49 of the Radio Regulations for the due diligence procedure (concerning in particular the identity of the satellite and of the launcher).

Satellite coordination activities continued with a meeting with the Russian Federation in March 2008 and a meeting with Israel in December 2008.


# Monitoring and measurements

*In brief...*

- *130 site inspections*
- *537 cases of interference investigated*
- *5,675 ship radio installations controlled*
- *8,227 candidates invited to take the SRC examination (Short Range Certificate), 1,003 scheduled sessions*
- *1,669 independent radio networks inspected*

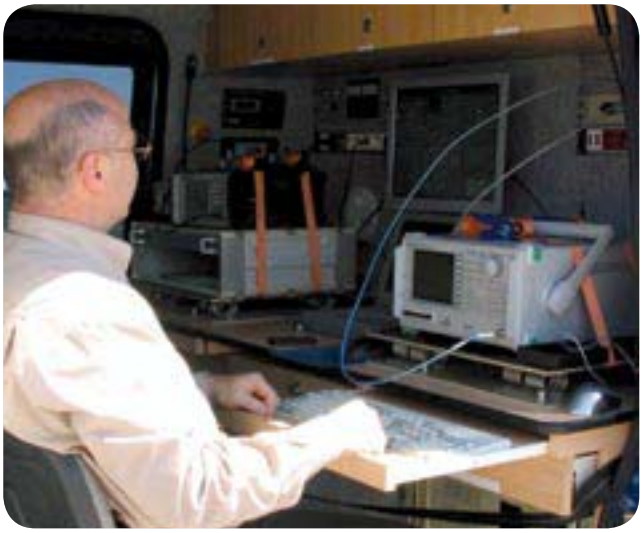
ANFR is responsible, on behalf of ministerial departments and regulatory authorities in charge of frequency assignment, and throughout the territory, including overseas departments and communities, for monitoring radio transmissions, administrative and technical processing of interference at national and international levels and, since 1 October 2006, jointly with CSA, for the protection of television reception. To guarantee optimum use of frequency bands with minimum interference, it is essential on one hand, to identify transmissions causing harmful interference, on the other hand to ensure that the use of frequencies in the field conforms to the technical specifications and applicable regulatory procedures. ANFR must also guarantee the conformity of frequency uses with the rights and obligations resulting from the application of the provisions of the ITU Radio Regulations.

The corresponding activities include:

- the administrative and technical handling of reported interference and television viewers complaints when an on-site visit is considered as necessary;
- the prevention of electromagnetic incompatibilities, both by controlling radio equipment and terminals placed on the market, and by regular inspections of transmission sites and areas with a high concentration of services and radio systems – for example, port and airport areas;
- the coordination of frequencies and monitoring of their use during national or international events of a political, cultural or sporting nature (during these "major events" a very large number of temporary radio networks, particularly broadcasting and safety networks, are added to those already present);
- the attendance to international meetings relating to measurement methods and procedures, as well as to international monitoring of transmissions;
- the coordination of monitoring of compliance of public exposure to electromagnetic fields with applicable limits, particularly in the vicinity of base stations transmitters ;
- the provision of specific services for the benefit of the ministerial departments and regulatory authorities in charge of frequency assignment, pursuant to agreements signed with them: ARCEP, CSA, the Ministry in charge of the Maritime Affairs and the Ministry of the Interior.

## 1. The resources

In order to successfully complete all its inspection duties, ANFR has at its disposal a staff of over 140 persons, most of them highly qualified engineers, and structured around six regional services, distributed to ensure a uniform coverage of the metropolitan territory, and the Centre de contrôle international (CCI, International Monitoring Centre) located in Rambouillet. The latter is particularly dedicated to the international monitoring of transmissions in the LF, MF and HF bands, and as such is operational 24 hours a day / seven days a week. Finally, an office established on the Island of la Reunion is dedicated to the inspection and measurement activities on that island as well as in the island of Mayotte, and an office, established in Guadeloupe since December 2007, carries out monitoring and measurement activities in the French Caribbean islands and Guyana.



In terms of technical resources, ANFR operates, in metropolitan France, a monitoring system structured around seven remote control and computerized processing centres, linked to fifty four fixed stations, one of which also providing coverage for the HF bands and to fifteen transportable stations, as well as a fleet of twenty seven vehicles equipped with measurement laboratories allowing frequency measurements up to 3 GHz, one of which in la Reunion and another one allowing measurements up to 40 GHz.

This system allows monitoring of the frequency bands on which most of the transmissions take place (between 30 MHz and 3 GHz), particularly those associated with radio broadcasting and mobile services (mobile telephony, for example) and up to 40 GHz if necessary. The equipment is regularly updated to keep an optimum level of monitoring.

All these technical resources rely on a software application dedicated to spectrum monitoring, FCS.

ANFR is able to control and monitor all bands open to the terrestrial services between 9 kHz and 40 GHz and to satellite earth stations. As party to an international agreement under the aegis of the European Radiocommunication Office (ERO), ANFR has also access to the Leeheim (Germany) station facilities for monitoring space stations.

## 2. Monitoring policy

### Inspection of radio sites

In 2008, one hundred and thirty radio sites were inspected by ANFR. These included 1,565 stations using 5,776 frequencies.

Inspection reports identify non-compliances observed in respect of the data provided by frequency assignment authorities in ANFR reference data bases (FNF), in STATIONS files. Non-compliances are also noted in respect of spectrum rights of use (SRU) given by ARCEP. All non-compliances are notified to the responsible regulatory authorities or operators, in order to ensure consistency of data.

The main non-compliances recorded were related to the non-conformity with SRU (86), to the absence of COMSIS agreement and to the utilization of frequencies without authorization (33).

### Measurements for verification of compliance with the limits of public exposure to electromagnetic fields

In 2008, ANFR recorded 2,644 measurements, performed by bodies accredited by COFRAC, aimed at verifying compliance within the limits of public exposure to electromagnetic fields. In total, ANFR database contains over 15,000 reports, carried out since 2001. These reports are available on www.cartoradio.fr.

In 2008, ANFR took over the activity of qualification of CPICH decoders necessary for realization by accredited laboratories of in situ measurements of the field transmitted by 3G mobile telephony stations. ANFR qualified twenty CPICH decoders for Bureau Veritas, Aexpertise, LCPP (Laboratoire Central de la Préfecture de Police) and Emitech.

At the end of 2008, ANFR also filed an application to COFRAC for the accreditation of Rambouillet CCI and Lyon regional service to carry out in situ electromagnetic field measurements

In December 2008, CENELEC published a new standard (NF EN50492) for the assessment of transmit radio stations related to human exposure restrictions for electromagnetic field. A consultative working group, composed of technical experts from public and private stakeholders, has been established by ANFR in order to update the in situ measurement protocol ANFR/DR 15-2.1, taking this new standard into account. A new version of this protocol is expected to be published in 2009.

### International monitoring of transmissions

The International monitoring centre (CCI) in Rambouillet monitored 94,441 HF frequencies, among which 11,414 were not being used in compliance with applicable regulations. Thirty one infringements were recorded and identified for which foreign administrations received a notification, and over 6,600 non-compliant transmissions were notified to the ITU.

International cooperation continues and materializes in several ways. In 2008, ANFR signed the agreement for the interconnection of CEPT HF direction finders. This allows the Rambouillet CCI to share its direction finder facilities with Switzerland and Spain. In addition, the activity of the Internet forum between international monitoring centres of CEPT Member States continued to improve (126 mutual aids in 2008, against 71 in 2007, 50 in 2006, 34 in 2005 and 22 in 2004).

Concerning the HF frequency band, the number of complaints slightly decreased (31 complaints in 2008 including 7 international, against 40 complaints in 2007, including 11 international). This reduction may be the result of strengthened preventive control.

Concerning the future of HF direction finding facilities available in the CCI, ANFR decided in 2008 to join the project of a new HF direction finding system (Clovis project) developed by the Ministry of Defence, which will replace the current system for 2012. This new system, which will use a significant monitoring stations network with coverage beyond European borders, will provide ANFR with greater capabilities for monitoring HF bands. Its availability will be permanent and immediate with response time adapted to operators' requirements in the monitoring centre.

Summary return

### International activities relative to the spectrum monitoring

In 2008, ANFR continued to contribute to the work of ITU-R Study Group 1 and chaired the working group in charge of updating the 2002 edition of the ITU-R spectrum monitoring handbook. This work focused on the revision of chapters about monitoring equipment and automation of monitoring operations, monitoring of spacecraft emissions and monitoring system planning and tender processes. In 2008, the corresponding supplement to the spectrum monitoring handbook was published.

Within the framework of CEPT project team SE24, compatibility measurements between speed meter radar and anti-collision radars on-board cars were carried out.

Within the framework of a contract with Meteo France, two study reports were completed in 2007. The first one dealt with measurements of the performance of DFS systems implemented in the 5 GHz RLAN systems. Its conclusions contributed in 2008 to the revision of the relevant ETSI standard. The second one assessed the impact of different kind of interfering signals on meteorological radars. Its conclusions contributed to the adoption of more stringent protection ratio for meteorological radars in international recommendations.

In the framework of CEPT, the members of the memorandum of understanding signed by ANFR with other European administrations to use the Leeheim satellite monitoring station decided to initiate and to fund the measurements of the new transmissions of the Iridium system in order to protect the radio astronomy service in the 1,610.6-1,613.8 MHz band.

### Frequency coordination and inspections for "major events"

In 2008, ANFR organized the assignment, coordination and protection of frequencies for eleven "major events".

| | |
|---|---|
| Enduropale in Le Touquet | from 2 to 3 February |
| Roland Garros<br>International tennis championship | from 25 May to 10 June |
| 47th International Aerospace Show<br>Le Bourget 2007 | from 18 to 22 June |
| 24 Hours of Le Mans<br>Test Day | 2 June |
| 24 Hours of Le Mans | from 14 to 17 June |
| Formula 1 Grand Prix<br>in Magny-Cours | from 20 to 22 June |
| Cycling Tour de France<br>(95th edition) | from 5 to 27 July |
| 2008 Armada | from 5 to 14 July |
| 2008 Brest | from 11 to 17 July |
| July 14th parade in Paris | from 13 to 14 July |
| Vendée Globe start | 9 November |
| Pope's visit in Paris and Lourdes | from 12 to 15 September |

### Processing of interference cases

A new software application for the management of interference cases was brought in service in March 2008.

In 2008 the number of interference cases reported to ANFR increased to 606, with half of these cases concerning ARCEP. This may be considered as a return to the average level of the last six years. However, this apparent increase from 2007 and the high percentage of unauthorized transmissions identified in 2008 must be considered in context.

During the second half of 2008, the Ministry of Defence requested ANFR to conduct an investigation for a generic interference in the 225-399,975 MHz frequency band, in which long range cordless telephones were illegally operating. A specific campaign on the use of these non-compliant devices was launched at the end of 2008 on the whole territory. This allowed to process nearly 180 cases of operation of that kind of device in 2008.

| Year | Number of requests reported to ANFR |
|---|---|
| 2008 | **616** |
| 2007 | 447 |
| 2006 | 599 |
| 2005 | 541 |
| 2004 | 540 |
| 2003 | 654 |
| 2002 | 644 |

**Types of interference identified in 2008**

| Type | Percentage |
|---|---|
| Unauthorized transmissions | 40 % |
| Electromagnetic compatibility<br>Industrial interference, power lines, cable networks | 20.5 % |
| Particular transmissions<br>Propagation, foreign transmission, frequency sharing | 14.7 % |
| Defect in receiver installation<br>Antennas, discrimination, reception saturation | 10.2 % |
| Defect in transmitter<br>Spurious emissions, intermodulation products during transmission | 9.1 % |
| Non compliance with authorised use<br>Excessive frequency deviation, permanent transmission | 5.1 % |

As in previous years, a major proportion of interference cases was caused by sources other than radio-equipment (particularly data processing units, cable networks, etc.). Handling such cases requires significant resources. Despite the important effort in the market surveillance, professional mobile radio networks are increasingly affected by low power and short range equipments designed for the general public and available at low cost, which produce a significant level of cumulative interference.

### AMATEUR software application undergoes transformation

ANFR provides to the Ministry in charge of electronic communications, management services for amateur radio: delivery of operator's certificate (after examination), allocation of call signs and invoicing of annual fees.

ANFR took up this activity at its creation in 1997, using a software application which had been developed at the beginning of the nineties and permitted, in particular, to carry out operator's certificate examinations on the Minitel.

Development work for upgrading this application to state of the art software started at the end of 2007 and migration was completed in October 2008, which allowed sixty candidates to pass their exams in "web" mode using an Internet navigator. A new directory of the amateur radio, radioclubs and transponders, is also available for consultation on the ANFR Internet site.

This new development was carried out on the basis of a dialogue with the amateur radio population through their main associations.

### Development of FCS software application

The first tier of the FCS software development was brought in service in April 2007. It allows in a simple way, thanks to a web navigator, to access the information contained in all ANFR data bases which may be relevant for carrying out spectrum monitoring activities (STATIONS, FNF and COORDINATION databases, and specific data bases maintained by ANFR on behalf of ARCEP for private networks).

Three additional tiers were brought in service at the beginning of 2008 and allow automatic operation of the monitoring system, and management of the treatment of interference cases and TV viewers' claims.

During the 4th quarter 2008, the software application was opened to all ministerial departments and regulatory authorities, which facilitates the exchange of information on the status of treatment of interference cases and TV viewers' claims.

In 2008, the last tiers of the FCS application were delivered to ANFR. They will be brought in service during the first quarter 2009 and are expected to facilitate the management of compliance monitoring actions. An autonomous, "nomadic" version of the application for portable computers was also delivered to ANFR. It is foreseen to be brought in service during the first semester of 2009 and will allow monitoring teams to have access to all the relevant data on the spot.

## 3. Market surveillance of radio equipment and electronic communication terminal equipment

Article R20-4 of the French Posts and Electronic Communications Code states that only radio equipment and terminal equipment complying with the essential applicable requirements, whether technical (protection of personal health and safety, protection relating to electromagnetic compatibility, and effective use of the spectrum) or administrative (CE marking to be applied, information to be supplied, possibly notifications to ANFR of placing on the market) could be placed on the market, connected to a public network, or used. When the use is not harmonised at a European level, Article R20-11 of the same code and the Decree of 21 March 2005 published for its application (JORF of 2 April 2005) require a notification to be submitted to ANFR no later than four weeks before the product is put on the French market. The examination of the notifications also enables ANFR to evaluate market development for radio equipment operating in non-harmonised frequency bands.

For more effective prevention of potential interference risks and for consumer protection, it is necessary to pursue continuous monitoring of the radio products put on the market. This monitoring comprises five elements:

1. Updating of a database of notifications of equipment using non-harmonised frequencies throughout the European Union (Class 2 equipments). This database is fed by the manufacturers or importers through an electronic form available at www.anfr.fr;
2. Inspection of administrative compliance (marking, leaflet and packing information);
3. Study of technical documentation for some equipment;
4. Taking samples to check conformity with the applicable technical essential requirements;
5. Follow-up observations of non-compliance in letters of formal notice to the distributors and persons responsible for putting on the market the equipment concerned, as well as offences reports issued by sworn inspectors of ANFR.

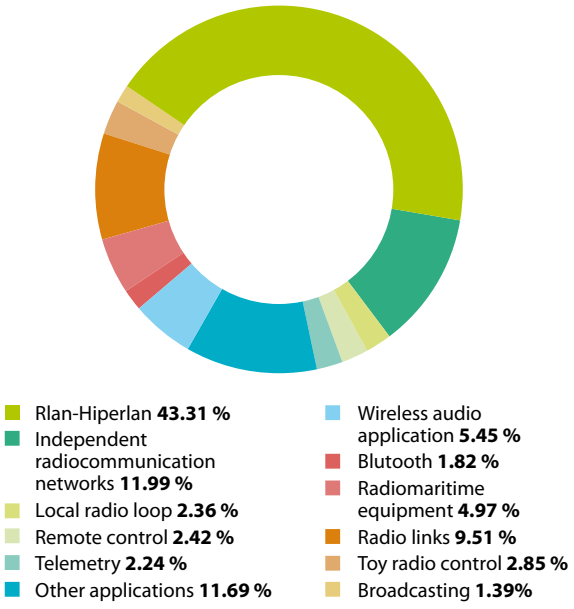
Market surveillance of radio and terminal equipment continued in 2008 with 68 samples tested (a little more than the 62 samples checked during 2007) and 324 administrative controls.

### Survey of notifications of market introduction

In 2008, ANFR received 1 655 notifications, 99 more than in 2007.

This increase may be explained by the introduction of the "One Stop Notification" by the European Commission at the beginning of 2008, which greatly simplifies the notification procedure. The applicant may now make his declaration in most Member States through a single window at the following link: *https://webgate.ec.europa.eu/enterprise-portal*.

**Figure 1 :** Simplified distribution by application type




From all notifications received, the following points may be highlighted:

- In the frequency band 2.4 GHz, the number of notifications received is not decreasing, although a recent TCAM decision placed RLAN equipment at 2.4 GHz in Class 1 (harmonisation rule with no notification required).
- in the FM band 87.5-108MHz, the increase illustrates growing consumers interest in FM transmitters intended for use with MP3 players. These applications allow music to be transmitted from the MP3 player or a voice call from a mobile phone (via Bluetooth communication) to the car FM radio receiver.
- Several increases of WiMAX, maritime, Fixed links, and PMR equipment.

The above distribution of equipment in non harmonised bands shows that bands 2.4 GHz and 5.15 GHz in 2008 are still the most popular. Interest in these two bands comes mainly from WiFi applications with dual-band option as wireless router or access point.

In the 3.4-3.8 GHz band, after a very slow start in 2006, followed by 26 statements in 2007, the notifications of placing wireless local loop equipment (WiMAX) on the market really took off with 41 new notifications received. WLL applications represent the strongest growth rate in comparison with year 2007.

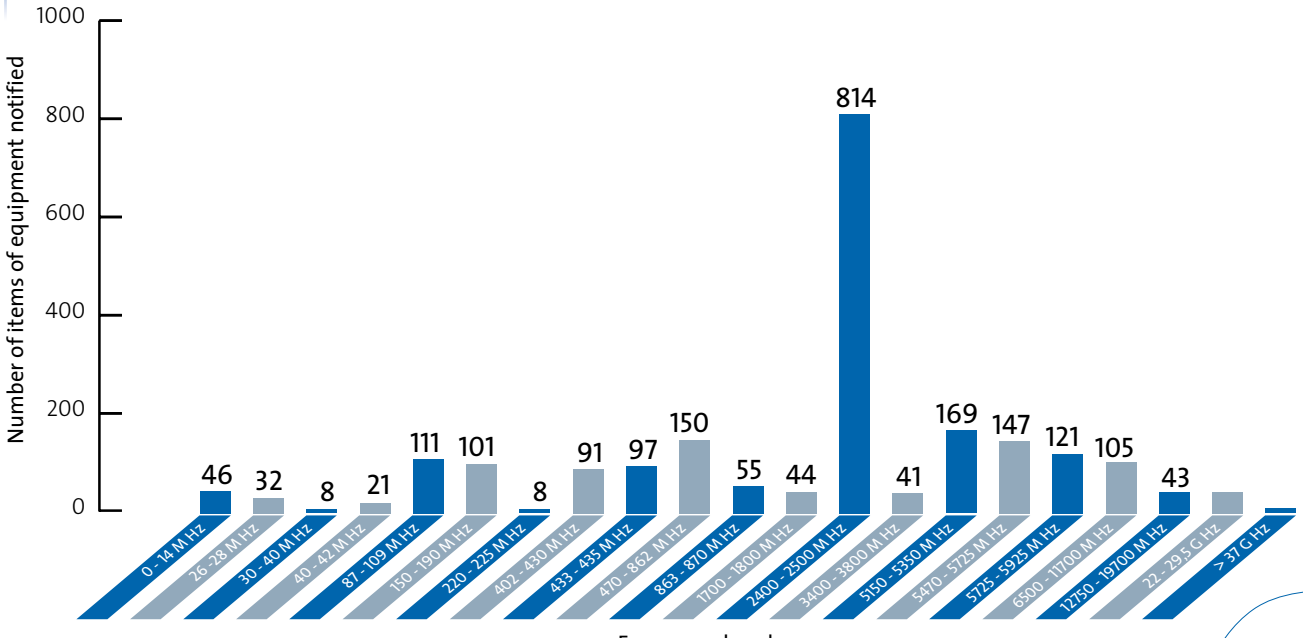
### Results of 2008 market surveillance

In 2008, ANFR sampled 68 radio equipments, 31 of them were found not compliant with at least one of the essential requirements. The infringements were notified formally to the distributors, to their suppliers and to the entities responsible for placing the equipment on the market. Were applicable, a copy of the letter notifying the infringement was sent to the Ministerial department in charge of fraud repression (DGCCRF). The most significant cases were the following:

- A sampling followed by voluntary withdrawal of a mobile phone for children;
- A sampling of a wireless access point used for fixed-link video transmission in the context of agricultural monitoring with a radiated power 5 times higher than the authorized limit;
- A sampling of 3G USB dongles distributed by the three mobile operators, followed by voluntary removal of one of them;
- A sampling of a point-multi-point 5 GHz equipment due to interference into weather radar, followed by the modification of manufacturing facilities and processes to ensure compliance of equipment and networks.

ANFR has also conducted an intensive sampling campaign targeted at long-range wireless phones using frequency bands allocated to the Ministry of Defence. The findings were used to support a safeguard procedure by the Minister of Industry.

**Figure 2 :** Distribution of R&TTE declarations notifications by frequency band



# Regulatory management procedures

*In brief...*

- *27,138 new assignments were processed*
- *37,100 assignment files were processed through the FNF software (terrestrial services, not including broadcasting)*
- *44,301 notifications were sent to the ITU Radiocommunication Bureau*
- *6,766 foreign assignments generated 13,168 cross border coordination procedures, in which respectively 281 assignments and 535 procedures related to Digital Terrestrial Television (DTT)*
- *15,866 French assignments generated 24,905 cross border coordination procedures, in which respectively 205 assignments and 9,335 procedures related to Digital Terrestrial Television (DTT)*
- *93 days of meetings were spent in coordination with neighbouring countries*
- *6 coordination agreements were signed*
- *the flow of station declarations was stable with an average of 448 stations per week.*

Regulatory and management procedures encompass three areas of activities: processing of sites and radio easements applications, recording of assignments and processing of coordination requests.

In close cooperation with stakeholders (ministerial departments, regulatory authorities and radio communication operators), ANFR endeavours to improve its data processing tools to provide a better service for managing spectrum and a better information to stakeholders.

## 1. Sites and radio easements

This activity covers station recordings, data bases reliability improvement and information of the stakeholders and the general public. In 2008, various improvement actions have been initiated in this respect.

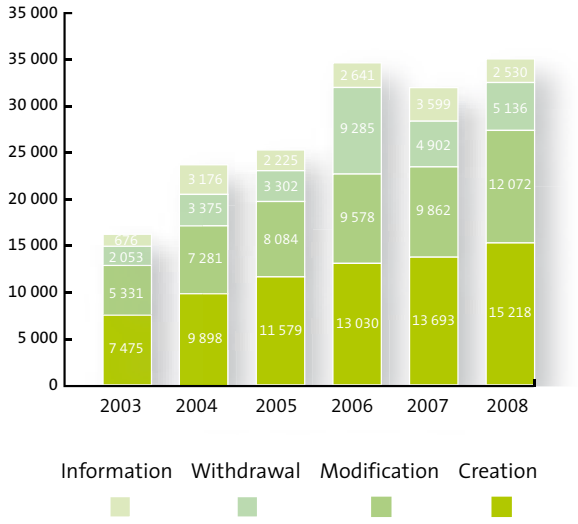
### Recordings

Applications for recording new or modified radio stations are processed in conformity with the rules described in ANFR DR-05 reference document for optimum use of radiocommunication sites.

Radio stations recording was intense in 2008, both for new declarations or modifications of existing ones (see fig. 1).

An average of 536 applications per week was processed, which is about 20% more than for 2007.

**Figure 1 :**
Number of applications processed by the agency




This trend was mainly driven by 2G and 3G service deployment commitments by mobile telephony operators. Among the number of requests for new installations, 45% were for UMTS stations (6,893 files), 17% for GSM coverage improvements (2,646 files), 15% for broadcasting (between new FM stations and DTT) and 2.5% for WiMAX.

Year 2009 is expected to continue this trend, with mobile telephony evolutions (UMTS 900) and digitalisation of broadcasting (expansion of DTT coverage and services).

### Data reliability

The effort to improve the reliability of the data recorded in ANFR bases was pursued in cooperation with the operators, ministerial departments and regulatory authorities represented within the Sites and Easements Committee (COMSIS) of ANFR. Six meetings of this Committee were held in 2008.

Verifications are made on formal checking (for example, systematic search for missing declaration of bringing into use), use of the results of on-site monitoring and measurements, and verification of the data provided by the requesting entities.

In this area, a specific operation, labelled “mutualisation”, was extensively pursued in 2008. A number of constraints, of a regulatory, financial, technical or environmental nature, drive operators to share radio locations and infrastructures (e.g. pylons, decks). In this context, as requests from different operators are processed separately, a lack in consistency between the information provided regarding shared facilities was found (differences in geographical coordinates, postal addresses, physical descriptions). ANFR decided to launch the “mutualisation” operation to ensure consistency of these various data elements. Many benefits may be derived from this operation: provide a single and common physical description of what is deployed, allow new requests on common, harmonised infrastructures, improve geographic display accuracy, and make final data more reliable.

To carry out this operation, ANFR developed a new software application, which allows automatic detection and verification of locations likely to correspond to the same ("mutualised") infrastructure and permits the attribution of optimised, verified and unique sets of data, to be shared by all users of this infrastructure. This operation is relying on cartographic tools, in particular "Géoportail" of the National Geographical Institute (IGN).

All new requests are now processed using the above verification procedure. Each new infrastructure receives an identifier, to allow complete retrieval of parameters, including these of related stations. This identifier is used by the other processes of ANFR, which ensures overall consistency, irrespective of the regulatory procedure applied.

Started in March 2008, the 'mutualisation" operation has enabled to process 30% of the data base by the end of 2008, with 30,000 sites verified.

### Information

Information is provided either by direct answers to specific questions (issued by administrations, professional or individuals), or through the internet on *www.cartoradio.fr*.

The increased public sensitivity to relay antennas induced a regular progression of questions to the Cartoradio site (twice the level of 2007, with an average of two questions a day).


### Improvement actions

Several actions were initiated for quality improvement.

A working group was established to improve on public exposure to electromagnetic fields, specifically near sensitive locations.

Evolution of software applications is also carried out, in particular to take into account the "mutualisation" operation described above.

Finally, a study was initiated to improve the functionalities and the ergonomy of *www.cartoradio.fr*.

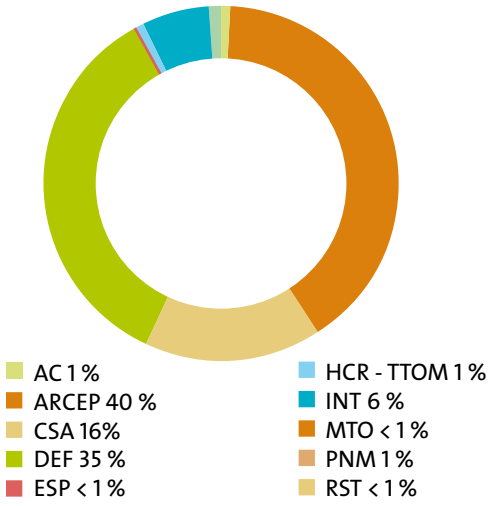
Summary return

## 2. Assignments

On 31 December 2008, 228,195 assignments had been recorded in the national master frequency register (FNF), against 183,161 in 2007, a 25% increase.

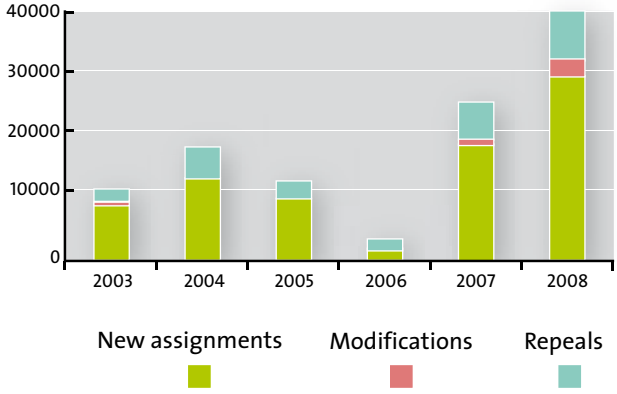
Figure 2 shows their distribution by ministerial departments and regulatory authorities..

**Figure 2 :**
**Assignments dispatching in FNF, in december 31TH 2008**




In 2008, ANFR recorded 27,138 new assignments, 2,589 modifications and 7 373 suppressions. These represent the highest numbers for the last six years (see Figure 3).

**Figure 3 :**
**Number of assignments processed in FNF**




Recording in the FNF is a prerequisite to record an assignment in the Master International Frequency Register (MIFR), which is a pre-requisite for international recognition of that particular use of a frequency, and enables the user of that assignment to benefit from all guarantees granted to France as a Member of the International Telecommunications Union (ITU). Such recording may also be used as a basis for grandfathering existing uses when World Radiocommunication Conferences discuss changes to the international Table of frequency allocations and associated procedures.

In 2008, ANFR notified to the ITU 44,301 assignments for terrestrial services and 107 for space services (earth stations) for recording into the MIFR (creations, modifications and suppressions). By year-end 2008, 124,177 assignments for terrestrial services and 264 assignments for earth stations were recorded in the MIFR for France, placing it in fifth place among the notifying administrations.

The main changes in 2008 related to a number of assignments to the Fixed Service supporting mobile telephony networks, local radio loop, emergency services and airport security services.

Most of the changes for mobile services originated from the Ministry of the Interior (specifically for the ACROPOL network), from harbour operations and from private mobile radio (PMR).

The efforts made by the ministerial departments and regulatory authorities to update the national master frequency register (FNF) were reflected by the decreased number of corrections to the FNF (1,144 regularizations made out of 2,538 actions requested).

These achievements also reflect increasing command of the FNF software application by ministerial departments, regulatory authorities and operators, along with the improvements recorded in the stability and availability of this application. The FNF software application offers a completely electronic exchange procedure for the recording of frequency assignments. It provides an easy and effective means for stakeholders to consult the national frequency register, as well as the list of recording requests to be considered at the upcoming meetings of the Frequency Assignment Committee (CAF).

The FNF application also provides a single entry point for assignment requests in the national and international registers, including initiation of cross-border coordination requests. A single input is now sufficient to initiate all these procedures.

The FNF application bridges the frequency assignments recorded by the CAF, the cross border coordination and the stations recorded by COMSIS, providing links between the specific data base structures of the software applications managing the corresponding procedures (respectively COORDINATIONS and STATIONS). Improved data quality and data management, as well as simplified access to information, are therefore offered to the ministerial departments and regulatory authorities.

All the basic tools of the FNF software application were upgraded in 2008 (data base structure, software server...). These upgrades were brought in service during the summer, providing significant performance improvement and shortened processing delay. Next upgrades will take place by mid 2009 and will relate to broadcasting (Digital Terrestrial Television (DTT), FM radios...). Developed in close cooperation with the broadcasting Authority (CSA), this upgrade was delivered to ANFR by end 2008 and will undergo extensive testing before it is brought in service.

Further developments will be started in 2009 in cooperation with regulatory authorities and will concern satellite earth stations and radio astronomy. They are expected to be brought in service by 2010.

## 3. Coordination

The cross-border coordination activity relates mainly to the fixed, mobile and broadcasting services. The procedures applicable to these services are as follows:

- For the broadcasting service, the regional agreements concluded within ITU or CEPT (Geneva 2006, Stockholm 61, Geneva 84, Maastricht 2002), together with a number of bilateral or multilateral agreements;
- for the mobile and fixed services, a series of bilateral or multilateral agreements, the most important being the "framework" agreement for the fixed and mobile services (HCM), as well as the procedure of Article 9 of the Radio Regulations for coordinating between terrestrial services and space services.

All these agreements result from numerous bilateral or multilateral meetings, and may be found on *www.anfr.fr* under " Bases de données/coordinations ".

For mobile services (GSM/UMTS), many meetings took place in order to allow UMTS use in GSM bands and to align UMTS levels in the core band with those of the relevant CEPT recommendation. For mobile services (professional Mobile radio, PMR), a significant decrease was noted (-17% versus 2007) in the number of French stations for which coordination was initiated with neighbouring countries. Under contract with the Ministry of the Interior, ANFR conducted a specific study for the deployment of the ACROPOL network along the Spanish border and in the Northern part of France. This study permitted the identification of the assignments subject to coordination constraints.

Concerning fixed services, 2008 showed a 47% increase in the number of French stations which were the subject of outgoing international coordination requests. This is correlated with the increase in the number of assignments recorded in the national master frequency register. For the incoming fixed services coordination request, Switzerland and Italy still did not officially initiated the application of the HCM agreement. Because of temporary internal problems, Germany had to interrupt its coordination activities. This explains the unbalanced situation that can be noted between the French and the foreign coordinated stations.

Broadcasting coordination activity consists on one hand in analysing the ITU and ERO publications for modifications to, or recording in, the plan(s), on the other hand in handling the coordination requests between administrations, both at technical and administrative levels. For television broadcasting, bi lateral negotiations have been intense since RRC-06 in order to coordinate:

- the transitory frequencies to be used by Digital Terrestrial Television (DTT) before analog switch off;
- the frequencies to be used during the period of switchover from analog to digital broadcasting;
- the frequencies of the target plan which will incorporate national and international decisions on the digital dividend.

For sound broadcasting, coordination of French FM radio stations was also intense, following the new FM frequency plan adopted by CSA in 2006. The number of stations under coordination was multiplied by a factor 7. Besides, France recorded about 191 FM assignments in the MIFR and 188 FM assignments in the Geneva 84 Plan. Foreign administrations, noticeably Switzerland, also increased the number of their coordination requests to France

**Figure 4 :**
**Number of assignments for which coordination was requested by France**

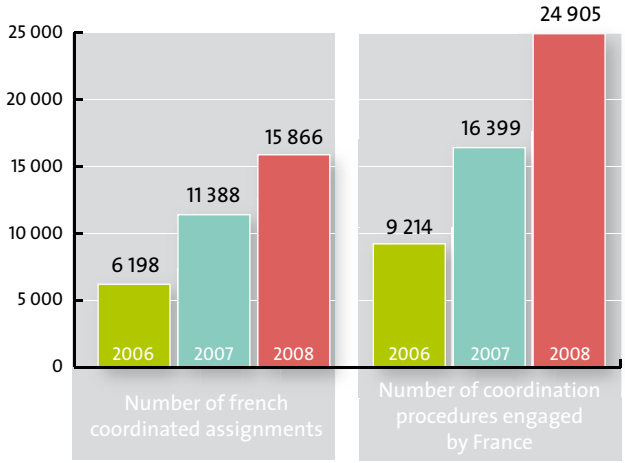



**Figure 5 :**
**Number of assignments for which coordination was requested to France by neighbouring countries**

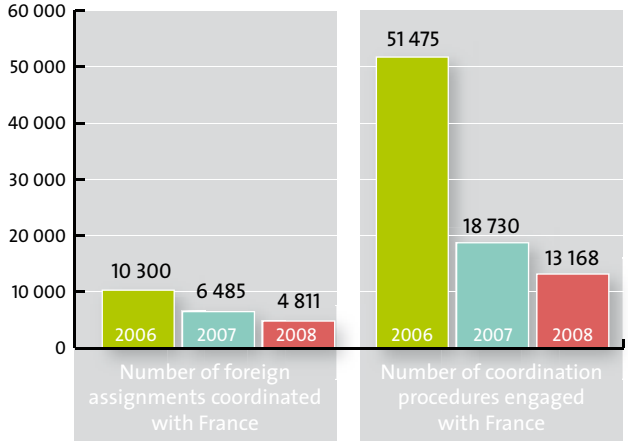



**Figure 6 :**
**Distribution of French outgoing coordination requests in 2008**

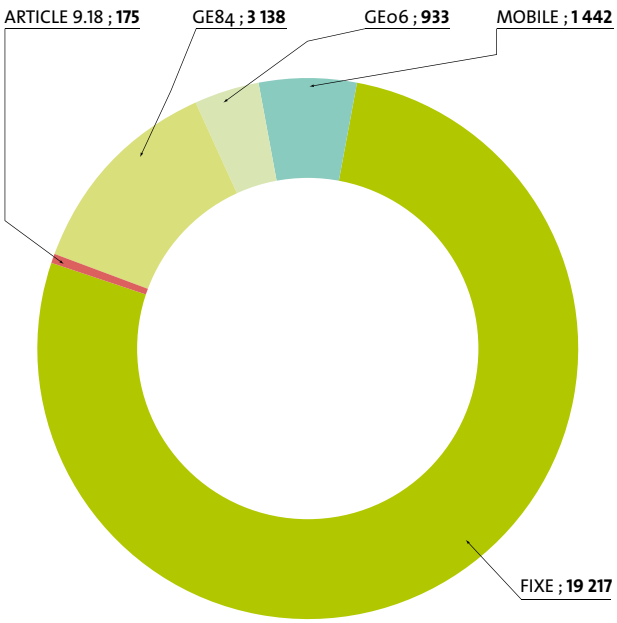
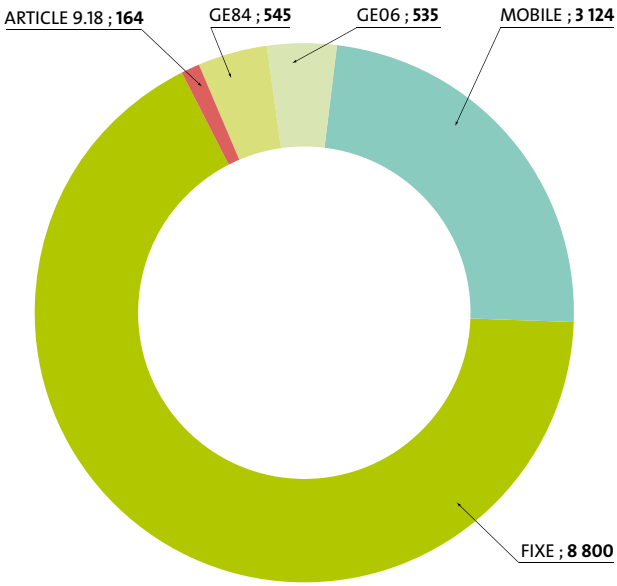



**Figure 7 :**
**Distribution of incoming coordination requests received by France in 2008**



# Contractual activities

*In brief...*

- *1,100 claims from viewers investigated, among which 286 required on-site intervention;*
- *1,144 new frequency use authorizations (AUF, for Autorisation d'Utilisation de Fréquences ) processed for Independent Radio Networks;*
- *Bringing in service of new software applications for invoicing spectrum usage fees payable by 26,648 independent radio networks*
- *Renewal of 67,431 ship stations licences.*

Pursuant to the provisions of Article R 20-44 11 11° of the Post and electronic communications code, ANFR, at the request of ministerial departments and regulatory authorities, may perform spectrum management and monitoring tasks, within the framework of agreements signed with them. Furthermore, pursuant to Article 22 of Law n°86-1067 of 30 September 1986 as amended by Article 43 of Law n°2006-961 of 1 August 2006, within the framework of a contract with CSA, takes all necessary steps for the protection of television reception throughout the French territory.

### Contractual activities

Contractual activities may relate to:

- frequency assignment, frequency recording in national data bases, and editing of administrative documents relating to licences;
- frequency monitoring, including spectrum measurements and compliance verification for radio stations;
- handling of claims from television viewers where TV reception is affected, including preliminary investigations, and, when required, on site inspection;
- Calculation and invoicing for spectrum usage fees for independent radio networks.

### Organisation

Since 2005, ANFR resources to carry out spectrum management and invoicing for spectrum usage fees, present in the sites of Noiseau and Saint-Dié-des-Vosges, were combined into a single entity, The Direction des conventions avec les affectataires (DCA, Directorate of contractual activities with ministerial departments and regulatory authorities). In 2007 and 2008, this directorate has been reorganized into five departments. For spectrum monitoring and treatement of TV viewers claims, DCA is assisted by the regional services of ANFR.

### Activities in 2008

In 2008, contractual activities continued at a strong pace and all contacts already concluded in previous years were renewed, particularly with the Regulation Authorities (ARCEP, CSA) the Ministry of Transport (Maritime Affairs, Civil Aviation) and the Ministry of the Interior, Overseas Territories and Collectivities (MIOCT). New contracts were signed or are awaiting ANFR Board decision.

Under the new contracts, the following may be mentioned:

- A contract with the Ministry of Defence relating to payment of fees due to the ITU for the notification of frequency assignments to satellite networks, which complements similar is added to those already in force.
- A contract with the National Meteorological Service to carry out measurements of out-of-band emissions from meteorological radars.
- A contract relating to inspection of radio sites in French Southern and Antarctic Territories under finalization.
- A contract with the New Caledonian Government relating to staff training in frequency management, monitoring and processing of interferences cases
- Four contracts with private companies and one with the central laboratory of the Prefecture de Police of Paris relating to the qualification of ten UMTS decoders.

## 1. Contracts with CSA

### Protection of television reception (PRTV)

In 2008, 1 100 claims were investigated by ANFR, among which 286 required on-site intervention.

The experience gained on this activity may be used to classify TV reception problems as follows:

- Defects of the receiving installation, which still represents ¼ of the cases, despite the fact that claims are only considered when hey are associated with a certificate issued by an installer;
- Problems which ceased before the intervention of ANFR staff: these represent 20% of the cases and may include transmitter breakdown/maintenance, transmitting defect (delay in ensuring early synchronization of transmitters), transmitter failure and some cases of exceptional propagation conditions;

- Coverage defects, which represent 22% of the cases and include in particular transmitter breakdown and situations where the receiver is located outside the analog TV service area. In this case, analog reception was marginal and digital reception cannot be ensured;
- Interference between French broadcasting transmitters (analog and/or digital), which represent 20% of all cases. Most of these cases result from the lack of synchronisation of SFN networks;
- Problems caused by other sources, which represent only 13% of the cases, and may relate to external interference (9%) or obstacles (4%, among which 80% due to wind turbines, and 20% due to new buildings).

In order to improve the quality of its service, ANFR developed a new software application to improve the fluidity and transparency of information exchanges, inside ANFR and with the CSA. This application was brought in service in 2008. In the same way, procedures, enquiry requests and the reception guide are regularly updated.

### Technical expertise

Between February and April 2008, ANFR provided expertise to CSA for the identification of frequencies and associated antennas radiation templates, for transmitters included to phase 7b of DTT deployment, corresponding to the bringing in service of 79 new DTT coverage areas by June 2008. This related to the digitisation of seven sites, which represented 42 antenna templates, in order to provide DTT coverage for these sites, while protecting analog reception in neighbouring areas.

In the context of the DTT deployment in simulcast with analog television, CSA requested ANFR to perform on site measurements to characterize potential interference into analog transmissions. In 2008, this type of measurement was carried by ANFR out in 65 areas of France, in order to avoid any interference into analog networks, or to identify alternative analog frequencies for "sensitive" areas. A measurement campaign to identify available frequencies for broadcasting was carried out in the French Caribbean Islands, in the vicinity of the Islands of Dominica and Saint-Lucia.

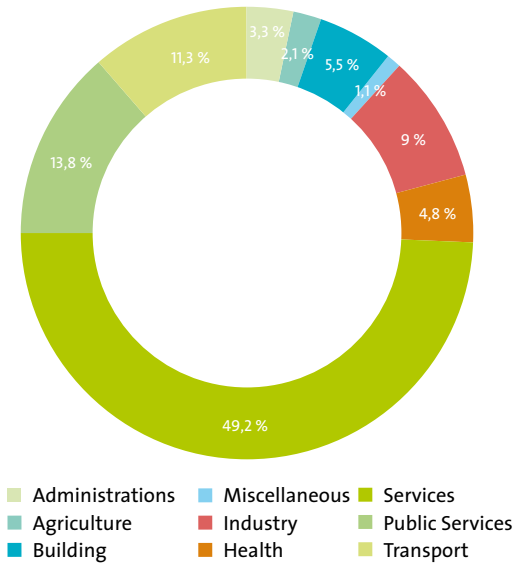
## 2. Contract with ARCEP

Under contract with ARCEP, ANFR carries out administrative and technical tasks relating to independent radio networks. These tasks relate to frequency assignment, coordination and recording, pursuant to the procedures of Article R20-44-11, Nos 4 and 5, of the Code of Posts and Electronic Communications. ANFR also prepares the individual or collective licences for spectrum use, concerning terrestrial, maritime and aeronautical mobile services, which are subject to validation by ARCEP. ANFR provides the same services for the fixed service at 1.5 GHz.

On 31 December, there were 26,648 independent radio networks. The 1,444 new licences issued did not fully compensate the number of cancellations recorded during the same period (1,870), which confirms the continued erosion of PMR. Also, different provisions, adopted either at European level, or as part of the National Table of Frequency Allocations (TNRBF) required a number of frequency changes at the time of the 5 years renewals of the licenses.

| Professional distribution | Number of networks |
|---|---|
| Administrations | 873 |
| Agriculture | 556 |
| Building | 1 464 |
| Miscellaneous | 296 |
| Industry | 2 397 |
| Health | 1 278 |
| Services | 13 106 |
| Public Services | 3 670 |
| Transport | 3 008 |
| TOTAL | 26 648 |

**Figure 1 :** Distribution of Independent radio networks




## 3. Contract with DGE
## The amateur radio service

The Article R20-44-11, n°14 of the Code of Post and Electronic Communications provides that ANFR organise, on behalf of the Minister in charge of Electronic Communications, examination sessions for amateur radio operator certificates and manage international call-signs allocated to the transmitting stations in the amateur service.

The radio amateur population, which remains approximately stable, rose to 15,298 at the end of 2008. If the number of new call-signs issued this year (528) decreased somewhat, the number of certificates issued significantly increased in 2008 (353 instead of 323 in 2007).

These activities may be summarized as follows.

**Figure 2 :** Number of call-signs

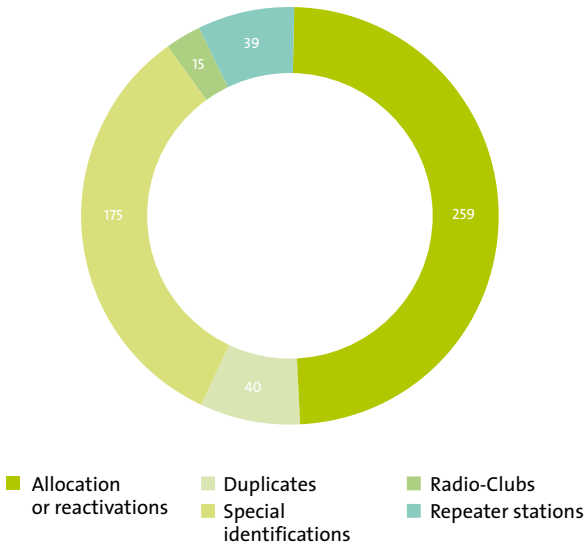
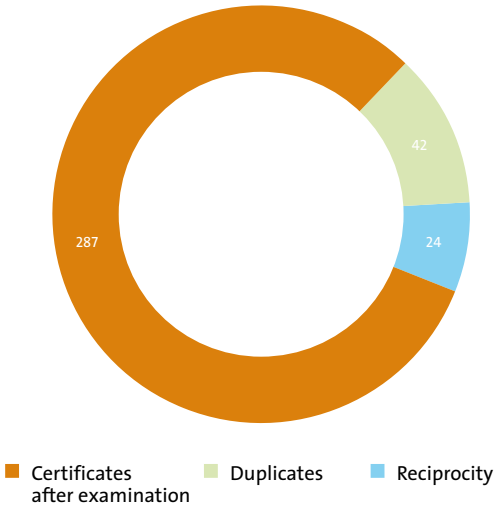


**Figure 3 :** Number of amateur certificates




## 4. Invoicing for spectrum use fees and other taxes

Delivery of a licence (spectrum right of use) by ARCEP is conditioned on the payment by the holder of spectrum management and usage fees. On behalf of the Ministry in charge of electronic communications, ANFR is invoicing these fees corresponding to the use of frequencies by independents radio networks in certain frequencies bands allocated to ARCEP. These fees are payable to the Trésorerie générale des créances spéciales du Trésor (TGCST) in Chatellerault.

For the time periods before 1 January 2008, these fees were

calculated in accordance with the provisions of the Decree of the 3 February 1993 (French Gazette J.O.R.F of 5 February 1993). For the periods of time from 1 January 2008, the calculation had to be based on the provisions of Decrees n°2007-1531 and 2007-1532 modified, dated 24 October 2007 and the associated Order adopted at the same date (French Gazette J.O.R.F of 24 October 2007). This new regulatory structure was established in compliance with the EC Directive 2002/20/CE ("Authorisation" Directive, 24 April 2002), intends to promote a more efficient use of radio spectrum.

Under this new structure, the management fee applicable to independent networks invoiced by ANFR is now proportional to the number of assignments and the spectrum usage fee is proportional to the amount of spectrum used and increases with the area covered, irrespective of the number of mobile or portable stations used in the network. Application of this new structure may, in certain cases, lead to important changes in the amount of invoices, compared with the previous periods.

In addition, pursuant to the provisions of the Code of Property of the Public Person (Articles L.211- 17, L.2124-26, L. 2125-1 and L.2125-4), radio frequencies fees are now subject to upfront payment. In order to smooth the consequences of such a change for licences holders, the invoicing for the years 2007 and 2008 were spaced in time, as far as possible.

In 2008, ANFR delivered more than 29 000 payment orders, corresponding to about 19,250 M€ in fees.

The following Table shows the evolution of this activity since 2005.

Invoices delivered by ANFR since 2005 concerning the private networks licences

| Applicable period for spectrum use | Date of invoices | Number of invoices sent | Amount (€) |
|---|---|---|---|
| 2004 | MAY 2005 | 31,122 | 20,911,329 |
| 2005 | APRIL 2006 | 30,277 | 20,176,670 |
| 2006 | avpil 2007 (1) | 28,540 | 18,589,544 |
| 2007 | november 2007 (1) | 27,588 | 16,855,570 |
| 2008 | October and décember 2008 (2) | 29,114 | 19,237,512 |

(1) 2 mass invoicing (Decree of 1993), the first one under the year 2006 and the second one under the year 2007

(2) Invoicing in accordance with new regulatory provisions adopted in 2007.

The following Tables show ANFR activity for invoicing of the fees applicable to the amateur service and to the amateur radio certificates.

Fees (flat fees and amateur fees)

| Year | number of invoices transmitted | amount (€) |
|---|---|---|
| 2005 | 16,425 | 813,268 |
| 2006 | 16,128 | 797,419 |
| 2007 | 15,939 | 774,806 |
| 2008 | 15,737 | 774,402 |

Examination fees concerning amateur radio certificates

| Année | number of orders transmitted | amount (€) |
|---|---|---|
| 2005 | 17 | 5,304 |
| 2006 | 47 | 12,402 |
| 2007 | 42 | 12,246 |
| 2008 | 50 | 26,812 |


## IMPLEMENTATION OF THE NEW REGULATORY PROVISIONS FOR FEES APPLICABLE TO INDEPENDENT RADIO NETWORKS

Long before the publication of the new regulatory provisions, in order to be in a position to invoice some 28,000 independent radio networks in accordance with these texts, ANFR undertook an extensive upgrade activity on the software applications which are used for that purpose. Fundamental changes were made to these applications, relating to:

- the calculation of the number of assignments per network;
- the allocated bandwidth and the frequency band.
- The surface area or areas per allocated frequency
- The calculation prorata temporis, based on the number of days, with a minimum amount defined for each fee, according to the above parameters and to coefficients defined by regulatory texts.
- Upfront payment of the fees for the year to come, instead of payment in arrears.

At the beginning of 2008, in cooperation with DGE and ARCEP, ANFR conducted a communication campaign on the new regulatory provisions, targeted at professional radio network associations. It also established on its website an invoice simulator, which enabled to use the new regulations to calculate the fees applicable to networks already known to ANFR.

After acceptance of the corresponding software changes, two successive invoicing campaigns were undertaken in October and December 2008, which covered about 98% of the networks concerned and resulted in a few hundreds of claims, corresponding to very large increases in the amount invoiced compared with previous years. Claims also came from some licensees, especially associations involved in civil security activities, which had been previously exempted from fees, which is no longer the case in the new regulatory framework.

ANFR responded to each of these claims and TGCST granted payment facilities or suspended the collection of fees for the associations mentioned above until a permanent solution is found for these particular cases.

At the end of 2008, a new regulatory text was under consideration to provide an appropriate response to the most difficult situations.

Summary return

## 5. Contract with the Ministry in charge of Maritime Affairs

Under contract with the Ministry of Transport (Directorate of Maritime Affairs), ANFR carries out inspection of ship stations, management of licences and ship identities, and organises short range certificates examinations.

### Ship inspections

In 2008, the number of ship inspections carried out in metropolitan France increased by 4%. For a fleet of 6,900 constrained ships, 4,819 inspections were conducted, 185 more than in 2007.

In Metropolitan France, at the end of 2008, only 5% of all the ships had never been inspected by ANFR.

Overseas, considering a total fleet of 2,519 ships, 689 constrained ships were inspected in 2008, among which 414 by ANFR offices in French Caribbean/Guyana and la Reunion, on a fleet of 1917 ships in these four overseas departments.

Types of ship inspected

| Type | 2007 | 2008 |
|---|---|---|
| Passenger ship | 552 | 559 |
| Cargo ship | 1,206 | 1,185 |
| Fishing vessel | 3,226 | 3,405 |
| Others | 109 | 84 |

Inspections in Metropolitan France are distributed among the four regional services of ANFR having a maritime interface. Within the Overseas Departments, inspections are directly carried out by the agents of the local offices, in collaboration, if necessary, with the agents of these four regional services.

Distribution of inspections by regional services

| Regional Services | Fleet of vessels in 2008 | Number of inspect. in 2007 | Number of inspect. in 2008 | % inspect. in relation to fleet |
|---|---|---|---|---|
| Aix Marseille | 1,841 | 1,276 | 1,210 | 66% |
| Donges | 3,348 | 1,720 | 2,000 | 60% |
| Toulouse | 374 | 274 | 283 | 76% |
| Villejuif | 1,337 | 1,364 | 1,326 | 99% |
| Overseas dep. | 1,917 | 236 | 414 | 22% |

Distribution of inspections by ship security Centre

| ship security centre | Fleet of vessels in 2008 | Number of ships inspected in 2008 | % inspected in relation to the fleet |
|---|---|---|---|
| Dunkerque | 53 | 43 | 81% |
| Boulogne | 223 | 201 | 90% |
| Rouen | 146 | 124 | 85% |
| Le Havre | 141 | 133 | 94% |
| Caen | 774 | 676 | 87% |
| Saint Malo | 633 | 346 | 55% |
| Brest | 430 | 211 | 49% |
| Concarneau | 542 | 335 | 62% |
| Lorient | 638 | 307 | 48% |
| Saint-Nazaire | 636 | 462 | 73% |
| La Rochelle | 469 | 222 | 47% |
| Bordeaux | 374 | 221 | 59% |
| Sète | 487 | 332 | 68% |
| Marseille | 1354 | 728 | 54% |

Distribution of Inspections* by category of ship and safety Centre

| ship safety Centre | Fleet of ships (All categories) | Inspect. Cond.* | Fleet of cargo and fishing ships (1st et 2nd cat.) | Inspect. perform.* |
|---|---|---|---|---|
| Dunkerque | 1 | 1 | 5 | 6 |
| Boulogne | 10 | 12 | 52 | 56 |
| Rouen | 12 | 11 | 32 | 33 |
| Le Havre | 1 | 1 | 16 | 21 |
| Caen | 24 | 25 | 65 | 64 |
| Saint Malo | 20 | 20 | 38 | 33 |
| Brest | 26 | 29 | 40 | 33 |
| Concarneau | 23 | 25 | 200 | 132 |
| Lorient | 65 | 55 | 55 | 51 |
| Saint-Nazaire | 22 | 26 | 92 | 76 |
| La Rochelle | 31 | 33 | 51 | 41 |
| Bordeaux | 54 | 47 | 93 | 85 |
| Sète | 41 | 43 | 55 | 62 |
| Marseille | 217 | 180 | 44 | 47 |

(*a ship may be inspected more than once in case of non-compliance)

### The Short Range Certificate (SRC)

In 2008, the High Council for Maritime Affairs and Water Sports (Conseil Supérieur des affaires maritimes et des sports nautiques) on behalf of the Ministry of Transport, made "proposals to facilitate the use of VHF by boaters, liberalizing the conditions for obtaining a certificate".

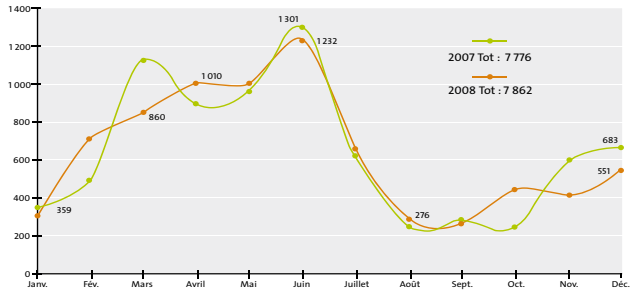
ANFR formulated reservations with these proposals and the Directorate of Maritime Affairs (DAM) created a tripartite working group (DAM, CSNPSN and ANFR) in order to define a common position taking into account the orientations of the CSNPSN, the respect of the international commitments made by France and the safety of life at sea. ANFR presented a draft revision of the examination, focusing on the practice of VHF equipment operation.

Concerning the inland waterway certificate, due to difficulties related with the designation of the signatory authority, only the ANFR Regional Service of Villejuif may be authorized, till the beginning of 2009, to conduct the corresponding examinations.

In 2008, 1,003 examination sessions were organized, and of the 8,227 candidates who took the examination, 7,776 (94.5%) obtained their certificate, a result similar to that of 2007.

The Table below shows the curve of the activity related to the SRC on the two last years.

**Candidates having obtained SRC in 2007 and 2008**




### Ship stations licences and ship identities (Call-signs and MMSI)

The year 2008 showed continued growth of the activity related to boating, as a result of technical improvements in radio equipment, which offer extended functionalities at lower cost, leading many boaters to acquire such equipment.

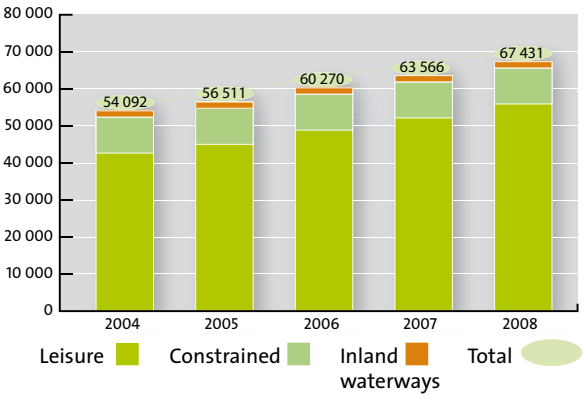
Although VHF with Digital Selective Calling (DSC) is still the preferred equipment, interest is growing for personal radio beacons (PLB).

ANFR renewed 67,431 licences at the end of 2008, a progression of 6.1% from 2007. The contribution of boating to the overall number of licences is about 82.5%, ships subject to control and ships in inland waterways contributing respectively for 15.3 % and 2.2%.

Updating of contact details of licences continues to meet a wide success, with 6,609 reply coupons returned and corresponding updates having been realized through internet in 2008.

Allocation of mobile maritime service identities (MMSI) is also clearly increasing, and shows a double digit growth in 2008: 5,784 new MMSI (+ 13.5%) and 5 450 new call-signs (+ 10.1 %). The Table below shows this growth during the last four years.

**Evolution of the number of licences for maritime and inland waterways: +24.6 % between 2004 and 2008**




### Other activities

In partnership with DAM, ANFR took part in the elaboration of the new "Division 175", which allows since the end of 2008, to register with ANFR, the PLB beacons at 406 MHz with GPS. These beacons, voluntary on board beacons by professionals and boaters, are associated with MMSI, which facilitates the identification of the ship by safety agencies, in case of a distress call.

In response of the demand of boaters, ANFR presented during the last boat show in Paris two practical notices containing information in order to facilitate appropriate coding of MMSI by DSC VHF users, and practical advises to guarantee proper operation of these equipments. These notices, available on the internet, are among the most visited pages of the ANFR website.

## 6. Contract with the Ministry of the Interior, Overseas Territories and Communities (MIOCT)

Under a contract concluded with the MIOCT in 2006, ANFR conducts frequency assignments, stations recording in the ANFR data bases and spectrum monitoring tasks. In 2008, these activities resulted in the following:

- Recording of 6,320 assignments for the mobile service (ACROPOL network) in the national frequency register;
- In cooperation between ANFR and the MIOCT, a computerized tool to record assignments of the fixed service (ACROPOL infrastructure network) was developed and a test file corresponding to the Departement of Cantal properly recorded;
- Verification, in accordance with the HCM Agreement, of the conformity of field strength values produced by ACROPOL base stations at French borders, was performed by ANFR for 345 assignments corresponding to 10 departments located at the border with Spain.

## 7. Overseas

In addition to its offices in French Polynesia, New Caledonia and the Island of la Reunion, ANFR is now established in the Caribbean -Guyana area (Guadeloupe).

Summary return

## OFFICE OF LA RÉUNION AND MAYOTTE

2008 was a year of intense activity for the office of la Reunion and Mayotte.

The office inspected the site of La Vigie, in the Island of Mayotte, instructed eight cases of interference, organized two amateur examination sessions, carried out a study on the infrastructure network for FM sound broadcasting, inspected 74 stations in order to ensure the compliance with parameters recorded in ANFR data bases, detected two emissions without authorization and performed six inspections of placing radio equipment on the market. It also followed up COMSIS consultations, which represented 530 stations for 2008. Finally, it organized in November 2008, a meeting of all local representatives of the ministerial departments and regulatory authorities.

Under contract with ARCEP, it also inspected 62 independent mobile networks and 32 fixed service links (FH, Local loop).

Under contract with the Ministry of Maritime Affairs, it inspected 295 ships, including 20 located in other countries, it attended five regional ship safety committees and organized 20 sessions of SRC examination for 147 candidates.

As part of the institutional cooperation, it organized, from 16 to 23 November 2008 in Saint-Denis de la Reunion, a seminar on frequency management for South-west Indian Ocean French speaking countries and prepared an agreement of cooperation with the DICT of the Seychelles Islands, which was signed in August 2008.

## CARIBBEAN - GUYANA OFFICE

ANFR French Carribean/Guyana office is located in Baie Mahault (Guadeloupe) and started operations on 1st December 2007, allowing permanent representation of ANFR in the Caribbean –Guyana area since then.

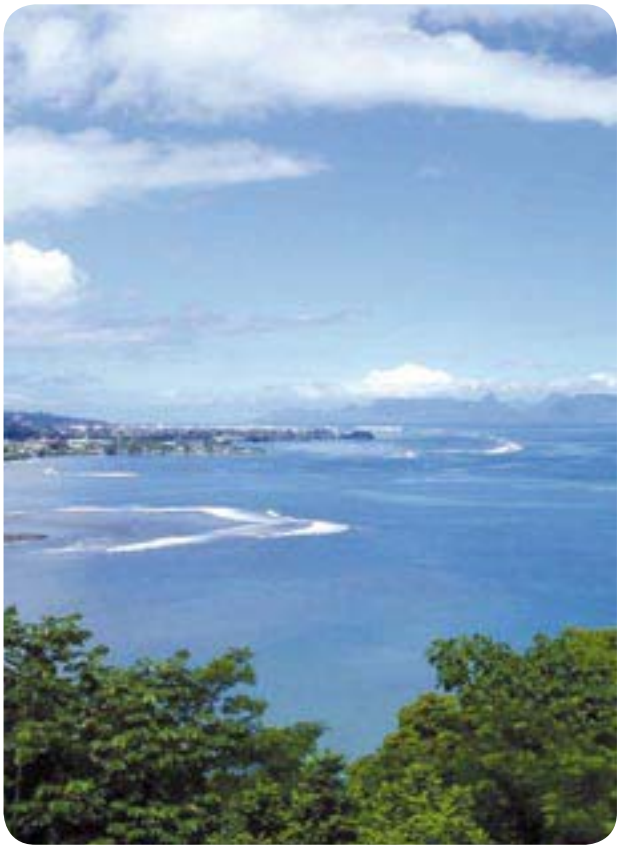
Regular visits to Martinique, French Guyana, Saint-Martin and Saint-Barthélémy were organised, in consultation with spectrum stakeholders in these areas.

The first quarter was dedicated to the completion of logistical and computer facilities in Baie Mahault. In June 2008, a properly equipped vehicle was operational.

In 2008, the Office focused its efforts on activities carried out under contract with the Ministry of Maritime Affairs, inspecting 172 constrained ships, attending five ship safety committees and organising SRC examination sessions in seven examination Centres for 245 candidates;

A significant workload was also expanded to handle interference cases of stations of the Civil Aviation (one case), the Ministry of the Interior, Overseas Territories and Communities (3 cases), ARCEP (5 cases), and CSA (2 cases). Three transmissions without authorization were detected.

Under contract with CSA, a measurement campaign to identify available frequencies for broadcasting was conducted in the vicinity of the Islands of Dominica and Saint-Lucia.

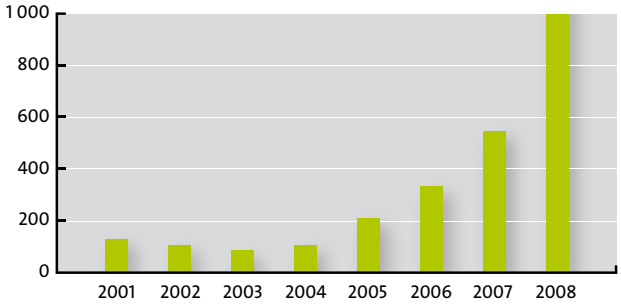


## NEW CALEDONIA OFFICE

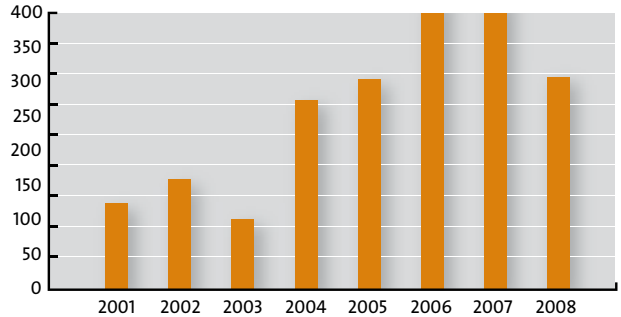
ANFR is represented in New-Caledonia and on the territory of Wallis and Futuna, by its office located in Noumea. ANFR conducts its activities either as part of its own duties (Articles L.43 and R20-44-25 of the Code of post and electronic communications) or under contract with the High Commissioner of the French Republic (HCR) and the Superior Administrator of the Wallis and Futuna Islands.

### Activities carried out by contract with the HCR

Evolution of the number of AAi




Evolution of the number of SRD




ANFR Office issues administrative import licences (AAI) for radio equipment not connected to a public network. This sector continues to grow, with 898 applications processed, a 97% increase from 2007, which had registered an increase of 65% compared to 2006. These results may be explained by the dynamism of the New Caledonian economy, the increased vigilance of customs services and a strong growth in products complying with WiFi and Bluetooth standards and radio controlled toys. ANFR Office also issues import licences to importers of cars, motor cycles or sea scooters for remote anti-theft control devices or on-board products using Bluetooth standard.

A recurring problem concerning AAI concerns RLAN (5 GHz) equipment imports. ANFR office consults with all regulatory authorities concerned before issuing any AAI. This equipment may be used to establish fixed and mobile business networks, on wide areas, similar to independent radio networks, the deployment of which requires an authorization by the Office of Post and Telecommunications (OPT) of New Caledonia. The growing interest for this type of network has led to many applications for the admission of new radio communications installers. ANFR office processes these applications in the framework of the approval committee chaired by the HCR.

In cooperation with the Civil Aviation and CNES, ANFR Office discussed with the HCR the issue of personal location beacons for terrestrial use at 400 MHz in order to define the conditions of implementation of the corresponding rescue operations in New-Caledonia.

The number of candidates to the Short Range Certificate decreased by 24% in 2008 (272 against 354 in 2007) and the number of sessions was reduced from 34 to 28. This significant decrease is explained by a new decision of the Maritime Affairs, which reserved the possibility of passing the examination to those residing in the Territory. The figures indicated take into account five SRC sessions in Wallis (57 candidates). All stakeholders are awaiting regulatory changes which would incorporate in the

Summary return

examination program the issues relating to the Global Maritime Distress and Safety System (GMDSS), as already done in metropolitan France. In June 2008, the planning commission of the convention with the Ministry of the Maritime Affairs, requested ANFR to set up a working party in order to change the SRC in this direction, while keeping a part relating to single-side band (SSB).

The Office also organized examination sessions for amateur radio operator certificates and managed the licences and call-signs for the amateur service. 122 radio amateurs were listed in 2008. The licences for the period 2009-2010 were edited and mailed in March 2009.

A meeting between the heads of ANFR offices in the French Pacific Islands was organised in Papeete.

### Contract with the Islands of Wallis and Futuna

A contract was signed on 8 July 2007 with the Superior Administrator of the Wallis and Futuna Islands. It defined the framework for activities to be conducted by ANFR on this Territory and enabled a first visit in August 2007, during which specific information on the role of ANFR was provided to State services and regulatory authorities, an inventory of all radio sites was carried out, and five SRC sessions were held for 80 candidates). In 2008, another visit permitted the organization of five SRC examination sessions.

The Superior Administrator of Wallis and Futuna also requested the assistance of ANFR in the framework of the monitoring of an internet access network operating at 2.4 GHz (Broadband Pacific) without authorization.

### Management and monitoring

Administrative and technical activities relating to maritime radio are an essential part of the ANFR office activity, including in particular the management of licences, in cooperation with ANFR teams in Saint-Dié-des-Vosges. ANFR office maintains its own data base and associated administrative files. 1,121 licences (against 1,034 in 2007, + 8%), 447 of those with MMSI (328 in 2007, +36%) were transmitted in December 2008.

| Type of ship | Number of licences | Figures 2007 |
|---|---|---|
| Boating | 883 | 832 |
| Fishing vessels | 74 | 76 |
| Passenger ships | 18 | 18 |
| Cargo ships | 91 | 77 |
| NUC | 41 | 25 |
| Other | 14 | 16 |
| TOTAL | 1,121 | 1,044 |

The number of professional boats remained stable in 2008, at 170 units, among which 70 were identified as requiring priority inspection of for radio equipment control. ANFR office conducted 107 ship inspections, with a progression concerning inspections in other countries (6 ships). Besides these inspections, ANFR office attended a Regional Ship Safety Committee.

State services and New-Caledonia government are studying the conditions of a transfer of ship safety issues to the Territory. In this transfer occurs, a contract between ANFR and New-Caledonia government may become necessary.

ANFR office also dealt with a dangerous case of harmful interference into the control tower of Touho Airport at 121.3 MHz, which was identified as caused by a sound broadcasting station operating in the vicinity at 729 KHz. ANFR office was able to promptly resolve this case through efficient cooperation with TDF and the Civil Aviation.

The Office periodically organized meetings with the Territory and State Regulatory Authorities and ministries and main radio communication operators to discuss all subjects relating to spectrum and assist in COMSIS and CAF applications.

Two applications for importing RLAN equipment at 5 GHz and deploying radio networks using this equipment were the subject of a consultation with concerned authorities. This enabled to define appropriate restrictions to the use of such equipment, given potential interference into meteorological radars in this band. Similar applications are under examination.

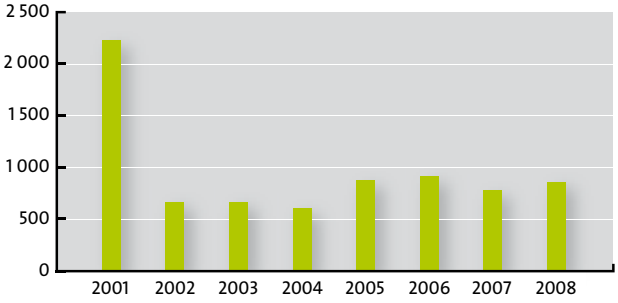
## FRENCH POLYNESIA OFFICE

ANFR is represented in the French Polynesia by its office in Papeete. Its competencies result from Articles L43, R20-44-25 and R20-44.26 of the Code of Post and Electronic Communications.

Moreover, under a contract signed on 18 May 2004, the High Commissioner of the Republic (HCR) entrusted ANFR with a number of tasks under his competency pursuant to the Organic Law n° 2004-192 of 27 February 2004 on the autonomy of French Polynesia.

### Activities carried out under contract with the HCR

Evolution of the number of AAI




ANFR French Polynesia office issues import licences (AAI) relating to radio equipments not connected to a public network. In 2008, the office dealt with 899 applications corresponding to 5,4561 import equipment (48,608 in 2007) with a majority of radio controlled toys. 37 applications were refused.

210 radio amateur residing in French Polynesia were listed. 36 temporary licences were granted to foreigner radio amateurs. Two important events took place in 2008, an amateur radio meeting in Clipperton, and a gathering on radio waves and internet (jamboree JOTA-JOTI). Two licences were granted for CB.

The office assisted the HCR on Digital terrestrial television, on the plan "France numérique 2012", on GSM jammers and on electronic bracelets.

Several meetings were also convened by the office on the application of regulations on radio easements in the Territory.

Concerning maritime activities, ANFR office organized 67 examination sessions for Short Range Certificates (SRC), which took place in Tahiti (57 sessions) and in other islands (5 in the Iles sous le vent, 3 in the Marquises islands and 2 in the Touamotou islands). 649 certificates were granted.

On the same issue, a meeting took place in August 2008, with the concerned services of the Territory and of the State. Participants expressed their wish that GMDSS provisions be included in SRC examinations for New-Caledonia and in French Polynesia, taking into account local specificities (SSB).

### Spectrum Management and monitoring

Administrative and technical activities relating to the maritime mobile service, in particular inspection of radio equipments on board ships, conducted at the request of Maritime Affairs authorities, are the most important part of the work of ANFR office, which participated in one meeting of regional ship safety committee.

ANFR office was requested by the Territory authorities for Fishery to be involved in the elaboration of a project on "radio location beacon" for small fishing boats (poti marara and bonitiers).

Since t the Law on French Polynesia autonomy (2004) came into force, inspection of ships of less than 160 register tons has been placed under the responsibility of the Territory government. The detailed conditions of this transfer from the State Directorate of Maritime Affairs are still under discussion. Once it is realized, a contract between ANFR and the Territory Directorate of Maritime Affairs may be concluded to perform maritime inspections under the responsibility of the Territory.

Annual results of ship inspections

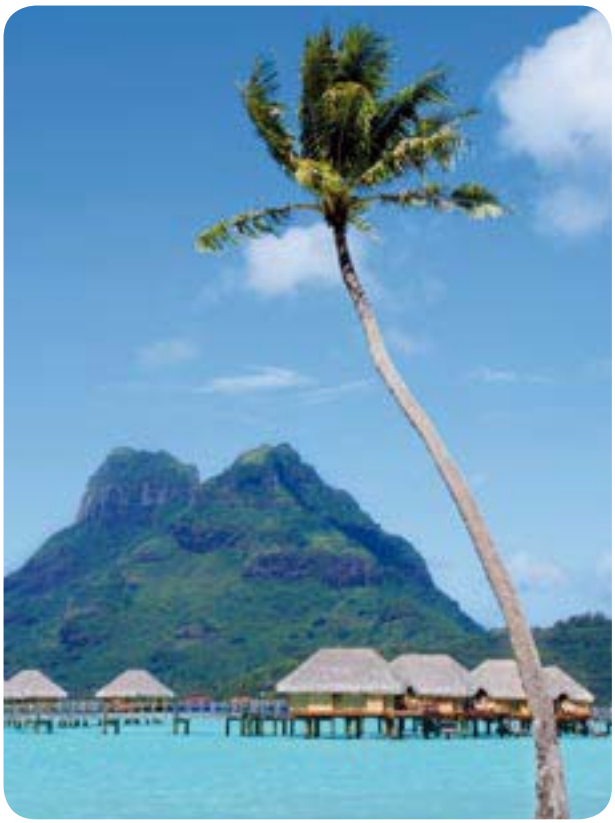
| Type of ship | Number of ships inspected |
|---|---|
| Power of state | 50 |
| Power of Territory | 85 |
| Inspections of putting under operation | 7 |
| **Total *** | **135** |

* 20 of those ships were re-tested

Furthermore, an effort was made on the inspection of passenger ships and collective use vessels in the framework of a visit to Raiatea (Iles Sous-le-Vent), where meetings took place with three charter plane companies for renewal of their radio station licences.

In 2008, ANFR office issued 1,113 licences, among which 387 are associated to MMSI, which represents one third of radio equipment on board authorized ships. The State and Territory Maritime Affairs requested ANFR office to evaluate the knowledge of captains and patrons regarding the utilization of maritime radio equipment. Controls were made in cooperation with the Papeete Ship Safety centre and the Mahina Radio coast station.

Concerning inspection of radio sites, ANFR office inspected the site of Papenoo, which includes Tahiti Nui Télécom earth station and the future Galileo site. Three cases of harmful interference were also handled, including a major disruption of the surveillance capability of the Port of Papeete, as well as claims from television viewers. Furthermore, the installation of a microwave link belonging to the Civil Aviation and the bringing in service of a surveillance radar in the Port of Papeete, required frequency coordinations.

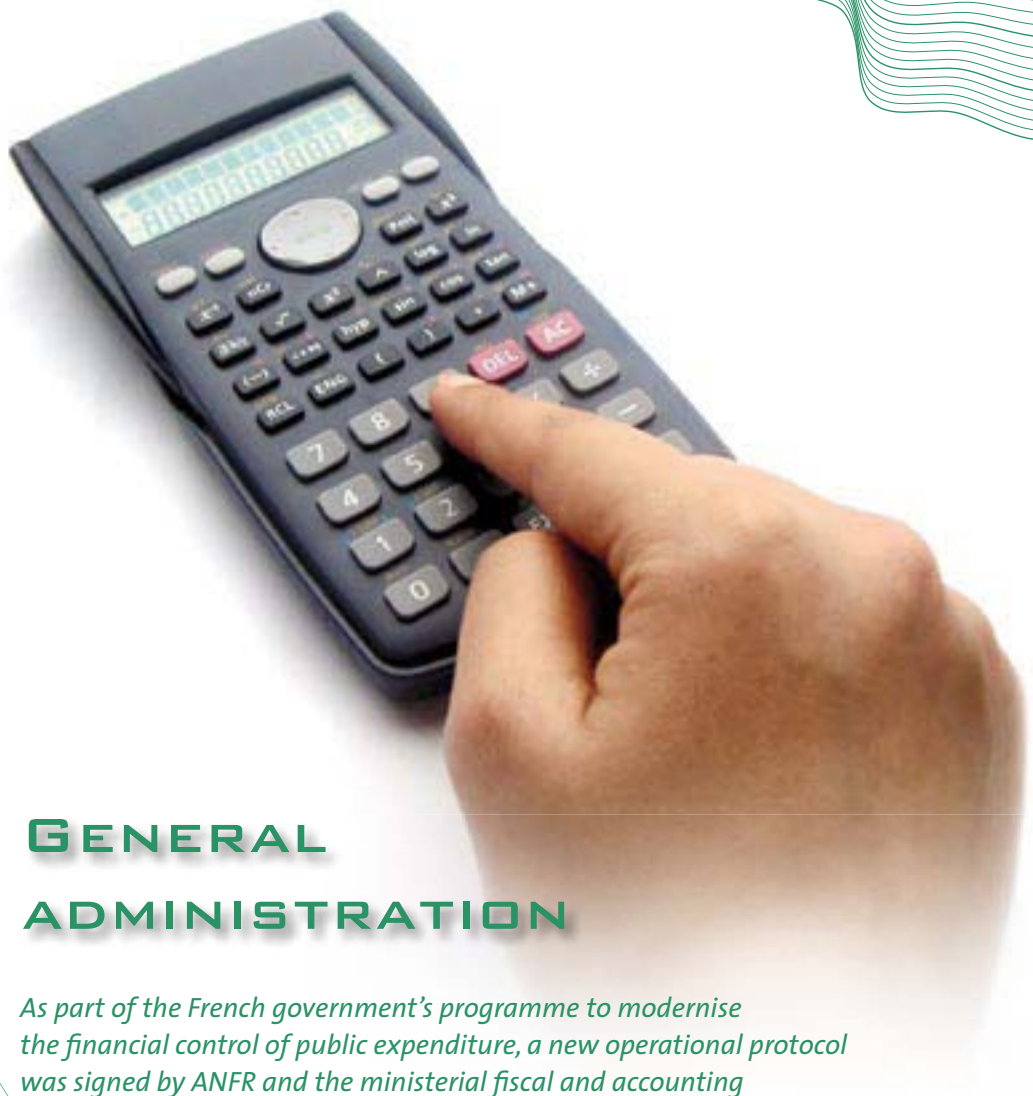


ANFR office also attended the meetings held by the High Commissioner of the Republic, especially for the terrestrial use of maritime VHF frequencies, the State-OPT convention on monitoring of maritime VHF distress and video-monitoring.

ANFR office continued his campaign to raise awareness on the need to comply with the COMSIS procedures before bringing in service new of modified radio stations. It also organized several meetings to issue temporary frequency licences and to coordinate the use of radio equipments for major events: Billabong (World surfing competition), the Hawaiki Nui outrigger canoe race, military and scientific missions, the visit of warships (Argentine, Chinese, Korean), organization of a radio amateur meeting on the Island of Clipperton, and a film making in Bora Bora from October to November 2008.

### Coordination between regulatory authorities

As every year, ANFR office held two meetings with the State and Territory regulatory authorities, in April and August 2008. Following these meetings, discussions took place under the aegis of ANFR office between local representatives of the Ministry of Defence (DIRISI) and the Posts and Telecommunications Service (SPT) of the Polynesian Government, in order to identify parts of spectrum that may be released for third generation of mobile telephony networks (3G). These discussions led to an agreement by the Ministry of Defence in November 2008, establishing the release of de 2x5 MHz for each of the two operators authorized by the SPT (Tikiphone and Mara Télécom.) The implementation of the corresponding 3G networks is expected during the year 2009.



# General administration

*As part of the French government's programme to modernise the financial control of public expenditure, a new operational protocol was signed by ANFR and the ministerial fiscal and accounting audit department in 2008.*

## 1. Budgetary and financial issues

As an operator of the Développement des entreprises et des services (Enterprises and Services Development) programme, ANFR was funded, for 95% of its 2008 expenditure, by the subsidy received from the Direction Générale des Entreprises (DGE, General Directorate for Enterprises, of the Ministry of Industry). This included €955,000 in funding for the television reception protection role taken by ANFR, jointly with CSA, under Law n°2006-961 of 1 August 2006, which amends Article 22 of Law n°86-1067 of 30 September 1986.

The quality policy implemented by ANFR in 2008 led to an upgrade of the analytical processing of expenditures, relying on a more detailed description of activity cost-centres.

### ANFR budget

ANFR budget (excluding FRS and FAN financial funds, which are accounted for independently) was 97% implemented (excluding depreciation, amortization and provisions for impairment).

Accurate forecasting permitted full implementation of staff expenditure budget, which was 4.7% higher than in 2007, due largely to the rise in the rate of employers' contributions to the public service pensions special allocation account and the full year contribution to the 2007 recruitment campaign for the Agency's television reception protection duties.

Operating expenditure, excluding staff, fell slightly compared with 2007, despite rises in rents and energy purchases. As in previous years, maintenance of IT systems and spectrum monitoring equipment, as well as travelling expenses represented nearly half of this expenditure (47%).

The reduction in investment reflects cutbacks to the spectrum monitoring programme (-€1,100,000), which, together with IT development, constitutes the major part of this item.

Expenditure on buildings more than doubled during the year, with the renovation of the Noiseau technical centre and the refurbishment of another building on the same site to house the IT equipment required to implement the Agency's activity recovery plan.

Total expenditure remained at the same level as that reported for 2007.

ANFR own revenue (i.e. in addition to DGE subsidy) was unusually high (+€500,000) as a result of an exceptional peak in the contractual activities carried out at the request CSA and a larger financial income from cash held by the FRS and FAN.

Working capital rose by €1,608,000 during the 2008 financial year.

Fig. 1 : 2008 ANFR Budget (in euro)

| Account nos. | BUDGET HEADINGS | 2008 | Account nos | BUDGET HEADINGS | 2008 |
|---|---|---|---|---|---|
| **PROFIT & LOSS ACCOUNT** | | | | | |
| C64 | Payroll costs | 20 389 513 | | | |
| C631, C633 | Taxes, duties and similar salary-related payment | 1 798 611 | C741 | Operating subsidy | 29 850 940 |
| | **Personnel** | 22 188 125 | C748 | Income from allocated resources | 207 951 |
| C60 | Purchases | 838 979 | C70 | Provision of services | 590 023 |
| C61 | External services | 4 028 815 | C75 | Other ongoing management income | 1 211 |
| C62 | Other external services | 3 278 493 | C76 | Financial income | 1 776 669 |
| C635, C637 | Other taxes, duties and similar payments | 7 470 | C77 | Extraordinary income | 4 465 908 |
| C65 | Other ongoing management expenses | 236 624 | *ofwich C775* | *Income from asset disposals* | *17 815* |
| C66 | Financial expenses | 17 | *ofwich C776* | *Neutralisation of depreciation* | *559 223* |
| C67 | Extraodinary expenses | 29 317 | *ofwich C777* | *Share of investment subsidy trasferred to P&L* | *3 862 461* |
| | **Operations** | 8 419 716 | | | |
| C68 | Depreciation allowances and provisions | 4 428 145 | *ofwich C778* | *Other extraordinary income* | *26 409* |
| | **TOTAL EXPENSES** | **35 035 986** | | **TOTAL INCOME** | **36 892 703** |
| | **Provisional profit** | **1 856 717** | | Provisional loss | - |
| | Profit & loss account BALANCE | **36 892 703** | | Profit & loss account BALANCE | **36 892 703** |
| **CASH FLOW** | | | | | |
| | Provisional profit | 1 856 717 | | Provisional loss | - |
| C68 | Depreciation allowances and procisions | 4 428 145 | C775 | Income form asset disposals | 17 815 |
| | | | C776 | Neutralisation of depreciation | 559 223 |
| C675 | Carrying value of asset disposals | | C777 | Share of investment subsidy transferred to P & L | 3 862 461 |
| | TOTAL | 6 284 862 | | TOTAL | 4 439 499 |
| | Cash fkiw | 1 845 363 | | Cash flow shortfall | - |
| **SUBMMARY STATEMENT OF SOURCE AND APPLICATION OF FUNDS** | | | | | |
| | Cash flow shortfall | - | | **Cash flow** | **1 845 363** |
| C20, C21, C23 | Tangible and intangible fixed assets | 4 301 298 | C131 | Investment subsidy | 4 017 000 |
| C27 | Long-term investments | 4 053 | C27 | Long-term investments | |
| | **Investment** | 4 305 351 | | Other resources (exc. balancing transactions) | 51 279 |
| | **TOTAL ASSETS** | **4 305 351** | | **TOTAL RESOURCES** | **5 913 642** |
| | **Contribution to working capital** | **1 608 291** | | Withdrawal form working capital | - |
| | BALANCE for the source and application of funds | 5 913 642 | | BALANCE for the source and application of funds | 5 913 642 |

### The Spectrum Reallocation Fund (FRS) budget

The FRS receives income in the form of payments made by the beneficiaries of the reallocation programmes.

€ 4,014,000 were advanced by the FRS in 2008 under the terms of the agreements between the Agency and the frequency assignment bodies and the GIE Fréquences setting the maximum limits for each reallocation operation.

In terms of payments made by digital program providers to the FRS, invoices totalling € 13.8 million were issued on 1 January and 1 July 2008.

### The Digitisation Support Fund (FAN) budget

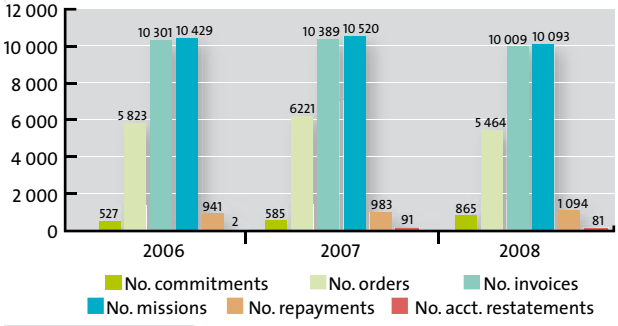
A net figure of € 323,000 was paid by ANFR to the GIE Fréquences in respect of advances on completion of operations covered by the agreements.

### Processing of income and expenditure

In 2008, ANFR activities relating to administrative accounting procedures were marked by the introduction of new systems to provide automated tracking of certain types of expenditures: requester for management indicators and use of the Contracts module to enter contracts and agreements intended for budgeting and accounting software, with retrospective effect for previous years. This advance is part of ongoing moves to increase the reliability of budgetary and accounting data, and ensure maximum compliance with the requirements of the French Public Contracting Code.

The processing of expenditure remains very satisfactory, with the accounting officer rejection rate down by 1.52% on the basis of a volume of expenditure authorisations unchanged since 2007. ANFR was therefore able to meet its overall payment period, which was reduced to 30 days by the Government decree of 28 April 2008.

**Figure 2 :** Administrative accounting output




Summary return

The settlement of ITU (International Telecommunication Union) invoices for processing frequency assignment requests for satellite networks generated net payments of € 205,976 under the three assigned resources agreements signed with satellite channel operators.

### Contracts

Seven open calls for tender were issued in 2008. 110 tenders submitted were analysed and 20 contracts were awarded.

These addressed three major procurement needs: telecommunication services in metropolitain France (expenditure of approximately € 750,000 inc. VAT per year, awarded in seven batches), cleaning services for ANFR's 21 sites (expenditure of € 244,000 inc. VAT per year, awarded in 13 batches) and travel agency services (expenditure of € 600,000 inc. VAT per year), for which a new contractor was appointed.

For the first time, ANFR issued a call for tender from test laboratories for bids to conduct tests on radio equipment as part of its market surveillance responsibilities. This contract contained 18 batches; one for each of the standards to be tested. This contract was unusual from the point of view that a principal contractor and a support contractor were appointed for each standard tested.

ANFR has signed a partnership agreement with the central procurement agency of the French Ministry of the Economy and Finance for the supply of ORACLE software support. The new partnership will deliver substantial economies when the current contract is renewed.

73 simplified contracts were awarded for smaller procurement projects, following competitive tendering by a total of 364 suppliers.

New contracts were awarded to ACCOR for the purchase of restaurant vouchers, and with QUALICONSULT for electrical compliance testing. The QUALICONSULT contract will save € 23,000 over five years. Four contracts relate to the creation of ANFR French Caribbean/Guyana office, and a further 10 totalling € 354,000 (inc. VAT) for construction work at the Noiseau technical centre.

The procedures governing the award of public contracts were updated to reflect the new provisions published in Government decrees of 19 December, which had the effect of dissolving ANFR's tender committee (20 meetings in 2008) and changing the thresholds for construction contracts and their associated advances regime.

## 2. Human resources

### Forward management of employees, jobs and skills

In accordance with the provisions contained in the LOLF budgetary reform legislation, the human resources management policy implemented during 2008 focused primarily on management of the payroll and other aspects of personnel management expenditure.

Personnel expenditure totalled € 22,190,000 in 2008.

ANFR has conducted an inventory of jobs involving critical skills in order to bring its recruitment policy in line with non-replaced retirements and the forecast priority needs of ANFR in delivering its missions.

ANFR employed a workforce of 316.27 ETPT (full-time equivalent posts, excluding 21 seconded staff, most of whom were supplied by the Ministry of Defence). As part of its commitment to complying with the regulations applying to public bodies, ANFR is working with the French Ministry of the Economy, Industry and Employment (MINEIE) to convert certain civil service administrative positions detachable from the ministry's central staff to the Agency. These posts were previously contracted secondments.

### Ministry of Defence personnel seconded to the Agency

An agreement was reached between the Ministry of Defence and ANFR on the establishment of a management framework for military personnel seconded to the Agency, and the payment by the latter of the expenses relating to these personnel. The agreement came into effect on 1 July 2008. A steering committee of representatives from both parties has been formed to define the provisions to be put in place. Under this arrangement, three civil servants will be employed directly by the Agency with effect from 1 January 2009, and fourteen military staff will be seconded temporarily.

### Employee benefits

During the year, ANFR continued to develop its employee catering policy, which forms the largest single budget item in terms of employee benefits. On 1 December, the Agency began a trial programme of issuing restaurant vouchers to staff working at the NOISEAU centre. The Agency also continued its policy of issuing universal service vouchers (CESUs) to support the provision of childcare or parents of children aged under 6.

### Employee relations

Permanent consultation with employee representatives forms an important part of ANFR's human resources management policy. Many meetings were held during 2008 in the form of informal working groups, as well as under the more formal arrangements of committee meetings. The implementation of a dynamic salaries policy discussed in consultation with employee representative organisations has enabled ANFR to reward the efforts made by staff following organisational restructuring initiatives, some of which resulted in workforce reductions. This policy includes the statutory measures applicable to civil servants employed by the Ministry of the Economy, Industry and Employment and those specific to each grade (e.g. the measures applying "administration attaches", which are spread over three successive budgetary years). All these measures have resulted in only half the posts vacated by retiring employees being retained.

The Joint Technical Committee (CTP) met in April and October 2008, and voted favourably on the following issues:

- changing the internal regulations of the Agency to include an IT charter;
- the procedures for closing offices in the vicinity of public holidays;
- provisions to address the Droit Individuel à la Formation (DIF) personal training entitlement;
- the Agency's annual training plan.

The Health and Safety Committee (CHS) met in April and December 2008 to address the practical issues relating to employees required to drive company vehicles or laboratory trucks in order to minimise the risks to which they may be exposed.

### Induction and career development policy

Several years ago, the salaries policy was joined by a promotion-based career development policy under which joint consultative committee meetings are held to formulate recommendations concerning the individual situations of contract staff. As a result, 6.5% of contract staff have received promotion. Civil servants originating from the ministry are covered by the promotional mechanisms managed by the Direction des Personnels et de l'Adaptation de l'Environnement Professionnel (DPAEP). 5.8% of civil servants received promotion during the year.

As part of inducting new departmental staff, a Welcome Day for new recruits was held on 16 October.

## 3. Logistics

### General issues

The following contracts were renewed during 2008: telecommunication services, cleaning, travel agency services, franking machines, photocopiers and electrical installation testing.

The Agency hosted two meetings for leading CEPT groups in Paris: one for the CPG (on the preparation of WRC-11) from 20 to 22 February 2008 with 90 delegates, and one for the ECC/PT1 (on the harmonisation of spectrum allocated to the mobile service) from 16 to 18 September 2008 with 87 delegates.

ANFR also hosted more than 40 international meetings at Maisons-Alfort in 2008.

In accordance with the Law of 15 July 2008, archiving remains a priority, and the introduction of Administrative Utility Durations (AUDs) has enabled the development of document destruction and conservation procedures.

### Fixed asset management

As part of the 3-year schedule of building works, 2008 saw the commencement of work at Noiseau to equip premises to house the IT installations required for the Agency's Activity Recovery Plan and completion of phase one of the renovation and electrical upgrading work in the north wing. These works also involved the refurbishment of the sanitary facilities.

2008 also saw completion of construction work on ANFR regional office garage in Toulouse, the commencement of work to improve security of the regional office in Nancy following two burglaries and the replacement of an obsolete alarm system at the Donges regional office.

Physical and accounting audits of all assets were conducted. The management procedures are operational.

The replacement of vehicles with high fuel consumption unable to meet current pollution and safety standards resulted in a 4.34% reduction in the fuel bill compared with 2007 (at like-for-like fuel cost).

### Travel Assignments

ANFR appointed a new travel agent in 2008 following a tendering round. This provided the opportunity to update the following reference documents: assignment request and completion sheet.

A review of the travel policy conducted with the aim of reducing costs resulted in recommendations that include early booking of tickets and the acceptance of restrictions on the option to change or exchange tickets in order to benefit from the lowest possible fares.

3,664 travel assignments were undertaken by ANFR agents in 2008, including:

- 3,000 assignments in metropolitan France and the French Overseas Departments and Communities (81.88% of the total). The majority of the assignments involved the inspection of terrestrial and ship radio installations
- 664 assignments abroad (18.12% of the total), the majority of which relate to Agency participation in international negotiations on spectrum.

The total number of assignments was 10.43% higher than in 2007, despite a fall of 14.21% in the number of international assignments undertaken.

The total amount of travel assignment-related expenditure fell during the year to € 1,221,000 (including € 595,800 in travel costs) compared with € 1,363,000 in 2007.

## 4. Information Technology

### IT system management

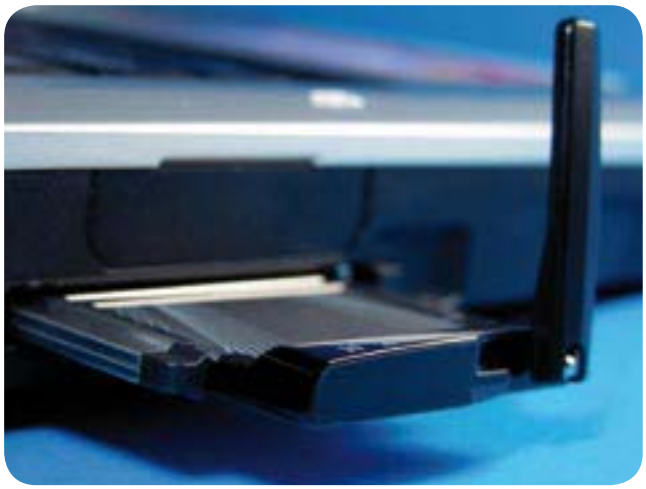
ANFR has adopted a rolling 3-year master plan to manage the progress of IT projects and facilitate unforeseen IT system developments or adaptations. The most recent plan was discussed in detail by a working group appointed by ANFR Board, before being approved by the Board at its meeting of 23 October 2008.

### Open source products

The conscious move towards open source products begun some years ago continued to be pursued actively in 2008:

• the operating system part of the FNF (Fichier National des Fréquences / National Frequencies Register) application has been developed under Linux, and the application server part under Tomcat.

- The SUMATRA (SUrveillance du MArché des équipements Terminaux et RAdioélectriques R&TTE maket surveillance) application has been developed in its entirety using LAMP (Linux, Apache, Mysql and PHP) software, and was brought in operational service on 2 June 2008.
- the new open source systems developed for in-house use have been implemented: SONAR for the development quality evaluation (developed under Java) and WikiSI, which provides users with information system data.



### IT security

ANFR's commitment to improving IT system security also continued in 2008, with the implementation of an activity recovery plan:

- to guard against any risk of flooding, all the Maisons-Alfort servers have been relocated to Noiseau;
- a system has been implemented to synchronise the data held on separate IT systems in separate buildings at the Noiseau Centre. This system would enable the next-day resumption of operations in the event of fire.

A new (IronPort) e-mail system has been installed to filter out the spam that now accounts for nearly 95% of incoming mails. At the same time, the infrastructure has been modified to remove the previous reliance on a single active directory.

An IT resources usage charter has been adopted setting out the conditions governing the use of workstations, e-mail, local networks and the Internet by everyone with access to the Agency's information system (staff, trainees, service providers, etc.).

### Project management

The FRR (FACTURATION, RECLAMATION and RESEAUX / INVOICING, COMPLAINTS and NETWORKS) project addresses the 2007 decree on the invoicing of independent radio networks. The specifications for this project have been drafted, and the code required for mass invoicing was implemented in 2008. Additional elements of INVOICING and development work on COMPLAINTS are scheduled for 2009.

The Internet-based 3-level AMATEURS application went live on 20 October 2008.

The shared use by transmission sites of the STATIONS application has led to the development of a new version of this application: version 4 was implemented in March 2008.

The FCS project reached an important stage with the implementation in March 2008 of phase 5 (Compliance control). The PRTV phase, phase 6 (Current operating requests) and phase 7 (Audit and management requests) intended for the DCA were delivered in the second half of 2008

The Telecommunications services contract was renewed in November 2008 following a tendering round of seven batches.

| Batch | Supply | Contractor |
|---|---|---|
| 1 | Connections, subscriptions and incoming calls for all lines (analogue and digital). | Orange Business Services |
| 2 | Outgoing local, local area, national, international and mobile calls (analogue and digital), information, public services and special numbers for all special lines and access points. | Neuf Cegetel |
| 3 | Mobile phone services (subscriptions, airtime and phone purchases). | Orange France |
| 4 | Data transmission. | Orange Business Services |
| 5 | Spectrum Control Call (CDS). | Orange Business Services |
| 6 | Permanent Internet access for the Maisons-Alfort and Noiseau sites. | Orange Business Services |
| 7 | ADSL Internet access for sites in mainland France | Magic On line. |

Software applications relating to maritime radio are in the process of being upgraded. The specification has been drafted, and the tendering process to appoint a service provider is underway. This contract is due to be awarded at the start of 2009.

## ANFR QUALITY POLICY

The goal of the quality policy is to deliver continual improvement in the quality of the services provided by the Agency through an ongoing process of shared consultation. It is built on the active participation of every member of staff.

2008 saw full deployment of the ANFR quality policy to coincide with the signing of a performance contract between the Agency and the French government.

**The quality policy was deployed** on 9 January 2008 in every Agency department, following a year-long procedure undertaken in 2007 to identify the Agency's "customers", map the processes involved (figure 1) and set a consistent series of operational targets and indicators. Against this background, a new system has been implemented to provide detailed monitoring of the activities relating to each process. This led to the restructuring of the analytical processing of expenditure, and the new structure was introduced on 1 January 2008.

Developed in close cooperation with all Agency staff, the frequency assignment authorities and the Agency's Board of Directors, this policy was supplemented in 2008 with the introduction of a formalised system for managing the Agency's processes (figure 2a) and associated policies (figure 2b) and by the description of interactions between production processes (figure 3) in preparation for the initial process reviews of June 2008.

These initial reviews led to adjustments being made to the organisational structure, with particular emphasis on management of agreements with the frequency assignment authorities, some regional services of ANFR and the budgeting, finance and IT functions of the General Administration Directorate. A reference document covering every aspect of the quality policy was produced and distributed in January 2009, and will form the basis of the process reviews scheduled for 2009.

**Figure 1 :** The processes implemented by ANFR

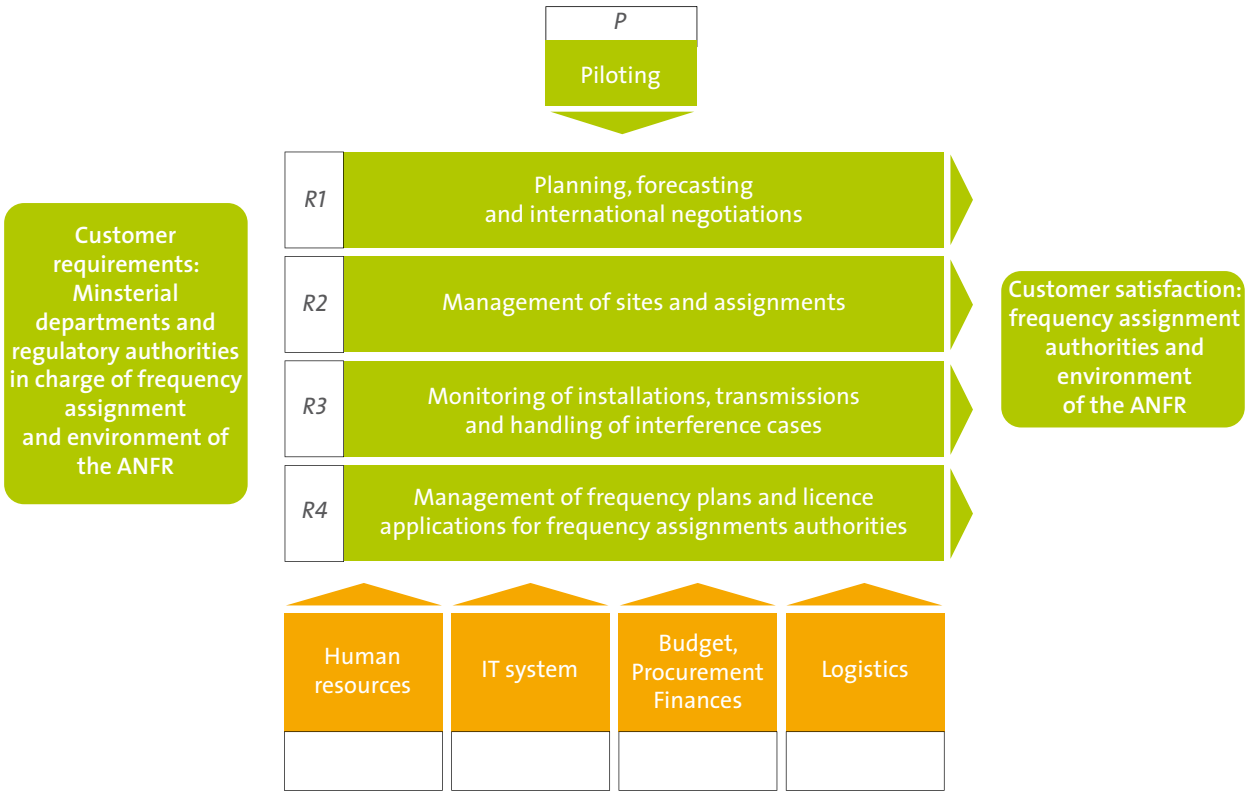
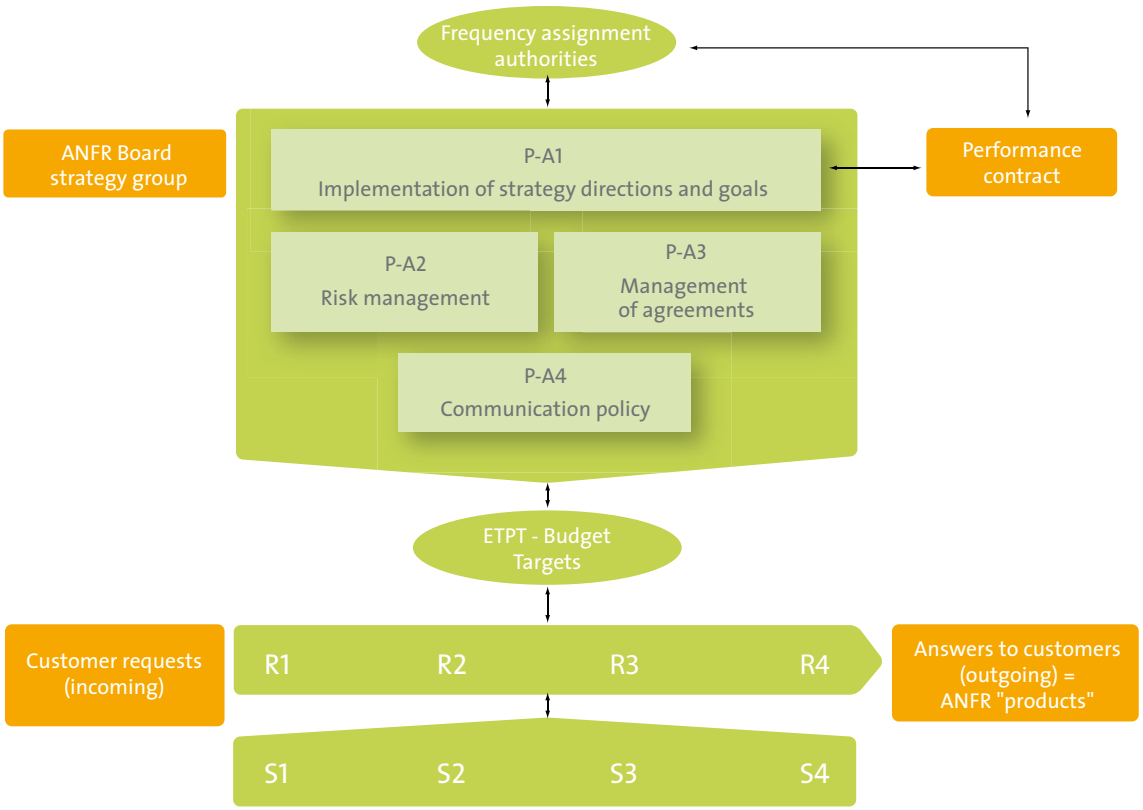


**Figure 2a :** ANFR activities piloting process




Piloting process P

**Figure 2b :** Processes management policy

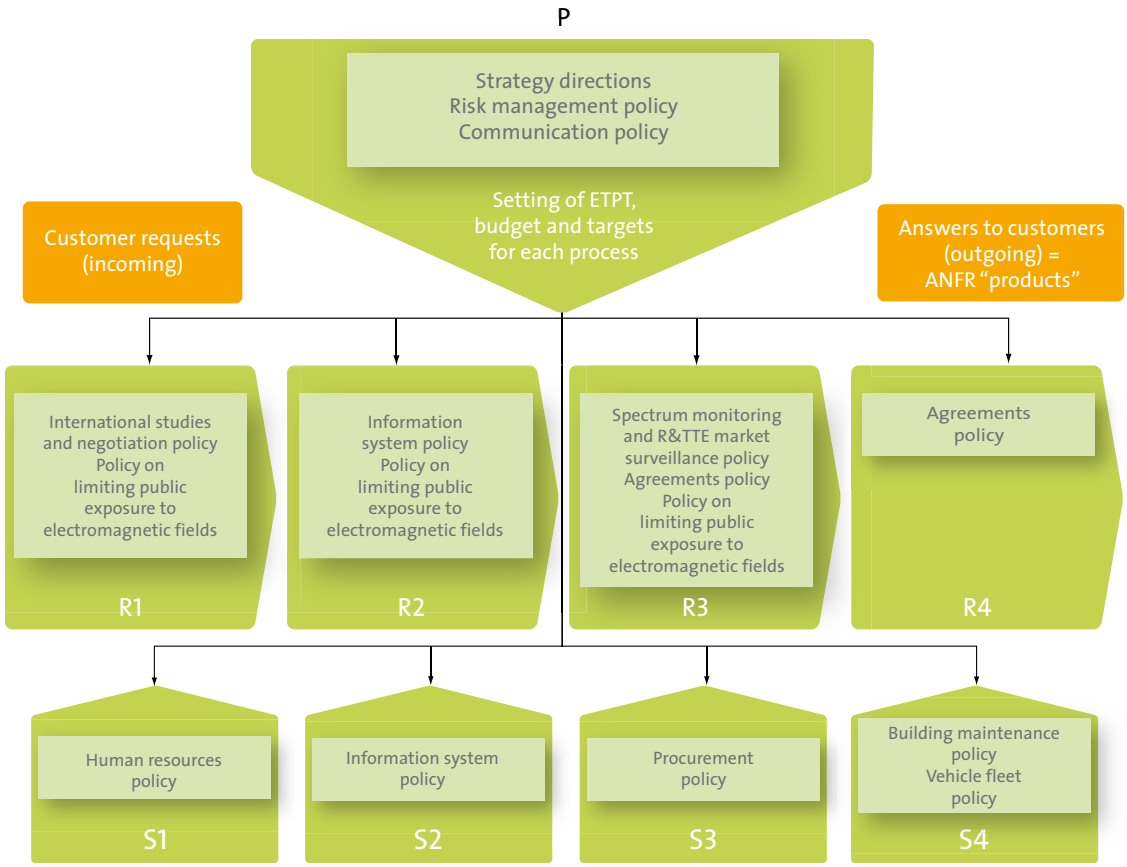
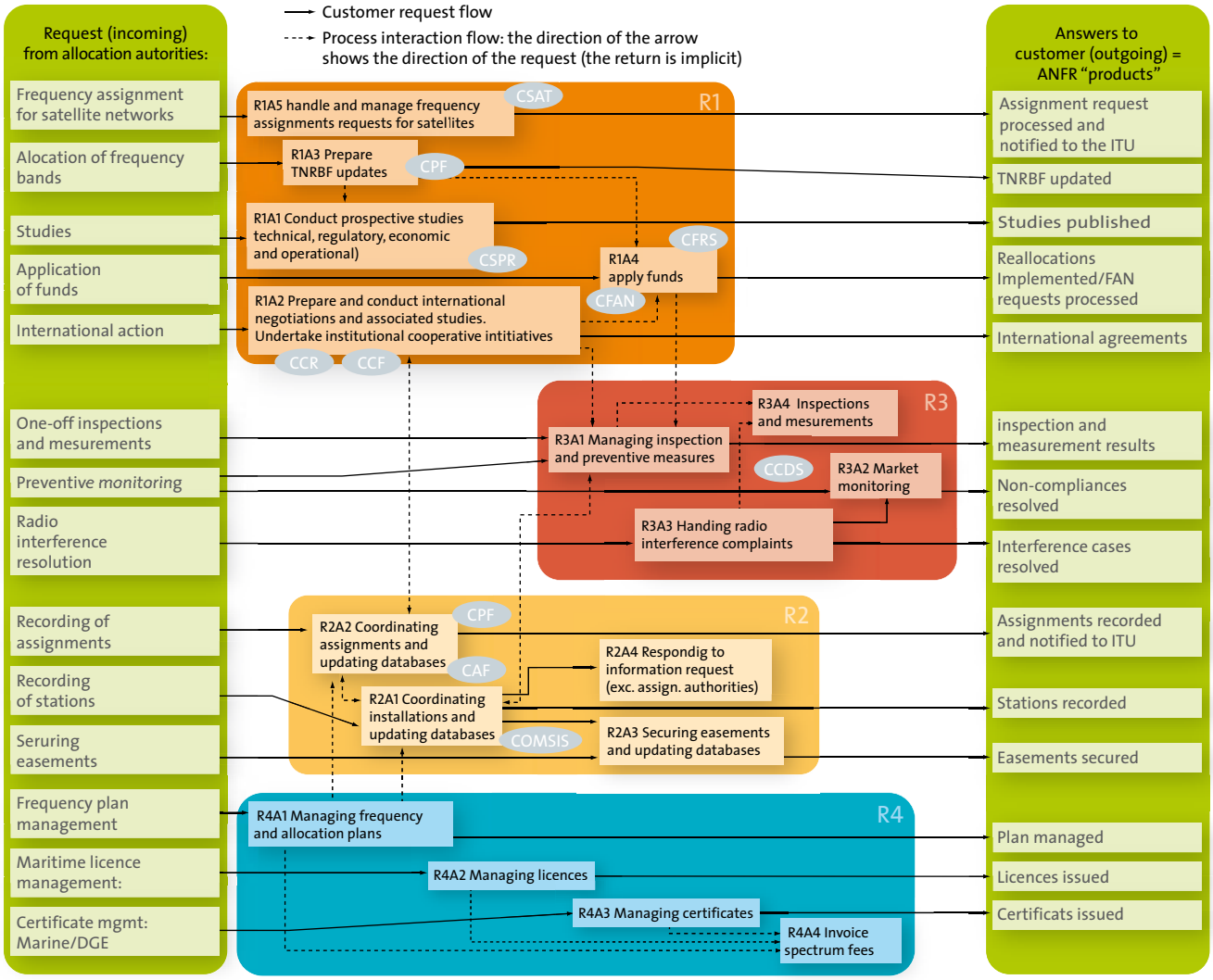


Figure 3 : ANFR processes and their interactions at 05/09/2008




2008 was also the year in which a performance contract was signed by the Agency with the French Government. The contract was approved at the end of 2008 by the Agency's Board following several months of close consultation on the overall spectrum management strategy in France.

This process led to the definition of a series of strategic targets that the frequency assignment authorities and the political level would like to see ANFR achieve. These targets are fully consistent with the Agency's quality policy.

The methodology applied to this process-based policy highlighted some particularly valuable issues concerning the governance of the Agency and the wider implications of frequency spectrum management.

The 3-year performance contract between the French government and ANFR provides a framework for the entire strategy; a framework within which the Agency can work effectively to deliver its missions. It sets out the medium- and long-term strategic directions and targets for the Agency.

The strategic directions are as follows:

- to give new impetus to the use of the public domain represented by spectrum and maximise its value to society
- to act as a driving force at European and global levels
- to give priority to interference prevention
- to respond effectively to the needs of the frequency assignment authorities
- to deliver continued improvement in the services provided by the Agency

These five strategic directions have been formulated to enable ANFR to achieve its long-term strategic goals, which reflect the requirements defined by the political level and the frequency assignment authorities:

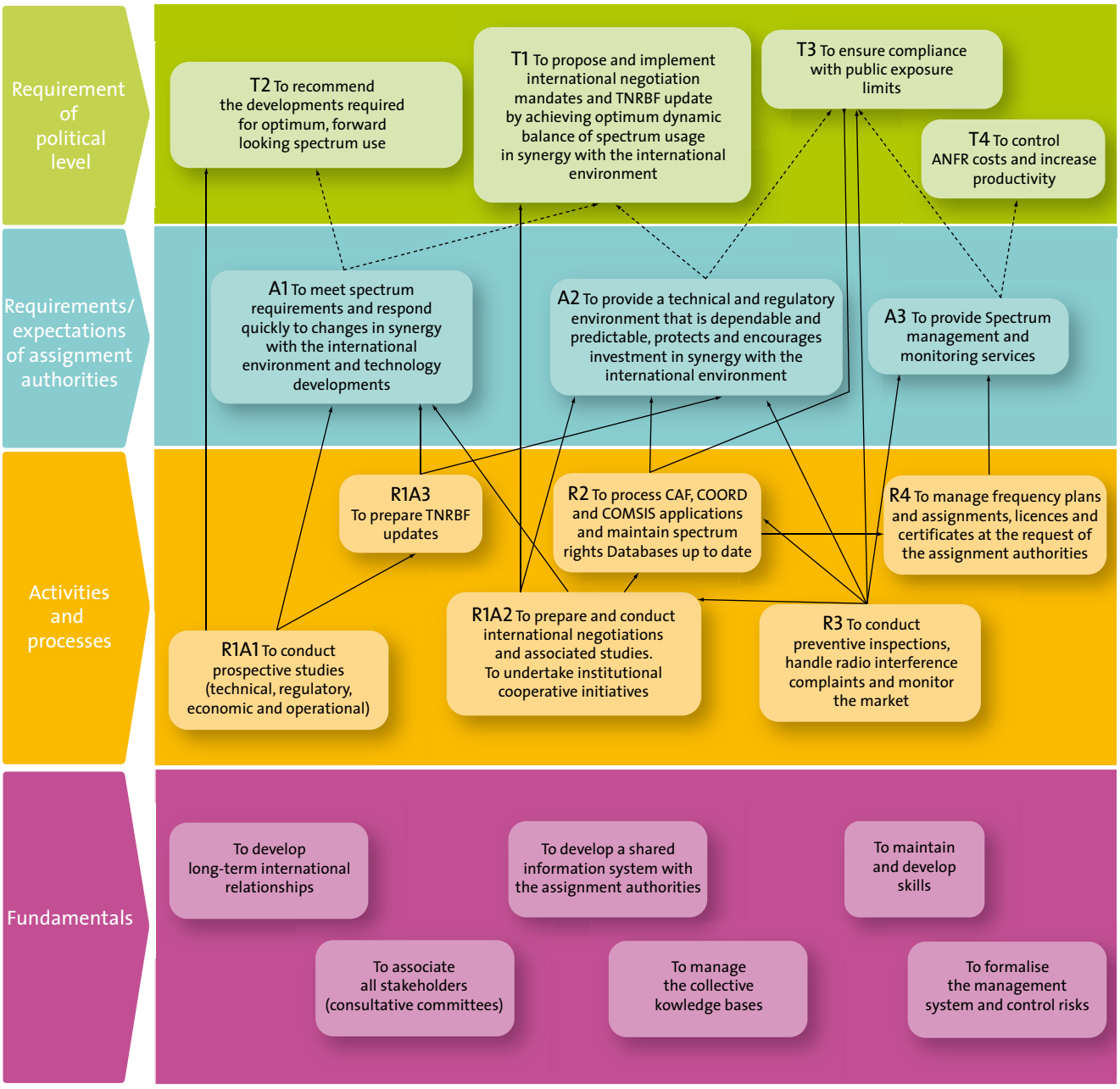
- to achieve optimum dynamic balance of frequency spectrum usage in synergy with the international environment;
- to recommend the developments required for optimum, forward looking, use of the spectrum;

- to provide a technical and regulatory environment that is dependable, predictable, protects existing investment and encourages future investment, in synergy with the international environment;
- to ensure compliance with the limits imposed on public exposure to electromagnetic fields;
- to provide spectrum management and monitoring services at the request of the assignment authorities;
- to control ANFR expenses and improve its productivity.

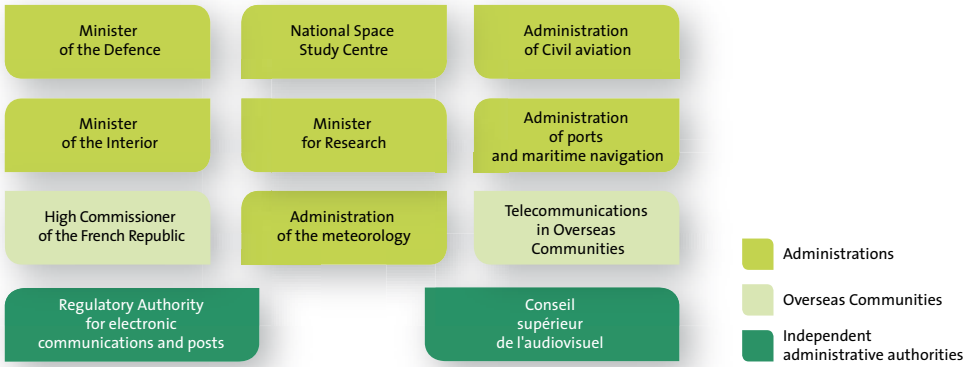
The map shown in Figure 4 summarises this strategy as follows:

- the upper section contains the strategic targets set to ANFR by the political level and expected by assignment authorities in respect of its key activities
- the lower section shows the fundamental activities and processes to be implemented by ANFR in delivering its long-term missions

**Figure 4 : Agency strategy map**
**(Version 4 of 8 january 2009)**

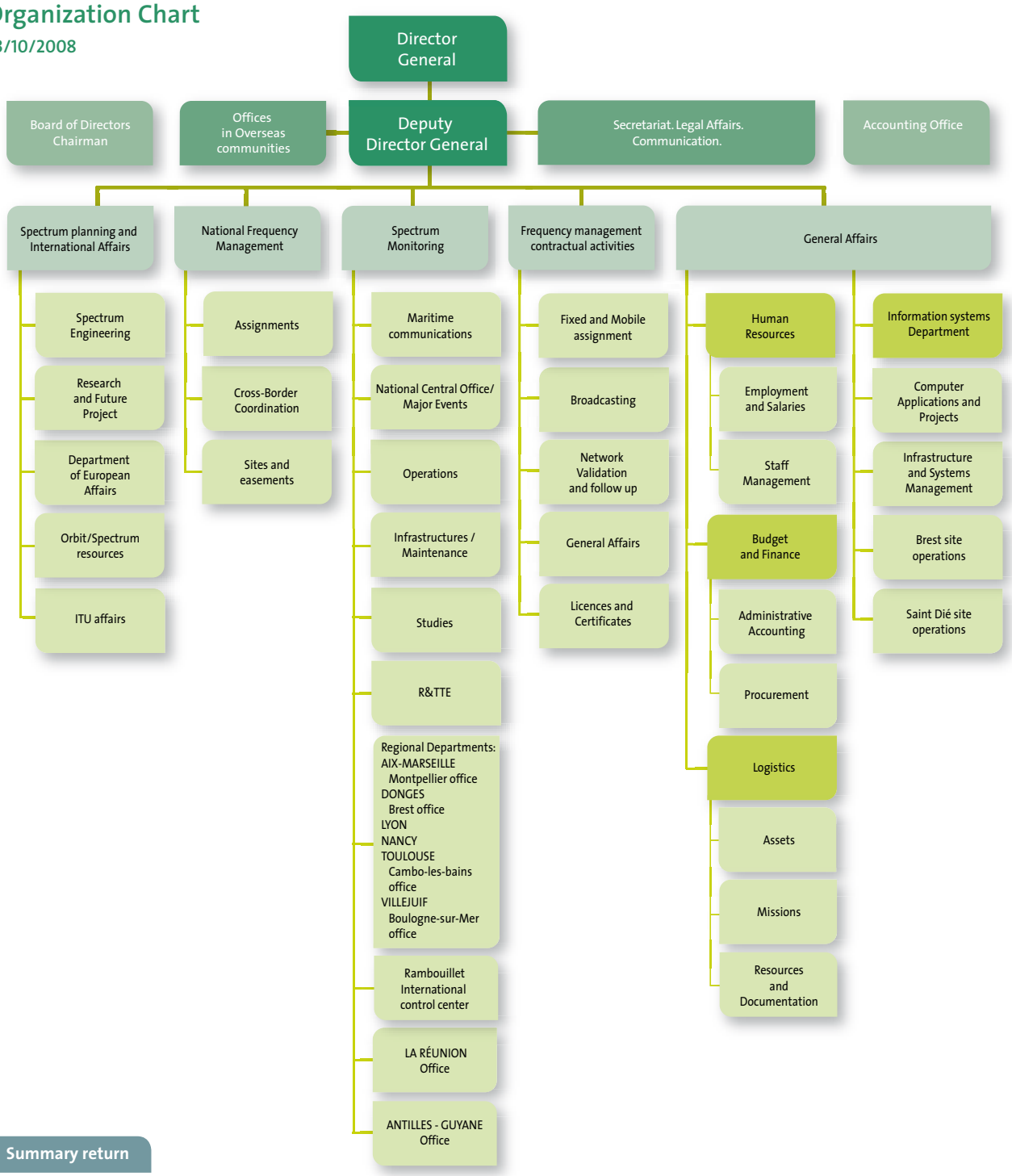


## Ministerial departments and Regulatory authorities in charge of frequency assignment




## Organization Chart

23/10/2008




Summary return

## Board of Directors of the Agence nationale des fréquences

### Persons selected because of their skills

**Mr Arnaud MIQUEL,**
ingénieur général de l'armement, Chairman

**Mrs Pascale SOURISSE,**
CEO, THALES ALENIA SPACE

**Mr Arnaud LUCAUSSY,**
SFR, Director, regulation and economic studies

**Mr Jean-Marc NASR,**
president, EADS Secure Networks Manager

**Mr Daniel SAUVET-GOICHON**

### Minister representatives

**Mr Pierre PUGET,**
representative of the Defence Secretary, Head of National Military Frequency Office

**Mr Reynald BOUY,**
representative of the Minister of the Interior, deputy director for information and communications systems

**Mrs Sylvie BERMANN,**
representative of the Foreign Secretary, directorate of the United Nations and international organisations

**Mr Christophe RAVIER,**
representative of the Minister in Charge of electronic communications, assistant Director for electronic communications regulations and long term studies

**Mr Marc BELLOEIL,**
representative of the Minister for Space, DGR/A1 – aeronautics and European Space Affairs

**Mr Jean SOUQUET,**
representative of the Minister for transport, general civil aviation inspection

**(to be appointed soon),**
representative of the Minister for Research

**Mr Vincent MOREAU,**
representative of the Minister for the Budget

**(to be appointed soon),**
representative of the Minister for overseas

**Mrs Cécile DUBARRY,**
representative of the Minister for culture and communication, assistant director for media development and the information society

### Representatives of independent administrative authorities

**Mr Gilles BREGANT,**
representative of the Conseil supérieur de l'audiovisuel, Director for technologies

**Mr Jérôme ROUSSEAU,**
representative of the Regulatory Authority for electronic communications and posts, head of the department of operators and regulation of rare resources

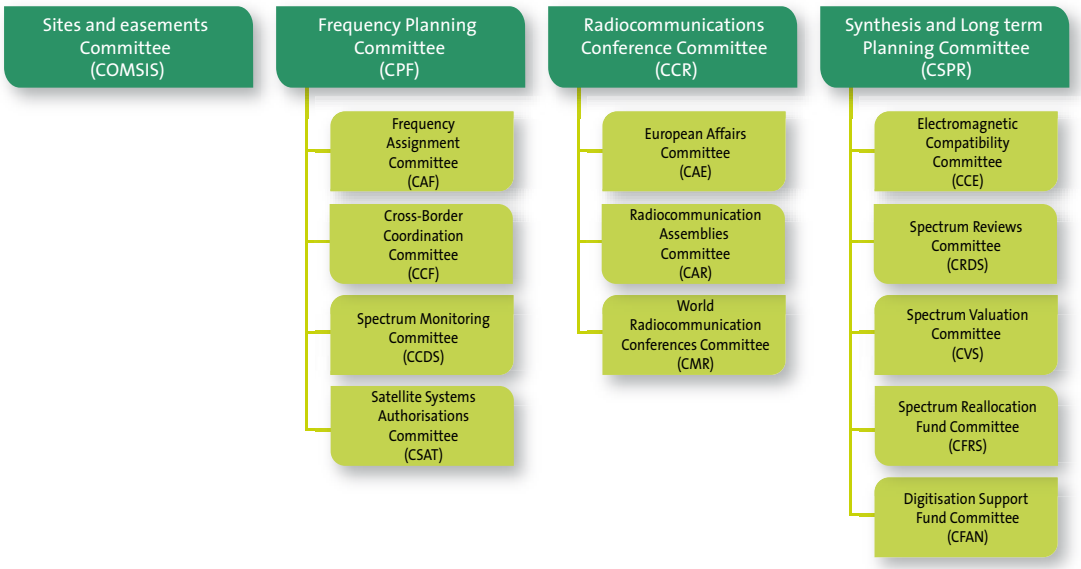
### Consultative participants

**Mr François RANCY,**
Director general, ANFR

**Mr Bernard BACHELLERIE,**
Department of Budgetary Control and Ministerial Accounts, Head of the Budgetary Control Department

**Mr Gilles MOYA,**
accounting officer of the ANFR

## The advisory committees with the Agence nationale des fréquences



## Geographical map

**1 ANFR's head office**

78, avenue du Général-de-Gaulle
94704 Maisons-Alfort Cedex
Tél. : 01 45 18 72 72. Fax : 01 45 18 73 00

**2 Noiseau Technical Centre**

34B Route de la Queue en Brie
Départemental 136
94880 Noiseau
Tél. : 01 45 95 33 00. Fax : 01 45 90 91 67

**3 Villejuif regional department**

112, rue Edouard Vaillant
94815 Villejuif cedex
Tél. : 01 49 58 31 00
Fax : 01 47 26 55 22

**4 International control Center**

Route de Cerqueuse
78660 Prunay-en-Yvelines
Tél. : 01 34 94 17 00
Fax : 01 34 94 17 20

**5 Brest Technical Centre**

Technopôle de Brest Iroise
ZA du Vernis
265, rue Pierre Rivoalon
29601 Brest
Tél. : 02 98 34 12 00
Fax : 02 98 34 12 20

**6 Donges regional department**

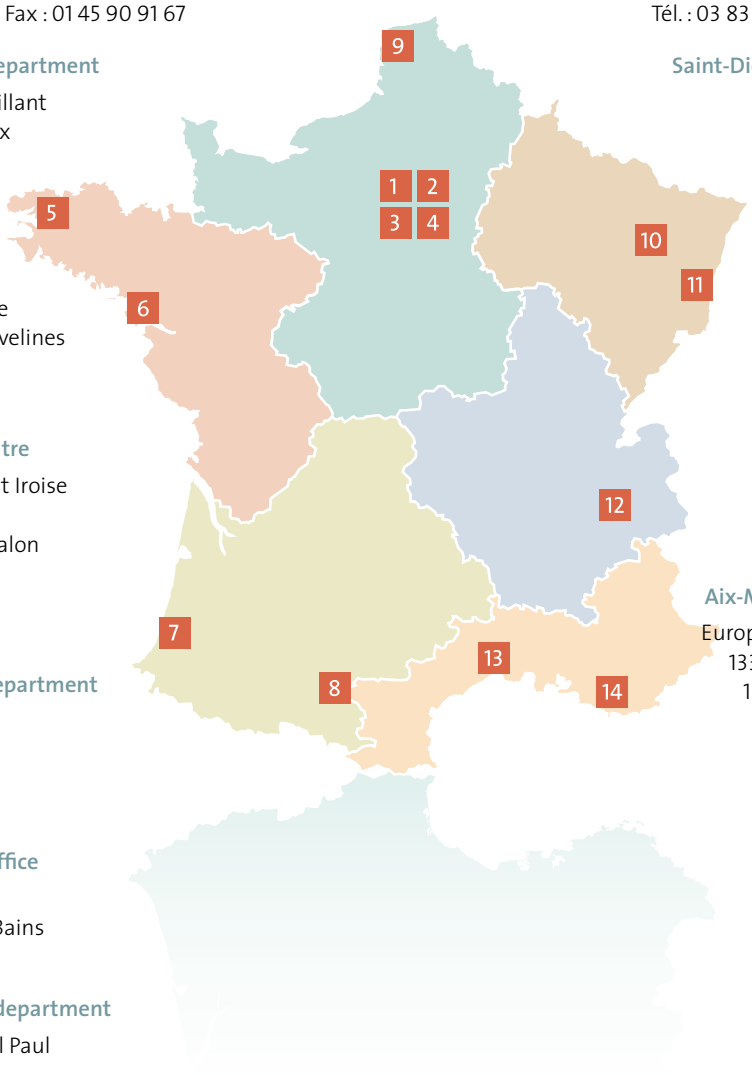
223, La Pommeraie
44480 Donges
Tél. : 02 40 45 36 36
Fax : 02 40 91 01 37

**7 Cambo-les-Bains office**

12, chemin Elorria
64250 Cambo-les-Bains
Tél. : 05 59 29 71 64

**8 Toulouse regional department**

4, boulevard Marcel Paul
ZI de Pahin
31170 Tournefeuille
Tél. : 05 61 15 94 30
Fax : 05 61 15 94 45




**9 Boulogne office**

Rue du Cap – site d'Alprech
62480 Le Portel
Tél. : 03 21 99 71 54

**10 Nancy regional department**

Technopôle de Brabois
7, allée de Longchamp
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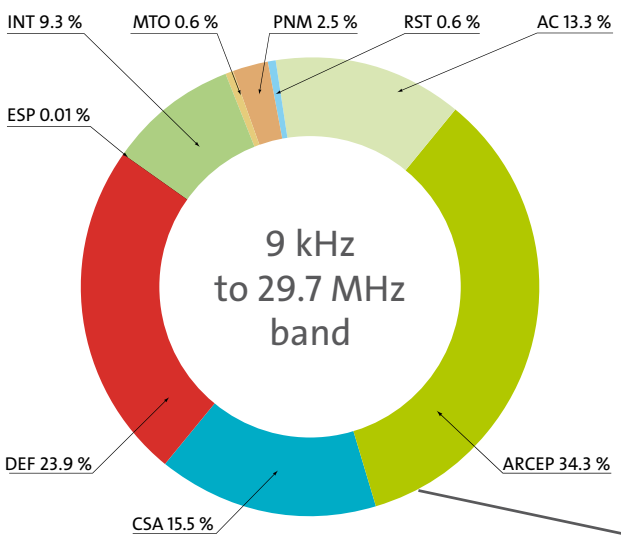
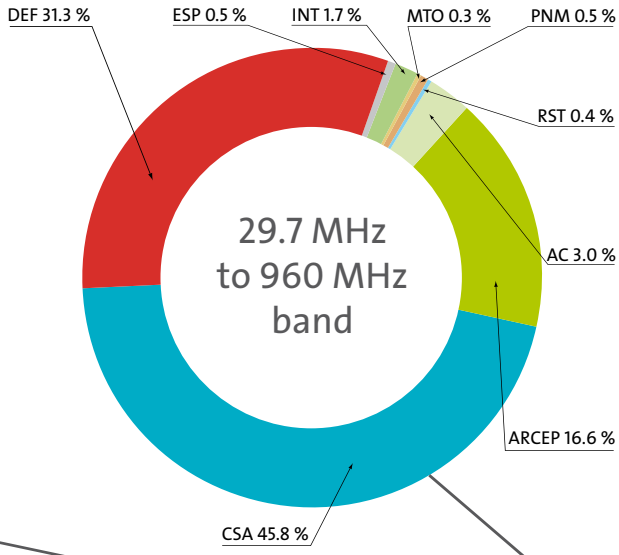
Summary return

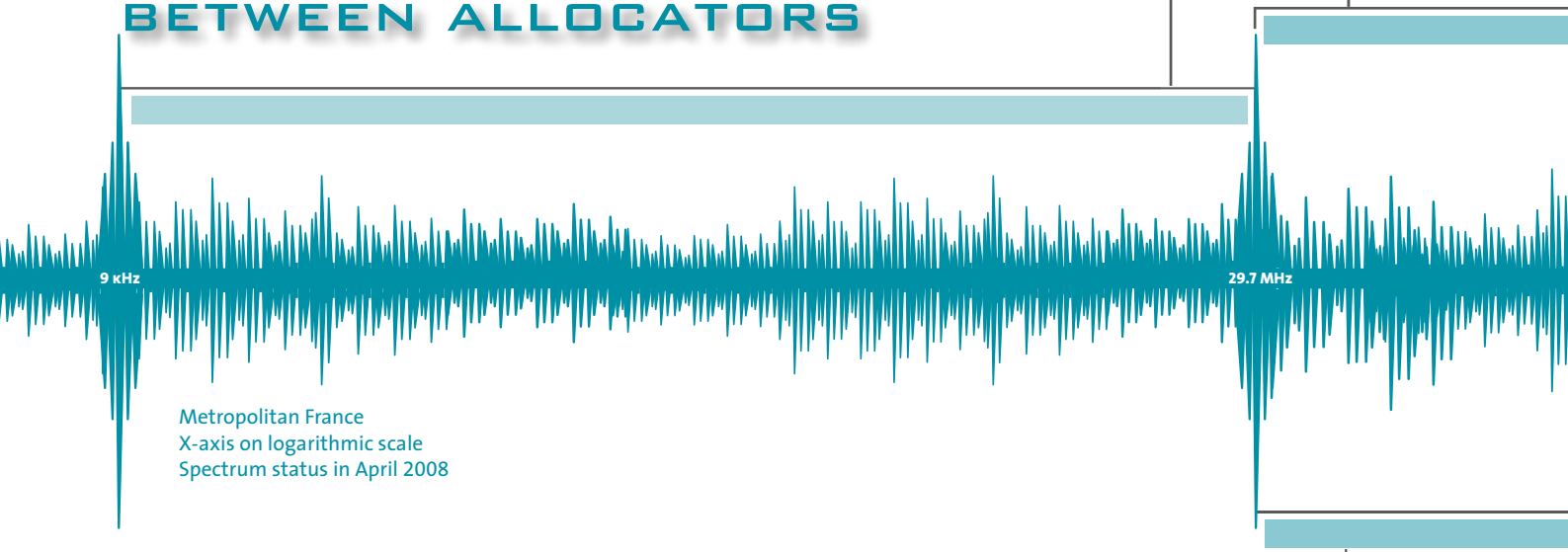
## GLOSSARY

**AAI**: Autorisations administratives d'importation (import licences)
**ANFR**: Agence nationale des fréquences
**API**: Application programming interfaces
**ARCEP**: Autorité de régulation des communications électroniques et des postes (the regulator of electronic communications and post office)
**ARTEL**: the Agency of Telecommunications Regulation of Burkina Faso
**BCN**: Bureau centralisateur national (National Central Office)
**BEM**: Block Edge Mask
**BNetzA**: Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post und Eisenbahnen (the German Federal regulator for electronic communications and broadcasting, inter alia)
**BWA**: Broadband Wireless Access
**CAF**: Commission consultative d'assignation des fréquences (Frequency Assignment Committee)
**CCI**: Centre de contrôle international (International Monitoring Centre)
**CDS**: Contrôle du Spectre (Spectrum Monitoring)
**CEPT**: Conférence européenne des postes et télécommunications (European Conference of Post and Telecommunications administrations)
**CHS**: Comité d'Hygiène et de Sécurité (Health and Safety Committee)
**CIPH**: Common Pilot CHannel
**COMSIS**: Commission consultative des sites et servitudes (Sites and Easements Committee)
**CPF**: Commission consultative de planification des fréquences (Frequency Planning Committee)
**CPG**: Conference Preparatory Group
**CRdS**: Commission consultative des revues du spectre (Advisory Committee on Spectrum Reviews)
**CSA**: Conseil supérieur de l'audiovisuel (the French broadcasting regulatory authority)
**CSN**: Comité stratégique pour le numérique (strategic committee for digital broadcasting, State committee chaired by the Prime Minister)
**CSNPSN**: Conseil supérieur de la navigation de plaisance et des sports nautiques (High Council for Maritime Affairs and Water Sports)
**CTP**: Comité technique paritaire (Joint Technical Committee)
**CUS**: collective use of spectrum
**DAA**: Detect And Avoid
**DAM**: Direction des affaires maritimes (Directorate of Maritime Affairs)
**DCA**: Direction des conventions avec les affectataires (Directorate of contractual activities with ministerial departments and regulatory authorities in charge of frequency assignment)
**DDM**: Direction du développement des medias (Directorate of media development, ministry of culture and communication)
**DFS**: Dynamic Frequency Selection
**DGE**: Direction générale des entreprises (General Directorate of Enterprises, part of the Ministry in charge of Industry)
**DGNF**: Direction de la gestion nationale des fréquences (Directorate of national frequency management)
**DME**: Distance Measuring Equipment
**DPSAI**: Direction de la planification du spectre et des affaires internationales (Directorate of Spectrum planning and international affairs)
**DSC**: Digital Selective Calling
**DTT**: Digital Terrestrial Television
**E2R**: End-to-end Reconfigurability
**E3**: End-to-End Efficiency
**ECC**: Electronic Communication Committee of the CEPT
**EECMA**: European Electronic Communication Markets Authority
**ERDF**: European Regional Development Fund
**ERO**: European Radiocommunication Office
**ETPT**: Equivalent temps plein travaillés (full-time equivalent posts)
**DTCS**: Direction technique du contrôle du spectre (General Directorate of Spectrum Monitoring)
**ETSI**: European Telecommunications Standards Institute
**FAN**: Fonds d'accompagnement du numérique (Digitisation Support Fund )
**FCS**: Fichier contrôle du spectre (Spectrum Monitoring File)
**FDD**: Frequency Division Duplex
**FNF**: Fichier national des fréquences (French master frequency register)
**France Télé Numérique**: French Digital Television, in charge of communication and assistance for digital switchover
**FRS**: Fonds de réaménagement du spectre (Spectrum Reallocation Fund)
**GIE frequences**: an economic interest group formed by the analog program providers
**GSM**: Global System for Mobile Communication
**HCR**: Haut-Commissariat de la République (High Commissioner of the Republic)
**ICTA**: Information and Communication Technologies Authority
**IMT-2000**: International Mobile Telecommunications-2000
**ITRE**: Commission on industry, transport, research and energy
**ITS**: Intelligent Transportation Systems
**ITU**: International Telecommunication Union
**HCM**: Harmonized Calculation Method
**MIC (Japon)**: Ministry of Internal Affairs and Communications
**MIDS**: Multifunction Information Distribution System
**MIFR**: Master International Frequency Register
**MINEIE**: Ministère de l'économie, des finances et de l'emploi (French Ministry of the Economy, Industry and Employment)
**MIOCT**: Ministère de l'intérieur, de l'outre-mer et des collectivités territoriales (Ministry of the Interior, overseas and territorial communities)
**MMSI**: Maritime Mobile Service Identity
**MSS**: Mobile Satellite Service
**OFCOM**: Office of Communication (UK, Switzerland)
**OPC**: Open to Public Correspondence
**OSN**: One Shot Notification
**P-CPICH**: Primary Common Pilot Channel
**PLB**: Personal Locator Beacons
**PMR**: Private Mobile Radiocommunications
**PRTV**: Protection de la réception de la télévision (Protection of television reception)
**PUS**: Public use of spectrum
**R&TTE**: Radio and Telecommunication Terminal Equipments
**RFID**: Radio Frequency Identification
**RLAN**: Radio Local Area Network
**RRC**: Regional Radiocommunications Conference
**RRI**: Réseau radioélectrique indépendant (Independent radio networks)
**RSCOM**: Radio Spectrum Committee
**RSPG**: Radio Spectrum Policy group
**SMS**: Short Message Service
**SRC**: Short Range Certificate
**SRD**: Short Range Devices
**TDD**: Time Division Duplex
**TMP**: Télévision mobile personnelle (Personal Mobile Television)
**TNRBF**: Tableau national de répartition des bandes de fréquences (National Table of Frequency Allocations)
**UAS**: Unmanned Aircraft Systems
**UHF**: Ultra High Frequencies
**UMTS**: Universal Mobile Telecommunication System
**UWB** : Ultra Wide Band
**VHF**: Very High Frequencies
**W-CDMA**: Wideband Code Division Multiple Access
**WAPECS**: Wireless Access Policy for Electronic Communication Services
**WRC**: World Radiocommunications Conference
**WiFi**: Wireless Fidelity
**WiMAX**: Worldwide Interoperability for Microwave Access



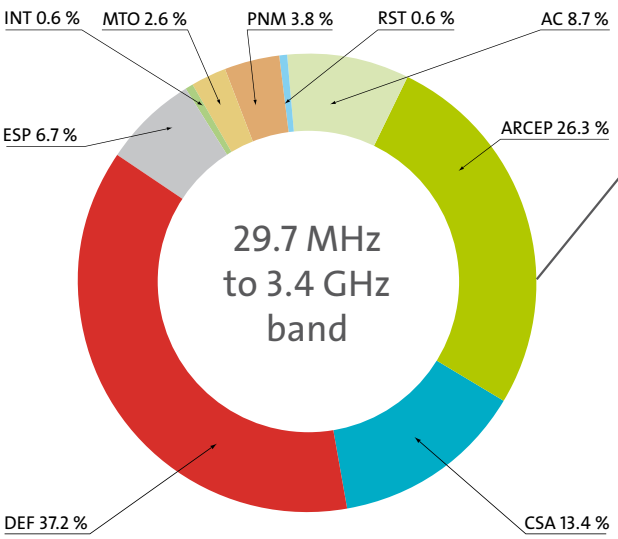




# Distribution of frequency bands between allocators




Metropolitan France
X-axis on logarithmic scale
Spectrum status in April 2008

- Civil Aviation
- ARCEP
- CSA
- Defense
- Space
- Interior
- Meteorology
- Ports and maritime navigation
- Radiostronomy
- Unallocated frequency bands




Summary return


ESP 6.1 %
INT 1.2 %
MTO 1.8 %
PNM 4.0 %
RST 0.3 %
AC 7.5 %
960 MHz to 10 GHz band
DEF 41.0 %
CSA 0.3 %
ARCEP 37.9 %
ESP 18.0 %
INT 1.1 %
MTO 0.9 %
RST 2.6 %
Non attribuée 6.5 %
AC 2.4
10 GHz to 65 GHz band
ARCEP 33.3 %
DEF 31.4 %
CSA 3.9 %
960 MHz
3.4 GHz
10 GHz
65 GHz
INT 0.2 %
MTO 3.5 %
PNM 5.1 %
RST 0.7 %
AC 10.9 %
ESP 9.0 %
960 MHz à 3.4 GHz band
ARCEP 29.9 %
DEF 39.4 %
CSA 1.0 %

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