

PUBLIC CONSULTATION

April 2005

**Public consultation relating to the introduction of wideband
PMR/PAMR networks in the 450-470 MHz band.**

(Closing date for reply: Monday 30 May 2005)

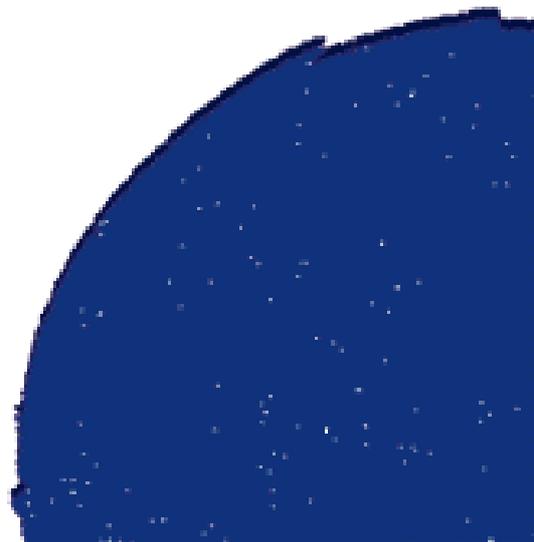


Table of contents

| | |
|--|-----------|
| I. PRACTICAL INFORMATION | 3 |
| II. INTRODUCTION..... | 4 |
| III. DEFINITIONS | 6 |
| III.1 GENERAL..... | 6 |
| III.2 PMR FEATURES | 6 |
| IV. INDUSTRIAL ASPECTS – RESOURCES | 7 |
| IV.1 AVAILABLE TECHNOLOGIES | 7 |
| IV.2 MATURITY / AVAILABILITY OF EQUIPMENT..... | 7 |
| IV.3 RESOURCES AVAILABLE | 7 |
| The 450-470 MHz band | 7 |
| Frequencies currently available..... | 8 |
| IV.4 TECHNICAL CONDITIONS | 9 |
| V. INDEPENDENT WIDEBAND MOBILE PMR NETWORKS | 9 |
| VI. PUBLIC WIDEBAND PAMR MOBILE NETWORKS | 10 |
| VI.1 MARKET AND ISSUES INVOLVED IN THE INTRODUCTION OF A PUBLIC WIDEBAND MOBILE NETWORK IN THE 450-470 MHz BAND..... | 10 |
| Markets concerned with the introduction of a wideband PAMR network..... | 10 |
| Competitive issues compared with traditional mobile networks | 10 |
| Issues linked to the quality of service and availability of PAMR networks | 11 |
| Issues linked to territory coverage for broadband mobile..... | 11 |
| Other issues | 11 |
| VI.2 CONDITIONS FOR AUTHORISATION OF A PUBLIC WIDEBAND PAMR MOBILE NETWORK 12 | |
| General conditions..... | 12 |
| Opening of the network..... | 12 |
| VI.3 YOUR PLANS..... | 13 |
| VI.4 TERMS FOR THE ALLOCATION OF AUTHORISATIONS TO USE THE 1.5 MHz BLOCK TO SET UP A PAMR NETWORK IN THE 450-470 MHz BAND | 13 |
| Geographical allocation granularity | 13 |
| Procedure for selection..... | 14 |
| Secondary market | 14 |
| VI.5 THE SCHEDULE FOR AN AUTHORISATION ALLOCATION PROCEDURE | 14 |

I. Practical information

With this present document the French telecommunications regulator (ART) launches a public consultation relating to the introduction of wideband PMR/PAMR networks in the 450-470 MHz band.

All interested parties are invited to contribute.

Contributions to this public consultation are to be sent to ART by Monday 30 May 2005. These contributions may be sent preferably by email to consultation-450@art-telecom.fr or by mail to the following address:

Paul Champsaur
Président
Autorité de régulation des télécommunications
7, square Max Hymans
75015 Paris

The document is downloadable on the ART website.

Any additional information or questions about the consultation document may be obtained from:

Fabrice Alves
Mobile Operators Department
Operators and scarce resources regulation service
email: fabrice.alves@art-telecom.fr
+33 1 40 47 71 48

Ramdane Chalah
Mobile Operators Department
Operators and scarce resources regulation service
email: ramdane.chalah@art-telecom.fr
+33 1 40 47 70 82

II. Introduction

This public consultation concerns the introduction of wideband PMR/PAMR mobile networks in metropolitan France in the 450-470 MHz band. For this purpose, ART has 1.5 MHz duplex at its disposal in this band, for the whole of metropolitan France.

The general evolution of mobility towards broadband justifies undertaking work concerning wideband PMR/PAMR networks.

The electronic communications market is indeed experiencing an overall evolution of services towards mobile or roaming broadband applications. This evolution is accompanied by the development of new wideband wireless infrastructures, particularly third generation mobile networks or WLAN type installations. This general trend justifies undertaking work in cooperation with the parties concerning the evolution of PMR/PAMR applications towards wideband.

The launch of this public consultation is made possible today due to a new use plan for 450-470 MHz band frequencies coming into effect following a notification procedure with the European Commission.

It is indeed made possible by the ratification on 7 January 2005 of ART's decision n°04-922 of 16 November 2004, which introduces the principle of using frequencies in the 450-470 MHz band for wideband PMR/PAMR mobile networks.

This expansion to wideband networks of the regulatory framework applicable to 450-470 MHz band use implements decision ECC/DEC(04)06 of 19 March 2004 by the European Conference of Postal and Telecommunications Administrations (CEPT), which designates such frequencies for wideband networks.

Implementing this text, drafted within the framework of the CEPT in France, implied adoption of a decision by the ART, subject to ministerial ratification. Prior to this decision, the use of frequencies in the 410-430 MHz and 450-470 MHz bands concerned only narrow band networks.

In order to give rapid visibility to the parties, ART announced this change in the regulatory framework on 28 June 2004, i.e. three months after adopting the CEPT decision of 19 March 2004, which it implemented. However, formal adoption of this decision was not immediately possible, as it was subject to an initial notification phase to the European Commission for a minimum of three months, in accordance with European directive 98/34/CE.

The time limits associated with this European Commission notification phase allowed formal adoption of decision n°04-922 by ART on 16 November 2004 followed by its ministerial ratification on 7 January 2005.

The present public consultation is therefore part of a fully established regulatory framework, paving the way for the development of wideband PMR/PAMR mobile networks in the 450-470 MHz band, in accordance with market needs.

The question of the introduction of public wideband PAMR mobile networks in the 450-470 MHz band is the principal aim of the present public consultation

The present consultation concerns the 450-470 MHz band, identified by decision n°04-922 of the ART for wideband networks and for which the ART has frequencies available at its disposal for the whole of metropolitan France.

Although the present consultation deals both with independent PMR networks and with public PAMR networks, the question of introducing public PAMR mobile networks is the principal subject at hand.

There are indeed essential issues involved in the positioning of such networks between independent PMR mobile networks on the one hand and public third generation mobile networks on the other hand. These issues, depending on definitions retained for PAMR features, relate particularly to the following points:

- competition conditions;
- innovation and technological neutrality;
- mobile service coverage;
- quality of service;
- equity of rights and obligations;
- the degree of flexibility for authorisations.

The primary objective for this public consultation is therefore to address these issues with all of the parties concerned, and to evaluate the key issues involved in delivering authorisations for public wideband PAMR mobile networks in the 450-470 MHz band.

ART is ready to prepare procedures for attributing such authorisations, in accordance with the requirements expressed in the present public consultation.

The second objective of this public consultation is therefore to gather the various points of view of the parties regarding the conditions (particularly the timing), under which such authorisations could be delivered.

It is desirable to have a European strategy which is as coherent as possible

The issues associated with the development of wideband PAMR networks hold important consequences for the telecommunications sector and call for a European strategy which is as coherent as possible.

There are no existing measures to date at European Union level aimed at a coordinated introduction of wideband PAMR networks which are comparable to decision 128/1999/CE of the European Parliament and Council on 14 December 1998 relating to the coordinated introduction in the Community of a third generation mobile communications system. The CEPT decision of 19 March 2004, which is not binding, is mainly concerned with the technical aspects.

Among the other Member States, work concerning the development of wideband PAMR networks reveals considerable differences in approach, due not only to distinct legal frameworks, but also to different understandings about the actual concept of PAMR networks

and the issues involved. These differences in approach tend to lead to significant disparities in the conditions attached to corresponding authorisations.

ART will endeavour to share the conclusions of the present public consultation widely, in order to contribute to the most consistent possible understanding of the issues attached to the introduction of public PAMR mobile networks in the 450-470 MHz band.

III. Definitions

III.1 General

By and large, networks which may be qualified as PMR or PAMR are terrestrial mobile service radio networks with specific features, known as PMR features.

Article L.32 of the electronic communications code defines two categories of networks:

- **Public Network:** electronic communications network set up or used for the supply of electronic communications services to the public or publicly available electronic communication services;
- **Independent network:** electronic communications network reserved for the use of one or several people making up a closed user group, with a view to exchanging internal communications within this group;

A **PMR network** (Professional Mobile Radio) is a terrestrial mobile service independent network with PMR features.

A **PAMR network** (Public Access Mobile Radio) is a public terrestrial mobile service network with PMR features. This network enables the provision of services with PMR features, without any regulatory restriction regarding the targeted clientele.

The present consultation is concerned specifically with PMR or wideband PAMR networks.

III.2 PMR features

There is no consistent definition of the minimum features that should be implemented by PMR or PAMR networks. A list of features is mentioned in report 25 of the CEPT relating to strategies for the European use of the frequency spectrum dedicated to PMR/PAMR applications.

The table below shows an extract from the list of PMR features in appendix of CEPT report 25:

Indicative list of PMR features extracted from ECC report 25:

- Push to talk voice services
- One to many group calls
- Instant and broadcast messaging
- Packet data transmission

- Dispatch services
- Fast call set-up
- Automatic and priority call queuing when system is busy
- Guaranteed access for emergency calls
- Dynamic group calls management
- Talking party identification
- Closed user group fleet management
- Simultaneous voice and data
- Ability to provide virtual private network (VPN) service to fleets

IV. Industrial aspects – Resources

This section aims to appreciate the maturity of technologies that are useable or in development for PMR/PAMR networks in the 450 MHz band.

IV.1 Available technologies

Question 1: What are the wideband mobile technologies available or in development for the 450 MHz band? On which channels?

Question 2: What are the PMR features offered by these technologies? How do the principal PMR features perform with these technologies?

IV.2 Maturity / Availability of equipment

Question 3: What is the level of maturity of these technologies? To your knowledge, have these technologies already been utilised (experimental or commercial network)? What is the provisional date of availability for these technologies in the band of frequencies dealt with in this consultation?

Question 4: Are there any existing or plans for development of bi-mode terminals to enable a wideband PMR/PAMR network service jointly with other radio technologies, particularly GSM and UMTS?

IV.3 Resources available

The 450-470 MHz band

The ART is one of the spectrum management authorities for the 450-470 MHz band. It is currently responsible for the allocation of frequencies 451.5-454.5 / 461.5-464.5 MHz and 456-460 / 466 - 470 MHz in metropolitan France.

These frequencies were planned in coherence with the 410-430 MHz band to respond to the requirements of independent networks and public PMR and PAMR networks.

ART emphasises that it has started discussions with other spectrum management authorities for the 450-470 MHz band in order to have additional frequencies at its disposal. At the time of this present consultation, the preliminary state of these discussions does not provide ART with sufficient visibility with regards to possible availability of an additional 1.5 MHz duplex block.

Frequencies currently available

Within this band ART has a coherent sub-band of 1.5 MHz duplex at its disposal for the whole of metropolitan France.

This sub-band corresponds to the 451.5-453/461.5-463 MHz and 454.5-466/464.5-466 MHz block of frequencies. Indeed, following an agreement dated 13 April 2001 between the Interior Ministry, the Ministry for Defence and ART, the Interior Ministry will make available the sub-band 454.5-466/464.5-466 MHz to ART, after which ART will return the sub-band 451.5-453/461.5-463 MHz to the Ministry for Defence. A transitional phase will be set up in the interim period between the two sub-band allocations within the context of this exchange of frequency bands, which should come into effect in early 2009.

Question 5: What procedures do you think would be fitting for the transition between the two allocations within the 450-470 MHz band?

This sub-band allows for the existence of at least one wideband operator country wide, as in similar procedures conducted in other European countries.

Question 6: What traffic density can a network operator carry with a set 1.5 MHz duplex frequencies? Give an estimation of how many simultaneous users are possible per sq km for a given consumption profile.

A division of the 1.5 MHz duplex block leading to the allocation of smaller sized blocks of frequencies, for example an allocation of 0.75 MHz for two operators does not seem appropriate when considering the most widespread wideband technologies and the needs associated with the supply of broadband services to professional customers.

In this context it would appear preferable to allocate the whole of the 1.5MHz block to a single operator in a given zone.

Question 7: Do you share this analysis concerning the non-fragmentation of the 1.5 MHz block?

ART emphasises that it has started discussions with other spectrum management authorities for the 450-470 MHz band in order to have additional frequencies at its disposal. At the time of this consultation, the preliminary state of these discussions does not provide the ART with

sufficient visibility with regards to possible eventual availability of an additional 1.5 MHz duplex block.

IV.4 Technical conditions

The definition of technical conditions for the use of frequencies could prove necessary, and more specifically:

- technical conditions for use of frequencies required to avoid harmful interference and to limit public exposure to electromagnetic fields;
- general conditions for adjacent band compatibility with existing network infrastructures and equipment (narrow band PMR and television channel 21).

Internal studies have already been carried out at the CEPT, described notably in ECC Reports 22¹ and 39², which cover more specifically the necessity for guard bands or possible additional solutions for reducing interference in urban areas (such as filtering for example).

Question 8: What technical conditions should be set in your opinion, particularly to prevent possible interference with existing systems?

V. Independent wideband mobile PMR networks

During previous ART public consultations concerning PMR/PAMR networks, no requirements were expressed for frequencies for establishment of wideband independent networks.

Evolution of independent PMR networks towards broadband can nevertheless be envisaged. Reorganisation of the 450-470 MHz band could be looked at for this purpose in the future, where the need arises.

For future planning and for the present consultation, ART wishes to gather the parties' current thinking regarding the evolution of independent PMR networks and the corresponding frequency requirements.

The ART has two remarks relating to this.

The cost of deploying a wideband network seems relatively high in relation to the benefit a closed group of users could gain in operating this network as an independent network.

For independent networks, the method commonly employed for allocating authorisations for frequency usage corresponds to a site-by-site procedure, subject to technical coordination.

¹ EEC Report 22, adopted in May 2003, looks at the technical impact of the introduction of "TAPS" technology on PMR/PAMR networks using narrow band technologies (12.5 kHz or 25 kHz) in 380-400, 410-430 and 450-470 MHz bands.

² EEC Report 39, adopted in February 2004, studies the technical impact of the introduction of "CDMA-PAMR" technology on PMR/PAMR networks using narrow band technologies (12.5 kHz or 25 kHz) in 410-430 and 450-470 MHz bands.

The best solution would be to consider the most suitable allocation method when the situation arises.

Question 9: When will the need for independent PMR networks arise in terms of evolution towards wideband in the 450-470 MHz band?

Question 10: What would motivate users to choose to set up an independent wideband PMR network themselves rather than use the services of a public wideband PAMR mobile network?

VI. Public wideband PAMR mobile networks

This section covers the introduction of public wideband PAMR mobile networks in the 450-470 MHz band.

VI.1 Market and issues involved in the introduction of a public wideband mobile network in the 450-470 MHz band

This section aims to gather the comments of concerned parties relating to the issues involved in granting authorisation to use 1.5 MHz duplex in the 450-470 MHz band for establishing and operating public wideband PAMR mobile networks.

Markets concerned with the introduction of a wideband PAMR network

Question 11: Which markets may be targeted by public wideband PAMR networks in the 450-470 MHz band? Are these markets on a national or regional scale?

Competitive issues compared with traditional mobile networks

An operator of a public wideband PAMR mobile network is commonly considered as a player aiming to service a targeted clientele – principally professional – through specific offers with adapted features.

This player is in competition, in this segment of the market, with parties of traditional PMR on the one hand, and with “traditional” operators of public mobile networks on the other, whose offers target as much professional customers as the general public. It should thus be noted that the services offered with “traditional” mobile networks tend to integrate PMR features also (such as group calling and instant calling) and several wideband PAMR technologies stem from systems used in general-purpose networks.

Consequently it appears that for companies seeking PMR features, such as urban transport companies for example, PMR, PAMR and mobile networks provide a certain interchangeability in terms of services, coverage and quality of service. It is up to the PAMR networks to differentiate themselves on this market.

Question 12: What are the advantages of PAMR networks in comparison with “general-purpose” mobile networks and independent PMR networks? In your opinion what is the positioning of an operator’s service offer for a wideband PAMR mobile network open to the public?

Question 13: What are the competitive issues involved in the introduction of a public wideband PAMR mobile network in the 450-470 MHz band?

Issues linked to the quality of service and availability of PAMR networks

Network quality of service and availability are important characteristics for PMR networks. PAMR network performance emerges as a commercially differentiating factor in relation to general-purpose mobile networks. Besides this commercial positioning, the existence of a PAMR network could offer an alternative to general mobile networks through guaranteed operation, even in crisis situations.

Question 14: What are the benefits in terms of quality of services and availability that can be expected from the introduction of a public wideband PAMR mobile network in the 450-470 MHz band, compared to existing mobile communications services for general mobile networks? What benefits are more particularly expected regarding the operation in times of crisis?

Issues linked to territory coverage for broadband mobile

Mobile coverage and access to broadband are important aspects of regional development.

In this respect, the 450 MHz band presents advantageous physical radio propagation properties which provide extended coverage and penetration inside buildings, particularly in comparison with the core UMTS band, 1920-1980/2110-2170 MHz allocated to operators of third generation public mobile networks.

Question 15: Considering the amount of spectrum available and the current mobile coverage, is the development of a public wideband mobile network in the 450-470 MHz band a key factor where coverage of mobile communications services and access to broadband is concerned?

Question 16: Considering the respective physical properties of the 450-470 MHz and 1920-1980/2110-2170 MHz bands, and your vision of the industrial availability of equipment, is this development a key factor concerning the coverage of mobile communications services in addition to third generation mobile networks in the 1920-1980/2110-2170 MHz band?

Other issues

Question 17: In addition to the themes dealt with previously, does the allocation of authorisations for PMR/PAMR networks present other issues?

VI.2 Conditions for authorisation of a public wideband PAMR mobile network

This section covers the conditions that could be associated with authorisation for use of 1.5 MHz in the 450-470 MHz band for setting up and operating a wideband PAMR mobile network.

General conditions

These must be defined with respect to demands concerning equity and proportionality with other types of authorisations, such as those delivered for setting up and operating third generation public mobile networks. These two types of authorisation show similarities: they are in both cases authorisations for setting up and operating broadband mobile networks open to the public, but also have significant differences, such as the width of the usable frequency band or the existence of obligations for the supply of PAMR services.

Question 18: What obligations must be met for the right to use frequencies in the 450-470 MHz band to set up a public wideband PAMR mobile network?

Question 19: Should the supply of certain services be compulsory? If yes, which ones? Should minimum bit rates be set?

Question 20: Which PMR features must be made compulsory? What level of performance?

Question 21: Should obligations for quality of service be introduced? If yes, which ones and for what purpose?

Question 22: Should there be specific obligations relative to the availability of the network and the quality of service in case of crisis?

Question 23: Should obligations for coverage be introduced? If yes, which ones and for what purpose?

Opening of the network

In the case where a single operator would be authorised to use the total 1.5 MHz duplex available in a given zone, it may be preferable to make it compulsory to open up the network to other operators in some form.

This obligation would be of particular importance if these frequencies were allocated to a party which already held an authorisation to use frequencies in another band for mobile services, such as in the UMTS band for instance.

Question 24: In the case where a single operator is authorised use of the total amount of 1.5 MHz duplex available in a given zone, should some form of network opening to other operators be made compulsory? If yes, give details, distinguishing the case where the authorised operator already holds authorisations for use of frequencies for mobile communications services.

VI.3 Your plans

The objective of this section is to evaluate the level of demand from the parties with regards to resources available.

Answers to questions in this section will remain confidential.

Question 25: Do you have deployment plans in France for a public wideband PAMR mobile network in the 450-470 MHz band? What is the planned timescale?

Question 26: If yes, could you describe the principal characteristics, particularly from a technical and commercial point of view? What is the target market? What services will be offered?

Question 27: What will be the geographical coverage, initially and in the long term? The whole of metropolitan France? Regional (which regions)?

VI.4 Terms for the allocation of authorisations to use the 1.5 MHz block to set up a PAMR network in the 450-470 MHz band

This section aims to gather the opinions of parties regarding the terms of the procedure for allocating the 1.5 MHz available in the 450-470 MHz band over the whole of the country. It assumes that where the 1.5 MHz block is entirely allocated, for a given part of the country, to a single wideband network operator, in other words it is not fragmented.

Geographical allocation granularity

ART wishes to gather the opinions of parties regarding geographical granularity of the allocation procedure for this frequency resource.

The 1.5 MHz duplex block available over the whole country can indeed be delivered in the form of a single authorisation concerning the whole of the metropolitan territory. In this case, a single authorisation is available.

Yet it may also be delivered region by region, through a procedure carried out in each of the 22 metropolitan regions: in this case, a player may be a candidate – and where appropriate retained – for one or several regions. This procedure authorises the possible emergence of several parties, with only one present in each region. It introduces technical coordination constraints between operators at regional boundaries.

Question 28: What geographical granularity do you recommend for the allocation procedure: the whole of metropolitan France (only one authorisation offered), regional (one authorisation offered in each of the twenty two metropolitan regions), other?

Question 29: In the case of regional granularity, what provisions do you think should be introduced in the authorisations in order to facilitate technical coordination between operators at interregional boundaries?

Procedure for selection

When frequencies are rare, in other words when there is a shortage of available resources in relation to demand from parties, a selection procedure must be set up to decide on candidates in objective, transparent and non-discriminatory conditions. If this is not the case it may be possible to carry out allocation according to demand.

As it seems that the quantity of available frequencies is limited for wideband network projects, a selection procedure will most likely be necessary.

In this context, the ART wishes to gather the opinions of parties regarding terms for selection. The ART emphasises that these terms must respect the principle of technological neutrality.

Question 30: In the case of a selection procedure, what should be the criteria for selection?

Question 31: What would be the advantages and disadvantages of a selection procedure with the predominant criteria concerning the amount of the licence fee (bidding)?

Question 32: Should parties holding authorisation for wideband mobile network frequencies receive special treatment, with a view to developing competition?

Secondary market

Question 33: Do you think it is appropriate to allow transfer of authorisations to a secondary frequencies market? Should the transfer mechanisms allow partial transfer of authorisations (in other words with the initial authorisation being split geographically)?

VI.5 The schedule for an authorisation allocation procedure

The launch of an allocation procedure for new frequency authorisations must be in phase with system maturity and market needs.

The different stages leading up to the allocation of frequencies involve complex practical implementation issues, resulting in unavoidable delays which must be taken into account in the schedule.

If the present public consultation highlights a demand in this direction, the schedule for the allocation of authorisation to use frequencies in the 450-470 MHz band for setting up and operating a public wideband PAMR mobile network could be as follows:

Summer 2005: publication of a summary of the present public consultation.

Autumn 2005: drafting of conditions for allocating authorisations in cooperation with the parties.

Winter 2005-2006: launch of the procedure for allocating authorisations.

Some time in 2006: delivery of authorisations

Question 34: Does this schedule seem suitable to you?