

DRAFT DECISION

Authorisation of systems providing mobile-satellite services (MSS) in the 2 GHz band

1. Community framework

CEPT¹ approved, in 1997, a Decision (ERC/DEC/(97)03²) on the harmonisation of the use of the 1 610-1 626.5 MHz, 1 980-2 010 MHz, 2 170-2 200 MHz and 2 483.5-2 500 MHz frequency bands by the systems providing mobile satellite services (MSS³) in Europe. This Decision is based on the segmentation of the various frequency bands by the different access technologies.

Based on this Decision, the operation of two MSS systems (Globalstar and Iridium) in the 1 610-1 626.5 MHz and 2 483.5-2 500 MHz frequency bands were authorised by the majority of European administrations, including Portugal. For the 1 980-2 010 MHz and 2 170-2 200 MHz bands, no system was implemented for the offer of MSS. It should be noted that this spectrum is also identified at the ITU (International Telecommunications Union) level within the scope of the provision of IMT (International Mobile Telecommunications), namely concerning the satellite component of IMT.

¹ *European Conference of Postal and Telecommunications Administrations*

² Available at:

http://194.182.137.50/search?q=ERC%2FDEC%2897%2903&filter=0&proxystylesheet=default_frontend&site=default_collection&client=default_frontend&output=xml_no_dtd

³ *Mobile-Satellite Service*

In the interim, with the prospect of the offer of new applications within the scope of MSS, there was the need to update Decision ERC/DEC/(97)03. One of the consequences of this initiative was the elaboration of a new Decision only for the band commonly designated as the 2 GHz band, which resulted in the approval of Decision ECC/DEC/(06)09 in 2006⁴, as well as, subsequently, the review of said Decision ERC/DEC/(97) for the remaining bands, which gave rise to the approval of Decision ECC/DEC/(09)02 (June 2009)⁵.

Decision ECC/DEC/(06)09, in combination with ECC REPORT 013, formed the basis for the approval, by the European Commission (EC), of **Decision 2007/98/EC**⁶, of 14 February 2007, with the same purpose of European harmonisation of the use of the 2 GHz frequency bands by MSS systems.

Given the transboundary nature of the services in question and that the selection of satellite operators, if made by each Member State, could lead to divergent solutions (with the probable selection of different operators of MSS systems in the various States), thus offsetting the advantages of pan-European coverage, fragmenting the internal market and, eventually, leading to complex situations of harmful interference, it was decided that the selection and authorisation of the operators of the 2 GHz MSS systems would be carried out at a Community level.

⁴Available at:

http://194.182.137.50/search?q=ECC%2FDEC%2806%2909&filter=0&proxystylesheet=default_frontend&site=default_collection&client=default_frontend&output=xml_no_dtd

⁵Available at:

http://194.182.137.50/search?q=ECC%2FDEC%2809%2902&filter=0&proxystylesheet=default_frontend&site=default_collection&client=default_frontend&output=xml_no_dtd

⁶ Available at: <http://www.anacom.pt/render.jsp?contentId=987537>

The legal framework for this process was laid down in **Decision no. 626/2008/EC**⁷, of Parliament and the Council, relative to the selection and authorisation of systems that offer mobile satellite services (MSS).

Under this Decision, a community procedure was created for the common selection of 2 GHz MSS operators (comparative selection procedure) and some common obligations were defined, with each Member State, at a national level, being responsible for granting authorisation to the selected operators.

Under these terms, on 7 August 2008, the European Commission published a call for applications (a specification, designated as "**Call for Applications**"- doc. **2008/C201/EC**).

Following termination of the selection procedure, **Decision no. 2009/449/EC**⁸, of the European Commission, of 13 May 2009, was published. The **INMARSAT** (which was authorised to use in each Member-State the 1 980 – 1 995 MHz sub-bands of frequencies for earth to space communications) and **SOLARIS** (which was authorised to use in each Member-State the 1 995 – 2 010 MHz sub-bands of frequencies for earth to space communications and 2 185 – 2 200 MHz 1 995 – 2 010 MHz sub-bands of frequencies for earth to space communications) systems were selected.

⁷ Available at: http://eur-lex.europa.eu/Result.do?T1=V4&T2=2008&T3=626&RechType=RECH_naturel&Submit=Pesquisar

⁸ Available at: http://eur-lex.europa.eu/Result.do?T1=V4&T2=2009&T3=449&RechType=RECH_naturel&Submit=Pesquisar

In accordance with the provisions of the above mentioned Decision no. 626/2008/EC, , it is now important to define the authorisation regime applicable to the offer of the 2 GHz MSS systems in national territory by the selected candidates. That is the purpose of the present draft decision of ICP-ANACOM

2. Architecture of the MSS network with Complementary Ground Components (CGCs)⁹

With a view to characterising the system within the scope of this draft decision, it is necessary to consider each of the components (satellite and ground) detailed below, with figure 1 as reference¹⁰.

This figure includes a typical connection of a 2G/3G ground based mobile system (for example, at the 900/1 800 MHz or 2.1 GHz bands) which must be interpreted as representing the possibility of the user terminals being dual and, consequently, accessing any of the systems, the land mobile or the MSS including CGCs.

⁹ *Complementary Ground Components*

¹⁰ Slide taken from CEPT REPORT 013, containing the architecture of a system designated as "NEMO"

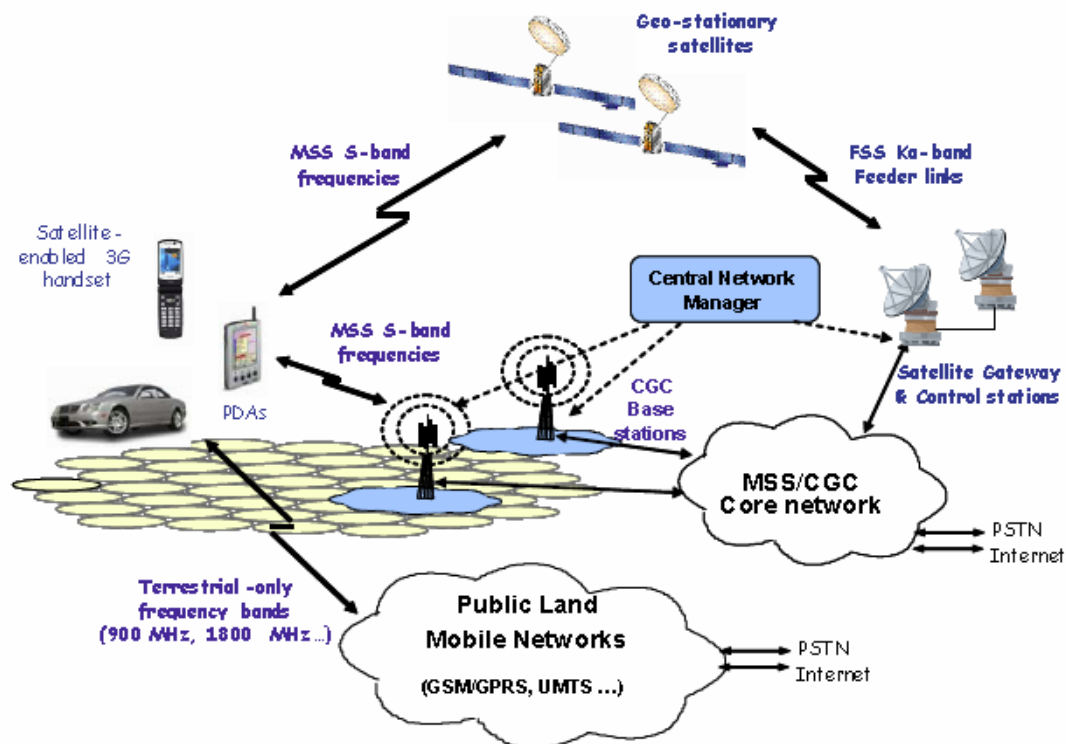


Figure 1 – 2 GHz MSS System that includes CGCs

2.1. Satellite component (space station)

Space stations within the scope of the 2 GHz MSS are stations on board satellites placed in geostationary orbit.

2.2. Ground component (CGCs)

The technological novelty of the new MSS systems, especially for the 2 GHz band, translates into the possibility of improving the quality of MSS, through the use of complementary ground components (stations) (CGCs), operating within the MSS band in the connections to mobile terminals and in some configurations at frequency bands designated as Ku (14/11, 12 GHz) or Ka (20/18 GHz) when communicating directly with satellites. Thus the emergence of the designation "MSS systems that include CGCs".

The characterisation of this type of stations (CGCs), being a technological "innovation" in Europe, stirred up heated debates relative to their functionalities and respective regulatory framework. In fact, these stations can operate as mere satellite signal repeaters or extend the offer of applications to final users, depending on what CGC operators wish, according to their business plans in each of the EU Member States, and of course depending on each of the authorisation regimes.

In this type of configuration, the space station (satellite) is directly connected to both the mobile terminals and the earth stations of traffic control and routing (gateways) at the 1 980-2 010 MHz and 2 170-2 200 MHz frequency bands for service connections between users. Depending on the systems, there are connections, which users are unable to access, between the earth stations and the satellite or between the satellite and the CGC at frequency bands designated as Ku (14/11, 12 GHz) and Ka (30/20 GHz).

The CGC will be directly connected to users (mobile terminals) at the frequency bands of the mobile satellite service (1 980-2 010 MHz and 2 170-2 200 MHz). For connection to other CGCs, this can be conducted both through "gateways" and connection to public switched telephone networks (PSTN). In the former case, other frequency bands may be used, depending on the configuration of the system.

The obligation of the CGC to be an integral part of the MSS system arises from the result of the studies undertaken by CEPT and UIT, which concluded that the sharing, in the same geographical area,

between the mobile service and the mobile service by satellite is not possible. The only possibility of sharing between the ground component and the MSS, is for the CGC to be controlled by the MSS system; in this situation, the same frequency reuse pattern shall be ensured, to avoid the satellite and the CGC from using the same frequency at the same time in the same geographic area.

MSS satellites are expected to improve their spectral efficiency through frequency reuse, as well as with the use of spatially separated spot beams. This geographic separation of the beams that use the same frequencies, in a specific location, will result in the possibility of some of the frequencies, instead of being used by the satellite, being used by the CGCs.

2.3. Mobile terminals

According to the definition of mobile satellite service within the scope of this draft decision, mobile terminals allow communication with the satellite, as well as with CGCs.

These terminals, in functional terms, thus operate in "hybrid" mode, i.e., as mobile earth stations connected to the satellite and the CGCs.

3. Analysis of the regime of access to the activity applicable to the MSS system and the CGCs

The first issue, within the scope of the definition of a regime of access to the activity for the MSS system and the respective complementary ground components (CGCs), is to know if the two realities must be

included within the scope of the same general authorisation or if, on the contrary, they must be subject to an autonomous analysis.

In accordance with Decision no. 2007/98/EC, MSS systems are systems capable of providing radiocommunication services between one or various mobile earth stations by means of one or more space stations, or between one mobile earth station and one or more complementary ground components used at fixed locations.

In accordance with sub-paragraph b) of no. 2 of article 2 of Decision no. 626/2008/EC, CGCs are *ground-based stations used at fixed locations, in order to improve the availability of MSS in geographical areas within the footprint of the system's satellite(s), where communications with one or more space stations cannot be ensured with the required quality.*

To this definition should be added the provisions of no. 2 of article 3 of Decision 2007/98/EC, supported by sub-paragraph b) of no. 3 of article 8 of Decision no. 626/2008/EC: *any complementary ground based station shall constitute an integral part of the mobile satellite system and shall be controlled by the satellite resource and network management system. It shall use the same direction of transmission and the same portions of frequency bands as the associated satellite components and shall not increase the spectrum requirement of its associated mobile satellite system..*

Although CGCs are designed to improve the offer of this type of services, in areas where it may not be possible to retain a continuous line of sight with the satellite due to obstructions in the skyline caused by buildings and terrain, they may, hypothetically, configure a

land mobile "network", in everything similar to the existing land mobile networks, but using spectrum that is allocated to MSS.

In this context, the definition, at a national level, of the regime of authorisation of MSS systems is of particular relevance, which must take into account the characterisation of the CGCs, as well as the array of services whose provision is intended to be granted to these stations within the scope of these systems, i.e., if they are admitted as mere satellite signal repeater stations or if, on the contrary, that limit is not imposed upon them.

The approaches by the different Member States have not been univocal.

If, on the one hand, countries such as the United Kingdom intend to grant separate authorisation to MSS system operators in the satellite component and operators of CGCs, considering them as complementary "land mobile networks" to the 2 GHz MSS systems and clarifying that they are not obliged to transmit the same service or applications of the satellite component, there are others, such as Germany, which issued a single right of use encompassing the satellite component and CGCs in repeat mode.

France, however, whose option was to also allow CGCs to operate only in repeat mode, decided on the concession of an authorisation, separate from that of MSS, to these stations.

As an example, it is also possible to mention other European countries that, although they have not yet issued authorisations, already have some defined options on these matters.

Spain is one such example that intends to issue a single authorisation for the two components and limit, at least at an initial phase, the use of CGCs to the functions of repeater stations.

The same occurs with Italy, although in this case the single authorisation will be conditioned precisely by the fact that the CGCs can be considered as mere repeaters.

In Ireland, however, the MSS system with CGC will be offered under a general authorisation, with a right of use for the CGC that does not set a limit of "repeaters" to these stations.

Within the scope of the authorisation regime to be established, no. 1 of article 7 and no. 1 of article 8 of Decision no. 626/2008/CE, respectively, state that Member States shall ensure that the selected operators of mobile satellite systems:

- Have the right to use the specific radio frequency for the MSS systems and the right to operate a mobile satellite system;
- Have the necessary authorisations for the offer of CGCS of mobile satellite systems in their territory.

No. 3 of article 8 of the above mentioned Decision no. 626/2008/CE defines the **common conditions that the national authorisations issued for the operation of CGCs are subject to**, such as:

- a) Operators must use the radio spectrum allocated for the provision of complementary ground components of mobile satellite systems;
- b) Complementary ground components shall constitute an integral part of a mobile satellite system and shall be controlled by the satellite resource and network management mechanism; they shall use the same direction of transmission and the same portions of frequency bands as the associated satellite components and shall not increase the spectrum requirement of the associated mobile satellite system;
- c) The independent operation of complementary ground components in case of failure of the satellite component of the associated mobile satellite system shall not exceed 18 months;
- d) The rights of use and authorisations shall be granted for a period of time ending no later than the expiry of the authorisation of the associated mobile satellite system.

These conditions, b) and d) specifically, highlight the nature of the connection between the satellite component and the ground component (CGC), being in fact parts of a single system. For this reason, the definition of conditions never involves only one of the components.

Although the option does not involve one or two authorisations/distinct rights of use for operators of the MSS system in the satellite component and the operators of CGCs that prevent these stations from being an integral part of the MSS system, it is the understanding of ICP-ANACOM that the concession of two distinct

authorisations for exactly the same radio frequencies could pose compatibility problems, from both a legal and technical viewpoint.

From a legal viewpoint, these problems could arise, namely, in terms of impacts that the non-compliance with obligations in one of the components of the system could have on the other, and in terms of the responsibility for the quality of the offer of the service to end users.

From a technical viewpoint, the existence of only one authorisation allows frequencies to be managed in an integrated manner through a single entity responsible for the entire system, with clear benefits within the scope of spectrum monitoring and control, namely in the testing of the existence of situations of interference.

As these are pan-European satellite systems, these issues are particularly important.

In this context, it is the understanding of ICP-ANACOM that **both of the components of the MSS systems - satellite and CGCs – must be subject to a single authorisation**, within the scope of which the CGCs shall not be subject to the limitation of operating as mere satellite signal repeater stations, without prejudice to MSS operators being able to opt for a more restrictive use of their CGCs.

In effect, ICP-ANACOM is of the opinion that this is the option that best suits the neutrality of the services that, whenever possible, must be guaranteed within the scope of the spectrum management.

In addition, in such an extensive period of validity such as the authorisation of these systems, one should not, at first, restrict the array of services and applications that the CGCs allow to be made available to users. One should, in this as in other usages, seek the most efficient use of the spectrum and retrieve the greatest economic and social benefit from it.

A different matter is that of the installation of CGCs, there being no barriers to another entity - which is not the MSS operator - proceeding with the respective installation.

4. Right of use of frequencies or just general authorisation

According to article 30 of Law no. 5/2004, of 10 February (Electronic Communications Law), the use of frequencies may depend on the attribution of individual rights of use, if so required by ICP-ANACOM.

If no such requirement is made, the provision of electronic communication networks and services is only subject to the general authorisation regime, which consists in compliance with the rules of said Law and respective regulations, not dependant on any decision or prior act of the Regulator.

In the case of the MSS systems, in addition to the above mentioned conditions applicable to the CGCs, the following conditions - in article 7 of Decision no. 626/208/EC - relating to the satellite component are also foreseen :

- a) The operators shall use the assigned radio spectrum for the provision of MSS;
- b) The operators shall meet milestones six to nine set out in the annex to Decision no. 626/2008/EC within 24 months of the selection decision;
- c) The operators shall honour any commitments assumed in their applications and during the comparative selection procedure;
- d) The operators shall provide to the competent authorities an annual report detailing the status of development of the respective mobile satellite system;
- e) The rights of use and authorisations are granted for a duration of eighteen years from the date of approval of the selection decision.

The imposition of this type of conditions and the level of associated obligations does not seem compatible with the general authorisation regime, such that the more adequate option for the provision of the MSS system will consist in the **attribution of a right of use of frequencies to the respective operator** with the imposition, among others, of the following conditions:

- a) Conditions resulting from the Community selection procedure;
- b) Common conditions established in no.2 of article 7 of Decision no. 626/2008/EC relative to MSS, identified *above*;
- c) Common conditions established in no. 3 of article 8 of Decision no. 626/2008/EC relative to CGCs, identified *above* in point 3;
- d) Conditions as defined in no. 1 of article 27 of the ECL, which, by their nature, are applicable to this service;

e) Conditions as defined in no. 1 of article 32 of the ECL, among which the following are identified:

- Right of use of the assigned radio spectrum for the provision of MSS;
- Effective and efficient use of the frequencies;
- Compliance with the specific conditions of use of frequencies contained in the radio licenses issued according to Decree-Law no. 151-A/2000, of 20 July;
- Compliance with the technical and operational conditions necessary for the avoidance of harmful interference and for the limitation of exposure of the population to electromagnetic fields, according to Decree-Law no. 11/2003, of 18 January and Ordinance no. 1421/2004, of 23 November, and regulations of the ICP-ANACOM which are published in their implementation;
- Maximum duration, in conformity with article 36 of the ECL;
- Payment to the ICP-ANACOM of the fees payable under article 105 of the ECL;
- Compliance with the obligations resulting from applicable international agreements in terms of use of frequencies.

With a view to implementing MSS systems and in view of the evidence, the National Frequency Allocation Plan (QNAF) must be changed in conformity with the present decision, namely stating:

- The need to obtain the right of use of frequencies for this type of systems;

- The respective allocation process is conditioned by the allocation of spectrum, in accordance with Decision 2009/449/CE, to the operators Inmarsat Ventures Limited and Solaris Mobile Limited.

Some of the conditions set out in no. 1 of article 32 of the ECL are detailed below:

5. Period of validity of the right of use of frequencies

In accordance with no. 1 of article 36 of the ECL, the rights of use of frequencies are attributed for a period of 15 years, and a longer period may, in duly substantiated cases, be attributed by the ICP-ANACOM, up to a maximum of 20 years.

In the case of MSS, Decision no. 626/2008/EC imposes the granting of the rights of use of frequencies for a period of 18 years from the date of approval of the selection decision (thus aligning the period of validity in the different Member States), taking into account the long period and complexity of the necessary technical development phases for the launch of mobile satellite services which, in turn, affects the evolution of the technical and commercial development of the services.

In addition, in accordance with sub-paragraph d) of no. 3 of article 8 of the same Decision no. 626/2008/EC, the rights of use and the authorisations for the CGCs must be granted for a period ending no

later than the expiry of the authorisation of the associated mobile satellite system.

Thus, based on these reasons, the rights of use (that incorporate the two components - satellite and land) must be attributed by ICP-ANACOM with a period of validity until 14 May 2027, i.e., 18 years from the date of Decision no. 2009/449/CE, of the European Commission, of 13 May 2009.

6. Radio Licensing

In accordance with no. 1 of article 7 of Decree-Law no. 151-A-2000, of 20 July, as amended by Decree-Law no. 264/2009, of 28 September, the use of a radiocommunications network requires a radio license, with exception of the cases foreseen in sub-paragraph a) of no. 1 of article 9, where the possibility of exemption from this type of license is foreseen.

Moreover, in accordance with no. 1 of article 8 of the same diploma, the use of radiocommunications stations that form part of a licensed network do not require a license.

Therefore, taking into account:

- the architecture of the CGC MSS network, detailed above, as well as the definition of "MSS systems" within the context of Decision 2007/98/EC;

- that the use of frequencies of this MSS network, within the scope of the present draft decision, includes satellite stations, CGCs and mobile terminals;

the MSS network shall be subject to radio licensing in the form of a network license and the stations that make up the network shall not be subject to a license, in accordance with no. 1 of article 7 and no. 1 of article 8 of Decree-Law no. 151-A/2000.

7. Applicable fees

In accordance with article 105 of the ECL, the holders of these rights of use of frequencies are subject to the payment of the following fees:

1. A fee for the pursuit of the activity of electronic communications networks and services provider, in accordance with sub-paragraph b) of no. 1 of article 105 of the ECL;
2. A fee for the allocation of the rights of use of frequencies, in accordance with sub-paragraph c) of no. 1 of article 105 of the ECL;
3. The fees for the use of the radio spectrum, in accordance with sub-paragraph f) of no.1 of article 105 of the ECL, as well as article 19 of Decree-Law no. 151-A/2000, of 20 July, amended by Decree-Law no. 264/2009, of 28 September.

8. Decision

In view of the above and considering the impact of the present draft decision in the relevant market;

The Board of Directors of the ICP-ANACOM, within the scope of the powers provided for in subsections c), f) and m) of article 6 of its Statutes, approved by Decree-Law no. 309/2001, of 7 December, to pursue regulatory objectives provided for in article 5 of Law no. 5/2004, of 10 February, and under articles 8, 15, 16 and 32 of said Law, hereby determines:

1. Make the offer of the MSS systems in national territory, at the 1 980-2 010 MHz and 2 170-2 200 MHz frequency bands, from the selected candidates in accordance with Decision no. 2009/449/EC, subject to the attribution by ICP-ANACOM of a right of use, encompassing the satellite component and the ground component (CGC);
2. Subject the rights of use to be attributed to the following conditions:
 - a) Conditions resulting from the Community selection procedure;
 - b) Common conditions defined in no. 2 of article 7 of Decision no. 626/2008/EC, in relation to MSS;
 - c) Common conditions defined in no. 3 of article 8 of Decision no. 626/2008/EC, in relation to CGCs;
 - d) Conditions as defined in no. 1 of article 27 of the ECL, which, by their nature, are applicable to the rights of use;
 - e) Conditions as defined in no. 1 of article 32 of the ECL, among which the following are identified:

- i) Right of use of the assigned radio spectrum for the provision of MSS;
 - ii) Effective and efficient use of the frequencies;
 - iii) Compliance with the specific conditions of use of frequencies contained in the radio licenses issued according to Decree-Law no. 151-A/2000, of 20 July;
 - iv) Compliance with the technical and operational conditions necessary for the avoidance of harmful interference and for the limitation of exposure of the population to electromagnetic fields, according to Decree-Law no. 11/2003, of 18 January and Ordinance no. 1421/2004, of 23 November, and regulations of the ICP-ANACOM which are published in connection with their implementation;
 - v) Setting of a period of validity of the right of use until 14 May 2027;
 - vi) Payment to ICP-ANACOM of the fees due, in accordance with article 105 of the ECL, as well as article 19 of Decree-Law no. 151-A/2000, of 20 July, amended by Decree-Law no. 264/2009, of 28 September.
 - vii) Compliance with the obligations resulting from applicable international agreements in terms of use of frequencies.
3. Subject the MSS network to radio licensing in the form of a network license, in accordance with no. 1 of article 7 and no. 1 of article 8 of Decree-Law no. 151-A/2000, of 20 July.
4. Submit points 1 to 3 of the present draft decision to the general consultation procedure, in accordance with article 8 of the ECL, providing a 20-day deadline for interested parties to provide their

views in writing, and the information considered confidential should be identified as such by said parties.

- 5.** Change the National Frequency Allocation Plan in conformity with the final decision taken.