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CONSULTATION DOCUMENT

LICENSING FOR THE PROVISION OF ERMES - THE EUROPEAN RADIO MESSAGE SYSTEM

INTRODUCTION

A. Objective

This Consultation Document made by the Instituto das Comunicações de Portugal (ICP) has the purpose of providing the corporations interested in the granting of licenses for the provision of ERMES - the EUROPEAN RADIO MESSAGE SYSTEM with the requirements, conditions and modes specifically required for the provision of the service, as well as the procedures to be adopted in the preparation and presentation of the respective application.

ERMES - the EUROPEAN RADIO MESSAGE SYSTEM is a public use paging telecommunications service with a land infrastructure in accordance with common specifications, which allows sending and/or receiving notices, numerical and/or alphanumeric messages or transparent data messages on any area covered by the service, to appropriate non-fixed terminal equipment with access to identical services in other countries.

The granting of licenses for the provision of ERMES - the EUROPEAN RADIO MESSAGE SYSTEM is governed by the regime established by [Decree-Law no. 381-A/97 of December 30](#), and involves the granting of frequencies in accordance with the full accessibility regime.

Licenses granted are governed by the regime of [Decree-Law no. 381-A/97 of December 30](#), as well as by the remaining communications sector legislation.

B. Procedures

1. The application for the granting of license shall comprise the elements required under the terms of article 13, no. 3 of Decree-Law no. 381-A/97 of December 30, which are stated within this [Consultation Document](#).
2. The documents included in the application shall be duly identified and separated into three parts, each containing the documents organised with reference to the rmaton requested in chapters I, II and III of this Consultation Document.
3. The documents that are presented shall be written obligatorily in Portuguese and be of easy understanding and verification.
4. Documents other than those required may be presented, so as to contribute to a better clarification of the required documents.
5. ICP might require supplementary elucidation, as well as the presentation of additional documents to those referred in this Consultation Document.
6. 6. The delivery of the applications and composing documents is made by hand or via mail to ICP's headquarters at Avenida José Malhoa, no. 12, 1070 Lisboa.

CHAPTER I

IDENTIFICATION OF THE APPLICANT

The identification of the applicant is made through the presentation of the following documents:

- a. Authenticated photocopy of the respective statutes;
- b. Certificate of the registration and enrolments in force issued by the relevant Commercial Registrations Office;
- c. Document showing the corporation's organisation structure, identifying the main heads and summarising the respective curricula;
- d. Statement of conformity of accounting organised under the terms of the Official Accounting Plan;
- e. Document proving the accordance of the contributory situation before the Social Security and the General Direction for Charges and Taxes;
- f. Document showing the arrangement of the corporation capital, as well as the arrangement of the corporation capital of any corporation which is its associate or shareholder.

CHAPTER II

TECHNICAL REQUIREMENTS

A. Characterisation and Architecture of the Technological System

1. Technological System

1.1. The applicant should exclusively foresee the use of the ERMES system, standards ETSI ETS 300 133-1 to ETS 300 133-7.

The network that supports the ERMES system shall interconnect with the networks that support the fixed telephone service, the fixed telex service and the switched data transmission service under the applicable legal and regulatory terms.

1.2. Concerning the proposal, any signalling between the mobile service switch(es) and those of the basic network shall be made in accordance with the signalling system CCS No. 7, where available. In specific cases where this is not possible, signalling shall be made available in the existing national versions.

1.3. Regarding the establishment of its network, the applicant shall foresee the use of circuits under the applicable legal and regulatory terms.

2. 2. Functional description

The applicant shall make a functional description of the systems proposed through block diagrams, including the following aspects:

2.1. Characterisation of each functional block, according to the norms.

2.2. Identification of the interfaces and protocols between blocks with specific reference to the applicable norms.

2.3. Characterisation of, among others, the radio transmission parameters, namely those dealing with powers, frequency tolerance, undesirable emissions, sensitivity levels.

2.4. Identification of the synchronising system and procedures intended to maintain synchronism.

2.5. Identification of message authentication, repetition and encryption functions.

2.6. Description of solutions aiming at allowing the legal interception of communications, to be executed by the authorities legally relevant for that purpose.

3. System functionalities

The applicant shall detail namely the type of services that it proposes to provide within the first 5 years of operation according to the following structure:

3.1. Basic services

3.2. Supplementary services

B. System Planning

The applicant shall describe in detail the presuppositions of planning, calculation algorithms and models in which it based itself to select the dimension of the systems proposed, concerning the following parameters:

- message mix (distribution of messages according to size and length);
- expected traffic density, specifying the major traffic areas;
- expected number of subscribers of the various types of terminals;
- expected number of subscribers per geographical area, specifying the areas of the major population agglomerates.

The Apparent Radiated Power (ARP) shall not exceed 100 W. In specific situations, ICP may impose the use of appropriate filtering systems, so as to ensure compatibility with other systems.

C. Coverage Plan

1. As a minimum obligation, the following coverage rates shall be reached after the date of launching:

- a. Coverage of 30% of the national population until the end of the 2nd year after the date of beginning of activity (commercial provision of the service);
- b. Coverage of 80% of the national population until the end of the 10th year after the date of beginning of activity (commercial provision of the service).

Concerning the verification of coverage, it shall be used as reference the 1991 Census of the National Statistics Institute (INE).

The applicant shall supply a detailed coverage plan, detailing on an annual basis its evolution for fifteen years, specifying namely the approximate location of the base stations and control centre(s).

2. The coverage plan shall be supplied in transparent paper, having as reference the Chart of Portugal, edited by the Portuguese Cartography and Records Institute at a 1:1.000.000 scale.

3. A synoptic diagram of the proposed network shall be supplied, specifying:

3.3. The Network Control Centre(s);

3.4. The base Station(s) and the Area Controller(s);

3.5. The Telecommunications Networks (telephone, ISDN, Data, Telex), with which the applicant wishes to establish connections.

4. The applicant shall indicate the characteristics, location and quantity of dedicated circuits that it requires for the network operation.

D. Quality of Service

1. Besides meeting the service quality parameters established for the ERMES standard, the applicant shall indicate and justify the values that the service proposed shall present concerning the following set of indicators:

- Time of admission to service (maximum period until being able to use the service after request by the customer);
- Blocking rate of the control centre (percentage connection attempts not accomplished due to blocking of the control centre during the highest traffic hour) from one point without losses of the fixed network;
- Degree of availability of the service (percentage time of availability of the network throughout the year, according to the coverage areas defined throughout the time);
- Time of delivery of the message (for the different levels or priorities).

2. It shall be described in detail the methods that shall be used to monitor and control the quality of service provided, as well as to collect statistical data and to the quantification of technical parameters to be provided periodically to ICP. It is namely intended that the proposal specifies the issues described in 2.1:

2.1. Monitoring and control of the Quality of Service:

- a. Indicators and methods of measuring the degree of satisfaction of the users;
- b. Periodicity of measurements;
- c. Organisation, qualification and localisation of the network Planning, Operation and Maintenance teams;
- d. Action strategy at the Planning, Operation and Maintenance levels in view of the network behaviour;
- e. Technical support means to the Planning, Operation and Maintenance teams.

2.2. Information to be provided to ICP on a monthly basis:

- a. Number of subscribers at the end of each month;
- b. Number of monthly calls considering the various types of basic services;
- c. Traffic per base station considering the various types of basic services;
- d. Average total traffic;
- e. Cut off periods at the PNC (System Control Centre), PAC (Area Controller), BS (Base Station), OMC (Operation and Maintenance Centre) and interconnection beams;
- f. Evolution of the number of PAC (Area Controllers);
- g. Evolution of the number of BS (Base Stations);
- h. Evolution of the PNC('s) capacity (System Control Centres).

E. Technical qualifications

With the purpose of better appreciating the application, the applicant may present the technical qualifications perceived relevant within the following areas:

1. Technical experience in telecommunications in general and in mobile services in particular, including namely:

1.1. Coverage study and infrastructure implementation;

1.2. Network operation;

1.3. Provision of services;

1.4. Others.

2. Specific technical experience in the ERMES system, in the following areas:

2.1. Network planning and implementation;

2.2. Network operation;

2.3. Provision of services;

2.4. Others.

CHAPTER III

ECONOMIC AND FINANCIAL REQUIREMENTS

A. Market survey

The feasibility of the plan shall translate into a market survey, which shall be the foundation of all the economic and financial analysis and shall include

namely the methodology used and the sources consulted. The aspects to be considered are the following:

1. Market analysis Within this point it is intended that the global market of the service to be provided be analysed, in the following areas:

1.1. Market quantification

The market quantification shall always be made at the level of the number of subscribers and the traffic generated - specifying per type of traffic (tone, numeric, alphanumeric and transparent data service), in a geographic, demographic and economic perspective.

1.2. Market qualification

Qualitative market aspects, including the respective segmentation, typical subscriber characterisation and expected average consumption.

1.3. Analysis of competitors

Analysis of the remaining operators, characterising them as to their performance, and pointing out their strengths and weaknesses.

1.4. Evolution scenarios

Analysis of the market evolution within the plan analysis period. Aspects such as the number of subscribers, traffic and its characterisation shall be stressed.

2. Analysis of target market Analysis of the market at which the service is aimed, including:

2.1. Target segments

Specification of which segments are targeted by the plan, characterising each of the segments.

2.2. Market share to be attained

Description of the share of the whole market to be reached by the applicant per segment. Indication of which segments shall be served first and the evolution schedule of the market share per segment.

2.3. Evolution scenarios

Presentation of evolution scenarios for the target market, indicating, at all times and in an explicit manner, the presuppositions used.

2.4. Expected consumption

Indication, on a per annum basis of the plan, of the number of subscribers per year of the plan and of the average traffic generated per subscriber, discriminating per type of traffic and target segment, and indication of the revenues generated per type of traffic and target segment.

B. Action Plan

Presentation of the way that the applicant expects the plan to be developed, including:

1. Acting methods

Characterisation of the company's acting method, namely as to the aspects that set it apart from its competitors, including:

1.1. Basic pricing system

Presentation of prices, discounts and service packages, referring namely the price of the terminal equipment, sign up fee, subscription and message transmission (associated to the various timings and to the different types of traffic).

1.2. Distribution channels

Detailed description of the system used to sell the service, whether it is selected an own or third party network, including the form of servicing customers.

2. Implementation of the plan

Detailed description of the phased implementation of the plan, including:

2.1. Activity schedule

Presenting the main activities to be carried out and stressing those that are critical to the implementation of the plan. In particular, it must be taken into consideration that the commencement of activity (commercial provision of the service) should occur within 18 months from the date of issue of the license.

Measurement unit: month.

2.2. Coverage area phases

Indicating the coverage areas in terms of geographical area (Km²) and population (thousands of inhabitants) and coverage objectives, considering the technical requirements.

2.3. Existing infrastructure

Distinguishing from within the various infrastructures to be used in the provision of the service those that are already available (due to being already in use for other company activities, for instance).

2.4. Internal organisation

Generic description of the company's organisation model, presenting an organisation chart with the main attributions.

C. Economic and Financial Plan

The Economic and Financial Plan shall be executed to a 15 year frame, considering one thousand contos (one million escudos) as the currency unit. Whenever necessary, detailed maps shall be attached.

All the analysis shall be based on constant prices from December 31, 1997.

Concerning this proposal, the legal instruments that establish the pricing system and applicable fees to the service shall be taken into consideration.

The structure of the Plan shall include:

1. Intermediate Maps

A set of maps to support the final maps shall be prepared, namely:

1.1. Investment Plan

Quantified investment during the period under analysis, namely specifying investment dealing with Base Stations, Control Centres, Transmission Means, Systems for Legal Interception of Communications and Measurement Apparatus.

Any reinvestment deriving from the replacement of equipment (due to end of its useful life) during this period shall be taken into consideration.

1.2. Depreciation Map

Specification of the useful life of each equipment or sets of equipment and respective depreciation rate. Depreciations to be considered per year of the plan.

1.3. Personnel Plan

Quantification of the labour needs per professional qualification.

1.4. Revenue Plan

Defining, in view of the various market segments and activity

1.5. Exploitation Costs Plan

Detailed description of the exploitation costs, namely the interconnection cost, the supply of external services, the use of the radio spectrum and other costs to be paid to other telecommunications services operators.

2. Final Maps

2.1. Expected Exploitation Account

2.2. Funds Application and Origin Demonstration

The Financing Plan shall be detailed, namely concerning the minimum coverage of 25% of the investment made through equity capital.

It is considered as equity and global investment made, respectively the total value of the Equity Capital and of the Net Assets, as defined in the Official Accounting Plan, and the annual Equity Capital / Net Total Assets shall not be inferior to 25%.

2.3. Treasury Budget

2.4. Expected Balance Sheets

3. Project evaluation

Determination of the plan's profitability, considering the following analysis:

3.1. Capital Recovery Period

3.2. Internal Rate of Return

3.3. Net Present Value

Stating the hurdle rate (opportunity cost of capital) that was used and the presuppositions that led to it.

3.4. Sensitivity analysis

Determination of the critical parameters of the project and their impact on profitability.

4. Impacts of the project on the level of economic activity of the country.

This item shall include the potential advantages made possible by the plan in a more aggregate level of the economic activity, which are not shown in its economic and financial analysis, such as technology transfer and foreign investment.

5. Presuppositions of the Economic and Financial Analysis

The presuppositions of the whole economic and financial analysis shall be explained, considering namely the following aspects:

- Working period during the first year;
- Accounts receivable period;
- Accounts payable period;
- Working Capital;
- Correction factors of real prices (in case prices have a different variation from that of the inflation);
- Evolution of the exchange rate;
- Interest rates used in the financial maps.

All presuppositions used in the economic and financial analysis shall be explained, so as to allow its correct understanding and validation.

D. Commercial, Economic and Financial Qualifications

With the purpose of better appreciating the proposal, the applicant may present its present business's commercial, economic and financial aspects seen relevant, namely the following:

1. Commercial

1.1. Experience in marketing products;

1.2. Experience in launching services;

2. Economic and Financial

Presenting the following information from the last five years of business:

2.1. Balance Sheets

2.2. Income Statements

2.3. Funds Application and Origin Demonstration

2.4. Attachments to Balance Sheets and Income Statements, as defined in the Official Accounting Plan;

2.5. Legal Certification of Accounts, when required by law;

2.6. Main indicators concerning the last two stock exchange years (number of shares, PER, stock capitalisation, average monthly quote), in case of quoted companies.