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ITU WORKSHOP ON TOMORROW'S NETWORK TODAY

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SPECTRUM MANAGEMENT
A VIEW FROM THE ITALIAN ADMINISTRATION

BACKGROUND PAPER FOR THE TOMORROW'S NETWORK TODAY WORKSHOP

ST. VINCENT (AOSTA), ITALY, 7-8 OCTOBER 2005

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The following paper is a voluntary contribution prepared for TNT workshop by Francesco Troisi, Frequency Management and Planning General Director, Italian Ministry of Communications, Rome, Italy.

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1 BODIES INVOLVED

In Italy there are three Governmental bodies involved, in different ways, in spectrum management and planning.

These bodies are:

- Ministry of Communications - involved in both management and planning of frequencies dedicated to civil utilisation;
- Ministry of defence - involved in the planning of frequencies dedicated to military and military-like use such as the Army, Air force, Navy, Arma dei carabinieri, Ministry of Finance, Ministry of Interiors ("State police" and "Fire Brigades"), Ministry of Justice ("Penitentiary police");
- Authority for the guaranty in the communications (briefly Authority) that is prevalently involved in frequency planning for broadcast services and in the definition of the regulation for the public services.

1.1 Tasks of the Ministry of Communications

The Ministry of communications exercises its function through its headquarters based in Rome and 16 Regional Inspectorate based in the major cities. In particular the peripheral offices (Regional Inspectorate) perform their tasks connected with frequency management through continuous spectrum monitoring, both via fixed control rooms and mobile laboratories.

As already mentioned in the previous paragraph, the Ministry of Communications is responsible for the civil use of “Electronic Communications”, both via cable and via radio frequencies.

The main task of the Ministry of Communications is to develop and adopt technical implementing measures aimed at ensuring harmonised conditions for the availability and efficient use of radio spectrum.

In performing this task the Ministry of Communications needs to develop both a short- and long-term communication policy, which is defined in cooperation with all interested players of the telecommunications sector, such as telecom operators, manufacturers and representative bodies. Such cooperation is achieved through consultations. The main instrument is the National Frequencies Allocation Tables (Piano Nazionale di Ripartizione delle Frequenze - PNRF), which are regularly fully updated - every three years, following the outcome of the most recent WRC. They are also partially updated when required by the introduction of a new application or the need to implement important decisions taken at the CEPT or UE level. All modifications are introduced after consultation with all the interested parties. Both the PNRF and the modifications are approved through a Ministerial Decree. The current version of PNRF has been notified to ERO and is available on the EFIS (European Frequency Information System). The PNRF are currently undergoing a triennial updating, which is due to be completed before the end of the year.

The basis of the management of the PNRF is the participation in the international forum operating at ITU, CEPT or EU level. Also this international activity is performed in cooperation with the interested parties (manufacturers, operators etc.); for example, for the preparation of the WRC and of the RRC the Ministry has set up special working groups to advise the Ministry in the preparation of the national position to be presented in the international preparatory bodies and, finally, in the Conferences.

The Ministry also performs the task of the frequencies assignment, through the application of the assignment or allotment plans. Where appropriate; the assignment and allotment plans are elaborated both by Ministry and Authority (the latter for radio and TV broadcast services).

The Ministry is also responsible for the management of international agreements (such as Vienna, Stockholm, and Geneva etc.) through multi-bilateral meetings. In particular, on the basis of the outcome of the first phase of RRC for the DVB-T planning, presently we have in course many meetings with neighbouring countries to discuss the reciprocal requirements to be presented at RRC06 in Geneva. As a

consequence of this activity there are the notifications of national assignments to be recorded in the Master International Register.

Another task connected with the correct spectrum utilisation performed by the Ministry of Communications is the examination of the notification required to put radio equipment on the market (R&TTE Directive-Radio and Telecommunications Terminal Equipment Directive (1999/5/EC).

Finally the Ministry is charged, directly or through the peripheral bodies, of the monitoring of the radio spectrum, performed through fixed control rooms and mobile laboratories. In Rome, there is one international monitoring station which participates in the international monitoring network.

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2 A LOOK TO THE MOST RECENT APPLICATIONS IN THE WIRELESS COMMUNICATIONS FIELD

The utilisation of radio spectrum for electronic communications is increasingly developing in fields that are less traditional than that of broadcasting and fixed service. There is no need to spending too much time talking about the enormous success of the radiomobile services, but it will be useful to give some information about the development of the newest applications in wireless technology.

In this view there are three main applications worthy of brief presentation, with particular reference to the Italian current situation:

1. Wi.Fi. applications
2. Digital Video Broadcast Terrestrial
3. WiMAX applications

2.1 Wi.Fi. applications

Before 2003, public access to Radio LAN applications was forbidden in Italy. Access was restricted to private firms for their exclusive needs and to certain individuals. Following pressure by internet services providers to make public access available, the Ministry of Communications initiated public consultations on this issue and subsequently allowed public access to Radio LAN, in line with EU recommendations.

Recently the geographical limitations (introduced in the very first version of the regulations), on the coverage area and on the possibility of interconnection between different access point, both of the same operator and of different operators, have been removed.

This application is considered very interesting with regard Internet access in geographical areas not yet reached by broadband services, such as small towns but also in relation to access to public services in major cities. For example, the municipality of Rome is deploying wireless LANs in the public parks to allow people to access the Internet while on the move.

2.2 DVB-T

I think is well known that Italy has chosen to make the transition from analogue to all digital by the end of 2006, and is engaged hardly in reaching this result.

The current situation is as follows:

- at least four national broadcasters, both public and private, have a coverage greater than 70% of the population with one or more digital multiplexer (for the public broadcaster this is an obligation already verified by the Ministry of communications by a study performed through informatics);
- all national broadcasters, starting from 26 July 2005, will be obliged extend digital signalling to 50% of the population, taking into account both the transmitting stations directly operated and the program transmitted, as content provider, through stations owned by different operators If this coverage rate is not reached the broadcaster would lose the right to continue to transmit;
- all local broadcasters, starting from 26 July 2005, will be obliged to transmit digital programs for at least for 24 hour per week If this is not accomplished they would lose the right to continue to transmit;
- Every broadcaster willing to become a network operator in DTT must demonstrate to have reached the 50% of population coverage with transmitters directly owned.

In order to facilitate the translation from analogue to digital, the Italian administration has acted as follows:

in 2004 and 2005, anyone who purchased an interactive decoder was given an economic contribution; following this incentive, 676.640 decoders were bought in 2004 and 1.115.181 in 2005; it is estimated that a further one million decoders were bought without any financial contribution. This means that at present in Italy there are almost three million decoders; the Italian administration has decided to start, from the end of

January 2006, with two all digital regions; those regions that will experience the analogue switch off are Val d'Aosta and Sardinia.

From the broadcasters' side, there has been the introduction of the possibility for the user to receive, through the DVB-T, some encrypted programs, namely football matches or films, using a prepaid rechargeable smart Card.; this has given acceleration to the diffusion of the DTT.

From the technical point of view, the Italian DTT system is designed for fixed reception and for 3SFN networks. There have been some requests, by broadcasters and manufacturers, to start the experimentation of DVB-H as a further step in the development of broadcast digital systems.

2.3 WiMAX

Recently in Italy there have been strong requests to introduce the WiMAX application, namely the devices compliant with the IEEE 802.16 standard. In Italy, the WiMAX forum proposed a set of frequencies to be used for licensing applications. These frequencies, however, are currently being used by the Ministry of defence for transportable radio relays and for mobile radars.

This situation has led to the need to request the military authority to free-up the proposed frequencies (3.4-3.6 GHz). An attempt to reach an agreement is currently on-going and is based on the possibility of giving the Ministry of defence 200 MHz of spectrum in the adjacent frequencies band as a condition for obtaining the authorisation to use, for civil applications, the WiMAX band. In the meantime the Ministry of defence has given its agreement to a limited number of experimental trials in same locations and on a limited number of frequencies. Furthermore, 31 different manufacturers have gained the authorisation to experiment with their products, both directly and in cooperation with an electronic communications operator, for more than 51 trials, in 9 different areas, to be completed in six months. The trials are performed under the control of a special Working Group, which includes participants from the Ministries of communications and defence, the Authority and FUB (Ugo Bordoni Foundation).

So for, only one manufacturer has started the experimental trials at factory (the date communicated for the start of the trails was 1 September 2005).

Regarding the regulatory regime to be adopted it will be performed in the near future and in cooperation with the authority, after the confirmation by the Ministry of defence of the intent to make available the frequencies band, through a public consultation aimed to ascertain:

- if the band will be used for private or public applications or both
- if the licences will be issued at a national or regional levelif there is the need to introduce asymmetrical measures
- how the licenses will be issued (first-come first-served, beauty contest, tender, auction)
- which kind of channel plan to use
- whether or not to limit the WiMAX service to the nomadic applications or to allow also the mobile applications.