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# Notice

## Interpretation of the IMT-2000/UMTS licences with regard to the common use of network resources by the different operators (infrastructure sharing)

31 January 2002

# 1 Introduction

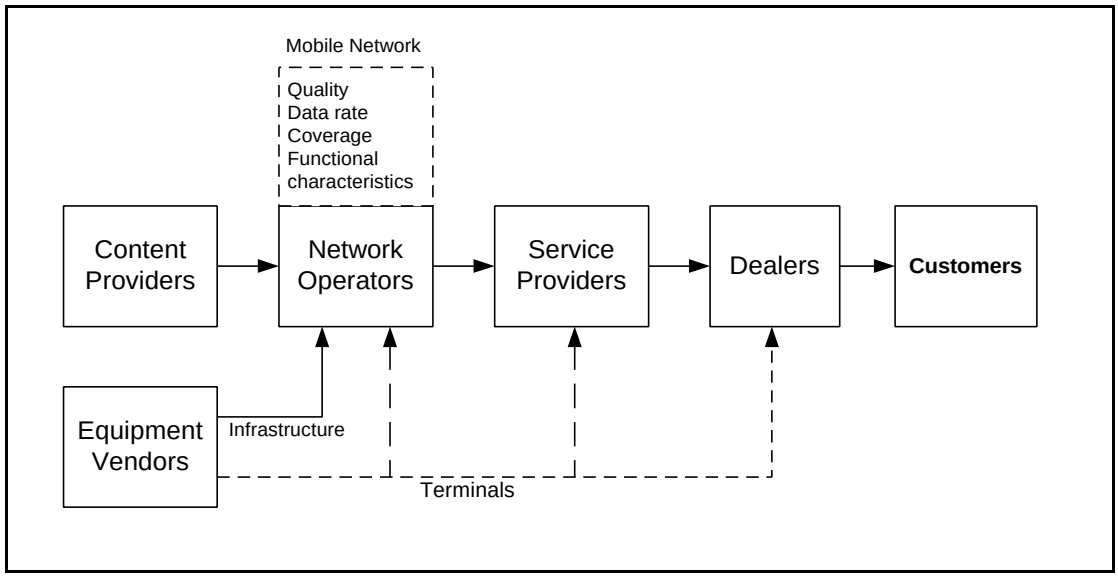
According to the licence, UMTS licensees are obliged to cover 20% of the population by the end of 2002 and 50% by the end of 2004 with UMTS services via their **own** network infrastructure. More extensive coverage may be provided either by extension of the licensees' own networks or by the conclusion of national roaming agreements. In addition, sufficient economic independence must be guaranteed between the operators for the entire term of the licence.

According to the licence, Swiss operators are obliged to use jointly the operations building and the antenna mast in so far as sufficient capacity exists and technical, legal and economic reasons do not prevent co-use of sites. The antenna and its connection to Node B may be co-used according to the technical possibilities. No prescriptions exist regarding use and construction for the connections between the individual network resources (Node B, RNC, Switch).

According to the licence, the network resources Node B, RNC (**R**adio **N**etwork **C**ontroller) and MSC (**M**obile services **S**witching **C**entre) are part of the licensee's own infrastructure and must be constructed by each operator itself.

In the UMTS licences, therefore, the network resources which belong to the licensees' own infrastructure are defined accordingly; it is not specified in this context whether it is a question of physical or logical resources. Since at the time of award of the licences various new possibilities of infrastructure sharing were not yet known, it was implicitly assumed that these network resources are physically separate elements. In consideration of the technical developments and the resulting or foreseeable new possibilities of infrastructure sharing (common physical elements, separate control), the Federal Communications Commission (ComCom) is ready to receive applications for infrastructure sharing and to examine their conformity with the licence conditions. In the process, it will interpret the stipulations of the licences in accordance with the objectives of the Law on Telecommunications and the licensing procedure. It will base itself in particular on the following principles:

# 2 Evaluation criteria




Simplified value-added chain for the provision of mobile radio services

Infrastructure competition is in principle an essential prerequisite for the provision of innovative telecommunications services and for the establishment and sustainability of effective competition on services. As is apparent from the value-added chain illustrated above, a differentiation in product quality at network level, for example, could be influenced by network quality, available data rates, network coverage and the functional characteristics of the network or services. In addition, the costs relevant to consumer prices and innovation are influenced by the chosen infrastructure. A complete amalgamation of networks would therefore be counter to the key concepts of opening up the market and would be equivalent to the construction of a single network (a monopoly). However, the legislators considered that competition is also essential in the area of infrastructure, precisely in order to ensure effective competition on services. It is therefore necessary to examine the extent to which common use of infrastructure resources is possible without in the process offending the above-mentioned objectives.

ComCom will therefore apply the following key criteria in the course of assessment of applications for infrastructure sharing:

Use of frequencies: The licensees involved in infrastructure sharing must use their own frequencies. The frequencies assigned to the individual licensees according to the licence must not be amalgamated (no frequency pooling).

Competition on services: Independently of any sharing agreements, licensees must be able to develop and provide their own services and to connect their own customers (own SIM cards). The granting of network access to, for example, Service Providers (SP) or Mobile Virtual Network Operators (MVNO) must be possible independently of the sharing agreement.

No data which are relevant to competition must be exchanged between the parties involved. Any exchange of data may relate only to data which are relevant to operations.

Dependence: The infrastructure sharing must not impede the individual independence of the licensees in the area of network planning and construction. Licensees must retain the possibility of also being able to construct their own, unshared network resources.

Until the coverage obligation according to the licence (20% / 50% of the population) is met, a regional division of the planning areas which prevents overlapping of coverage areas must not take place.

Each licensee concerned must be able to configure its network independently of the sharing partner (Configuration Management CM) and optimise it (Performance Management PM); to do this it must operate its own Operation and Maintenance Centre. Fault Management (FM) for network resources which are not jointly used must be able to be implemented independently of the sharing partner. These forms of independence must derive from the sharing agreement.

## 3 Common use of Node B

In order that the licensees can act independently of each other and retain control over the frequencies assigned to them, it must be possible to operate jointly used, logically separate Node B's independently of each other. As a rule this is possible if separate control of the individual Node B's is possible. This excludes the formation of a so-called frequency pool. Moreover, in the event of jointly used Node B's, individual, mutually independent Radio Resource Management must be possible, allowing, for example, changing of data rates to implement different services

independently by each network operator. It must be possible to independently commission and decommission the individual Node Bs and to parameterise them independently.

Subject to compliance with the above-mentioned conditions, common use of Node B's is generally possible.

## 4 Common use of the RNC

With regard to common use of logically separate RNCs, in principle the same conditions apply as for the common use of logically separate Node Bs. Here too, it must be possible to operate and controll the individual RNCs separately from each other and the individual partners must have the possibility of being able to operate their own RNCs used exclusively by themselves, including, for example, those from other manufacturers.

Subject to compliance with the above-mentioned conditions, common use of RNCs is generally possible.

## 5 Common use of MSCs

In the case of common use of MSCs, only uniform access to all connected RNCs and therefore to the Node Bs is possible. Differentiation of the various networks is therefore no longer possible and a unitary network with a frequency pool is established, in which the individual licensees no longer have any control over the frequencies assigned exclusively to them. Control of the individual network resources split according to licensee is therefore no longer possible and the forms of reciprocal dependency, particularly in the area of operation and maintenance, are considerable.

For the above-mentioned reasons, common use of MSCs is not possible.

## 6 Submission of applications

Since the possibilities of infrastructure sharing on the one hand are manifold and strongly defined by technological development but on the other hand may be sensitive in terms of competition policy and telecommunications law, ComCom requires licensees to submit in advance any planned infrastructure sharing agreement for evaluation.

Berne, 31 January 2002

**Federal Communications Commission**

Dr. Fulvio Caccia
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