

Telekom-Control Commission

Position Paper on Infrastructure Sharing in 3rd- Generation Mobile Networks (UMTS/IMT-2000)

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Telekom-Control Commission Position Paper

Infrastructure Sharing / UMTS

In the Telekom-Control Commission's decisions of November 20, 2000, 6 network operators were issued licenses to provide mobile voice telephony services and other public mobile communication services, and frequencies for these services were allocated. The IMT-2000 radio interface standards are to be used for these services.

The license award documents contain provisions regarding self-operated networks, coverage requirements, the possibility of site/antenna sharing and national 3G-3G roaming.

In accordance with the procedure in other EU member states and at the request of the operators, the Telekom-Control Commission has also prepared an explanation of the legal regulations and license award conditions in order to ensure the legal security of UMTS operators in the process of building their networks.

This position paper describes a number of individual sharing models and the interpretations developed by the Telekom-Control Commission with regard to fulfilling general legal conditions based on the law and the license award documents.

Fundamentals

Under §14 par. 1 of the Austrian Telecommunications Act (TKG), the provision of mobile voice telephony services and other public mobile communications services using self-operated networks requires a valid license.

The term 'operation' is defined in §3 no. 1 TKG as the exercise of legal and actual control over all functions necessary for providing each telecommunications service.

However, the law does not define what is to be understood as a self-operated mobile communications network, that is, which network elements have to be operated by the licensee company itself in order to correspond to the definition in §3 no. 1 TKG.

For this reason, the definition of a self-operated mobile network was included in the license award/frequency allocation document.

A self-operated mobile network is defined as a network in which the essential network elements in the core network (switch, VLR, HLR) and the essential elements of the radio network (RNC, Node B) are operated by the licensee itself. That means that the licensee has to have legal and actual control over these network elements. In this case, legal control is not to be equated with ownership; for example, the equipment can also be rented.

The license award/frequency allocation award documents also include provisions regarding coverage requirements. The licensees are required to offer UMTS/IMT services commercially with the following levels of coverage (% in terms of population):

- By December 31, 2003: 25%
- By December 31, 2005: 50%

This level of coverage is to be offered using a self-operated network.

The individual sharing models are described below, including the Telekom-Control Commission's interpretation of these models.

We would first like to point out that general competition law still applies to the sharing models which are considered permissible under the Telecommunications Act and the license award conditions, and that competition regulations are to be observed in all cases. In addition, cooperation agreements in UMTS network construction will also be taken into consideration in determining which operators possess significant market power.

Site Sharing

Site sharing involves the joint use of one site by two or more operators. Joint use can include the following elements:

- Location
- Foundation
- Mast or antenna mounting equipment
- Antenna(s)
- Feeder cables to antennas
- Tower-mounted amplifiers
- Power supply
- Containers

Infrastructure for connecting the site, independent of technical implementation (e.g., fiber optics, microwave radio links).

Telekom-Control Commission Interpretations

Provisions on mast and antenna sharing can be found in §7 par. 2 TKG and in the license award documents.

Under §7 par. 2 TKG, each owner of or other party authorized to use an antenna mast or an electrical power line mast is required to allow other parties who are licensed to provide public telecommunications services to use this equipment as well, insofar as this is technically possible with regard to frequencies. Technical changes required for this purpose are to be carried out or commissioned by the owner or authorized party mentioned above in cases where the changes are only minor and the licensee wishing to share the equipment bears the costs of the changes. The right to share this equipment also includes sharing the infrastructure required for operation.

§8 of the license award/frequency allocation award document reads: The licensee is entitled to joint use under §7 par. 2 to 8 TKG. In addition, the licensee is entitled to enter into private-law agreements on sharing antennas as well as the accompanying cables with other licensees.

On the basis of existing legal regulations, site sharing is permissible to the extent described above.

Node B Sharing

The part of the UMTS radio network referred to as "Node B" is responsible for supplying data to the radio cells, which are controlled by the Radio Network Controller (RNC). The primary function of Node B is to send and receive user data on the respective allocated frequencies.

The term "Node B sharing" refers to the placement of the Node B functions (or parts thereof) of two or more 3G operators in a common physical unit. Node B sharing is only permissible when each operator's Node B is functionally separated in its operation (logical separation).

This kind of logical separation requires that:

- Operative functional control is ensured, in particular so that OAM access to the Node B is possible independently of the sharing partner (e.g., independent startup and shutdown, changes in power parameters, transmission power settings).
- The competitive independence of the operators is unaffected, that is, each operator is free in his choice of essential competition parameters (e.g., services, QoS).
- No frequency pool is created.
- Independent radio resource management is ensured (e.g., changes in data rates to implement various services for each operator).
- No access to the sharing partner's competition-related data (e.g., customer relationships, service parameters or traffic volumes) is permitted beyond the technical information required for operation.
- Different software versions can be operated in Node Bs sharing a single physical unit, and software updates can be performed in each operator's Node B independently of the sharing partner's Node B in the same physical unit.

Telekom-Control Commission Interpretations

The Telekom-Control Commission assumes that Node B sharing that fulfills the criteria mentioned above is in line with the requirements of a self-operated network (§3 no. 1 TKG). If the aforementioned conditions are met, then Node B sharing is permissible in the form described above.

RNC Sharing

The part of the UMTS radio network referred to as the RNC is responsible for controlling Node Bs (including radio resource management). The primary functions of the RNC include controlling usage-dependent cell loads, the management of handover parameters, radio power and QoS (Quality of Service) parameters.

The term "RNC sharing" refers to the placement of the RNC functions (or parts thereof) of two or more 3G operators in a common physical unit. RNC sharing is only permissible when each operator's RNC is functionally separated in operation (logical separation).

This kind of logical separation requires that:

- Operative functional control is ensured, in particular so that OAM access to the RNC is possible independently of the sharing partner (e.g., independent startup and shutdown, changes in power parameters, transmission power settings).
- The competitive independence of the operators is unaffected, that is, each operator is free in his choice of essential competition parameters (e.g., services, QoS).
- No frequency pool is created.
- Independent radio resource management is ensured (e.g., changes in data rates to implement various services for each operator).
- No access to the sharing partner's competition-sensitive data (e.g., customer relationships, service parameters or traffic volumes) is permitted beyond the technical information required for operation.
- Different software versions can be operated in RNCs sharing a single physical unit, and software updates can be performed in each operator's RNC independently of the sharing partner's RNC in the same physical unit.

Telekom-Control Commission Interpretations

The Telekom-Control Commission assumes that RNC sharing that fulfills the criteria mentioned above is in line with the requirements of a self-operated network (§3 no. 1 TKG). If the aforementioned conditions are met, then RNC sharing is permissible in the form described above.

Core Network Sharing

In addition to classic transmission functions, the core network also includes databases and platforms which are essential to the configuration and provision of services (e.g., service data, subscriber data). In the core network area, operators are to be differentiated in their essential competition parameters such as services and QoS.

Telekom-Control Commission Interpretations

The Telekom-Control Commission is of the opinion that sharing in this area limits the operators' ability to differentiate themselves from others and thus limits their competitive independence in such a way that functioning competition can no longer be ensured.

On the basis of the current state of technological development, and with due consideration of the decisions made by a majority of European regulatory authorities, it can be assumed that certain forms of sharing in the core network area (e.g., MSC sharing) would inevitably lead to a frequency pool.

In addition, the requirement of a self-operated network under the license award requirements is not fulfilled by this sharing model. Core network sharing is therefore not permissible.

3G-3G Roaming

The license award documents expressly state that the licensees have the right to conclude national 3G-3G roaming agreements.

However, operators are not legally required to enter into such agreements (i.e., the regulatory authority has not issued any decisions which require such roaming agreements).

However, roaming is only permitted when areas beyond the coverage requirements are to be covered. The coverage requirements stated in the license award documents (25% by the end of 2003, 50% by the end of 2005) have to be attained using a self-operated network in any case.

Geographical Division

The geographical division of the licensed area is not covered by the provisions of the TKG or the license award documents. In this context, however, operators are referred to general competition law in Austria.

Any cooperation in this respect will also be taken into consideration in determining which operators possess significant market power.

Frequency Pooling

The Telekom-Control Commission currently sees no possible means of permitting frequency pooling under Austrian law.

In this context, however, operators are referred to the European legal framework, especially Article 9, par. 3 of the Framework Directive, which states that "Member countries may make provision for undertakings to transfer rights to use radio frequencies with other undertakings."

The extent to which this regulation will be incorporated into Austrian law will be determined in the course of implementation by the Austrian legislature.