

28.9.2007

Response to to the consultation from Ausria on the bands 2500-2690 MHz, 2010-2020 Hz and 900/1800 MHz bands from Nokia¹ and Nokia Siemens Networks²

Nokia and Nokia Siemens Networks (NSN) welcome the possibility to comment the plans of Rundfunk und Telekom Regulierungs-GmbH on the allocation of frequencies in the frequency bands 2010-2020 MHz and 2500-2690 MHz as well as on the future use of the frequency bands 900/1800 MHz.

In general, Nokia and NSN support the common European approach to the usage of these bands, as defined in the relevant ECC and EC decisions. The agreed band plans need to be respected and the flexibility in the usage of the bands can be easiest added by allowing the evolution of existing technologies, e.g. GSM-UMTS evolution. Regarding the new bands 2010-2020 MHz and 2500-2690 MHz the European harmonization activities regarding the minimum required technical parameters to ensure compatibility between different networks/technologies should be taken into account. Otherwise, the operators' plans should be listened regarding the licensing time schedules and technology choice.

The detailed answers are in the the Annex.

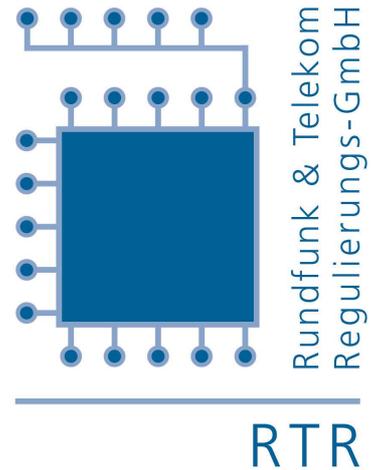
¹ About Nokia

Nokia is a world leader in mobile communications, driving the growth and sustainability of the broader mobility industry. Nokia connects people to each other and the information that matters to them with easy-to-use and innovative products like mobile phones, devices and solutions for imaging, games, media and businesses. Nokia provides equipment, solutions and services for network operators and corporations.

About Nokia Siemens Networks

Nokia Siemens Networks is a leading global enabler of communications services. The company provides a complete, well-balanced product portfolio of mobile and fixed network infrastructure solutions and addresses the growing demand for services with 20,000 service professionals worldwide. The combined pro-forma revenues of €17.1 billion Euro in fiscal year 2006 make Nokia Siemens Networks one of the largest telecommunications infrastructure companies. Nokia Siemens Networks has operations in some 150 countries and is headquartered in Espoo, Finland. It combines Nokia's Networks Business Group and the carrier related businesses of Siemens Communications. www.nokiasiemensnetworks.com

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Annex

Consultation

on the allocation of frequencies in the frequency bands 2010 – 2020 MHz and 2500 – 2690 MHz

as well on the future use of the frequency bands 900/1800 MHz

Vienna, August 2007

Rundfunk und Telekom
Regulierungs-GmbH

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1. INTRODUCTION

Rundfunk und Telekom Regulierungs-GmbH is holding a consultation on the following subject areas:

- Allocation of frequencies in the frequency bands 2010 – 2020 MHz and 2500 – 2690 MHz.
- Future use of the frequency bands 900/1800 MHz.

The consultation procedure is intended to be an initial approach to the subject areas mentioned. The specified contents are non-binding and do not prejudice the decisions of the Telekom-Control Commission.

To guarantee efficient and market conforming use of the frequencies to the greatest possible extent RTR-GmbH addresses the public with this consultation, putting individual items up for discussion.

2. ALLOCATION OF FREQUENCIES IN THE FREQUENCY BANDS 2010 – 2020 MHz AND 2500 – 2690 MHz

2.1 General

a) As to 2010 – 2020 MHz

The frequency band 2010 – 2020 MHz originally intended for so-called self-provided applications due to international requirements is now available for terrestrial digital mobile communications systems in general, according to the Decision of the Electronic Communications Committee (ECC) of the European Conference of Postal and Communications Administrations (CEPT) of 24 March 2006 (ECC/DEC/(06)01).

b) As to 2500 – 2690 MHz

The frequency band 2500 – 2690 MHz was identified in the course of the World Radio Conference 2000 (WRC 2000) for IMT-2000 systems. Mandated by the European Commission CEPT developed plans for spectrum arrangements. These are reflected in the CEPT Decision EEC/DEC/(05)05, which provides that 2 x 70 MHz can be made available for FDD and 50 MHz for TDD or FDD operation (together with frequencies from other bands). In view of the efforts regarding technology and service neutral frequency allocations, it cannot be ruled out, however, that the frequency band 2500 – 2690 MHz will be also used for applications other than the ones specified in ECC/DEC/(05)05.

In Austria the frequencies at issue are now already available for allocation. These frequency bands are designated for use by terrestrial digital mobile communications systems.

2.2 Market overview

In 2000 six licences for the provision of mobile communications services using UMTS/IMT-2000 technology were allocated in Austria; each operator was assigned approx. 2 x 10 MHz from the frequency bands 1920 – 1980 MHz / 2110 – 2170 MHz (paired) or up to approx. 10 MHz from the bands 1900 – 1920 MHz and 2020 – 2025 MHz (unpaired), respectively.

At present, the situation is as follows: four operators are active in the frequency bands mentioned, each operator (Mobilkom Austria AG, T-Mobile Austria GmbH, One GmbH, Hutchison 3G Austria GmbH) having frequencies totalling approx. 2 x 15 MHz. Mobilkom Austria AG and T-Mobile Austria GmbH have additional 2 x 10 MHz from the unpaired frequency band, Hutchison 3G Austria GmbH has 5 MHz.

2.3 Responsibilities in the field of frequency administration

The provisions governing responsibility in the field of frequency administration are laid down in Art. 54 Par. 3 TKG 2003. Accordingly, the regulatory authority (Telekom-Control Commission) shall be responsible for allocation of the frequencies that have been specifically designated in the frequency usage plan pursuant to Art. 52 Par. 3 TKG (restriction in number). Responsibility for allocation of the remaining frequencies lies with the telecommunications authority.

As regards the frequencies in question, the Federal Minister of Transport, Innovation and Technology designated the frequencies in so far as the maximum number of allocated frequencies will be restricted.

This means that the Telekom-Control Commission is responsible for allocation of the frequencies at issue.

In the run-up to such planned allocation by the Telekom-Control Commission, Rundfunk und Telekom Regulierungs-GmbH is now holding a consultation.

2.4 Consultation

2.4.1 Terms and conditions of use

- **The CEPT/ECC Decision ECC/DEC/(05)05 provides for the following channelling arrangements in the frequency band 2500 – 2690 MHz for FDD and TDD:**

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 2500 MHz | 2505 MHz | 2510 MHz | 2515 MHz | 2520 MHz | 2525 MHz | 2530 MHz | 2535 MHz | 2540 MHz | 2545 MHz | 2550 MHz | 2555 MHz | 2560 MHz | 2565 MHz | 2570 MHz | 2575 MHz | 2580 MHz | 2585 MHz | 2590 MHz | 2595 MHz | 2600 MHz | 2605 MHz | 2610 MHz | 2615 MHz | 2620 MHz | 2625 MHz | 2630 MHz | 2635 MHz | 2640 MHz | 2645 MHz | 2650 MHz | 2655 MHz | 2660 MHz | 2665 MHz | 2670 MHz | 2675 MHz | 2680 MHz | 2685 MHz | 2690 MHz |
| UL 01 | UL 02 | UL 03 | UL 04 | UL 05 | UL 06 | UL 07 | UL 08 | UL 09 | UL 10 | UL 11 | UL 12 | UL 13 | UL 14 | TDD / FDD Downlink (External) | | | | | | | | | | DL 01 | DL 02 | DL 03 | DL 04 | DL 05 | DL 06 | DL 07 | DL 08 | DL 09 | DL 10 | DL 11 | DL 12 | DL 13 | DL 14 | |
| FDD Uplink Blocks | | | | | | | | | | | | | | | | | | | | | | | | FDD Downlink Blocks | | | | | | | | | | | | | | |

Do you consider these channelling arrangements useful?

Yes

Reasons:

Nokia & Nokia Siemens Networks (NSN) support harmonized bands plans, which best facilitates competitive and service provisioning in large geographical areas (such as Europe), economies of scales and timely availability of equipment. Harmonized spectrum and competitive products would benefit end user in terms of service availability and lower costs.

No

Reasons, alternative proposals:

- **Is it useful to allocate the frequency band 2010-2020 MHz at the same time? If so, what should the terms and conditions of use be?**

Yes

Reasons:

If there is an operator that is interested in pairing this band with the centre gap of 2.6 GHz band, the licenses should be issued at the same time.

No

Reasons:

If there is not interest in external DL at 2.6 GHz, there is no specific need to license it at the same time.

- **Do you consider it useful to use the band 2570 – 2690 MHz also as FDD downlink together with the frequency band 2010-2020 MHz not yet assigned?**

Yes

Reasons:

This should be based on the market demand (operators' plans) in individual countries.

No

Reasons:

- **It cannot be ruled out the frequency bands 2500-2690 MHz and 2010-2020 MHz will be assigned according to the principle of technology and service neutrality, provided that in-band and out-of-band compatibility can be guaranteed. Which aspects do you think should be considered here?**

The CEPT band plan (as in 2.4.1) should be respected. The results of the on-going work on the common parameters for the usage of this band in PT SE42 as well as the FDD/TDD coexistence work in ECC PT1 should be taken into account.

- **Against the background of technology neutrality, do you think it will be sufficient to define a field strength value or spectrum masks, or is advance coordination with preferred frequencies/preferred codes absolutely required?**

Yes

Reasons:

This is not a clear yes/no question. Spectrum masks are useful in defining the rules for the adjacent channel operation. For co-channel operation, at the borders of the country or in the case of regional licenses, field strength values are needed. Preferred frequencies/codes could help here but are very technology specific.

No

Reasons:

- **What term of use do you consider practicable for the frequencies in question?**

The licenses should be long enough to justify the operators' investments for the networks. Usually, 10-15 years is considered as a suitable minimum time.

2.4.2 Division of the frequency band

- **Do you consider it useful to divide the spectrum into individual abstract 5 MHz blocks (or pairs of 2x5 MHz with FDD) or shall the regulatory authority identify specific – larger – packages?**

Yes

Reasons:

Licensing can be based on 2X5 MHz (or 5 MHz in unpaired spectrum) blocks facilitating operators to achieve a minimum of 2x20 MHz operator spectrum enabling implementation of wide band LTE operation.

No (What kind of spectrum division do you consider useful and why?)

Reasons:

- **It is planned to restrict the maximum number of frequency packages a bidder may acquire. Which spectrum restrictions (in MHz or 5 MHz packages) do you consider appropriate?**

A minimum of 2X20 MHz should be available for each operator to facilitate LTE.

If the duplex gap of 2570-2620 is licensed for TDD operation, we recommend that the whole band be granted to one operator, so that attractive rate plans can be offered to a large number of subscribers over the lifetime of the license.

- **It is planned to assign the packages on a nationwide basis (i.e. not regionally). Which aspects shall be considered here?**

Nationwide licenses are preferred.

- **How do you rate the demand for and the availability of equipment in these frequency bands? Which technologies and services do you want to use or provide?**

The equipment will be available in line with the operators' implementation plans. CEPT band plan guarantees best the timely availability of equipment.
We understand that decisions regarding specific technologies may not take place, as technology neutrality should be kept. We have a clear preference to utilize in FDD bands 3GPP based systems such as WCDMA/HSPA and UTRAN Long Term evolution (LTE). For these technologies minimum 2x5 MHz blocks and up to 2x20 MHz total amount would be beneficial to exploit all technology capabilities. In case there is TDD operation considered in 50 MHz FDD/TDD block, also 802.16(e) based technologies could be used.

2.4.3 Time schedule

- **The regulatory authority plans to start the allocation procedure in mid-2008. Do you think this time schedule is suitable to take account of the future spectrum requirements and the technological development?**

Yes

Reasons:

The time of licensing should be based on the market demand, i.e. the operators' needs for new spectrum.

No

Reasons:

2.4.4 Secondary provisions of frequency allocation

- **Do you consider a newcomer's (attempt at) market entry in connection with allocation of the frequencies at issue realistic?**

Yes

Reasons:

All applicants should be handled equally.

No

Reasons:

- **Which measures shall be taken to facilitate market entry by newcomers (see e.g. national roaming obligation as on the occasion of IMT frequency allocation in 2000)?**

National roaming should be encouraged.

- **Against the background of technology and service neutrality, what should the coverage obligations be like?**

Usually, competition takes care of the coverage and no obligation needs to be set.

3. FUTURE USE OF THE FREQUENCY BANDS 900/1800 MHZ

3.1 General

The European Commission is currently preparing a decision regarding harmonisation of the frequency bands 900 MHz and 1800 MHz (Decision on the harmonisation of the 900 MHz and 1800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community). The objective of this decision is to open the frequency bands 900 MHz and 1800 MHz, which are currently reserved for GSM technologies, for use by other mobile communications technologies. The annex to the planned decision makes explicit reference to UMTS. However, Art. 3 No. 3 of the planned decision goes even further and aims at facilitating also technologies not listed in the annex, provided that they can co-exist in the same frequency band with the systems listed.

3.2 Market overview

In Austria the frequency bands 900 MHz and 1800 MHz have been assigned for the provision of mobile communications services by means of GSM technology. The frequencies are held by Mobilkom Austria AG (approx. 32 MHz), T-Mobile Austria GmbH (approx. 38 MHz) and One GmbH (approx. 32 MHz). The frequency allocations are limited in time until the end of 2015, 2017 and 2019, respectively.

3.3 Consultation

The activities at the European level also raise questions at the national level regarding the further course of action in respect of the use of the frequency bands at issue.

- **How do you expect GSM to further develop? In your estimate, what will the lifetime of GSM be?**

| |
|--|
| <p>There is no planned end of lifetime for GSM but the decision should be left for the operators' business plans. GSM networks can be evolved to IMT-2000/WCDMA/LTE smoothly and this process should be supported by the regulation.</p> |
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- **In which of the frequency bands listed here will it be useful to use new technologies (“refarming”)?**

GSM networks will evolve to IMT-2000/WCDMA/LTE and WCDMA will evolve to LTE. Therefore these technologies are well suited for smooth migration/re-farming from GSM to LTE or WCDMA. Especially LTE is design also to operate frequency blocks smaller than 5 MHz. How this is kind of re-farming is actually implemented in the current networks should be left for the operators to handle depending their individual business plans.

- **How do you rate the availability of equipment for IMT in the frequency bands 900/1800 MHz?**

Terminals are available for WCDMA 900 MHz today, and for 1800 MHz band support is possible to do depending on market needs. For LTE terminal availability is probably somewhere 2010-2011, depending commercial requests. The equipment will be available in 2008, according to the operators' implementation plans.

- **Where do you see critical aspects of a possible refarming solution? What kind of solution could satisfy all market participants?**

4. PARTICIPANT

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Are you interested in 2500 – 2690 MHz spectrum use?

- Yes
 No

Are you interested in 2010 – 2020 MHz spectrum use?

- Yes
 No

Are you interested in 900 MHz and 1800 MHz spectrum refarming?

- Yes
 No

5. INVITATION FOR COMMENTS

Comments shall be sent no later than 28 September 2007 per e-mail to Konsultationen@rtr.at in a common format suitable for electronic processing (e.g. text, pdf). Unless requested otherwise, the comments will be published on the website of RTR GmbH.

I/We agree that the comment will be published in full.

- Yes, by stating the name of the company
- Yes, without stating the name of the company
- No