Bundesnetzagentur

Industrial Campus Networks: Application Procedure for local 5G Frequencies in the Range 3700 MHz

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IT meets Industry

Mannheim, 20.11.2019

Content

Introduction

- The Federal Network Agency provides frequencies and sets the regulatory framework.
- Industry needs to develop the optimal solution for its use cases (e.g. production process).
- The requirements and needs of industry for campus networks are different.
- An inventory of frequencies already in use, supports the planning process.

Current frequency usages in industry

1. Based on general licences:

- WLAN/WiFi
- Short Range Devices in General (ECC-Rec 70-03)

2. Based on indiviual licences:

- Private Mobile Radio Networks
- Trunked Radio Networks

3. Cooperation with Public Mobile Operators

Frequency Regulation in 3700-3800 MHz

- Local frequency utilization only
- Company internal communications only
- No telecommunication services for the public

Reason:

Clear distinction to 3400-3700 MHz:

- nationwide utilization
- with strict coverage requirements to be fulfilled by fixed target dates

What are local utilizations?

- A plot of land which, by the nature of its economic use or by its external appearance, forms a unit, even if from a legal perspective it consists of several premises.
- Examples:
  company premises, industrial parks, exhibition grounds, theatres, television studios, stadiums, ...

Recommendation:

In case of doubt, clarify open questions before submitting an application (e.g. public roads within the industrial park)

Who can apply for frequencies?

The applicant must be

- **owner of the land/…**
- **tenant of the land, … The consent of the landowner has been given.**
- **commissioned by the owner or tenant. The consent of the landowner has been given.**

It is also advantageous that several landowners, e.g. of an industrial park, submit a joint application for spectrum assignment for the whole area.

Frequency usage conditions

The Licencee is free in his network planning, but:

- Field strength values to ensure the electromagnetic compatibility with the environment (e. g. human exposure) have to be observed.
- **Reduce interference ranges to a minimum (e.g. low transmitting power, low antenna heights).**
- Operators of geographically adjacent radio networks are obliged to negotiate operator agreements.
- The frequency usage efficiency can be optimized by planning locally and considering all aspects relevant to radio wave propagation: topography, vegetation, buildings, ...

No agreement between operators:

- The Federal Network Agency may define measures to ensure efficient and interference-free use of spectrum for all affected operators:
- Field strength limit of 32 dBµV/m/5MHz (ECC/REC(01)15) at a height of 3 m at the limit of the assignment area and beyond (no interference of the neighbor, but also no radio coverage at the border of the assignment area)
- The costs of any necessary reconfigurations of the radio networks shall be borne by the assignment holders.

Frequency Utilization Concept

Content of the concept:

- Description of planned frequency usage
- Plausible and comprehensible explanation of the frequency demand
- Description of Measures to ensure efficient and interference-free use of spectrum
- Timeline of network expansion and deployment of the radio applications

Indoor frequency utilization

For indoor frequency uses, one **reference indoor base station** with the frequency parameters must be specified in the application form.

A description of the indoor frequency usages should be given in the frequency utilization concept (e.g. number of base stations).

Further facilitation in applying for indoor frequency use is under consideration.

Application Procedure

Applications on frequency assignments

via E-Mail:

- ✓ Excel-Sheet with geographic area of the premises and the basic parameters of the base stations
- ✓ Frequency utilization concept
- ✓ Consent of the owner of the premises

Frequency assignments in pdf-format

via E-Mail

In future: Web-Portal

Fees for 3700-3800 MHz

Fee (in Euro) = 1000 + B * t * 5 * ($6a_1 + a_2$).

- **1.000** basic fee
- **B** bandwidth in MHz (10 MHz up to 100 MHz)
- **t** duration of frequency assignment (e.g . 10 years)
- **a** area of the frequency assignment in square km
  - a_1 settlement and traffic area
  - a_2 other areas (agrarian areas).

Example for industry, 100 MHz, 10 years, 1 square km

→ 31.000 Euro

What's next for 3700-3800 MHz?

Publication of the "Fees" in the Federal Law Gazette on 20.11.2019 (entry into force on 21.11.2019)

→ Start of the application procedure for 3700-3800 MHz on 21.11.2019.

www.bundesnetzagentur.de/lokalesbreitband

1 year (?) after the start of the application procedure:

- taking stock and reviewing the procedure
- Consultation of interested parties
- Future needs of industry must be taken into account

Consideration on other 5G Bands

COMMISSION IMPLEMENTING DECISION (EU) 2019/784…

DIRECTIVE (EU) 2018/1972 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL…

by 30 March 2020:

Member States shall … make available … the 24,25-27,5 GHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services…

by 31 December 2020:

Member States shall allow the use of at least 1 GHz of the 24,25-27,5 GHz band…

Considerations on 26 GHz for 5G

Current Frequency Utilization in Germany:

- ✓ **Fixed Service (PtP and PMP)**

At the end of 2018:

Public consultation on general considerations

- An individual frequency coordination of 5G applications with the existing frequency usage is possible.
- There are currently no plans to relocate existing fixed radio links from the 26 GHz range.
- New PP radio uses should be implemented primarily in alternative radio ranges (e.g. 28 GHz).

At the end of 2019: draft procedure for public consultation

Agenda Item 1.13

ITU-R Resolution 238 (WRC-15)

Studies on frequency-related matters for International Mobile Telecommunications identification including possible additional allocations to the mobile services on a primary basis in portion(s) of the frequency range **between 24.25 and 86 GHz** for the future development of International Mobile Telecommunications for 2020 and beyond

Summary

Overview over

- current and future frequency bands for campus Networks
- emphasis on the frequency application procedure in the 3700-3800 MHz band in Germany

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