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Federal Office of the Environment, Transport, Energy and Communications DETEC

Bundesamt für Kommunikation BAKOM
Abteilung Konzessionen und Frequenzmanagement
Sektion Frequenzplanung

Conditions of use for campus networks in Switzerland

(As at: 5 March 2024)

On 1 January 2024, Switzerland opened up the frequency range 3,400–3,500 MHz to mobile private networks (also known as campus networks). The current conditions of use for campus networks are summarised below:

1. Intended use

- Campus networks (standalone non-public networks, or SNPN) are used for in-house and therefore private communication between machines and/or people;
- Campus networks may not be used to provide telecommunications services[1] and are completely insulated from public mobile network operators (MNOs).

2. Geographical restrictions

- Wireless use of campus networks is restricted to a geographically limited, clearly defined area (usually in the shape of a polygon), such as company premises or a hospital or university campus. Larger geographical areas such as cities, agglomerations, rural regions and transport routes cannot be supplied with campus networks;
- Frequency use by campus networks is limited to terrestrial applications.

3. Radiocommunications licence, duration and fees

- A radiocommunications licence is required to operate a campus network. There is no guarantee that a licence will be issued. OFCOM examines applications for campus networks and sets out the specific conditions of use in each individual radiocommunications licence;
- The licence period depends on the investment volume and lasts for at least five years;
- The fees for processing the application and issuing the radiocommunications licence are charged at an hourly rate of CHF 210.00.[2] The annual administration fees are CHF 72.00 per licence,[3] and the radiocommunications licence fees are CHF 48.00 per allocated bandwidth of 1 MHz or part thereof[4] per year.

4. Technical features

a. General

- The technical interface regulation RIR0501-33 applies to frequency use;
- The available bandwidth of 100 MHz is allocated in channel bandwidths of 10 MHz. This can be geographically restricted due to the requirement to protect safety-critical radiocommunications applications;

[1] Article 3 let. b of the Telecommunications Act (TCA; SR 784.10) and Article 2 of the Ordinance on Telecommunications Services (OTS; SR 784.101.1)

[2] Article 40 para. 1 TCA and Article 6 of the Ordinance on Fees in the Telecommunications Sector (Telecommunications Fees Ordinance, or FeeO-TCA; SR 784.106)

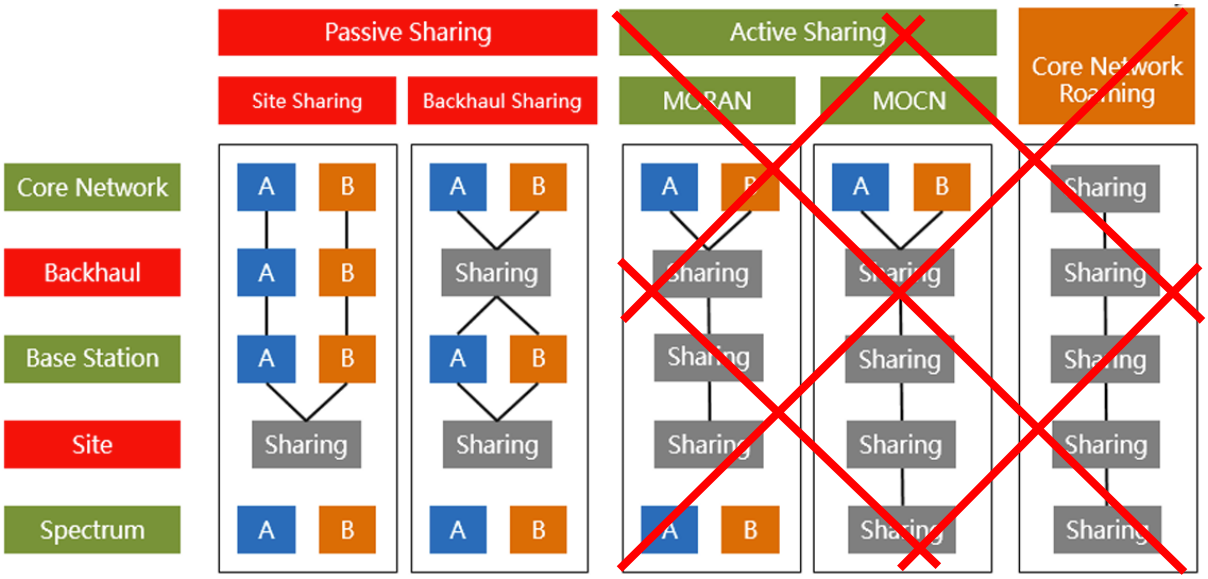
[3] Article 25 TCA

[4] Article 13 para. 6 FeeO-TCA

- The frequencies are allocated to an unlimited number of users in a specific area of application[5]. To avoid interference, operator agreements must be made if there are multiple users in the same or neighbouring geographical areas.

b. RAN[6] sharing

- For campus networks, there is a clear and complete separation between private (SNPN) and public mobile telecommunications infrastructures;
- The frequencies for a campus network may be used only for its operation. Joint frequency use by private (SNPN) and public MNOs is not permitted;
- The logical separation of the network functions of a private (SNPN A) and a public B MNO must be ensured. Only passive RAN-sharing constellations are permitted in Switzerland:



Network resource sharing models (source: GSMA)

c. Transmission power and field strengths

- Transmitters in a campus network must not exceed an effective radiated power (ERP) of six watts;
- The provisions on protection against non-ionising radiation[7] must be complied with, unless the transmitters for the campus network are excluded from the scope of application;
- The field strengths permitted on the boundary of a campus network's allocation area are specified in the licence;
- Outside buildings, a maximum field strength of 61 or 79 dBµV/m/(5 MHz)[8] must be observed.

d. TDD[9] synchronisation

- Campus networks must be fully synchronised with public MNOs to avoid interference;
- The TDD framework of the public MNOs must be adopted;
- Along the French border, downlink symbol blanking (DSB) must be activated or field strengths must be limited to a maximum of 31 dBµV/m/(5 MHz)[10] in order to protect applications in France.

[5] Article 6 let. b of the Ordinance on Use of the Radio Frequency Spectrum (RFSO; SR 784.102.1)

[6] Radio access network

[7] Ordinance on Protection against Non-Ionising Radiation (NIRO; SR 814.710), in particular Article 2 para. 2 let. a and Annex 6 No. 61 para. 1 let. b and c

[8] ECC/REC(15)01 (Annex 1, section A1.3.1, table 4)

[9] Time division duplex

[10] ECC/REC(15)01 (Annex 1, section A1.3.1, table 6)

e. BEM[11] and out-of-band transmissions below 3,400 MHz

- The technical conditions for the BEM specified in ECC/DEC/(11)06 Annex 2 must be complied with;
- On the boundary of a campus network's allocation area (along the outline of the polygon), out-of-band transmissions below the 3,400 MHz band limit may not exceed the value specified in ECC/DEC/(11)06 Annex 2, section A2.3, table 5. The specific value is stipulated in the licence and is –59 dBm/MHz EIRP for non-AAS BS (case A).

5. Addressing resources

- OFCOM does not allocate addressing resources for campus networks. Accordingly, access to emergency call services[12] cannot be guaranteed.

Enquiries about campus networks can be sent to the following e-mail address:
KF-Sekretariat@bakom.admin.ch

[11] Block edge mask

[12] Article 27 para. 1 OTS