technische universität dortmund

5G.NRW Competence Center

5G Campus Network Planner

Quick Start to Local 5G Radio Licenses for Private Use

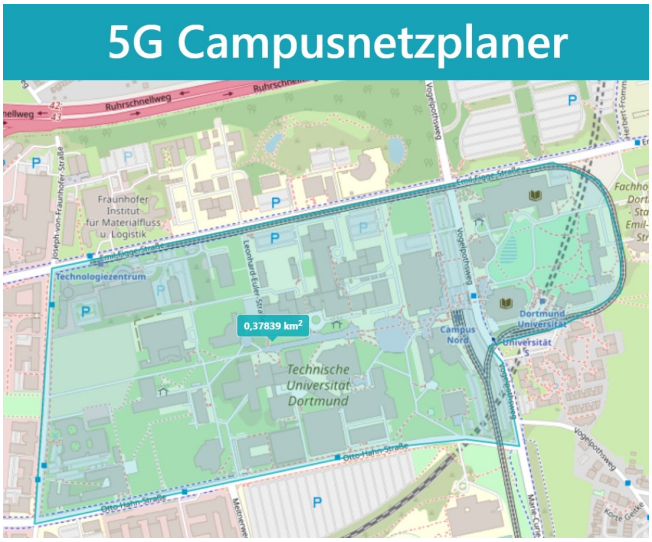
The opportunity of regional and local private 5G networks, referred to as 5G campus networks, is considered as one of the core 5G innovations for industry, public institutions and municipalities. In Germany, these operate at frequencies in the licensed range of 3.7 - 3.8 GHz, and since 2021 also in the 26 GHz range which are thus above the classic 4G/5G mobile frequencies. Unlike the classic frequencies, which are auctioned off nationwide (in Germany among the now four network operators Deutsche Telekom, Vodafone, Telefónica, and 1&1-Drillisch), local 5G frequencies are allocated via an application procedure at the Federal Network Agency (BNetzA). In contrast to widespread mobile communications solutions based on unlicensed bands, an operator of local campus networks can access their licensed frequency spectrum exclusively and free of interference. The resulting increased reliability forms the basis for numerous future 5G use cases, e.g., for machine-to-machine networking and process automation.

The Competence Center 5G.NRW offers a Planning Tool for 5G Campus Networks (http://5g.nrw/campusnetzplaner) as a quick start for companies to obtain a local radio license for their own 5G campus network in Germany.

Based on the property area, the target frequency and the configured parameters, the Planning Tool determines the expected allocation fee based on the frequency fee formula for local broadband. Additionally, after finalization, the user is provided with a PDF download summarizing the costs, parameters, and additionally the polygon coordinates of the campus network. The latter is additionally offered as a CSV document to support the transfer into the application documents. Since the release of the Planning Tool in January 2020, more than 11500 users already confirm the very large response (as of 05/2021).

Local Broadband at 3,7 GHz

In the frequency range of 3.7 - 3.8 GHz, a total of 100 MHz of bandwidth is available for exclusive use, which can be applied for with an increment of 10 MHz block size each for a maximum term of 10 years. To date, a total of 126 applications for the allocation of



frequencies for local 5G networks have been submitted and 123 allocations of frequencies for local 5G networks have been granted by the Federal Network Agency (as of 05/2021).

Local Broadband at 26 GHz

With the start of the frequency allocation for local broadband frequency usage at 26 GHz (24.25 - 27.5 GHz), a total additional bandwidth of 3250 MHz is available for private use. The German regulator BNetzA does not limit the requested bandwidth, but assumes that the requested bandwidths will be less or equal to 800 MHz based on the currently available device parameters. The 5G Campus Network Planner which has been expanded since the beginning of the year, enables the frequency selection of the targeted allocation and determines the expected allocation fee based on the frequency-dependent fee formula for local broadband.

Direct link to Planning Tool:
5g.nrw/campusnetzplaner

Brief description as video:
tiny.cc/5GCampusNetworkPlanner

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gefördert durch
Ministerium für Wirtschaft, Innovation, Digitalisierung und Energie des Landes Nordrhein-Westfalen