5G in Brazil:

Learn about 5G technology's characteristics and the main aspects of the bidding process for radio frequencies

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Overview

The fifth and latest generation of mobile connectivity, 5G technology is characterized by its **low latency** (the length of time between sending and receiving information) and **high bandwidth** (the ability to transmit large quantities of information per unit of time).

5G technology is set to revolutionize both the way that people relate to each other and how devices connect, paving the way for innovation across a range of sectors. 5G networks will be able to operate up to twenty times faster than current 4G networks, allowing for the development of applications related to the Internet of Things (IoT), telemedicine, smart cities, online gaming and driverless cars. It should also impact the corporate world with the creation of new technological solutions and ways of doing business.

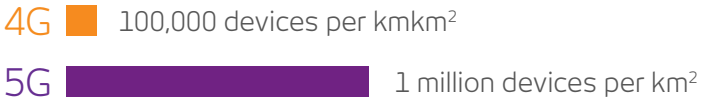
The rollout of 5G technology in Brazil will be made possible via a wide range of radio frequency spectrum bands, to be auctioned off by the Brazilian Telecommunications Agency (ANATEL). Given its strategic importance to Brazil's socioeconomic development, this is already being treated as ANATEL's most important auction to date.

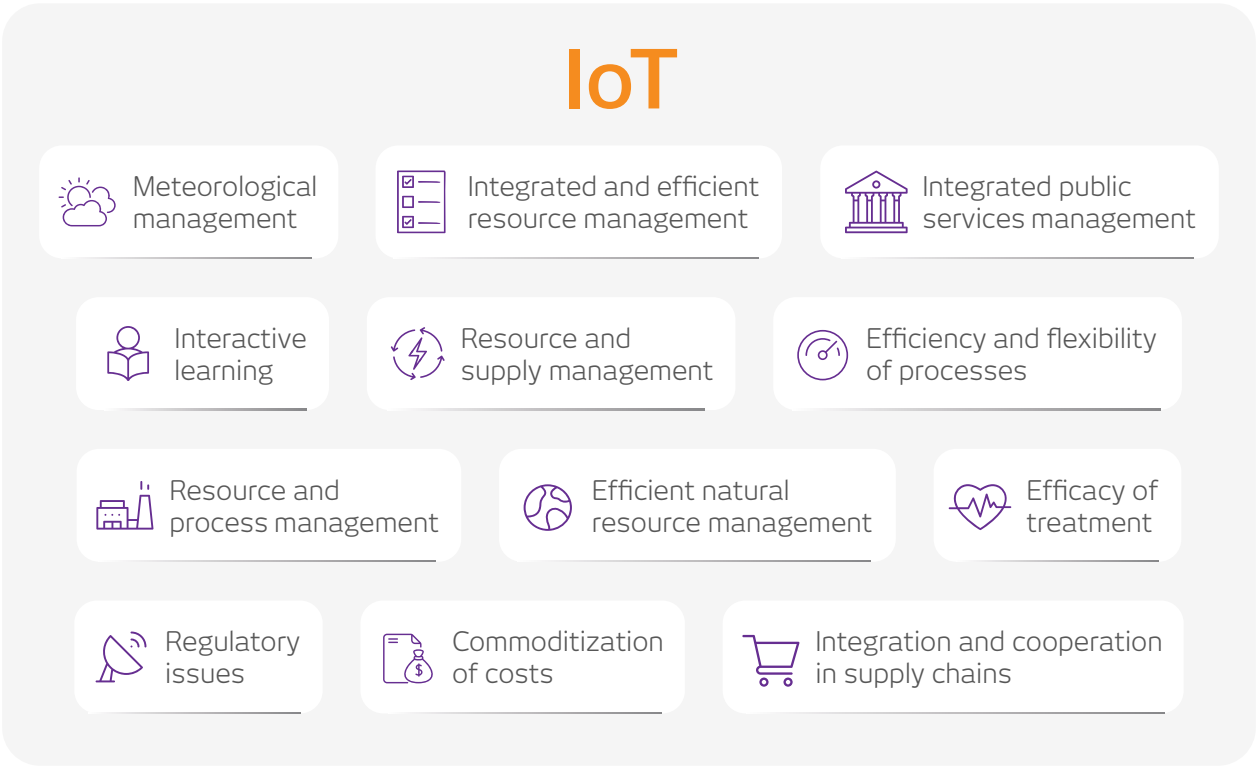
5G's main features and applications

- **Ultra-fast mobile broadband** – Extension and improvement of existing 4G services, accelerating data transmission on mobile networks.

- **Reliable, low-latency communication** – 5G's low latency makes it possible to develop applications that require immediate responses, such as in telemedicine, industrial automation, autonomous transportation and augmented reality.

- **Large-scale Machine-to-Machine applications** – 5G's high reliability and low latency also allow it to be applied to systems involving a large number of devices jointly and permanently connected to the internet, with communication between 5G-compatible sensors and devices. It will therefore become possible to employ IoT applications on a grand scale – paving the way for innovative business models such as smart city initiatives.





5G Bidding

The viability of 5G in Brazil fundamentally depends on voice and connectivity mobile operators – licensed under Brazilian legislation to provide the Personal Mobile Service (SMP) – having access to a radio frequency spectrum whose technical characteristics allow for operating the technology with maximum efficiency.

Access will be granted through a bidding process for the 700MHz, 2.3 GHz and 26GHz bands (5G Bid Notice). ANATEL approved the main aspects of the process on February 25, 2021. The specifics of the 5G Bid Notice can be accessed here.

There is widespread expectation that new entrants will participate and that smaller providers will have access to regional radio frequency blocks. Foreign companies and consortia will also be able to participate in the bidding process.

The 5G Bid Notice was forwarded to the Federal Court of Auditors for analysis and approval, which is expected to take up to 60 days. Upon approval, ANATEL will then be responsible for determining definitive dates for the bidding process.

A summary of the main details of the auction is provided below.

MAIN ASPECTS OF THE 5G BID NOTICE

Division of slots: ANATEL will make the 5G-allocated radio frequency bands available to authorized providers in nine slots, each of which will be subject to specific bidding rules, investment commitments and granting conditions;

Coverage commitments: assignment of coverage and corresponding telephone and mobile broadband service commitments to winning bidders for regions that are currently not served by 4G (or higher) technology. Related investments will be deducted from the overall due amount winning bidders are required to pay for radio frequency bands;

Release 16: the establishment of a schedule for 5G implementation within 5GNR 16 technology concerning the 3.5GHz band, as per 5GNR 16 technological standards (Release 16). This is so that the Radio Base Stations (RBSs) for these networks are implemented in a way that meets the needs of 5G's characteristics, without sharing the resources of the 4G network (5G standalone). Implementation is expected in Brazilian state capitals and the Federal District by July 31, 2022;

Band clearing and fiber-optic network construction: regarding the 3.5GHz bands, it will be up to the winning bidders to pay for clearing Band C – currently allocated to free-to-air satellite TV channels – so that this frequency spectrum may be utilized in the provision of the SMP;

Private network for the federal government and fiber-optic network expansion in Northern Brazil: in regard to the 3.5GHz band, winning bidders will be required to construct a private communication network for the federal government with equipment guaranteeing the security of communications. Winning bidders are also obligated to install fiber-optic service networks in Brazil's Northern region, in line with the scope of the federal government's Integrated and Sustainable Amazon Program (PAIS).

OFFERED RADIO FREQUENCY BANDS

700MHZ RANGE – TYPE A SLOTS

- 10 + 10MHz block or 5 + 5 MHz blocks – sub-bands from 708Mhz to 718MHz, and from 763MHz to 773MHz
- For municipalities with populations of up to 100,000 inhabitants, authorization will be issued for the use of radio frequencies on a secondary basis in the range from 718MHz to 748MHz, as well as from 773MHz to 803MHz
- 20-year authorization term, extendable (subject to charges)

3.5GHZ RANGE – TYPE B, C AND D SLOTS

- 80MHz or 20MHz blocks – sub-bands from 3300Mhz to 3700MHz
- 20-year authorization term, extendable (subject to charges)

2.3GHZ RANGE – TYPE E AND F SLOTS

- 50MHz blocks – sub-bands from 2300Mhz to 2350MHz, and 40MHz blocks – sub-bands from 2350MHz to 2390MHz
- 20-year authorization term, extendable (subject to charges)

26GHZ RANGE – TYPE G, H, I AND J SLOTS

- 400MHz or 200MHz blocks – sub-bands from 24.3GHz to 27.5GHz
- 20-year authorization term, extendable (subject to charges)

IMPLEMENTATION DEADLINE FOR RADIO BASE STATIONS AS PER RELEASE 16

The schedule for the rollout of RBSs is as follows:

2022 December 31, 2021 to July 31, 2022: one RBS for every 100,000 inhabitants in Brazilian state capitals and the Federal District;

2023 By December 31: one RBS for every 50,000 inhabitants in Brazilian state capitals and the Federal District;

2024 By July 31: one RBS for every 30,000 inhabitants in Brazilian state capitals and the Federal District;

2025 By July 31: one RBS for every 15,000 inhabitants in Brazilian state capitals, the Federal District and in municipalities with over 500,000 inhabitants;

2026 By July 31: one RBS for every 15,000 inhabitants in municipalities with over 200,000 inhabitants;

2027 By July 31: one RBS for every 15,000 inhabitants in municipalities with over 100,000 inhabitants;

2028 By July 31: one RBS for every 15,000 inhabitants in at least 50% of all municipalities with over 30,000 inhabitants;

2029 By July 31: one RBS for every 15,000 inhabitants in cities with at least 30,000 inhabitants.

3.5GHZ RADIO FREQUENCY BAND RELEASE PROCESS

The 3.5GHz band will be released in accordance with the following process:

- As of 300 days after the Authorization Term for the Use of Radio Frequencies is published in the Official Federal Gazette (DOU): in state capital and Federal District municipalities linked to coverage commitments for slots B1 to B4 and D33 to D36;
- As of 390 days after the Authorization Term for the Use of Radio Frequencies is published in the DOU: in municipalities with at least 500,000 inhabitants, linked to coverage commitments for slots B1 to B4 and D33 to D36;

2023

- From June 30, 2023: in municipalities with at least 200,000 inhabitants linked to coverage commitments for slots B1 to B4 and D33 to D36, as well as at least 25% of municipalities linked to coverage commitments for slots C1 to C8 and D1 to D32;

2024

- From June 30, 2024: in municipalities with at least 100,000 inhabitants linked to coverage commitments for slots B1 to B4 and D33 to D36, as well as at least 50% of municipalities linked to coverage commitments for slots C1 to C8 and D1 to D32;

2025

- As of June 30, 2025: in at least 75% of municipalities linked to coverage commitments for slots C1 to C8 and D1 to D32;

2026

- As of January 1, 2026: in other remaining municipalities.

For more information regarding 5G bidding in Brazil, contact Mattos Filho's Telecommunications practice.

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