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Country eyes satellite internet leap with record filings

By CHENG YU and MA SI

China's record number of satellite applications filed with the International Telecommunication Union is set to energize the entire space industry chain, from manufacturing to launching, propelling the nation's aerospace sector into a new phase of industrial scale-up and capability building, experts said on Tuesday.

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Their comments came as China recently filed network information plans with the ITU to deploy 203,000 satellites across 14 constellations, marking the country's largest-ever coordinated international filing for satellite frequency and orbital resources.

The volume represents a significant increase compared with China's previous submissions. The nation's ITU applications are dominated by China Satellite Network Group, based in Hebei province, which plans to deploy 12,992 satellites, and

Shanghai-based Yuanxin Satellite Technology, which aims for more than 15,000 satellites.

Submitting information to the ITU is the first step for satellite operators worldwide in deploying satellite systems. Under ITU rules, satellite networks must clear technical review and meet deployment milestones through actual launches before spectrum rights and orbital positions are formally secured.

Yang Feng, founder and CEO of commercial satellite company SpaceCity, based in Changsha, Hunan province, said the 203,000 satellite filings reflect long-term national strategy and space resource planning rather than immediate engineering capability.

"China's satellite internet development is characterized by nationwide coordination, in which different parties are involved. This has elevated satellite internet from a stand-alone commercial venture to the Chinese government's new infrastructure effort," he said.

This time, the two largest constel-

lations — groups of satellites working together as a unified system — have been filed by the Institute of Radio Spectrum Utilization and Technological Innovation, a newly registered national research institute on radio spectrum innovation and commercialization based in Hebei.

The applicants include not only satellite operators like China SatNet and Yuanxin, but also commercial space companies and major telecom operators, such as China Mobile and China Telecom.

"Leading in terms of filing applications does not mean surpassing in final execution. Turning these plans into operational constellations faces major challenges in terms of systems engineering, manufacturing and launch capacity," Yang said.

The industry expert's comments mirrored recent stock market performance. On Monday, some commercial space stocks surged on the A-share market, with several companies hitting a daily price increase limit of 10 percent. On Tuesday, however, the commercial space

sector swung from gains to losses, with multiple stocks falling more than 10 percent.

As of May 2025, there were about 10,824 operational satellites in low-Earth orbit, with orbital resource utilization reaching 18 percent. The United States held the leading position through the Starlink program of its aerospace company SpaceX, accounting for 75.94 percent of all active spacecraft globally. China accounted for only 9.43 percent.

As the gap is now narrowing, Zhang Zhilong, an associate professor at Beijing University of Posts and Telecommunications, said that China may need another five to 10 years to catch up to Starlink in terms of launch volume.

"China needs to explore the broader ecosystem, including direct-to-handset standards, terminal costs and pricing, and service model. Closer coordination across the industry chain is also essential," he added.

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Multiple satellite filings demonstrate transparency, responsibility and ambition

Low-Earth orbit slots are finite, nonrenewable and increasingly scarce. Once they are occupied or effectively locked by early movers, latecomers face severe constraints on their ability to deploy satellite systems critical for communications, navigation, remote sensing and digital services.

Under the long-standing "first-come, first-served" principle of the International Telecommunication Union for the allocation of radio frequencies and orbital slots, early filing for them is indispensable.

Thus China's recent filings of information about two proposed satellite networks with the ITU are neither abrupt nor exceptional. They are a necessary, rules-based step in the increasingly crowded and competitive low-Earth orbit arena. They reflect both China's long-term strategic planning and its responsibility as a major spacefaring nation committed to the orderly and sustainable use of outer space.

As China's national radio regulation center has clarified, submitting satellite network information to the ITU is a routine procedure required under international regulations. For any satellite system — particularly large constellations — this filing must be completed two to seven years before launch.

China's latest submissions, covering more than 200,000 satellites across 14 satellite constellations, according to information published on the ITU's website, include two networks involving more than 90,000 satellites. This is nothing untoward. Multiple countries have already filed applications for satellite constellations exceeding 100,000 satellites, underscoring that China's actions are part of a global trend rather than an outlier.

As a responsible major country, China has consistently emphasized the need for stronger international coordination mechanisms for space activities and greater transparency. Without such transparency, the rapid expansion of mega satellite constellations risks turning low-Earth orbit into a high-risk zone, undermining the long-term sustainability of space activities for all.

For instance, SpaceX's Starlink constellation already has 9,447 operational satellites performing tens of thousands of orbital maneuvers every month, with each maneuver instantly invalidating previously published orbital parameters, making collision avoidance far more difficult for other operators.

These risks are not theoretical. China's space station has already carried out orbital maneuvers to

avoid potential collisions with Starlink satellites. When satellites belong to the same operator or country, coordination is relatively straightforward. When they belong to different countries, and when real-time maneuver data are not fully disclosed, the danger of collision increases sharply. In an environment where any two objects in the same orbit can pose a threat to each other, transparency is not optional; it is mandatory.

Interference between satellite radio signals is another pressing concern. Spectrum resources are also allocated on a first-come, first-served basis, with the ITU rules designed to prevent "spectrum warehousing." Filing alone does not guarantee permanent ownership. Operators must meet strict deployment milestones — 10 percent within two years, 50 percent within five years, and full deployment within seven years — or risk losing their frequency allocations.

China's large-scale filing represents commitment rather than speculation. This is backed by rapidly improving launch capacity, expanding satellite manufacturing throughput and a maturing commercial aerospace ecosystem. From reusable rocket tests and more frequent launches to "super satellite factories" capable of producing 1,000 satellites annually, China is shifting from isolated technological breakthroughs to systematic, industrial-scale advancement.

This long-term planning is not merely about national competitiveness. Large low-Earth orbit constellations can provide essential global public goods — bridging the digital divide, improving disaster response, supporting climate monitoring and extending connectivity to remote and underserved regions. These goals align closely with China's vision of building a community with a shared future in outer space, where development, security and sustainability advance together.

Securing lawful access to limited orbital and spectrum resources today is not about exclusion, but about ensuring that outer space remains safe, open and beneficial for all humanity tomorrow.

As outer space becomes more congested, contested and commercialized, adherence to international rules and a forward-looking approach are more important than ever. China's filings with the ITU demonstrate respect for the existing global governance framework, recognition of the urgency of low Earth orbit resource constraints, and readiness to contribute to a more inclusive and sustainable space environment.