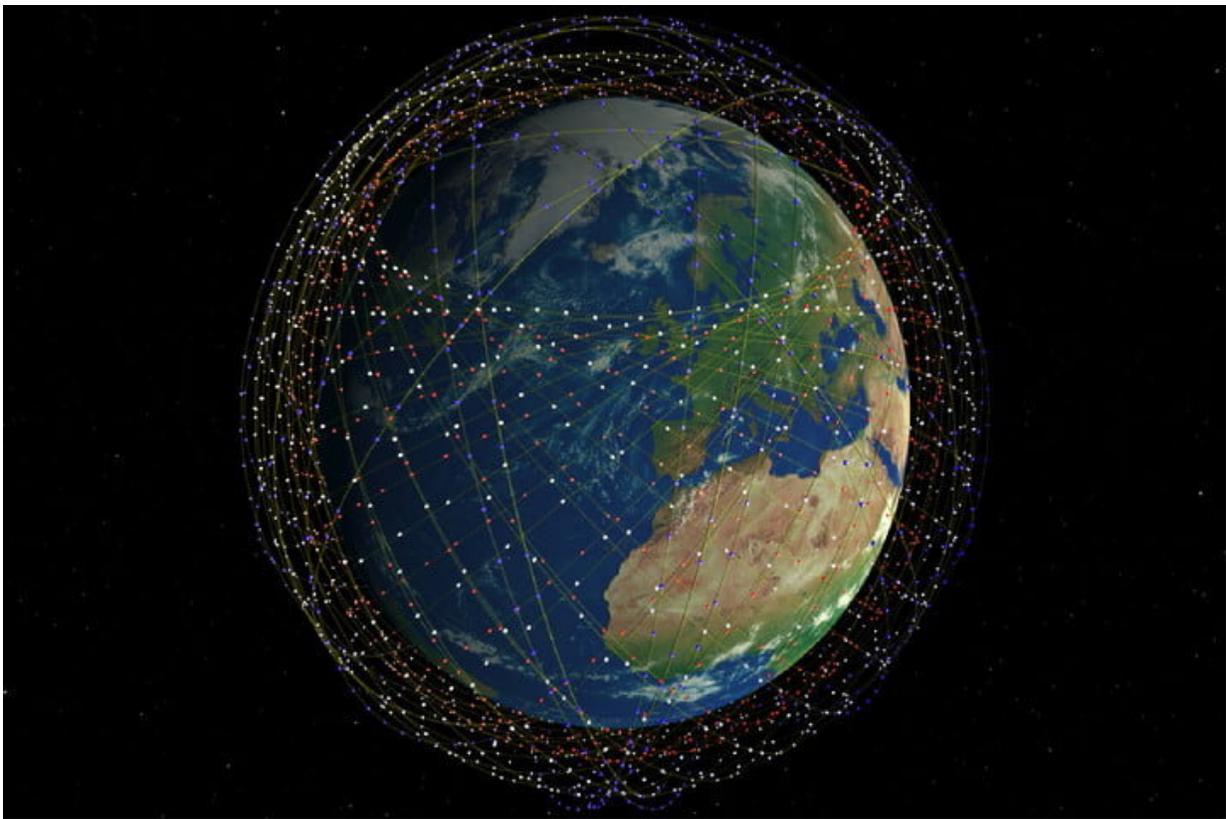


# Starlink's satellites will be orbiting at a much lower altitude, reducing the risks of space junk

May 6 2019, by Matt Williams

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Credit: SpaceX

Among Elon Musk's many plans for the future, one of the more ambitious has been the creation of a constellation of satellites that will

offer broadband internet access to the entire world. Known as "Starlink," the company's long-term plan is to deploy over 12,000 internet satellites to low Earth orbit (LEO) by the mid-2020s.

Despite criticism and dismissal, Musk and SpaceX have taken some major steps in recent years to get the ball rolling on this proposal. And according to a recently released official statement from the company, [mass production](#) is well underway, and the first batch of operational satellites is already in Florida awaiting the scheduled May 2019 launch.

This news comes on the heels of the company receiving approval from the Federal Communications Commission (FCC) to launch satellites to a lower orbit than originally specified. Originally, SpaceX intended to launch 4,425 satellites to non-geostationary orbits (NGSO) ranging from 1100 and 1300 km (680 and 800 mi), which would transmit in the Ku- and Ka-radio bands.

However, due to growing competition from other [satellite](#) internet providers, SpaceX decided to expedite its plans and presented a modified plan to the FCC. This took place in the fall of 2018 when the company announced that the first batch would be launched to a lower altitude – 550 kilometers (340 mi), starting in May of 2019. The company also indicated that this batch would have a simplified design and transmit only in the Ku-band.



A SpaceX Falcon 9 rocket launching two of the company's test Starlink satellites in February. Credit: SpaceX

This lower altitude was selected to minimize the risk posed by space junk, but will also allow the company to send more satellites into orbit sooner. The lower insertion orbit will not only allow the Falcon 9 rockets that will be deploying the satellites to carry heavier payloads, it will also mean shorter transmissions times and that the first batch of satellites will fall back to Earth sooner.

This is intrinsic to SpaceX's new plan to replace the first batch of simplified satellites with upgraded versions later on, eventually creating the full constellation that will deliver internet service as originally advertised. The recent FCC approval, which was issued on April 26th

despite objections from SpaceX's competitors, has effectively cleared a major regulatory hurdle for the company.

Gwynne Shotwell, SpaceX's president and [chief operating officer](#), said in a company statement: "This approval underscores the FCC's confidence in SpaceX's plans to deploy its next-generation satellite constellation and connect people around the world with reliable and affordable broadband service. Starlink production is well underway, and the first group of satellites have already arrived at the [launch site](#) for processing."



SpaceX's first two Starlink prototype satellites are pictured here before their inaugural launch, showing off a thoroughly utilitarian bus and several advanced components. Credit: SpaceX

Deployment of the constellation began in earnest back in February of 2018, when the company launched two technology demonstrators (Microsat 2A and 2B) as piggyback cargo to the Spanish PAZ Earth Observing satellite. By March of 2018, the FCC greenlit the [company's](#) plan for a Phase I constellation of 4,425 satellites orbiting at ~1125 km (700 mi).

In November, the FCC approved SpaceX's plan for a Phase II network of 7,518 satellites at 340 km (210 mi). However, days before the approval came, SpaceX filed for a modification, requesting approval to launch the first 1,584 of the Starlink satellites to a lower altitude of 550 km (341 mi). This latest ruling indicates that the FCC has approved of this change to SpaceX's license.

To get there, Elon Musk and SpaceX have some challenges ahead of them. For example, SpaceX is required to launch half of its Phase I satellites by April of 2024, which works out to about 37 launches a month. The remaining ~2200 satellites will need to be launched three years later (by April 2027), or else SpaceX risks losing its license.

The same is true for their Phase II batch of satellites, which will need to be fully deployed by November or 2027. In order to fulfill these requirements, SpaceX will need to ramp up production and begin conducting regular launches soon. And there's no shortage of competition these days from other telecom and commercial space giants. Then again, Musk is no stranger to long odds and pulling through.

**More information:** [www.teslarati.com/spacex-starlink-florida-launch-1/](http://www.teslarati.com/spacex-starlink-florida-launch-1/)

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