

New generation GPS satellite starts tests in Colo.

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A \$5.5 billion upgrade to the Global Positioning System moved a step closer to launch this week when a prototype arrived at a Lockheed Martin complex in Colorado to begin months of tests.

It's the guinea pig for a new generation of GPS satellites, called Block III, that's expected to make military and civilian receivers more accurate, powerful and reliable.

They're also part of an international effort to allow civilian receivers to use signals from U.S., European, Russian and perhaps other [satellite navigation systems](#).

GPS has become ubiquitous in American civilian and military life, with hundreds of thousands of receivers in cars, and weapons systems. Financial systems use [GPS receivers](#) to get precise time stamps for transactions, relying on the [atomic clocks](#) onboard the satellites.

The Air Force Space Command oversees the U.S. [GPS satellites](#) and ground control systems from its headquarters at Peterson Air Force Base, Colo.

The Block III satellites are expected to allow military and civilian users to determine their position within 3 feet, compared with 10 feet with current technology, according to the [Congressional Budget Office](#).

Higher-powered signals from Block III satellites are expected to be harder for enemies to jam and easier for receivers to tune in, especially in urban canyons or under thick tree canopies.

The U.S. and other countries have agreed to make a new, common frequency available to civilians. That means civilian receivers could calculate their position from a number of different satellite navigation systems.

The Block III prototype arrived at Lockheed

Martin's Waterton Canyon complex south of Denver on Monday. Workers will do final assembly work on the prototype and then run it through a gantlet of tests, including extreme temperatures to mimic conditions in space and measurements to see whether the satellite's radio frequencies interfere with each other.

The prototype won't be launched into space.

The first flight model is expected to arrive at Waterton Canyon next summer and be launched in May 2014.

[Lockheed Martin](#), based in Bethesda, Md., has a \$1.5 billion Air Force contract to build and test the GPS III prototype and build the first two satellites for launch. The contract includes an option for two more.

The Pentagon expects to buy and launch a total of 32 Block III satellites. The Air Force says it will cost about \$5.5 billion to design, build and launch all the satellites and upgrade the ground control systems.

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