

James Webb Space Telescope's ISIM passes severe-sound test

September 3 2015, by Ashley Morrow



The ISIM structure wrapped up and waiting for sound testing in the acoustics chamber at NASA Goddard. Credit: NASA/Desiree Stover

A critical part of NASA's James Webb Space Telescope successfully completed acoustic testing during the week of Aug. 3. The Integrated Science Instrument Module, or ISIM, passed all of the "severe sound" tests that engineers put it through.

The Integrated Science Instrument Module (ISIM) is one of three major elements that comprise the Webb Observatory flight system. The others are the Optical Telescope Element (OTE) and the Spacecraft Element (Spacecraft Bus and Sunshield).

The ISIM was subjected to the acoustic test at NASA's Goddard Space Flight Center in Greenbelt, Maryland. The ISIM was tested at five different [sound](#) levels to demonstrate it could survive the noise and vibrations it will experience when the Webb [telescope](#) is launched in 2018 aboard an Ariane 5 rocket. The sound experienced during launch comes primarily from the solid rocket motors of the launch vehicle.

At Goddard, the engineers use the Acoustic Test Chamber, a 42-foot-tall chamber, with 6-foot-diameter speaker horns to replicate the launch environment. The horns use an altering flow of gaseous nitrogen to produce a sound level as high as 150 decibels for two-minute tests. That's about the level of sound heard standing next to a jet engine during takeoff.

During the acoustics test, the speakers can still be heard outside of its insulated massive metal doors.

Following the acoustics test, the ISIM was pushed back into the Spacecraft Systems Development and Integration Facility (SSDIF) clean room so it could be un-bagged, and inspected. Once engineers made sure the ISIM passed the acoustics test, it was re-bagged and moved to the Electromagnetic Interference or EMI facility for electromagnetic interference testing.

The ISIM is just one of the many Webb telescope components that continue to be tested as the observatory begins to come together this year.



The 6-foot-wide horns in this 42-foot-tall chamber can produce noise at levels as high as 150 dB. Credit: NASA/Chris Gunn



The wrapped up ISIM structure pushed back to the clean room post acoustics-test, to prepare for the EMI test. Credit: NASA/Desiree Stover

More information: For more information about the Webb telescope, visit:

www.nasa.gov/mission_pages/webb/

or www.jwst.nasa.gov/

Provided by NASA

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