

New NASA video serves 'COCOA' to test Webb Telescope component

November 22 2012, by Rob Gutro



NASA's Marshall Space Flight Center in Huntsville, Ala., recently completed testing of COCOA. The work was done in the X-ray and Cryogenic Test Facility. The optical assembly was operated in a vacuum at both room temperature and cryogenic -- or deep cold -- temperatures to certify its performance before it is used to test the performance of Webb's 21.3-foot primary mirror. Credit: NASA Marshall

(Phys.org)—The Center of Curvature Optical Assembly, or COCOA, is a piece of equipment that will measure the accuracy of NASA's James Webb Space Telescope's primary mirror, to ensure the mirrors are perfectly shaped and will work in the frosty environment of space. Viewers can now learn about a certain type of "COCO A" from an engineer in a new behind-the-scenes NASA video that explains the purpose of COCOA and how it is used in testing the mirrors.

The video was filmed at ITT Exelis in Rochester, N.Y. It was produced at NASA Television, located at NASA's Goddard [Space](#) Flight Center in Greenbelt, Md., and runs 1 minute and 46 seconds.

COCO A was built by ITT Exelis of Rochester, N.Y., and its subcontractor Micro Instruments in Rochester, N.Y. Recently, testing on COCOA was completed in the X-ray and Cryogenic Test Facility at NASA's Marshall Space Flight Center in Huntsville, Ala., to ensure that it could stand up to the extremely cold environment that it will experience when it is used to test the Webb's mirrors at NASA's Johnson Space Center in Houston, Texas.

The COCOA contains mechanical and optical instruments that will check the alignment of the Webb telescope's 18 [mirror](#) segments that form the large 21.3-foot (6.5-meter) primary mirror.

COCO A's purpose is to verify the optical performance of the [primary mirror](#) at its 40 degrees Kelvin (-387.67 Fahrenheit, or -233 Celsius) operating temperature. During the optical test at NASA's Johnson Space Center, COCOA will be located inside the cryogenic vacuum chamber along with the Webb's telescope and science instruments.

Once the telescope and the science instruments are assembled together at NASA's Goddard Space Flight Center in Greenbelt, Md., they will be

put into a huge cryogenic vacuum chamber at NASA Johnson. The COCOA will be placed above the Webb's telescope and instruments, near the top of the giant testing chamber, where it will project light onto all of the mirrors and into the instruments to determine if the alignment and curvature of all 18 mirror segments are correct and working together as one large mirror.

The [James Webb Space Telescope](#) is the world's next-generation space observatory and successor to the Hubble Space Telescope. The most powerful space telescope ever built, the Webb telescope will provide images of the first galaxies ever formed, and will explore planets around distant stars. It is a joint project of [NASA](#), the European Space Agency and the Canadian Space Agency.

Provided by NASA

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