

Exploration Portable Life Support System Hatch Component Implementation and Testing

Kristina Todd¹, Nicolas Espinosa², John Hostetler³
Jacobs Technology, Houston, TX, 77058

Cinda Chullen⁴
NASA Johnson Space Center, Houston, TX, 77058

The design for the Exploration Extravehicular Mobility Unit (xEMU) is continuously being developed and many previous gaps in technologies have begun initial development. Various Exploration Portable Life Support System (xPLSS) Hatch components had been at a stall in technology development for many years including the Feedwater Supply Assembly, Trace Contaminant Control System, and the thermal loop filters. The challenging requirements and initial design of these components were previously discussed in “Exploration Portable Life Support System Hatch Component Design Challenges and Progress”. NASA has plans to go back to the Moon. The development of each of these components is relevant not only to the xEMU, but also to the International Space Station, Gateway, and commercial space businesses. As the xPLSS is being designed, built, integrated, and tested at the NASA Johnson Space Center, technology solutions will have a direct incorporation path as the xPLSS is matured to meet design and performance goals. This is a follow on paper to discuss the initial implementation of the hatch component designs, changes due to existing challenges, and performance results of these components as the xEMU project completes the first phase of towards flight, known as Design Verification Test (DVT).

¹ Exploration PLSS Component Owner, Space Suit and Crew Survival Systems Branch, Crew and Thermal Systems Division, 2224 Bay Area Blvd/EC5

² Exploration PLSS Deput Component Manager, Space Suit and Crew Survival Systems Branch, Crew and Thermal Systems Division, 2224 Bay Area Blvd/EC5

³Exploration PLSS Component Owner, Space Suit and Crew Survival Systems Branch, Crew and Thermal Systems Division, 2224 Bay Area Blvd/EC5

⁴Exploration PLSS Component Manger, Space Suit and Crew Survival Systems Branch, Crew and Thermal Systems Divions, 2101 NASA Parkway/EC5