

Z-2 Space Suit: A Case Study in Human Spaceflight Public Outreach

S. M. McFarland¹

¹MEI Technologies, shane.m.mcfarland@nasa.gov

NASA Johnson Space Center's Z-series of planetary space suit prototypes is an iterative development platform with a Mars-forward design philosophy, targeting a Mars surface mission in the mid-2030s. The first space suit assembly, called the Z-1, was delivered in 2012. While meeting the project's stated requirements and objectives, the general public's reception primarily focused on the color scheme, which vaguely invoked similarity to a certain animated cartoon character. The public at large has and continues to be exposed to varying space suit design aesthetics from popular culture and low TRL technology maturation efforts such as mechanical counterpressure. The lesson learned was that while the design aesthetic is not important from an engineering perspective, the perception of the public is important for NASA and human spaceflight in general. For the Z-2 space suit, an integrated public outreach strategy was employed to engage, excite and educate the public on the current technology of space suits and NASA's plans moving forward. The keystone of this strategy was a public vote on three different suit cover layer aesthetics, the winner of which would be used as inspiration in fabrication. Other components included social media, university collaboration, and select media appearances, the cumulative result of which, while intangible in its benefit, was ultimately a positive effect in terms of the image of NASA as well as the dissemination of information vital to dispelling public misconceptions.