

4-2-2012

The Effects of Space Environment on Wireless Communication Devices' Performance

Hillyard Landon

JR Dennison
Utah State University

Follow this and additional works at: https://digitalcommons.usu.edu/mp_post

 Part of the [Physics Commons](#)

Recommended Citation

Landon, Hillyard and Dennison, JR, "The Effects of Space Environment on Wireless Communication Devices' Performance" (2012). US Student Showcase 2012, Utah State University, Logan, UT. *Posters*. Paper 18.
https://digitalcommons.usu.edu/mp_post/18

This Poster is brought to you for free and open access by the Materials Physics at DigitalCommons@USU. It has been accepted for inclusion in Posters by an authorized administrator of DigitalCommons@USU. For more information, please contact dylan.burns@usu.edu.





2012 USU Student Showcase

The Effect of Space Environment on Wireless Communication Devices' Performance

Landon Hillyard ¹
[Mentor: JR Dennison²]

¹*Get-Away-Special Team
Mechanical & Aerospace Engineering
Utah State University*

²*Materials Physics Group
Physics Department
Utah State University*

Abstract

This project evaluates the effects of the space environment on small radio hardware devices called Bluetooth (a proprietary open wireless technology standard for exchanging data over short distances) chips (hoovers). When electronics are exposed to the harsh environment outside the Earth's atmosphere, they sometimes do not perform as expected. The USU Getaway Away Special (GAS) team is now in the design stages of launching a CubeSat (a 10 cm cubed autonomous satellite to fly in Low Earth Orbit). In order to conduct experiments proposed for the USU GAS Cubesat, Bluetooth wireless communication will be used. By testing commercially available hardware in appropriate custom configurations, the reliability and quality of the CubeSat experiments will be greatly improved. The project funding will purchase enough Bluetooth hardware chips to test survivability when exposed to 100-1000 rads, a temperature range from -20°C to 100°C, and a pressure of 10^{-5} Torr to 10^3 Torr.