

SPACE POWER SYMPOSIUM (C3)
Space Power Experiments Applications and Benefits (4)

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RESULTS FROM NASA'S POWER BEAMING CHALLENGE.

Abstract

The Power Beaming Challenge is one of NASA's Centennial Challenges. The goal of the challenge is a practical demonstration of wireless power transmission. Teams build mechanical devices (climbers) that can propel themselves up a vertical cable. The power supply for the device is not self-contained but remains on the ground. The technical challenge is to transmit the power to the climber and transform it into mechanical motion, efficiently and reliably. NASA is interested in power-beaming technology for a variety of purposes including remotely powering rovers and instruments on the moon. On Earth, the technology might supply communities with power following natural disasters. There also are potential applications for power beaming for airships, satellites and space transportation, including the space elevator concept. NASA recently awarded 900,000 dollars in prize money to LaserMotive of Seattle, Washington. They successfully demonstrated wireless power transmission that enabled a robotic device to climb 1-km straight up a vertical cable with an average speed of 8.7 mph over a four minute period. This paper summarizes the technologies and innovations that have been demonstrated by the competitors in the Power Beaming Challenge.