Testing shows using microwaves to propel a craft into space might work

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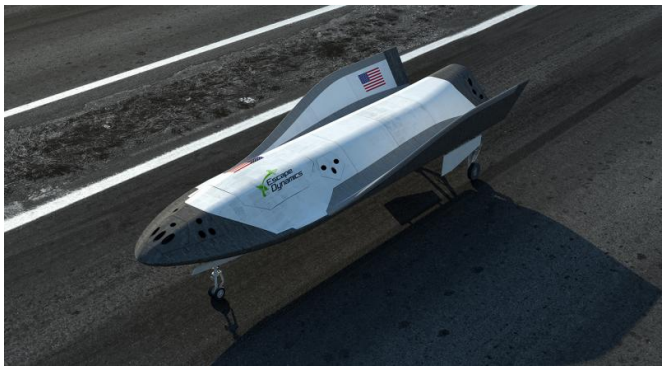

A team of researchers at Colorado based Escape Dynamics is reporting that initial tests indicate that it might really be possible to launch space-planes into space using microwaves sent from the ground, to allow for a single stage spacecraft. If the idea pans out, the cost savings for sending satellites (or perhaps humans) into orbit could be considerable.

Today's rockets are all based on the same idea, a multi-stage rocket is used, each part filled with propellant that pushes the rocket into space as the propellant is burned. It is a really expensive way to go because the propellant is extremely heavy. ED's idea is to use microwaves beamed from the ground to heat hydrogen carried by the space-plane to push the craft into space, a much more efficient approach. They are reporting that testing done at their facility shows that the idea might be possible.

The testing involved building a thruster that operates on the ground and then testing to see how much thrust is generated—the team is reporting that they achieved a specific impulse of 500 seconds when using helium, and believe that when they switch to hydrogen that number will jump to 600 seconds—enough, they claim, to push a small craft into space.

With a real space plane, the microwaves would strike the heat shield on the bottom of the craft (both at liftoff and as it made its way into space) powering an electromagnetic motor which in turn would heat hydrogen as it was released from a tank—the result would be pushed through a nozzle, resulting in thrust. Once in orbit the plane would stay aloft long enough to deploy a satellite, then glide back down to Earth. The trick here is that the entire system does not have to be efficient, just the craft itself. The microwave array would be powered by electricity, generated by any number of means, down here on Earth.

There are of course still a number of hurdles to pass before the idea can be deemed viable—the microwave array would have to prove strong enough and able to maintain tracking of the craft as it climbed into space, likely the main ones. There might also be safety issues surrounding the firing of such a massive amount of microwaves into space. On the other hand, if the idea proves viable, it could mean sending satellites into orbit for a fraction of the cost of today's systems.