New device increases the efficiency and reduces the cost of telecommunication satellites

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Researchers at Valencia's Polytechnic University (UPV), working for the Telecommunications and Multimedia Applications Institute (iTEAM),

have developed a new device that increases the efficiency of satellites while reducing their cost. It is a prototype of a radiant cell that incorporates the four traditional beams from satellites with multibeam technology. These signals are currently emitted by four antennas, each with their own reflective systems; the device designed by the iTEAM groups them together in a single piece of equipment.

Patented by the UPV, the device is capable of providing bidirectional broadband communications. This will make it possible to solve the weight problems of satellites by reducing their mass. Furthermore, it reduces the location design burdens of traditional antennas and reflectors, which typically represent an added difficulty in satellites.

As researcher Marco Guglielmi says, "The novelty of this structure is that it usually consists of an input and output with coaxial cables, and we have done the input with a cable, but the output is left open. We have transformed a filter into an antenna."

The small device emits the four beams that the cumbersome conventional antennas emit, without affecting the satellite's signal. "The area it would cover would be exactly the same as current systems, but would do so with a fourth of the antennas," says Mariano Baquero, researcher at the iTEAM-UPV.

In addition to satellites, the device can be applied to a number of antenna hardware platforms, as well as other technologies. For example, it could be applied to any space communication system, or any system that requires an antenna that can generate several separate beams with a single output.

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