Give a name to ESA's zone of silence

March 31 2014

ESA's Compact Payload Test Range for antenna testing. Metal walls screen outside radio signals while spiky foam interior cladding absorbs radio signals internally to create conditions simulating the infinite void of space. Credit: ESA-Anneke Le Floc'h

Kept isolated from the external Universe, a special ESA chamber simulates the boundless emptiness of space for testing satellite antennas. Recently refitted, it is in need of a new name. Come up with a winning suggestion and you can visit it for yourself.

Long sporting the workaday name of Compact Payload Test Range, this chamber at ESA's technical heart in the Netherlands is a crucial part of the Agency's ability to check antennas attached to complete five-tonne satellites.

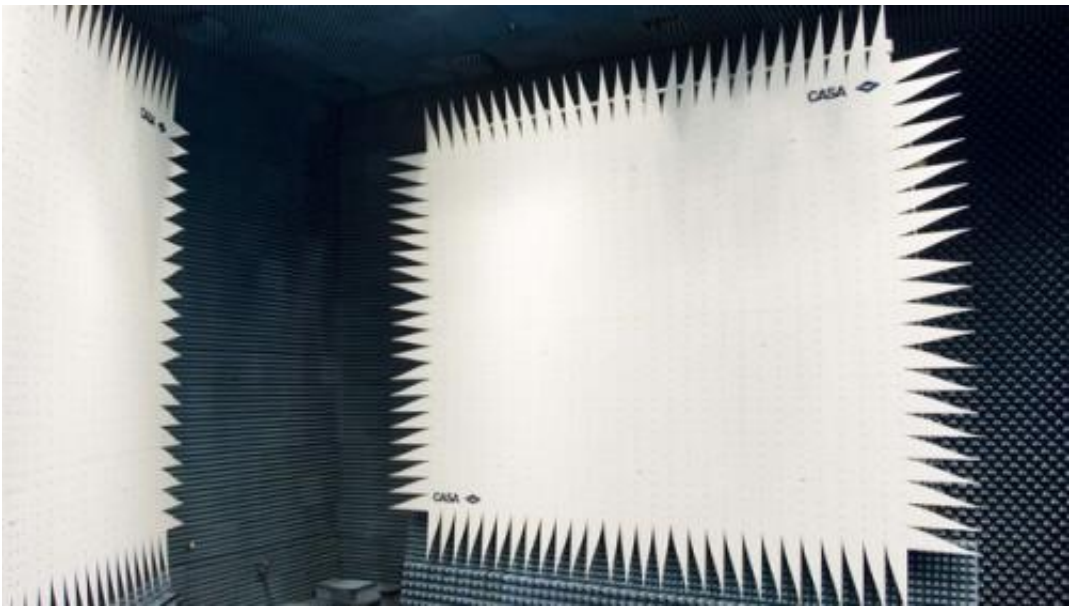
Metal walls block out all external electromagnetic signals such as TV and radio, radar and even mobile phone calls. And the chamber's interior walls are clad with spiky 'anechoic' foam cladding to absorb radio signals internally.

A lot of internal noise is similarly absorbed – making for a notably hushed workplace as engineers prepare items for testing, most recently ESA's latest Galileo satellites.

The Range is more than 25 years old, but bearing in mind the needs of future ESA missions it was recently refitted," explains Luis Rolo, overseeing the facility.

""It has now become one of the few antenna test ranges in the world able to measure the performance of large antennas using near-field and far-field techniques inside the same anechoic chamber.

"Most equivalent sites focus on one measurement type or the other. So we are looking for a new name to reflect this new dual capability."



ESA's Compact Payload Test Range for satellite antenna testing incorporates a pair of carefully shaped carbon fibre reflectors that transform the spherical expanding radio signals coming to or from the satellite into a straight signal beam as though from far away in space. This feature means that ‘far-field’ measurements equivalent to long-range testing can be reliably carried out even in a chamber of limited size – which is where the ‘compact’ in the name comes from. Credit: ESA

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Then, last year, the Range gained a state-of-the-art 'near-field scanner' to measure the electromagnetic fields in the immediate vicinity of a test antenna or complete satellite. Either the scanner or the test item itself

can be moved to build up a complete map of its 'near-field' radiation patterns.

"These near-field measurements can then be mathematically processed to model their equivalent far-field performance," adds Luis. "Both classes of testing can cover a broad range of frequencies, offering huge versatility to our internal and external customers."

Suggest a name

The competition to suggest a name is open to any citizen of ESA's Member States. Just email your suggestion plus a short explanation to estecpr(at)esa.int, including 'COMPETITION' in the header.

The winning suggestion will receive a tour of ESTEC, including the Range, and a collector's copy of the large format photo-book, *The ESA Effect*.

Provided by European Space Agency

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