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MOON FARSIDE, QUIET CONE AND THE "RLI" EXPERIMENT

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The Farside of the Moon is a unique place. Radio emissions coming from the Earth, and notably from Telecommunication Satellites orbiting the Earth, don't get there since shielded by the Moon's spherical body. A radio telescope placed inside Crater Daedalus (just at the center of the Farside) would thus sense no man-made RFI (Radio Frequency Interference) and would be ideal for all radio astronomical and SETI searches.

Above the Farside, a conical region extends into space, the "Quiet Cone", tangent to the Moon surface and with apex a few thousands of kilometers above the Moon. The size of the Quiet Cone, however, is only vaguely known, and changes in time, because the orbits of secret military satellites around the Earth are of course unknown. The only way to know the current, actual size of the Quiet Cone is to send a radiometer into orbit around the Moon and find out where the RFI coming from the Earth is actually shielded and where it is not.

The RLI Experiment (RLI is an acronym for "Radiometro Lunare Italiano", i.e. Italian Moon Radiometer), is currently under construction by an Italian team coordinated by this author as Principal Investigator. The RLI is hopefully going to be put into orbit around the Moon before 2007. This will be done by placing the RLI radiometer aboard the "Trailbalzer", the first American commercial Moon spacecraft, built by

TransOrbital Inc..

The RLI Experiment will take direct measurements of the intensity of man-made RFI around two frequencies:

1. The band in between 10.7 and 11.8 GHz (main frequency band of European TV transmissions and, in part, also of American TV transmissions) and

2. The band in between 10 Hz and 10 kHz, to get a Fourier spectrum of the very thin Moon atmosphere.

A scientific and technical description of the RLI mission is given in this paper.