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SOLSPEC measurement of the solar absolute spectral irradiance from 165 to 3080 nm on board the International Space Station

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Three instruments will be operated on board a sun-oriented platform placed on the COLOMBUS laboratory on the International Space Station launch foreseen in February). These three instruments constitute a payload named SOLAR measuring the total and spectral solar irradiance from 16 to 3080 nm for solar, atmospheric and climatology physics. The absolute spectral irradiance and its variation are keys input for the understanding of the main properties of the planetary atmospheres such as the composition, thermal structure and dynamics. Climate physics also requires the precise knowledge of the solar spectrum variation in the field of research of the sun-climate connection. Given the significant improvements in atmosphere as well as solar modeling, increased accuracy data are needed. One instrument will measured the Total Solar Irradiance, while the two other will measure the solar spectrum. SOLSPEC objectives is the measurement of the absolute spectral irradiance and its variability from 165 to 3080 nm with the best today achievable accuracy. SOLSPEC has been developed by Service d'Aéronomie (France), Institut d'Aéronomie Spatiale (Belgique), and Landessternwarte (Germany). The instrument is composed of three double spectrometers using concave gratings, including reference sources to check its stability during the three-year mission. SOLSPEC benefits of the heritage of a similar instrument, which flew five times in space (SL1, ATLAS 1-2-3 and EURECA). It has been recently calibrated by using the black-body of the Physikalisch-Technische Bundesanstalt (PTB), Braunschweig. A 1% accuracy is expected given the quality of the calibration measurements and some other important instrument characterization results. The first spectra obtained in orbit will be shown and compared to the most other

similar measurements. An estimate of the achieved accuracy will be given.