

TL Measurements Onboard the ISS with the Pille TLD System (Expedition 15 and 16)

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The original Pille system was developed by KFKI AEKI in the late 1970's and was used by the first Hungarian cosmonaut, Bertalan Farkas, in 1980 during his flight aboard the Russian Salyut-6 orbital station. Pille was the first and to date the only TLD system designed specifically for use by cosmonauts and astronauts while traveling in space. Since the first time it was launched, the Pille system has worked onboard every space station.

The Pille TL dosimeter system has been continuously used on board the International Space Station since October 2003 under the supervision of the Institute for Biomedical Problems (IBMP) as the service dosimeter system of the Russian Zvezda module. In the past nearly five years the dosimeter system was utilized for routine dose measurements inside the ISS, and as personal dosimeter system during EVAs. With the system consisting of a lightweight reader device and ten small, durable dosimeters, about 20 000 read-outs were carried out until now. The Pille system provides monthly dose data from seven locations of the space station, while two dosimeters are dedicated to EVA measurements, and one is read out in every 90 minutes to provide high time resolution data.

The measurement data (including several EVA measurements) from the latest expeditions (Expedition 15 and 16, April 2007 – April 2008) obtained by the Pille system will be presented. The results will be compared with previous measurement results.