

Using the ISS to Prepare for Exploration (01)  
Poster Session (P)

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ISS-BASED DEMONSTRATION OF HIGH RESOLUTION COMPACT FTIR SPECTROMETER  
MODULE

**Abstract**

ABB is currently studying the implementation of a mission that would allow maturing the technology readiness level of a compact FTIR platform by conducting measurements outside the International Space Station. The module to be tested in space incorporates recent technologies used in ABB's commercial line of spectrometers. These include monolithic cube corner, fiber linked laser metrology, compact/low power control and data compression electronics. This spectrometer platform is based on a Michelson interferometer that supports a beam aperture of 25 mm and a divergence of a few degrees. It can cover a very broad band spectral region extending roughly from 625 to 16 600  $\text{cm}^{-1}$  (0.6 to 16  $\mu\text{m}$ ) or be optimized over a narrower band depending on the science goals and the choice of detector. Its maximum spectral resolution is 0.25  $\text{cm}^{-1}$  of sampling interval. This leads to as much as 60 000 spectral points if used over its full waveband. The current phase aims at defining the most suitable configuration for the demonstration and to clarify implementation aspects such as location, interfaces, data transfer, and need for human intervention. The demonstration mission is to be feasible within a budget of 10M.