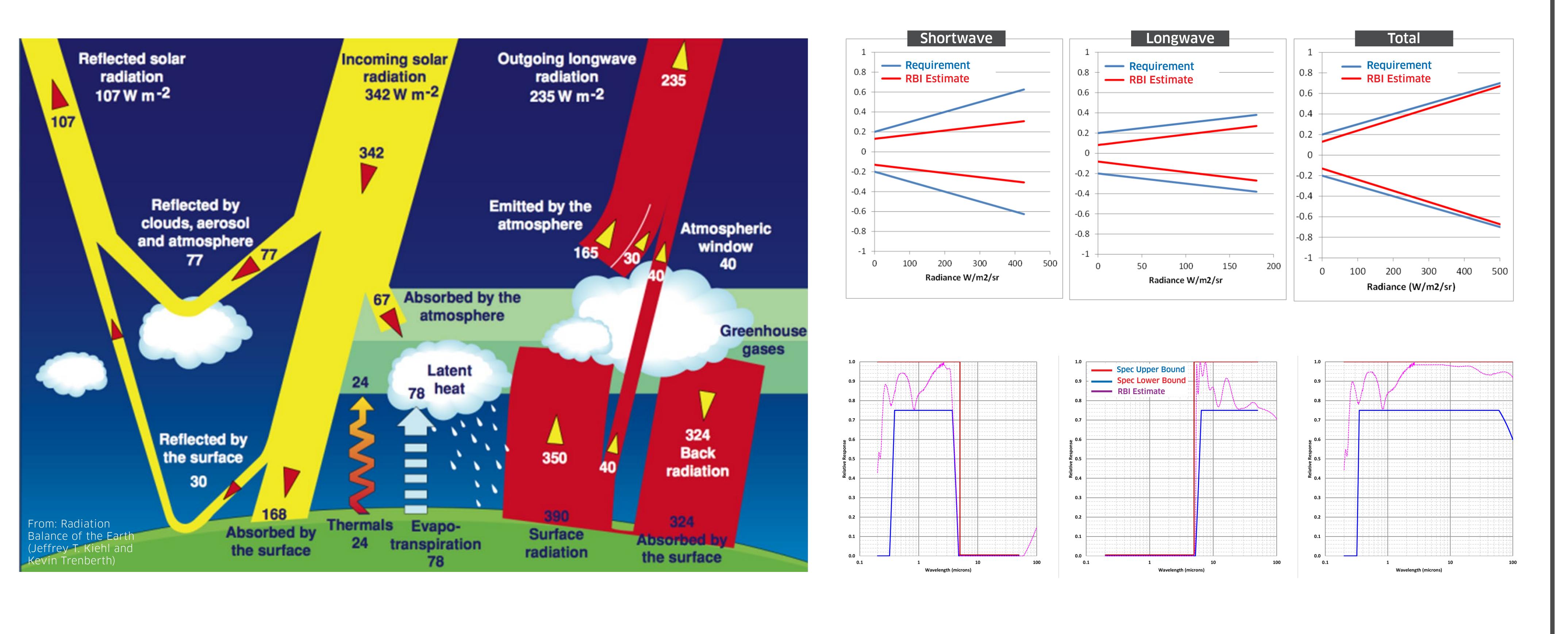
The Radiation Budget Instrument (RBI): A New Standard for Measuring the Earth's Radiation Balance

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RBI is the next generation of ERBE/CERES instruments. It measures upwelling Earth radiance (left) over an extremely broad spectral range, from ultraviolet (0.3 microns) to far-infrared (100 microns), separated into three spectral bands. RBI includes advanced onboard calibration sub-systems to ensure the radiometric accuracy and spectral responsivity needed to fulfill the radiation balance mission (right).



Calibration Features for Superior Mission Performance

| Science Need | RBI Design Fea |
|---|-----------------------|
| > Earth Radiation Budget Model Validation | Ground tests at |
| > Trending of Radiation Budget Elements | Two IR (Infrared |
| | Radiometer. Sol |
| > Measurement Consistency of Radiation Budget | Multiple calibra |
| | - Total and LV |
| | - Total and SV |
| > Accurate Measurements Over Mission Life | Multiple-wavele |
| | on-orbit |
| > Reliable Data | Fully Redundan |

atures to Address Science Need

t Space Dynamics Laboratory (SDL) using precision NIST-traceable sources

ed) targets with phase change cells. Shortwave calibration target with Electric Substitution olar and lunar calibration capabilities

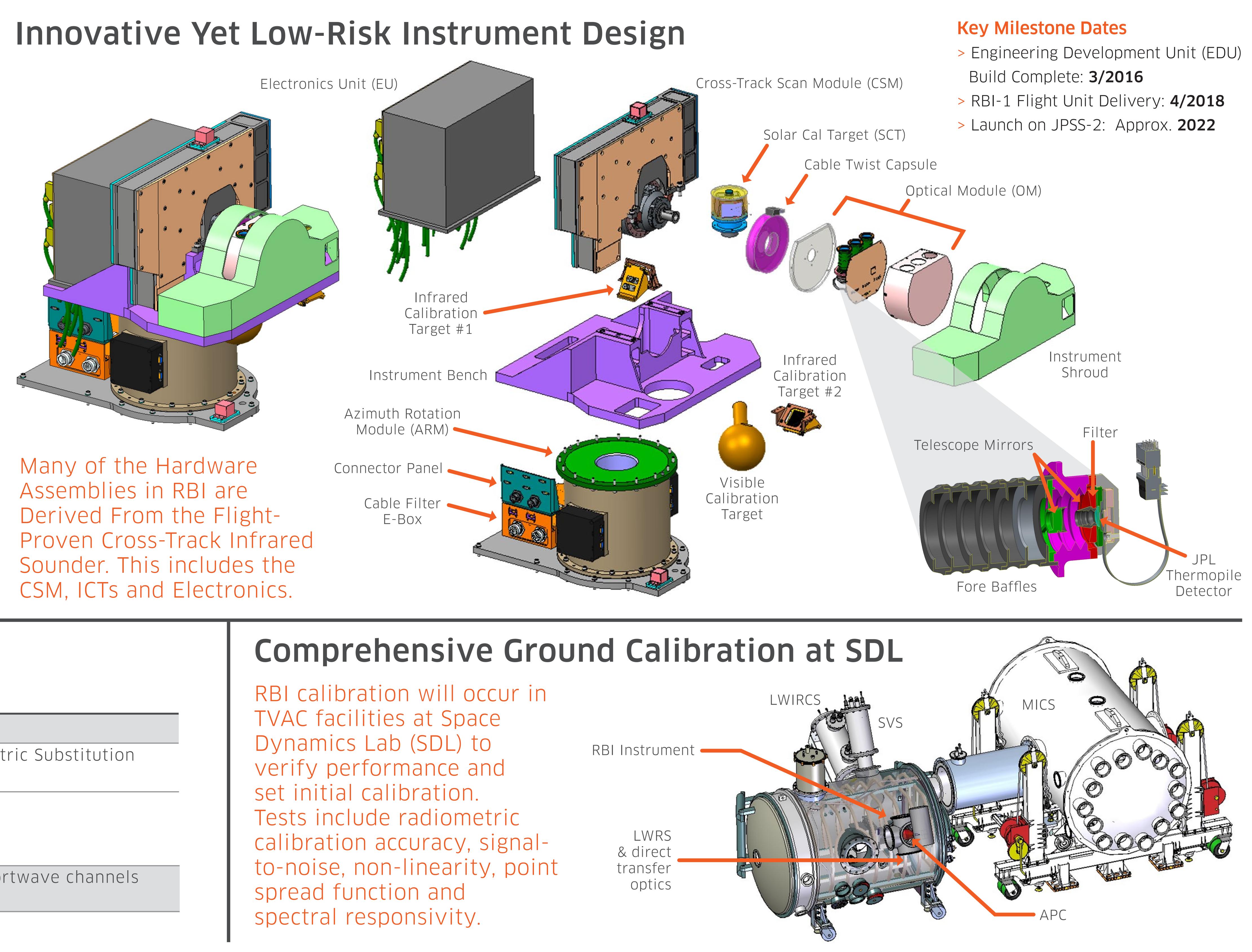
ration targets provided long term consistency across the channels

_W view same IR target

SW view same SW target and solar diffuser

ength SW calibration target (375 to 1500 nm) characterizes Total and Shortwave channels

ant Detectors and Electronics



| Comprehensive | Ground | Cal |
|---------------|--------|-----|
|---------------|--------|-----|



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