The ACES mission and its microwave link

The ACES payload includes:
- a cesium atomic clock (PHARAO)
- an active hydrogen maser (SHM)
- a GNSS receiver for precise orbit determination
- Frequency Comparison and Distribution Package (FCDP) for local comparison of the onboard clocks and generation of the onboard timescale
- a MicroWave Link (MWL) using both code-phase and carrier-phase measurement.

The MicroWave Link (MWL) will be used for space-ground time and frequency transfer. A time transfer is the ability to synchronize distant clocks, i.e. determine the difference of clock frequencies for a given coordinate time. The link is asynchronous: a configuration can be chosen by interpolating observables. The so-called $\Delta$-configuration minimizes the impact of the space clock orbit error on the determination of the desynchronisation [3].

The ACES Micro-wave Link data analysis status update

The ACES Micro-wave Link (MWL): one uplink (Ku-Band) and two downlinks (Ku and S-Band). MWL hardware developed by TimeTech GmbH.

The ACES payload

The ACES Micro-wave Link data analysis status update

The ACES mission and its microwave link

The ACES payload includes:
- a cesium atomic clock (PHARAO)
- an active hydrogen maser (SHM)
- a GNSS receiver for precise orbit determination
- Frequency Comparison and Distribution Package (FCDP) for local comparison of the onboard clocks and generation of the onboard timescale
- a MicroWave Link (MWL) using both code-phase and carrier-phase measurement.

The MicroWave Link (MWL) will be used for space-ground time and frequency transfer. A time transfer is the ability to synchronize distant clocks, i.e. determine the difference of clock frequencies for a given coordinate time. The link is asynchronous: a configuration can be chosen by interpolating observables. The so-called $\Delta$-configuration minimizes the impact of the space clock orbit error on the determination of the desynchronisation [3].

The ACES Micro-wave Link data analysis status update

The ACES mission and its microwave link

The ACES payload includes:
- a cesium atomic clock (PHARAO)
- an active hydrogen maser (SHM)
- a GNSS receiver for precise orbit determination
- Frequency Comparison and Distribution Package (FCDP) for local comparison of the onboard clocks and generation of the onboard timescale
- a MicroWave Link (MWL) using both code-phase and carrier-phase measurement.

The MicroWave Link (MWL) will be used for space-ground time and frequency transfer. A time transfer is the ability to synchronize distant clocks, i.e. determine the difference of clock frequencies for a given coordinate time. The link is asynchronous: a configuration can be chosen by interpolating observables. The so-called $\Delta$-configuration minimizes the impact of the space clock orbit error on the determination of the desynchronisation [3].

The ACES Micro-wave Link data analysis status update

The ACES mission and its microwave link

The ACES payload includes:
- a cesium atomic clock (PHARAO)
- an active hydrogen maser (SHM)
- a GNSS receiver for precise orbit determination
- Frequency Comparison and Distribution Package (FCDP) for local comparison of the onboard clocks and generation of the onboard timescale
- a MicroWave Link (MWL) using both code-phase and carrier-phase measurement.

The MicroWave Link (MWL) will be used for space-ground time and frequency transfer. A time transfer is the ability to synchronize distant clocks, i.e. determine the difference of clock frequencies for a given coordinate time. The link is asynchronous: a configuration can be chosen by interpolating observables. The so-called $\Delta$-configuration minimizes the impact of the space clock orbit error on the determination of the desynchronisation [3].

The ACES Micro-wave Link data analysis status update

The ACES mission and its microwave link

The ACES payload includes:
- a cesium atomic clock (PHARAO)
- an active hydrogen maser (SHM)
- a GNSS receiver for precise orbit determination
- Frequency Comparison and Distribution Package (FCDP) for local comparison of the onboard clocks and generation of the onboard timescale
- a MicroWave Link (MWL) using both code-phase and carrier-phase measurement.

The MicroWave Link (MWL) will be used for space-ground time and frequency transfer. A time transfer is the ability to synchronize distant clocks, i.e. determine the difference of clock frequencies for a given coordinate time. The link is asynchronous: a configuration can be chosen by interpolating observables. The so-called $\Delta$-configuration minimizes the impact of the space clock orbit error on the determination of the desynchronisation [3].

The ACES Micro-wave Link data analysis status update

The ACES mission and its microwave link

The ACES payload includes:
- a cesium atomic clock (PHARAO)
- an active hydrogen maser (SHM)
- a GNSS receiver for precise orbit determination
- Frequency Comparison and Distribution Package (FCDP) for local comparison of the onboard clocks and generation of the onboard timescale
- a MicroWave Link (MWL) using both code-phase and carrier-phase measurement.

The MicroWave Link (MWL) will be used for space-ground time and frequency transfer. A time transfer is the ability to synchronize distant clocks, i.e. determine the difference of clock frequencies for a given coordinate time. The link is asynchronous: a configuration can be chosen by interpolating observables. The so-called $\Delta$-configuration minimizes the impact of the space clock orbit error on the determination of the desynchronisation [3].