

IAF SPACE OPERATIONS SYMPOSIUM (B6)
Ground Operations - Systems and Solutions (1)

Author: Mr. Hamad Alhazami

Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates, hamad.alhazami@mbrsc.ae

Mr. Mahmood AlNasser

Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates, Mahmood.AlNasser@mbrsc.ae

EMIRATES MARS MISSION (GROUND SEGMENT) – ENABLING MAXIMUM SCIENCE RETURN
THROUGH THE EFFICIENT USE OF RE-TRANSMIT REQUESTS**Abstract**

The United Arab Emirates (UAE) announced the Emirates Mars Mission (EMM), the first deep space mission in the history of the Middle East and North Africa region in 2014. The mission targets making unique and important discoveries that contribute to the ongoing work of the global space science community, through sending an unmanned probe, called Hope Probe to Mars. The Hope Probe is to be launched in July 2020 and is set to reach Mars by 2021, which marks the UAE's 50th anniversary. The Hope Probe will carry 3 payloads to study the Martian atmosphere named EXI, EMUS, and EMIRS. Emirates eXploration Imager (EXI) will measure the properties of water ice and abundance of ozone in Mars' atmosphere using a visible imager. Emirates Mars Ultraviolet Spectrometer (EMUS) will measure the global characteristics of hydrogen and oxygen coronae. Emirates Mars InfraRed Spectrometer (EMIRS) will measure the global thermal structure and abundances of water ice, and water vapor in Mars' atmosphere. To ensure the maximum science return from the Hope Probe, the Mission Operations team developed a unique software tool, called Solid State Recorder (SSR) Accounting that accounts data received from the observatory after performing an SSR playback during a ground contact. The SSR Accounting tool performs the accounting process on SSR partitions by tracking incomplete or corrupted page addresses. The tool will subsequently generate a retransmit request to replay missing page addresses. The retransmit request generation process is designed to be in an optimized manner to prevent inefficient retransmitting.