

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
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THE DESIGN, IMPLEMENTATION AND CONSTRUCTION OF CHINA'S FIRST LOX+LCH4
PROPELLANT BASED COMMERCIAL LAUNCH COMPLEX**Abstract**

Liquid-oxygen and liquid-methane (LOX+LCH₄ or Metha-LOX) propellant based launch complex is an important infrastructure and project for the Chinese first Metha-LOX based commercial launch vehicle named "Zhuque-2 (ZQ-2)", to implement its launch campaign. ZQ-2 is the Chinese first 2-stage liquid-fuel medium-size commercial launch vehicle under development, based on the bi-propellant Metha-LOX cryogenic propulsion system. The system scheme design of ZQ-2 has been completed since 2018 and the prototype design is under way. The first flight of ZQ-2 will be launched at the end of the year 2021 according to its development schedule. As none of the currently existing Chinese launch complex can meet the system launch operation request of the ZQ-2 launcher, a full new commercial launch complex for the Metha-LOX launchers is planned to be designed, implemented and constructed within the Chinese Jiuquan Satellite Launch Centre in China for the ZQ-2 launcher. The paper introduces the location selection criteria, mission capacity and throughput, the relevant launchers' test and launch mode, design and construction progress of the subject newly-built launch complex. The consideration of range safety, traffic conditions, natural and cultural environment and other factors in the launch complex location selection has been referral. This launch infrastructure will provide the spacecraft access to SSO and LEO

from a favorable location, with a mission throughput of no less than 12 times per year in the initial operational period. The complex can be used not only for the ZQ-2 series of launchers, but also for other LOX+LCH₄ rockets in cooperation with other commercial partners. The facility will be used for ZQ-2 launcher's launch campaign, including the system test and the launch execution. Construction has begun on the launch complex, and it will be China's first commercial rocket dedicated launch facility and the world's first LOX+LCH₄ rocket launch complex, to be expected in accomplishment in mid-2021.