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INTER-SATELLITE COMMUNICATION FOR NANOSATELLITES - ADVANCED
COMMUNICATION TECHNOLOGIES AND FREQUENCY SCHEMES REQUIRED FOR SCALING
TO LARGE CONSTELLATIONS**Abstract**

The nanosatellite demonstration mission called GOMX-4 consists of two Nanosatellites (GOMX-4A and GOMX-4B) each carrying several payloads for demonstration purpose. The two satellites are based on the Gomspace 6U nanosatellite platform. Both satellites are carrying a S-band Inter-Satellite Link (ISL) System based on the Gomspace Software Defined Radio (SDR) platform and the High-Speed Link (HSL) likewise based on the Gomspace SDR platform. It is one of the main goals of the GOMX-4 mission to demonstrate the feasibility and characterize the ISL communication at different separation distances. During the ISL in-orbit demonstration, the link performance is monitoring applying various conditions in data rates and different distances up to 4500km. Additionally, different coding and modulation schemes shall be tested to optimize the link performance for future applications in nanosatellite constellations and formation flying. The results gained from the in-orbit experiments with the GOMX-4 inter-satellite communication will be presented. Further the focus for the presentation will be on the advanced communication technologies and frequency schemes that needs to be considered to scale to larger nanosatellite constellations and autonomous operation.