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Author: Dr. Yasushi MUNEMASA

National Institute of Information and Communications Technology (NICT), Japan, munemasa@nict.go.jp

Dr. Yoshihiko Saito

National Institute of Information and Communications Technology (NICT), Japan, saitoys@nict.go.jp

Dr. Alberto Carrasco-Casado

National Institute of Information and Communications Technology (NICT), Japan, alberto@nict.go.jp

Dr. Dimitar Kolev

National Institute of Information and Communications Technology (NICT), Japan, dkolev@nict.go.jp

Dr. Phuc V. Trinh

National Institute of Information and Communications Technology (NICT), Japan, pvtrinh@nict.go.jp

Dr. Hideki Takenaka

National Institute of Information and Communications Technology (NICT), Japan, take@nict.go.jp

Mr. Koichi Shiratama

National Institute of Information and Communications Technology (NICT), Japan, shiratama@nict.go.jp

Mr. Kenji Suzuki

National Institute of Information and Communications Technology (NICT), Japan, bt_kenji@nict.go.jp

Dr. Toshihiro Kubooka

NICT, Japan, toshi.kubooka@nict.go.jp

Dr. Tetsuharu Fuse

NICT, Japan, tetsu.fuse@nict.go.jp

Mr. Hiroo Kunimori

NICT, Japan, kuni@nict.go.jp

Mr. Yasuhiro Takahashi

National Institute of Information and Communications Technology (NICT), Japan, yasu@nict.go.jp

Dr. Morio Toyoshima

National Institute of Information and Communications Technology (NICT), Japan, morio@nict.go.jp

RESEARCH AND DEVELOPMENT STATUS FOR SUB-SYSTEM ASSEMBLY AND INTEGRATION
TEST ON ENGINEERING TEST SATELLITE 9 HIGH-SPEED LASER COMMUNICATIONS
MISSION, "HICALI"

Abstract

Recently, satellite broadband communication services using Ka-band are emerging all over the world, some requiring capacities in excess of 100 Gbps. With the radio bandwidth resources becoming exhausted, high-speed optical communications can be used instead to achieve ultra-broadband communications. The National Institute of Information and Communications Technology (NICT) in Japan has over 20 years of experience in RD of space laser communications with missions such as the Engineering Test Satellite VI (ETS-VI), OICETS, and SOCRATES/SOTA. We are currently developing a laser communication terminal named "HICALI" (High speed Communication with Advanced Laser Instrument), aiming to achieve 10 Gbps-class space communications with a 1.5 m-band laser beam between optical ground stations (OGSs) and the next-generation high-throughput satellite called ETS-9 with a hybrid on-board communication

system using radio and optical frequencies, which will be launched into the geostationary orbit in 2022. The communication sub-systems are under manufacture for assembly and integration test. In this paper, we describe the research and development status of “HICALI” mission for ETS-9.