



Space Dynamics
LABORATORY
Utah State University Research Foundation

FCC FORM 442: Exhibit A

TEISIT Project Description

Submitted To:

Federal Communications Commission
Office of Engineering and Technology

Submitted By:

Space Dynamics Laboratory
Utah State University Research Foundation
1695 North Research Park Way
North Logan, Utah 84341

DOCUMENT NUMBER: SDL/14-278
REVISION: A
DATE: JULY 7, 2015

TABLE OF CONTENTS

1. INTRODUCTION.....	1
2. GOVERNMENT PROJECT DESCRIPTION.....	1
2.1 JUSTIFICATION FOR COMMUNICATIONS SYSTEM.....	1
2.2 DESCRIPTION OF OPERATION.....	2
2.3 PROPOSED LOCATION.....	2
3. CONTACT INFORMATION.....	2

1. INTRODUCTION

The Space Dynamics Laboratory (SDL) of the Utah State University Research Foundation submits this document as Exhibit A of FCC Form 442 and in accordance with Section 5.3(b), (d) and (h) of CFR Title 47 for the purpose of testing technologies under a government contract. The specific equipment requiring approval is a Mini CDL 200 data link produced by L-3 Communications. SDL respectfully requests a modification to its previously granted license, call sign WH2XDZ. The modification is to add a second location of operation. This document provides a description of the government project and justification for the use of the communication system.

2. GOVERNMENT PROJECT DESCRIPTION

SDL is contracted (Contract No. N00173-12-D-2004) by the Naval Research Laboratory (NRL) to support the Tactical EO/IR, SIGINT Integrated for Targeting (TEISIT) program, which is funded and managed by the Office of Naval Research (ONR). The objective of the TEISIT program is to develop an integrated EO/IR/SAR/SIGINT payload for autonomous collection of multi-intelligence data from a Tier II Unmanned Aerial System (UAS) and deliver it to the tactical warfighter.

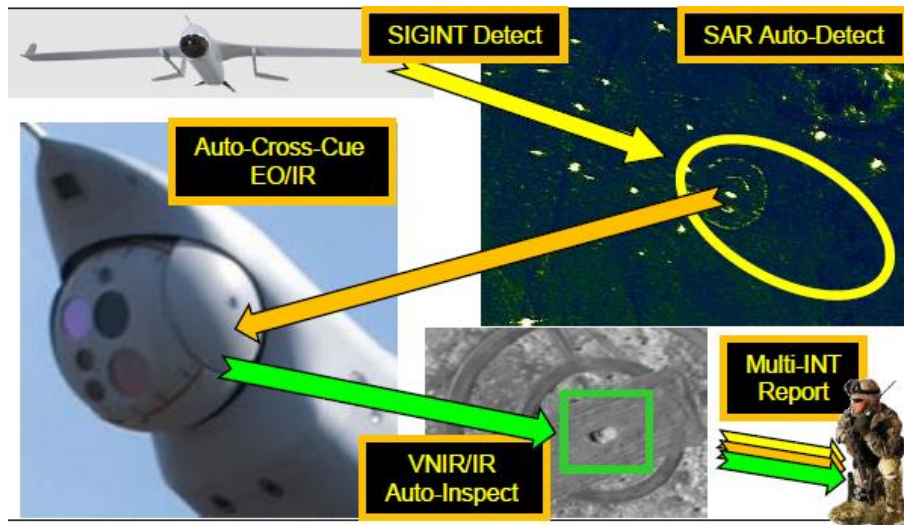


Figure 1. This diagram illustrates the operational concept of the TEISIT program.

2.1 JUSTIFICATION FOR COMMUNICATIONS SYSTEM

A critical part of testing the operational concept is to employ a communications system linking the airborne system to the ground station. This is done with a Mini CDL 200, a bi-directional Ku-band data link designed for military use. Many of the technologies being developed require the communication for proper testing and demonstration to a customer. These technologies include data dissemination, real-time data display and analysis, and remote sensor command and control. The Mini CDL specifically is necessary because of its interoperability with military

systems both present and future. It also fits the required size, weight, and power constraints of a Tier II UAS. In an application of this type, using an existing facility is not feasible.

2.2 DESCRIPTION OF OPERATION

Testing and demonstration under the TEISIT program employs an airborne Mini CDL 200 and a static Mini CDL 200 on the ground. The airborne system uses an omni-directional antenna and the ground system uses a directional dish antenna that tracks the aircraft position. The aircraft follows a pre-planned flight path designed to meet the objectives of the test. The ground system is setup at a temporary location within link range (30 km slant range) of the flight path. The two systems are only operational and transmitting during the flight test, which can last up to four hours. Approximately 15-20 flight tests are conducted in a given year.

2.3 PROPOSED LOCATION

SDL seeks authority to carry out its test flights in one location as specified in the table and shown on the map in **Error! Reference source not found.**1. The area is defined by a center coordinate and radius as follows:

Table 1. Location Specifications

	Center Latitude	Center Longitude	Radius (km)	Altitude (ft)
Logan, UT*	41°46'42"	111°51'12"	40	<8200 AGL
Ft Irwin, CA	35°18'21"	116°37'48"	40	<8200 AGL

* Previously approved

Both Mini CDL 200 units will be within the area specified, the airborne side with a changing location within the area and the ground side with a temporary fixed location within the area.

3. CONTACT INFORMATION

Questions regarding this application should be referred to the following individuals.

Brad Petersen
Engineer
Space Dynamics Laboratory
PH: (435) 713-3260

Scott A. Anderson
Branch Head, Tactical Sensors
Space Dynamics Laboratory
PH: (435) 713-3444