

**PROPOSED MODIFICATION OF LICENSE**

This application requests modification of the license for experimental station KB2XPQ, which operates in the vicinity of Elizabeth City, NC, to permit the operation of an additional radar system in conjunction with the testing program for TCOM's small unmanned tethered aerostat system. Currently, the license authorizes the operation of a radar system in the 9237-9421 MHz range and radio communication equipment operating on the frequency of 135 MHz used in conjunction with the testing program. A copy of the current license is attached.

The additional radar is a Westinghouse APG-66SR system for which we understand previous experimental authorizations have been issued. This radar operates in the 9700-9900 MHz range in which non-government radiolocation use is permitted on a secondary basis under the Table of Frequency Allocations, Section 2.106 of the Commission's rules, and U.S. Note 110 of the Table. The additional radar system will be operated from time-to-time in addition to all other equipment presently authorized. Therefore, no change in the existing authorization, apart from the addition of this new radar unit, is involved in this application.

**A. Program of Research and Experimentation**

TCOM's small unmanned tethered aerostat system is used to carry a surveillance radar to an altitude of approximately 2500- 762m 3000 feet AMSL. While parked at this altitude, the radar is scanned to survey the surrounding area in a 360° arc. Command and control and video display are remoted to the ground via fiber optic links. A vertical profile of the test system is attached.

**B. Specific Objectives**

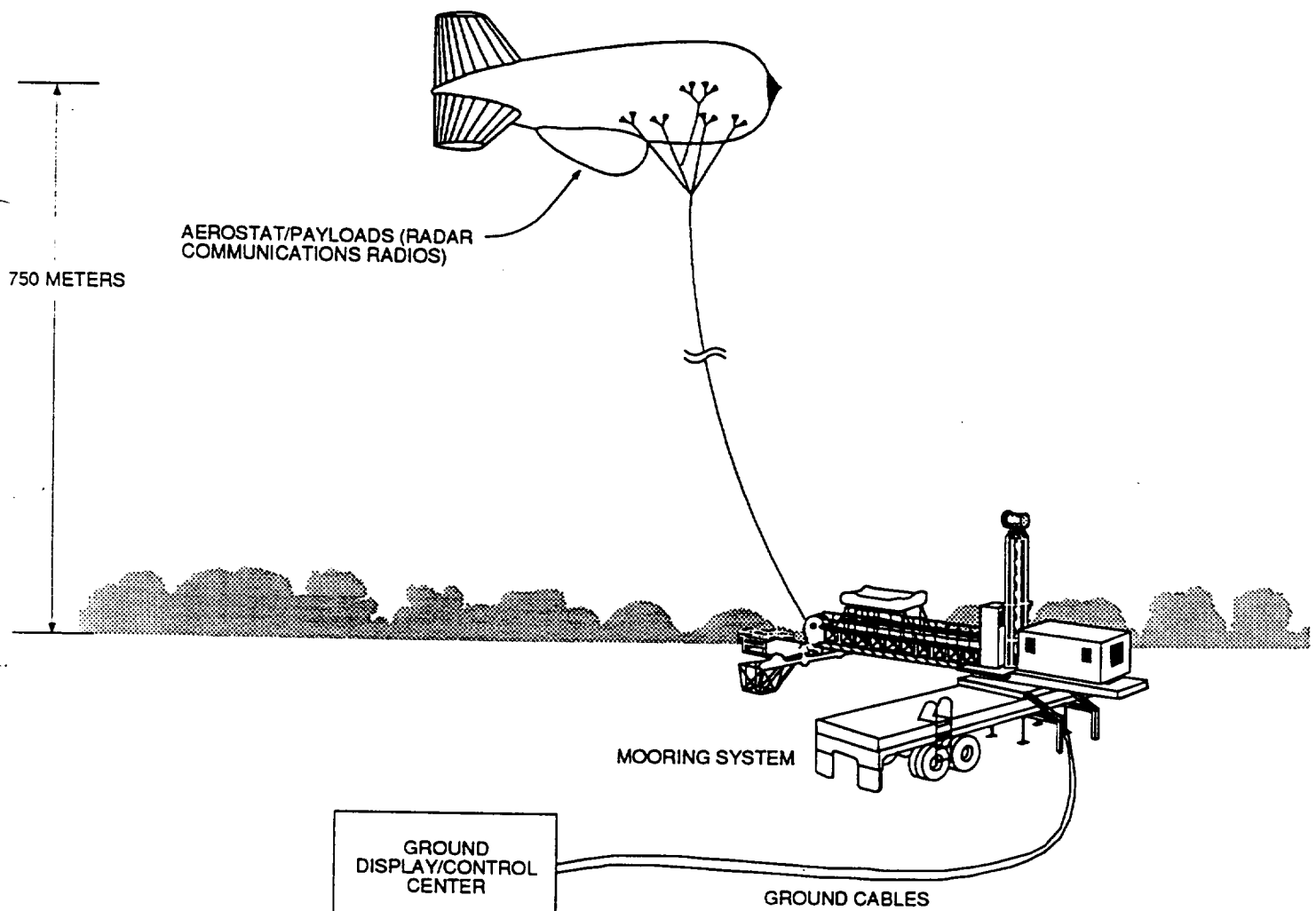
The specific objectives are to test and demonstrate the capabilities of the system to detect small targets and objects on the surface of the ocean while continuously providing wide area surveillance.

**C. Program Contribution**

Systems of this nature have been used for radar and communications use for applications in the United States and in foreign countries. The full scale working prototype is used to test and demonstrate the capabilities of the system for potential customers. In addition, the customer obtains a better understanding of the system which allows additional fine tuning of the customer requirements.

The radios operating on 135 MHz are used to contact surface targets and observation aircraft for test coordination and verification purposes. They are used intermittently to direct the simulated targets and observation craft and to verify that the craft are on station or need to be moved to a new station. Observers in the aircraft take pictures of the surface targets and the sea and confirm via radio that this task has been accomplished.

# Vertical Profile of Test System



MGMT 963B

OBSTRUCTION CLEARANCE

The site where experimental operation takes place is the TCOM, L.P. aerostat site where aerostats have been fabricated and flown since 1972. Since that time, arrangements have been made with the Federal Aviation Administration (FAA) and the U.S. Coast Guard concerning aerostat operations inside the Airport Traffic Area (ATA) for the Coast Guard Air Station (CGAS) at Elizabeth City, NC. Following is a synopsis of the arrangement:

1. As shown in the attached chart, the applicable aeronautical charts (Washington sectional and the World Aeronautical Chart (CG-21) have been marked with a note concerning the operation of the aerostat.
2. All airborne aerostats continuously illuminate the air with strobe lights visible to aircraft from any aspect angle.
3. Prior to outhaul of the aerostat, the CGAS Elizabeth City control tower is notified telephonically that an aerostat flight is about to commence. At the conclusion of the inhaul process, the tower is again notified that the aerostat is no longer airborne. The control tower personnel relay the advisory of a tethered balloon to all inbound and outbound aircraft which are also operating in the ATA during the time when the aerostat is aloft.
4. When airborne, the aerostat is at a maximum altitude of 3,000 feet Mean Sea Level (MSL). Since wind has an effect on the aerostat flying position, with respect to the surface of the earth, the predicted position of the aerostat under Maximum wind conditions (blowdown) will not exceed 0.5 Km from the tether attachment point, at the mooring site.

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1. AEROSTAT AREA OF OPERATION CLEARLY DEPICTED ON NOAA SECTIONAL (WASHINGTON).
2. AIRPORT CONTROL TOWER WILL BE NOTIFIED BY TELEPHONE WHEN AEROSTAT IS AIRBORNE, BY THE TEST DIRECTOR. THIS PROCEDURE HAS BEEN FOLLOWED SINCE 1972 ANYTIME THE AEROSTAT IS AIRBORNE.

| TIME OF USE†             | CONTROLLING AGENCY |
|--------------------------|--------------------|
| 5 IN ADVANCE 8 AM        | DDC 6412           |
| 9 INTERMITTENT BY NOTAM  | DDC 6412           |
| 9 INTERMITTENT BY NOTAM  | DDC 6412           |
| 9 INTERMITTENT BY NOTAM  | DDC 6412           |
| 10 1430                  | DDC 6412           |
| 10 1700 MON-FRI          | DDC 6412           |
| 5                        | DDC 6412           |
| 5 INTERMITTENT           | DDC 6412           |
| 5 INTERMITTENT           | DDC 6412           |
| 5 INTERMITTENT           | DDC 6412           |
| 5 INTERMITTENT SR 55 MON | DDC 6412           |
| 5 INTERMITTENT SR 55 MON | DDC 6412           |

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