

No certificate may be issued unless a completed application form has been received (14 C.F.R. 91. 101. and 105).



US Department of Transportation
Federal Aviation Administration

**APPLICATION FOR
CERTIFICATE OF
WAIVER**

Form Approved: O.M.B. No. 2120-0027

APPLICANTS - DO NOT USE THESE SPACES

Region	Date
--------	------

Action	Approved	Disapproved	. "Explain under "Remarks"
--------	----------	-------------	----------------------------

Signature of authorized FAA representative

INSTRUCTIONS

Submit this application in triplicate (3) to any FAA Flight Standards district office.

Applicants requesting a Certificate of Waiver or Authorization for an aviation event must complete all the applicable items on this form and attach a properly marked 7.5 series Topographic Quadrangle Map(s), published by the U.S. Geological Survey (scale 1:24,000), of the proposed operating area. The map(s) must include scale depictions of the flightlines, showlines, race courses, and the location of the air event control point, Police dispatch, ambulance, and fire

fighting equipment. The applicant may also wish to submit photographs and scale diagrams as supplemental material to assist in the FANS evaluation of a particular site. Application for a Certificate of Waiver or Authorization must be submitted 45 days prior to the requested date of the event.

Applicants requesting a Certificate of Waiver or Authorization for activities other than an aviation event will complete items 1 through 8 only and the certification, item 15, on the reverse.

1. Name of organization Edge of Space Sciences, Inc. (EOSS)	2. Name of responsible person Russell B. Chadwick, Vice President
---	---

3. Permanent mailing address House number and street or route number 4371 North 63rd Street	City Boulder	State and ZIP code CO 80301	Telephone No. 303-530-0228
---	------------------------	---------------------------------------	--------------------------------------

4. FAR section and number to be waived
14 CFR Part 101.35(a)(3) Equipment & marking requirements; See Supplement attached

5. Detailed description of proposed operation (*Attach supplement if needed*)
This request covers unmanned free balloon flights over the Box 7 period from the indicated Box 6 launch sites or other site as coordinated with the FAA. The purpose of these flights is to verify EOSS equipment is suitable for high-altitude flight and/or to carry University of Colorado or Metro State University student-built payloads, NOAA payloads, or other scientific/educational payloads into the stratosphere for educational or research purposes. The flights are to occur during daylight hours only, launching after local sunrise and landing before local sunset.

6. Area of operation (*Location, altitudes, etc.*)
See attached supplemental information for a map of proposed launch sites. The attached table gives the location for each proposed launch site. Also, any other launch site locations as coordinated with FAA Denver Center and TRACON.

7a. Beginning (<i>Date and hour</i>) 09 FEB 2019, 0000 Z	b. Ending (<i>Date and hour</i>) 31 DEC 2019, 2300Z
--	---

8. Aircraft make and model (a)	Pilot's Name (b)	Certificate number and rating (c)	Home address (Street, City, State) (d)
N/A			

ITEMS 9 THROUGH 14 TO BE FILLED OUT FOR AIR SHOW/AIR RACE WAIVER REQUESTS ONLY.

9. The air event will be sponsored by:

N/A

10. Permanent mailing address	House number and street or route number	City	State and ZIP code	Telephone No.
-------------------------------	---	------	--------------------	---------------

11. Policing (Describe provisions to be made for policing the event.)

12. Emergency facilities (Mark all that will be available at time and place of air event.)

Physician Fire truck Other - Specify _____
 Ambulance Crash wagon _____

13. Air Traffic control (Describe method of controlling traffic, including provision for arrival and departure of scheduled aircraft.)

14. Schedule of Events (include arrival and departure of scheduled aircraft and other periods the airport maybe open.)

Hour (a)	Date (b)	Event (c)

If sufficient space is not available, the entire schedule of events may be submitted on separate sheets, in the order and manner indicated above.

Please Read The undersigned applicant accepts full responsibility for the strict observance of the terms of the Certificate of Waiver or Authorization, and understands that the authorization contained in such certificate will be strictly limited to the above described operation.

15. Certification - I CERTIFY that the foregoing statements are true.

Date	Signature of Applicant
28 NOV 2018	<i>Russell B. Chadwick</i> (signature on file)

Remarks
 EOSS will file a FAR 101.37 HiBal Prelaunch Notice one week prior to each planned launch with the following FAA facilities:
 Denver ARTCC A&P, M. Flores
 Denver TRACON, designated POC

FSS NOTAM will be confirmed 24 hours prior to launch. Telephone communications with ARTCC and TRACON will be verified 1 hour prior to launch. Forecast trajectory information will be available to ARTCC and TRACON Operations prior to launch. Launch, enroute position reports and end-of-flight reports will be called in per controller request and will be available in real-time on the internet (www.wxga.com/cgi-bin/balon1.cgi) and/or (www.eoss.org/cgi-bin/balon1.cgi). NOTAM will be cancelled with FSS at end-of-flight.

Form 7711-2 Supplemental Information

Box 4 & 5:

On suitable launch dates in 2019, one to four 1000 to 3000 gram latex balloons will each carry a flight string of up to 28 lb. of EOSS, Colorado Space Grant/CU, MSU educational/scientific, NOAA and/or other payload packages to a burst altitude of 65k to 115k feet MSL. The flight string and attached payloads will then descend via parachute back to the surface where the equipment will be recovered. The payloads and parachute may be separated from the balloon by radio command prior to burst if required for flight safety.

The flight string will be equipped with GPS location telemetry beacons to support FAA position and altitude reports throughout the flight. These reports will be echoed every minute or less to an Internet web site where they will appear as VOR radial and range and MSL altitude. EOSS provided VHF RDF triangulation and barometric or dead-reckoned altitude will back up the GPS location reporting. If necessary, internet reports will be backed up by telephoned reports from the EOSS Ground Station at the launch site. Since the latex balloon envelope will accompany the flight string in ascent and will disintegrate on burst above FL600, radar reflective devices are not deemed necessary to flight safety.

Meteorological conditions over eastern CO are difficult to forecast and may change rapidly over the course of a balloon flight. Therefore, it is not possible to ensure VFR conditions over the entire flight prior to committing to a launch. EOSS's GPS position reports have proven satisfactory for FAA flight advisories.

Box 6:

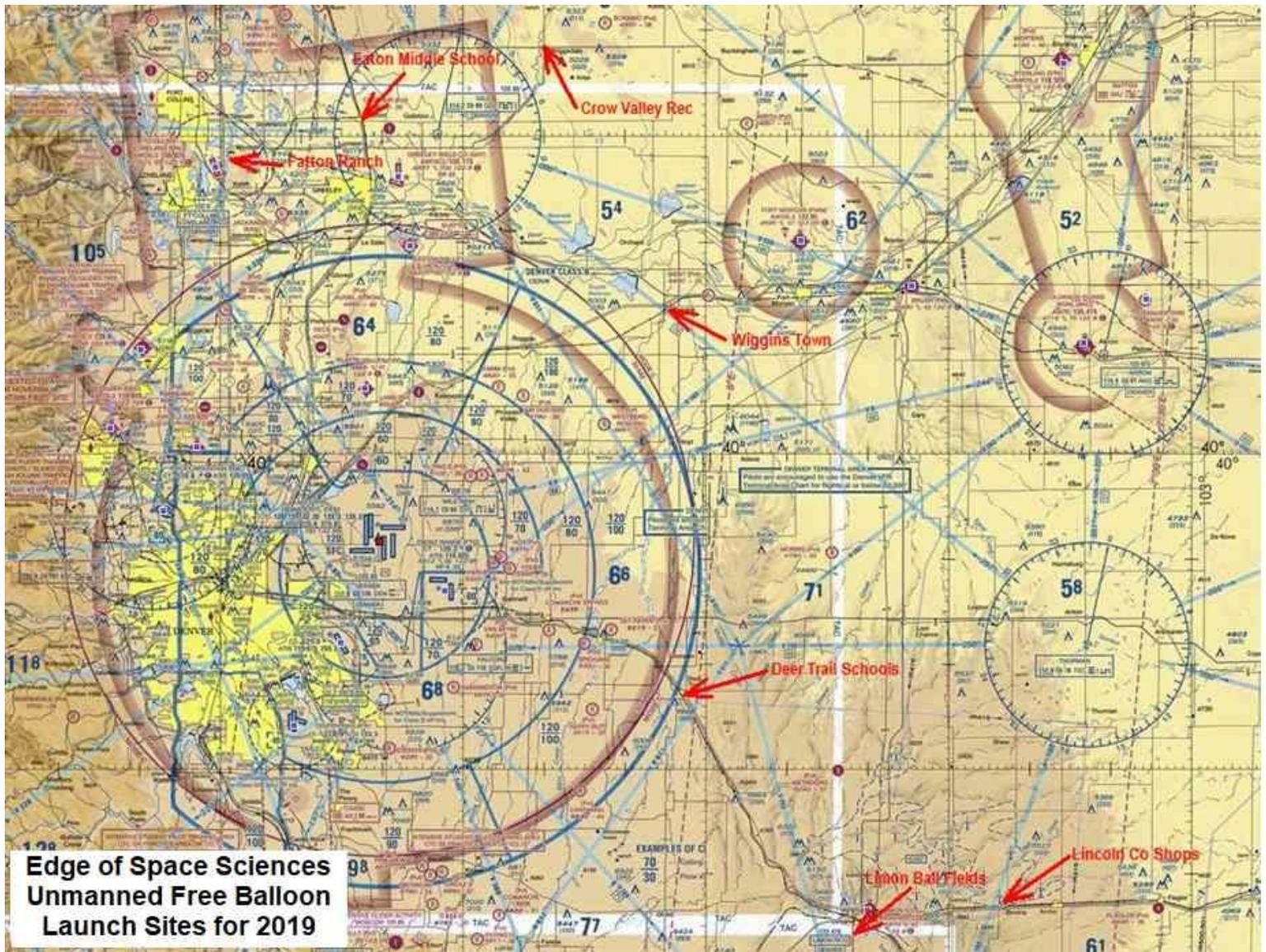
Ascent rate is expected to be approximately 1100 fpm which results in an 86 minute time from launch to burst at 100,000 feet. The flight trajectory from launch to recovery is dependent upon winds aloft, but will generally be east of the launch site. Descent rate varies directly with pressure altitude; descent time is expected to be approximately 45 minutes. Under normal conditions, flight times will be less than 2.3 hours.

The choice of launch site is based on forecast trajectory to a safe landing site, local facilities, avoidance of DEN Class B Airspace, and reliable radio communications with the tracking and recovery team. The selected launch site will be specified in the HIBAL Pre-launch Notice for each launch date.

The proposed launch site locations are shown in the map below and the site name, location (in degrees magnetic and nautical miles) relative to VOR and latitude and longitude (in deg min sec format) are given in this table:

Table of Proposed EOSS Balloon Launch Sites in Colorado for this application

Launch Site Name	VOR Referenced Location	Latitude (dms)	Longitude (dms)
Limon Ball Fields	HGO345025	39° 14q12.0+N	103° 41q46.2+W
Lincoln Co Shops	TXC200028	39° 16q43.8+N	103° 29q27.0+W
-no entry-			
-no entry-			
-no entry-			



Map showing seven EOSS launch sites in Colorado. The two southernmost launch sites relate to this application. The other five launch sites are listed on a related, but separate application.

Box 7:

This Waiver Request is for up to fourteen flight days in 2019. In the interest of paperwork mitigation, it was deemed appropriate to include all of these very similar flights in a single waiver request. Each balloon flight will be covered by a HIBAL Prelaunch Notice filed and revised as appropriate for each flight date. Also, a NOTAM will be filed as appropriate for each flight date.

Commitment to launch is contingent upon many largely uncontrollable variables, including suitable weather conditions at the launch site, forecast landings in unpopulated areas and flight-ready payloads. Thus, launch dates may be delayed one day on short notice until all criteria are met. In the unlikely event that conditions are unsuitable for both days of a weekend, then affected flights may be postponed to a later date; revised HIBAL Prelaunch Notices and NOTAMs will be filed in such events.