

uAvionix Corporation
300 Pine Needle Lane
Bigfork, MT 59911 U.S.A.

FAA-APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
for the
uAvionix skyBeacon
as installed in

Airplane Make and Model per AML

Registration Number: _____
Serial Number: _____

This supplement must be attached to the FAA-approved Airplane Flight Manual when the skyBeacon is installed in accordance with Approved Model List Supplemental Type Certificate SA 04362CH

The information contained herein supplements the basic manual only in those areas listed. For limitations, procedures, performance and loading information not contained in this supplement, consult the FAA-approved Airplane Flight Manual, markings, or placards.

FAA Approved By:  _____

Manager, Southwest Flight Test Section, AIR-713
Federal Aviation Administration
Ft. Worth, TX

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Airplane Flight Manual Supplement
uAvionix skyBeacon
FAA Approved **NOV 14 2018**

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Rev A
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Log of Revisions

Revision	Page(s)	Description	Date	FAA Approved
A	All	Initial release	10/11/2018	See page 1

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1 GENERAL

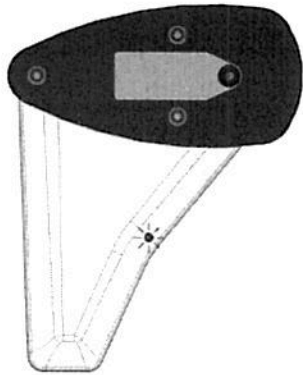
1.1 skyBeacon

skyBeacon is a wing-tip mounted unit that contains a 978 MHz transmitter, transponder monitor, GPS/SBAS receiver, LED navigation light and LED anti-collision light. This device transmits ownership Automatic Dependent Surveillance-Broadcast (ADS-B) data through the UAT data link.

skyBeacon performs the following functions:

- Position determination
 - An internal GPS/SBAS receiver allows the unit to function as its own position source.
- Transmission of ADS-B Out data on 978MHz UAT
 - Integration of data from internal and external sources to transmit data in compliance with 14 CFR 91.227.
- Transponder monitoring
 - The integrated Power Transcoder ensures proper synchronization of data elements between Secondary Surveillance Radar (SSR) replies and ADS-B transmissions. These elements include Mode A squawk code, Mode C altitude, and IDENT status. In remote areas where you may not be interrogated by SSR, these data elements may at times be unavailable.
- Altitude encoder with Continuous Calibration™
 - The integrated altitude encoder provides pressure altitude information and is continuously adjusted for correspondence with the transponder's altitude encoder.
- "Anonymous" mode
 - "Anonymous" mode transmits a temporary randomized address instead of the aircraft's FAA assigned ICAO address, and "VFR" instead of the aircraft's call sign. When this option is configured during installation, it may be enabled by selecting a squawk code of "1200" on the installed transponder.

- Annunciator LED
 - An annunciator LED is located on the pilot facing side of the fin, indicating the operating status of the skyBeacon. This indicator may or may not be visible in flight, depending on the geometry of the aircraft and mounting location.



LED Indication	Meaning
On (Constant)	Device Failure Internal self-test failure Invalid ICAO configured
Blinking (On/off every second)	Function Failure No GPS position ADS-B broadcast failure
Off	No Failure

- Red forward position light and anti-collision strobe
 - A TSO-C30c Type I (red) LED position/navigation light and TSO-C96a Class II LED anti-collision light replace or supplement existing lighting.

1.2 Capabilities

The skyBeacon as installed in this aircraft has been shown to meet the equipment performance requirements of 14 CFR 91.227, when operating in accordance with this supplement.

2 LIMITATIONS

2.1 Required Equipment

The skyBeacon must have the following system interfaced equipment fully functional to be compliant with the requirements for 14 CFR 91.227 ADS-B Out operations:

Interfaced Equipment	Number Installed	Number Required
Mode A/C or Mode S Transponder	1	1

2.2 Navigation Lights

The navigation lights must remain on at all times that ADS-B Out operation is required. The following placard should be installed:

NAVIGATION LIGHTS MUST REMAIN ON FOR ADS-B OUT

2.3 ADS-B OUT

The skyBeacon will only comply with 14 CFR 91.227 for ADS-B Out when all the above required equipment is operational. The skyBeacon annunciator LED will illuminate when skyBeacon is not transmitting a valid or complete ADS-B Out message.

In remote areas where you may not be interrogated by Secondary Surveillance Radar, aircraft Mode A squawk code may be broadcast as unavailable.

2.4 Maximum ADS-B Operating Altitude

In accordance with 14 CFR 91.225, aircraft with ADS-B Out UAT equipment, operating on 978 MHz and meeting the requirements in TSO-C154c, are limited to operations below 18,000 feet MSL.

Maximum Aircraft Operational Ceiling, when ADS-B is in use	18,000 feet MSL
------------------------------------------------------------	-----------------

2.5 Anonymous Mode Operation

In anonymous mode, the skyBeacon transmits a randomized temporary address instead of the aircraft's assigned ICAO address code, and a non-identifying Call Sign. The temporary address and Call Sign are disabled if the operator selects a non-1200 squawk code on the transponder.

When enabled, the operator will not be eligible to operate on a flight plan or receive ATC services after January 1, 2020, when in 14 CFR 91.225 rule airspace. The operator will also have decreased visibility to ATC and surrounding airspace users.

Anonymous Mode must not be enabled when skyBeacon is installed in an aircraft with a Mode S transponder. Doing so will present an ICAO code mismatch to ATC.

3 EMERGENCY PROCEDURES

No Change.

4 ABNORMAL PROCEDURES

4.1 ADS-B Transmission Incomplete

When GPS position information is unavailable or the transmitter is experiencing broadcast failures, the annunciator LED will blink.

skyBeacon will continue attempting to transmit, but the ADS-B messages will be incomplete and non-compliant.

skyBeacon Annunciator LED **BLINKING**

skyBeacon Location **ENSURE CLEAR VIEW OF SKY, NOTE INITIAL
FIX COULD TAKE UP TO 20 MINUTES**

4.2 Device Failure

When the device experiences a self-test failure or has not been properly configured, the annunciator LED will be constantly illuminated.

Resolving may require a maintenance action, but the pilot may attempt cycling the power once to resolve.

skyBeacon Annunciator LED **CONSTANT ILLUMINATION**

Navigation Lights **CYCLE POWER ONCE**

4.3 Loss of Aircraft Electrical Power Generation

In the event of the electrical charging system becoming inoperative, attention must be paid to aircraft battery power. skyBeacon uses minimal electrical power, considerably less than a traditional incandescent navigation light, but the pilot should be familiar with electrical load-shedding methods and equipment requirements for various phases of flight. If an electrical emergency exists, the pilot should consider turning off the skyBeacon to preserve the operation of essential avionics.

Subject to aircraft equipment electrical load-shedding priorities,

Navigation Lights Circuit Breaker Position **CONSIDER**

4.4 skyBeacon Unit Disable

The skyBeacon may be disabled by turning off the Navigation Lights. Doing so will disable the aircraft Navigation Lights. 14 CFR 91.209 requires these lights to be lighted on the surface and in flight from sunset to sunrise. Consideration should be given to the consequences of disabling aircraft lighting.

Navigation Lights **OFF**

5 NORMAL PROCEDURES

The skyBeacon requires no pilot intervention or direct control for normal operation. The skyBeacon is powered on with the navigation lights and will be fully operational once the configured Mode A/C transponder is set to ALT and a GPS/SBAS position is available.

Primary user interface controls are provided by the aircraft's existing transponder, including selection of Mode A squawk code and IDENT.

Additional configuration and control may be provided through the "uAvionix skyBeacon Installer" app.

5.1 skyBeacon Unit Power On

The skyBeacon should be powered on after starting the engine, and prior to entering an airport movement area. This is typically part of the TAXIING or BEFORE TAKEOFF procedure, or when avionics power is enabled.

Navigation Lights **ON**
Transponder **ALT, Code set**
skyBeacon Annunciator LED **EXTINGUISHED**

NOTE

In addition to in flight use requirements, AIM 4-1-20. a. 3. encourages pilots to operate with the transponder in the altitude reporting mode and ADS-B Out transmissions enabled at all airports, any time the aircraft is positioned on any portion of an airport movement area.

After power on, the skyBeacon Annunciator LED may illuminate momentarily as the unit begins to receive input from external systems, including the GPS/SBAS position source.

The configured Mode A/C transponder must be set to ALT and the skyBeacon Annunciator LED must be **EXTINGUISHED** for the system to meet the requirements specified in 14 CFR 91.227. This system must be

operational in certain airspaces after January 1, 2020 as specified by 14 CFR 91.225.

5.2 Call Sign

The configured aircraft call sign may be adjusted on the ground using the “uAvionix skyBeacon Installer” app. It may not be adjusted in flight. If an aircraft will use identification other than an N-number for a given flight (as referred to by ATC or in flight plans), the configured call sign must be adjusted. Example applications are commercial, medical, or volunteer flight operations.

Within five minutes of skyBeacon being powered on, connect to the device with the app. Adjust the Call Sign field but not the ICAO Number. When changing the Call Sign ensure no other installation parameters are adjusted. The configured Call Sign persists through power cycles.

If necessary after the flight, cycle power to the device, connect with the app, and adjust the Call Sign field to back to the appropriate (N-number) value.

For more information on using the app, see the “skyBeacon TSO User and Installation Guide”.

5.3 skyBeacon Unit Power Off

The skyBeacon should remain powered during flight and when in airport movement areas. The unit should be powered off immediately prior to stopping the engine, or may be powered off upon exiting the airport movement area.

Navigation Lights **OFF**

6 PERFORMANCE

No change.

7 WEIGHT AND BALANCE

No change.

8 RELATED DOCUMENTATION

The uAvionix skyBeacon documents, part numbers, and revisions listed below contain additional information regarding skyBeacon system description and function.

Part Number	Revision	Title
UAV-1001421-001	D (or subsequent)	skyBeacon TSO User and Installation Guide
UAV-1002305-001	A (or subsequent)	skyBeacon STC Installation Manual
UAV-1002112-001	A (or subsequent)	skyBeacon STC Instructions for Continued Airworthiness and Maintenance Manual