uAvionix
Compliant ADS-B system.

SkyBeacon

Overview

skyBeacon is a 2020 compliant, near zero-install, Class B1S ADS-B UAT transmitter integrated into a wing tip position light. An internal wireless monitor decodes replies from legacy Mode C transponders. Integrated uAvionix FYX WAAS GPS. 14 CFR §91.227 compliant. Smart phone configurable over WiFi.

Features

UAT Transmitter
- Meets the performance requirements of TSO-154c Class B1S. RTCA DO-282B Class B1S

Position Light
- Meets performance requirements of TSO-C30c Type I

WAAS GPS
- Integrated RAIM processor for Security and Integrity protection
- SBAS corrections and health messages used to detect and correct satellite range errors
- Satellite pseudo range step errors detected and excluded
- SBAS fast and long-term corrections applied

Transponder Reply Monitor
- Wireless altitude and squawk monitor

Certification
- Pending certification via approved model list (AML) for STC'd installation on hundreds of aircraft makes and models

Patents Pending

Regulatory

- FCC ID 2AFFTUAT016R
- ADS-B Out: §91.225, §91.227, AC 20-165B
- GNSS Position: AC 20-165B
- Position Light: SAE/AS8037

Technical Specifications

Specification	Value
Input Voltage	11-31V DC
Operating Power	3watts
Size	124x116x48mm
Weight	90grams
SDA/SIL	2/3
Operating Temp	-45 to 80°C
978MHz UAT Transmitter	
Power Classification	DO-282B Medium Power
WAAS GPS	
Tracking	-166dBm
Reacquisition	-160dBm
Cold Start	-148dBm
LED Position Light	
Color	Aviation Red
Intensity	40 candelas
Wi-Fi Configuration	
Physical	802.11b/g/n
App Compatibility	iOS, Android
Transponder Reply Monitor	
1090MHz Mode A and Mode C	

Operating Limitations

The conditions and tests required for STC approval of skyBeacon are minimum performance standards. The installer must determine if the conditions are appropriate for installation on a specific aircraft.

Continued Airworthiness

There is no requirement for periodic service, inspection or preventative maintenance for continued airworthiness of skyBeacon.

2020 Regulatory Compliance

skyBeacon meets the Minimum Operational Performance Standards of DO-282B Class B1S, and meets the performance requirements of TSO-C154c. When installed in accordance with the installation instructions of this guide, the device complies with the aircraft requirements of 14 CFR 91.227.

Installation Procedures

skyBeacon is a wingtip, forward, left position light. The assembly should be mounted as far outboard on the aircraft as practical, parallel to the vertical and horizontal centerlines of the aircraft. Ensure that when mounted the fin and top of the assembly are free from obstructions.

1. Remove the existing left position light.
2. Detach the power wire(s).
3. Connect the red wire to the switched power wire.
4. skyBeacon is grounded to the aircraft structure via the mounting screws. However, it may be necessary to connect the black wire to the airframe ground.
5. Mount skyBeacon using the three supplied 6-32 screws.

Changes to the existing position light circuit breaker rating are not required.

Environmental Specifications

Conditions	DO-160G Section	Description of Conducted Tests
Temperature and Altitude	4.0	Equipment tested to Category B2
Low temperature ground survival	4.5.1	-55°C
Low Temperature Short-Time Operating	4.5.1	-45°C
Low Temperature Operating	4.5.2	-45°C
High Temperature Operating	4.5.4	+70°C
High Temperature Short-Time Operating	4.5.3	+70°C
High Temperature Ground Survival	4.5.3	+85°C
Loss of Cooling	4.5.5	Cooling air not required (+70°C operating without cooling)
Altitude	4.6.1	25,000feet
Decompression	4.6.2	Equipment identified as Category B2 – no test
Overpressure	4.6.3	Equipment identified as Category B2 – no test
Temperature Variation	5.0	Equipment tested to Category A
Humidity	6.0	Equipment tested to Category C
Operation Shocks	7.2	Equipment tested to Category B
Crash Safety	7.3	Equipment tested to Category B type 5
Vibration	8.0	Aircraft zone 5: type 4 (Multi Engine) to Category S level L, type 5 (Single Engine) to Category S level M Aircraft zone 3: type 1 (Helicopters) to Category U level H
Explosion	9.0	Equipment identified as Category X – no test
Waterproofness	10.0	Equipment identified as Category S
Fluids Susceptibility	11.0	Equipment identified as Category X – no test
Sand and Dust	12.0	Equipment identified as Category S
Fungus	13.0	Equipment identified as Category X – no test
Salt Spray	14.0	Equipment identified as Category S
Magnetic Field	15.0	Equipment identified as Category B
Power Input	16.0	Equipment identified as Category BX
Voltage Spike	17.0	Equipment identified as Category B
AF Conducted Susceptibility	18.0	Equipment identified as Category B
Induced Signal Susceptibility	19.0	Equipment identified as Category AC
RF Susceptibility	20.0	Equipment identified as Category TT
RF Emissions	21.0	Equipment identified as Category B
Lightening Induced Transient Susceptibility	22.0	Equipment identified as Category XXXX – no test
Lightening Direct Effects	23.0	Equipment identified as Category X – no test
Icing	24.0	Equipment identified as Category X – no test
Electrostatic Discharge	25.0	Equipment identified as Category X – no test
Fire, Flammability	26.0	Equipment identified as Category C

Configuration Procedures

Download the "uAvionix skyBeacon Installer" app from the iOS App store or Google Play.

Turn on power to your SkyBeacon

Connect to the SkyBeacon Wi-Fi network (Ping-xxxx)

Open Wi-Fi Settings

Return to this app to continue

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CONFIGURE

Anonymous Mode:
When checked, this enables the skyBeacon to transmit a self-assigned ICAO and sets a random Call Sign when the squawk code matches the defined VFR squawk code (1200). When enabled the operator will not be eligible to receive ATC services.

Call Sign:
The CALL SIGN can be up to an 8 digit code that corresponds to the tail number of the aircraft. (0-9, A-F). Note: This is typically your aircraft N-number (eg N12345), unless otherwise advised by the FAA or ATC.

ICAO Number:
The ICAO address is a 24-bit number issued to the aircraft by the registration authority of the aircraft. These addresses are usually written as a 6-digit hexadecimal number.

Emitter Type:
To assist ATC tracking of aircraft, an aircraft category can be transmitted. Select the aircraft category that most closely matches the aircraft.
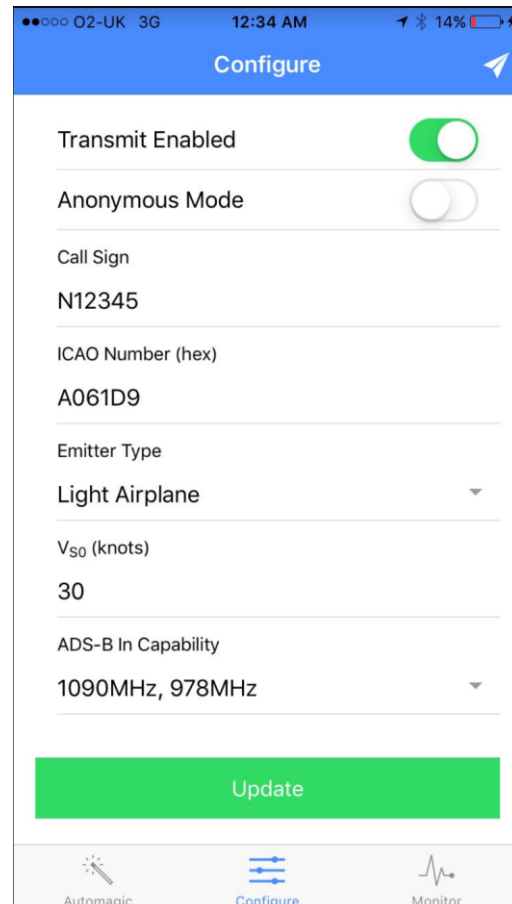
Vso (knots):
This parameter allows skyBeacon to automatically switch between airborne and ground modes.

ADS-B In Capability:
Sets the ADS-B In equipment capability reporting.

MONITOR

The monitor screen allows the installer to check the configuration parameters and internal operation of skyBeacon, such as the GPS position and transponder reply decoder.

Operating Procedures
skyBeacon must be enabled (turned ON) during all phases of flight including surface movement operations.

System Status LED Operation:

Device Failure
Function Failure
No Failures

Device Failure – skyBeacon is unable to transmit.
Function Failure – eg GPS position not locked, but transmitting.

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SkyBeacon

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Installation Diagram

WIRE LEAD 22AWG
RED + BLACK + YELLOW

SkyBeacon

MOUNTING
GASKET

3X O-RING
SEALS

3X (6-32 X 1-1/4IN)
BUTTON HEAD
MACHINE SCREWS

[.642]
16.30

[1.740]
44.20

[1.000]
25.40

[.910]
⌀23.11

⌀3X 6-32
NUT PLATES

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