

# TEST REPORT DATA

**Model/Part No.:** AK-450, **Serial No.** 499 664

**Date:** 10/28/15

**Conducted by:** Ameri-King Corporation

**Witness by:** Brad Bigelow - NTSB

JOEDY COLLADO FAA  
JERRY RAMOS FAA  
Gilbert Ceballos FAA

Louise Wu FAA  
KEITH VAN AMERI-KING CORP.  
KHANH NGUYEN AMERI-KING CORP.

## 1. Examination and Test:

|                                       | PASS | FAIL | COMMENT |
|---------------------------------------|------|------|---------|
| General Appearance<br>(See Picture 1) | ✓    |      |         |

| TEST PROCEDURE<br>IM-450 Rev A<br>PARAGRAPHS<br>(See Attachment 1)                                                                  | PASS | FAIL | COMMENT |
|-------------------------------------------------------------------------------------------------------------------------------------|------|------|---------|
| 2.4<br>Post Installation Test                                                                                                       | ✓    |      |         |
| 3.3<br>Transmitter Test<br>(Should be tested every 3 months)                                                                        | ✓    |      |         |
| 3.4<br>Periodic Maintenance                                                                                                         |      |      |         |
| 3.4<br>Periodic Maintenance<br>FAR 91.52, 91.169<br>Part 43 Appendix D(i)<br>(Must be tested every year)<br>3.4.1<br>Inspection ELT |      |      | N/A     |

|                                                |   |  |                                                |
|------------------------------------------------|---|--|------------------------------------------------|
| 3.4.2<br>Inspect Coaxial Connector             |   |  | N/A                                            |
| 3.4.3<br>Inspect Modular Cable Connector       |   |  | N/A                                            |
| 3.4.4<br>Check Battery Expired date            |   |  | MAIN BATTERIES LABEL SHOWN<br>DUE DATE<br>4/14 |
| 3.4.5<br>Inspect Battery Case                  | ✓ |  |                                                |
| 3.4.6<br>Functional Test<br>Per Para 3.3 above | ✓ |  |                                                |
| 3.4.7<br>Automatic Activation                  | ✓ |  |                                                |
| 3.4.8<br>Remote ON Switch                      | ✓ |  |                                                |

2. If the above ATP Test fail, Test the D-cell Batteries:

| TEST PROCEDURE<br>(See Picture 2)<br>CELL VOLTAGE | PASS   | FAIL | COMMENT/FINDING       |
|---------------------------------------------------|--------|------|-----------------------|
| 1.5 Vdc +/- 0.1 Vdc                               | 1.41V  |      | DUE DATE 03/18<br>↓ ↓ |
| 1.5 Vdc +/- 0.1 Vdc                               | 1.41V  |      |                       |
| 1.5 Vdc +/- 0.1 Vdc                               | 1.41V  |      |                       |
| 1.5 Vdc +/- 0.1 Vdc                               | 1.40V  |      |                       |
| 1.5 Vdc +/- 0.1 Vdc                               | 1.41V  |      |                       |
| 1.5 Vdc +/- 0.1 Vdc                               | 1.406V |      |                       |

3. Partial disassembly, or a complete disassembly, or even a destructive exam if necessary

| TEST PROCEDURE                         | PASS | FAIL | COMMENT/FINDING |
|----------------------------------------|------|------|-----------------|
| Partial disassembly<br>(See Picture 3) | ✓    |      |                 |
| Complete disassembly                   |      |      | N/A             |
| Destructive exam                       |      |      | N/A             |

4. CONDUCT MANUFACTURER ATP  
PER DOCUMENT ATP-450 REV. B  
SEE ATTACHMENT 4

**Additional Comments:**

1. ELT has been classified as a non-essential Equipment. (See Attachment 2).  
The ELT is a non-rebuildable Equipment, due to non-economical. Its cost is less than \$140.00/ea.
2. Cospas-Sarsat Satellite Monitoring for 121.5/243 Mhz has been terminated since 2009.

Cospas-Sarsat does NOT monitor 121.5/243 Mhz frequencies and such beacons rely on being received only by nearby aircraft or rescue personnel. For satellite reception of alerts by Cospas-Sarsat the beacon must be a model that transmits at 406 MHz. like Model AK-451.

Refer to [www.cospas-sarsar.int](http://www.cospas-sarsar.int) for detail (See Attachment 3).

PICTURE 1

五

100% Accurate Results - **Call 1-877-838-2626** **Nº 01**  
 Guaranteed! **Guaranteed** **AN-850** **at 1500 LA**  
 100% Satisfaction - **Call 1-877-838-2626** **Nº 01**



AMERI-KING CORP.  
California, U.S.A.

MADE IN U.S.A.

# EMERGENCY LOCATOR TRANSMITTER

Model AK-450, ELT(AF)(AP)

FAA TSO-91 a approved

FCC ID: L79AK-450

RTCA DO-160c Environmental Categories

C1AC/XXXX S XXXX BXB

FREQ: 121.5 / 243.0 MHz

PREP: 50 mw for 50 hrs

Serial No.:

**499664**

Mods: ☐

Replaced by Date:

**7-14**



**FORWARD**

## WARNING:

FOR AVIATION EMERGENCY USE ONLY  
UNLICENSED OPERATION UNLAWFUL

## CAUTION:

LIMIT VOICE TRANSMISSIONS TO  
CONSERVE BATTERY

AMERI-KING CORP.

PART NO. 450001

T80-C91a

MADE IN U.S.A.



- Batteries +

- Batteries +

FIXED OPERATION  
(IN AIRCRAFT)

FOR NORMAL  
OPERATION MAIN  
CONTROL SWITCH  
MUST BE IN "ARM"  
POSITION.

AMERI-KING CORP.  
California U.S.A.

MADE IN U.S.A.

**EMERGENCY LOCATOR TRANSMITTER**

Model AK-450. ELT(AF/AP)

FAA TSO-91 a approved

FCC ID: L79AK-450

RTCA DO-160c Environmental Categories

C1AC0000X S XXXX B13

FREQ: 121.5 / 243.0 MHz

PREP: 50 mW for 50 ms

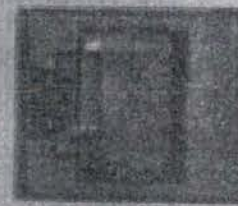
Serial No:

**499664**

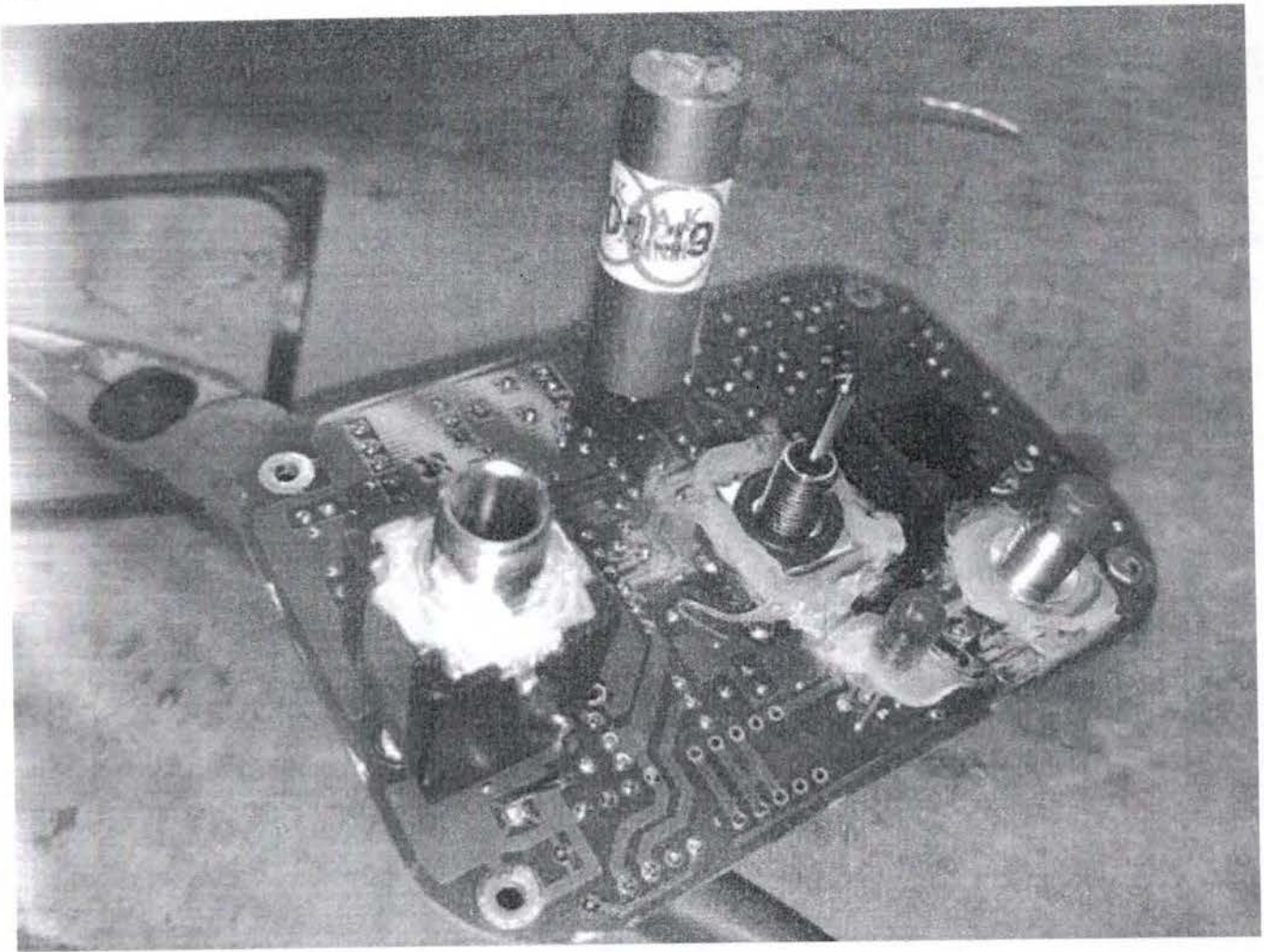
Mod: ☐

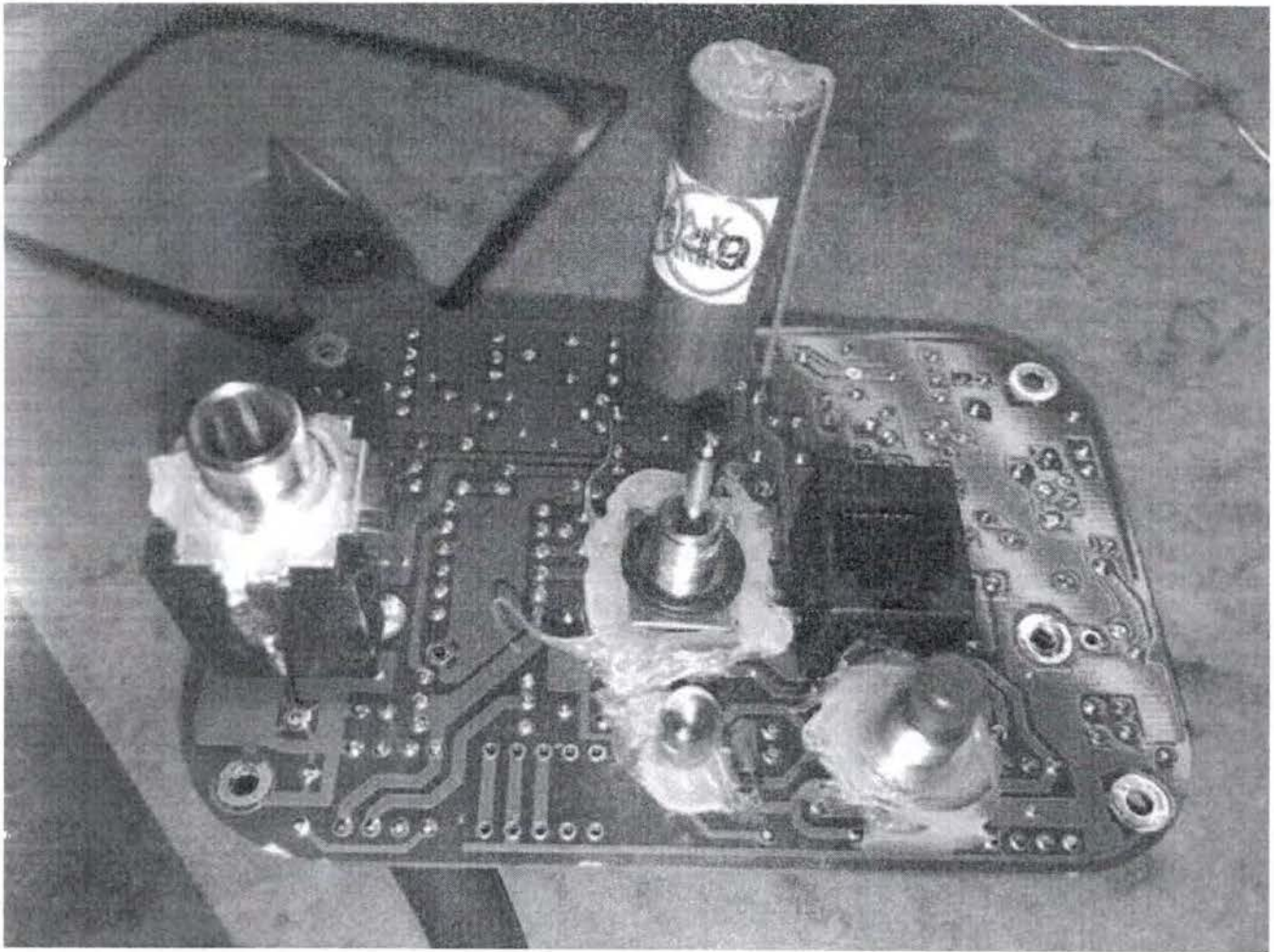
**4-N**

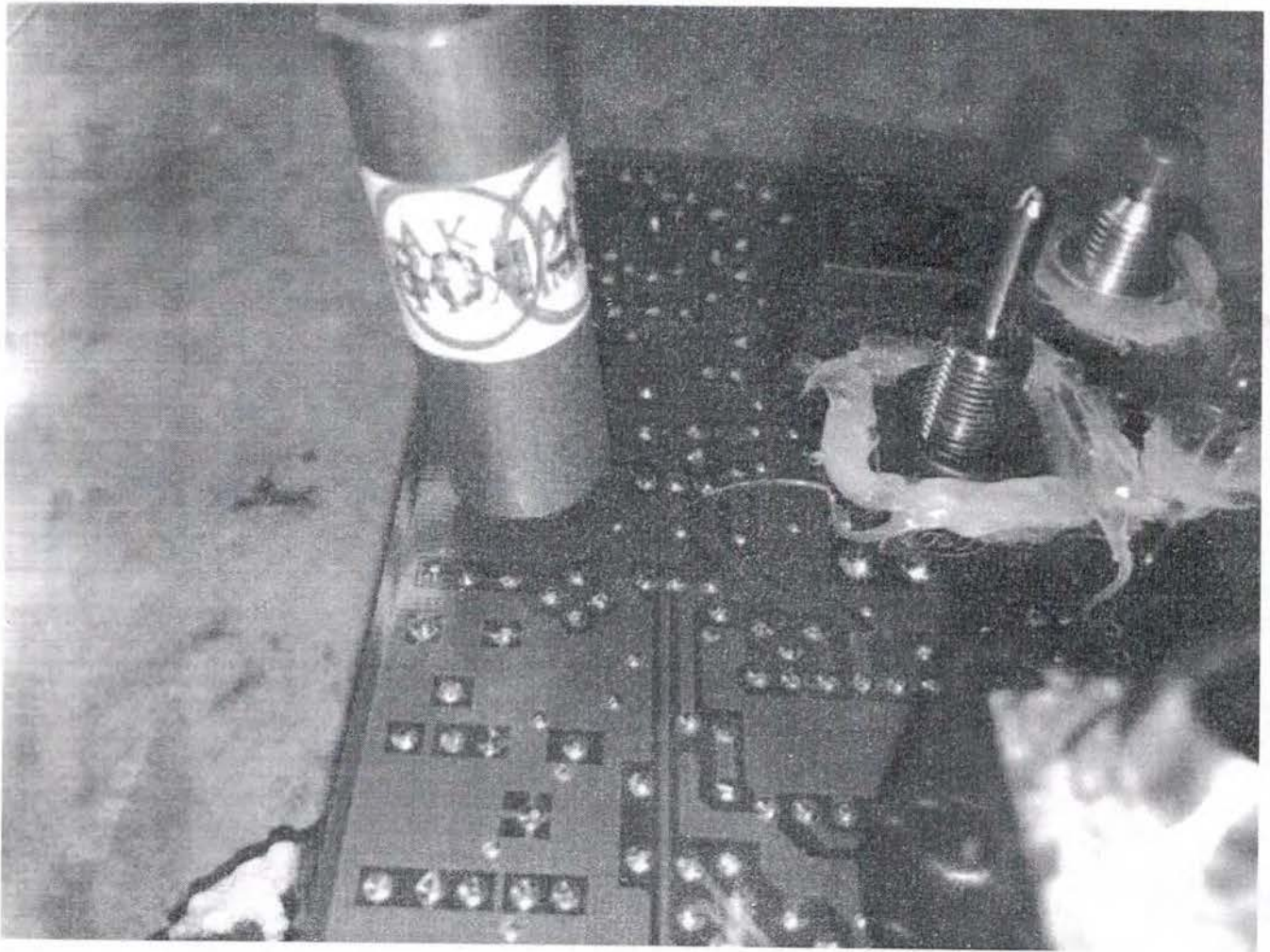
AMERI-KING CORP.  
PART NO. 450001  
T80-C91a  
MADE IN U.S.A.



PICTURE 3







## **PICTURE 4**

S/N: 2228

MODEL:

BT100AVS

CAL DUE:

FEB 25, 2017



WS Technologies Inc.

Cospas-Sarsat  
406 Beacon Tester

CALIBRATION AND WARRANTY  
VOID IF TAMPERED WITH

CANADA  
ICES-003



Patent Pending

Made in Canada

Fabrique au Canada

**Beacon Tester**

 **WS Technologies Inc.**

**Beacon  
Tester**

AMERI-KING CORP.  
California, U.S.A.

MADE IN U.S.A.

## EMERGENCY LOCATOR TRANSMITTER

Model AK-450, ELT(AF)(AP)

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FCC ID: L79AK-450

RTCA DO-160c Environmental Categories

C1AC/XXXX S XXXX BXB

FREQ: 121.5 / 243.0 MHz

PREP: 50 mw for 50 hrs

Serial No.:

**499664**

Mods: ☐

Replace by Date:

**9-14**



FORWARD

### WARNING:

FOR AVIATION EMERGENCY USE ONLY  
UNLICENSED OPERATION IS ILLEGAL

Ameri-King  
Replace by Date  
**Oct 2016**

 **TWIN  
TURBO**  
**100**  
CHANNEL  
BAND  
**RADIO**  
SCANNER

BANK 1

2 12 1.5000

HOLD AIR

SCAN

1-10

1

11-20

2

21-30

3

31-40

4

41-50

5

51-60

6

61-70

7

71-80

8

81-90

9

91-100

0

E

MAN

SVC

WX

PRB

LIGHT

LIMIT

DELAY

SRCH

LO

HOLD

DATA

## ATTACHMENT 2



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

APR 16 2008

Mr. Keith Van, Engineering Manager  
AMERI-KING Corporation  
[REDACTED]  
Huntington Beach, CA 92648

Dear Mr. Van:

Thank you for your letter, dated February 16, 2008, "Request for Technical Standard Order (TSO) Certification Guideline, TSO Authorization (TSOA) C-126, 406 MHz Emergency Locator Transmitter (ELT)". Your letter requested an FAA official response to the following three questions.

**Question 1a.** Please advise if our Ameri-King (Applicant) model AK-451, 406 MHz ELT, Type (AF)(AP)(S) may be certifiable to TSO-C126, (TSOA) as a non-essential equipment?

**FAA Response 1a.** The Ameri-King model AK-451, 406 MHz ELT, Type (AF) (AP) (S) TSOA-C126, (TSOA) design approval and aircraft installation approval are classified as non-essential equipment.

**Question 1b.** Please advise if our Ameri-King (Applicant) model AK-451, 406 MHz ELT, Type (AF)(AP)(S) may be certifiable to TSO-C126 (TSOA) with software level D?

**FAA Response 1b.** The Ameri-King model AK-451, 406 MHz ELT, Type (AF) (AP) (S) TSO-C126, (TSOA) software assurance development to RTCA DO-178B Level D software is acceptable for design approval and aircraft installation approval.

**Question 2.** Please advise if ground, pre-flight and post flight tests, as specified in RTCA DO-204A, is not required, in order to obtain (TSOA)?

**FAA Response 2.** Ground, pre-flight and post flight tests are not required to obtain FAA TSOA approval for the TSOA models described in question 1a and 2a above. The ground, pre-flight and post flight tests are required when the ELT TSOA is installed in the aircraft.

Although aircraft ground, pre-flight, and post flight tests are not required, RTCA DO-204A, 406 MHz Minimum Performance Standards (MOPS), does require specific testing in section 2 that ensures the unit will perform its intended function when installed.

Please feel free to contact Ms. Charisse Green (202) 385-4637 if you have any additional question on this subject.

Sincerely,

[REDACTED]  
Tim Shaver  
Acting Manager, Avionic Systems Branch, AIR-130

## ATTACHMENT 3

## What is a Cospas-Sarsat 406 MHz Beacon?

A Cospas-Sarsat 406-MHz beacon, also called a distress radio beacon or emergency beacon, is a radio transmitter that is used to send a threatening emergency to summon assistance from government authorities.

The International Cospas-Sarsat Programme, an intergovernmental cooperative of 43 countries and agencies, maintains ground facilities to receive distress signals from 406-MHz beacons and route the alerts to the proper authorities in more than 100 territories. 406 MHz is the radio-frequency band in which the beacons transmit and is the band monitored around the Earth.

A 406-MHz beacon designed for use in an aircraft is known as an Emergency Locator Transmitter (ELT). One designed for use on a vessel is called an Emergency Position-Indicating Radio Beacon (EPIRB). And one that is designed to be carried by an individual is called a Personal Locator Beacon (PLB). Sometimes PLBs are carried aboard aircraft or vessels, but you must check with local authorities to see which this is permitted. Some ELTs (often older models) transmit only a legacy analogue signal on 121.5 MHz or 243 MHz. For Cospas-Sarsat the beacon must be a model that transmits at 406 MHz.

The International Cospas-Sarsat Programme does NOT manufacture, market or sell beacons. Beacons are manufactured competitively by several different companies through a variety of vendor chains. A list of manufacturers is available at our "Contact Lists".

Beacon models are subjected to a rigorous testing procedure by Cospas-Sarsat to ensure that they will operate under a variety of conditions. Once a beacon model successfully has passed this procedure it is known as a Cospas-Sarsat type-approved 406-MHz beacon. A list of approved beacon models is available on our Professionals website under "Approved Beacon Models".

A Cospas-Sarsat 406-MHz beacon does NOT transmit until it is activated in an emergency (or when certain testing features are enabled). Some beacons are designed to be manually activated by a person pressing a button, and some others are designed for automatic activation under certain circumstances (e.g., ELTs may be automatically activated by a physical shock, such as in a crash, and EPIRBs may be automatically activated on contact with water).

Since a Cospas-Sarsat 406-MHz beacon does not transmit until it is activated, it cannot be located by Cospas-Sarsat until it is activated in one of the ways explained above.

What happens when I activate my Beacon?



FaLang translation system by Faboba

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Subscribe to the **Cospas-Sarsat Mailing List****PUBLIC**

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[SAR Statistics](#)  
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[Beacon Ownership](#)  
[Testing Your 406 MHz Beacon](#)  
[Inadvertent Alerts](#)  
[Contact Lists - MCCs and SPOCs](#)

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# **ATTACHMENT 4**

**Beacon Test Report****Organization:****Tested By:** A2**Date:** 28-Oct-15 11:41:05 AM**Tester Model/Serial No./File Name:** BT100AVS/2228/499664-4**Tester Cal Due Date:** Feb 25, 2017**Tester Temperature:** 25°CAFTER COMPUTER  
SOFTWARE RESET☐**PASS**☐**FAIL****INITIALS:** \_\_\_\_\_**Notes:** Add text comments here.**121/243 MHz Measurements****121 Frequency (INT REF):** 121.5027 MHz**121 Power (5 Watt):** 23.8 dBm**243 Frequency (INT REF):** 243.0064 MHz**243 Power (5 Watt):** 19.6 dBm**Sweep Direction:** Downwards**Audio Frequency:** 687 Hz to 1312 Hz**Sweep Range:** 625 Hz**Sweep Rep Rate:** 3.0 Hz**Modulation Factor:** 97 %**Duty Cycle:** 47 %

DISCLAIMER: IN NO EVENT SHALL WS TECHNOLOGIES INC. OR ITS DISTRIBUTORS OR AGENTS BE LIABLE FOR ANY DAMAGES OR LOSSES INCURRED AS A RESULT OF THE USE OR FAILURE OF THIS MEASUREMENT EQUIPMENT.



## Certificate of Calibration

Calibration Date: February 25, 2015

Equipment: Beacon Tester

Model Series: BT100

Serial Number: 2228

WS Technologies Inc. certifies that this instrument has been calibrated to manufacturer specifications and accuracy at an ambient temperature of  $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$  using instruments and standards which are traceable to the National Institute of Standards and Technology. The instruments or standards used for this calibration are calibrated on a schedule which is established to maintain traceability at the required accuracy level.

The recommended calibration interval is 24 months from the Calibration Date shown on this certificate.

  
\_\_\_\_\_  
Quality Assurance

This certificate shall not be reproduced, except in full, without the written approval from WS Technologies Inc.

# **WS Technologies Inc.**

## **Calibration Standards and Testing Instruments used:**

| Test Instruments                                                      | Serial #                  | Cal Date     | Due Date     |
|-----------------------------------------------------------------------|---------------------------|--------------|--------------|
| Stanford Research Systems FS725<br>10 MHz Rubidium Frequency Standard | 65218                     | Dec 28, 2013 | Jan 6, 2016  |
| HP 436A RF Power Meter                                                | 2101A11943                | Jan 2, 2015  | Jan 5, 2017  |
| HP 8482B Power Sensor/Attenuator Assembly                             | 2349A02408/<br>1801A01064 | Jan 9, 2014  | Jan 9, 2016  |
| HP 33120A Function Generator                                          | US36008058                | Jan 2, 2015  | Jan 5, 2016  |
| HP 8657A Synthesized Signal Generator                                 | 3217A04506                | Dec 30, 2014 | Jan 5, 2016  |
| LeCroy 9350AM Oscilloscope                                            | 93501702                  | Jan 6, 2014  | Jan 6, 2016  |
| WST Reference Beacon                                                  | WST001                    | Jan 9, 2014  | Jan 9, 2016  |
| Exttech RH300 Psychrometer                                            | 9896544                   | Dec 29, 2014 | Dec 29, 2015 |

## **Measurement Data:**

Beacon Tester model series:

BT100

Serial Number:

2228

Date of Calibration:

Feb 25, 2015

Laboratory Temperature:

22 °C ± 3°C

Laboratory Relative Humidity:

19 % ± 10%

Before Calibration Condition:

☒ Initial testing found unit to be within calibration tolerances.

☐ Initial testing found unit not to be within calibration tolerances (see attached).

☐ Other

Calibration Procedure:

PP-910-BT100

| Parameter                   | Reference       | Allowable Limits* |                 | Measured Data   | pass |
|-----------------------------|-----------------|-------------------|-----------------|-----------------|------|
|                             |                 | Lower             | Upper           |                 |      |
| 15 HEX ID                   | ADDD04CF5141801 | must be exact     |                 | ADDD04CF5141801 | ✓    |
| 406 Frequency               | 406.028 022 MHz | 406.027 922 MHz   | 406.028 122 MHz | 406.028051 MHz  | ✓    |
| 406 Power                   | +37.5 dBm       | +36.5 dBm         | +38.5 dBm       | +37.7 dBm       | ✓    |
| 406 Modulation +Φ           | +1.08 rad       | +1.03 rad         | +1.13 rad       | +1.07 rad       | ✓    |
| 406 Modulation -Φ           | -1.10 rad       | -1.05 rad         | -1.15 rad       | -1.1 rad        | ✓    |
| 406 Modulation rise time    | 181 μs          | 164 μs            | 198 μs          | 188 μs          | ✓    |
| 406 Modulation fall time    | 181 μs          | 164 μs            | 198 μs          | 177 μs          | ✓    |
| 406 Modulation symmetry     | +0.003          | -0.002            | +0.008          | 0.0             | ✓    |
| 406 Modulation bit rate     | 400.5 bps       | 400.1 bps         | 400.9 bps       | 400.5 bps       | ✓    |
| 406 CW Preamble             | 160 ms          | 158 ms            | 162 ms          | 160.1 ms        | ✓    |
| 121 Frequency               | 121.500 000 MHz | 121.499 900 MHz   | 121.500 100 MHz | 121.499991 MHz  | ✓    |
| 121 Peak Power              | +15.2 dBm       | +13.7 dBm         | +16.7 dBm       | +16 dBm         | ✓    |
| 121 Sweep direction         | upwards         | must be upwards   |                 | Upwards         | ✓    |
| 121 Audio frequency - lower | 500 Hz          | 465 Hz            | 535 Hz          | 500 Hz          | ✓    |
| 121 Audio frequency - Upper | 1500 Hz         | 1455 Hz           | 1545 Hz         | 1500 Hz         | ✓    |
| 121 Duty Cycle              | 40%             | 37%               | 43%             | 42%             | ✓    |
| 121 Modulation Factor       | 85%             | 78%               | 92%             | 83%             | ✓    |
| 121 Sweep repetition rate   | 3.0 Hz          | 2.87 Hz           | 3.13 Hz         | 3 Hz            | ✓    |
| 243 Frequency               | 243.000 000 MHz | 242.999 900 MHz   | 243.000 100 MHz | 242.999994 MHz  | ✓    |
| 243 Peak Power              | +15.2 dBm       | +13.7 dBm         | +16.7 dBm       | +14.7 dBm       | ✓    |

\* Allowable Limits derived from both test equipment accuracies and Beacon Tester stated accuracies.

Shirley Chen

Technician - Print Name

Signature

Page 1 of 1



## Certificate of Calibration

Calibration Date: March 23, 2012

Equipment: Beacon Tester

Model Series: BT100

Serial Number: 2228

WS Technologies Inc. certifies that this instrument has been calibrated to manufacturer specifications and accuracy at an ambient temperature of  $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$  using instruments and standards which are traceable to the National Institute of Standards and Technology. The instruments or standards used for this calibration are calibrated on a schedule which is established to maintain traceability at the required accuracy level.

The recommended calibration interval is 24 months from the Calibration Date shown on this certificate.

  
Quality Assurance

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**NATIONAL TRANSPORTATION  
SAFETY BOARD**

---

**Brad Bigelow**  
Air Safety Investigator

[REDACTED]  
Denver, CO 80239

Telephone: [REDACTED]  
Fax: [REDACTED]  
Cell: [REDACTED]  
E-mail: b [REDACTED]



**Federal Aviation  
Administration**

**Jerry Ramos**  
Senior Aviation Safety  
Engineer  
Systems & Equipment Branch

Aircraft Certification Service  
Transport Airplane Directorate  
[REDACTED]  
Lakewood, CA 90712-4137  
[REDACTED]



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