

# Rapid Decompression Testing

---

Decompression Tests 2016

[BACK TO TABLE OF CONTENTS](#)



**ForeFlight**  
Intelligent Apps for Pilots™



# TEST REPORT

**CTC C1959**

**February 3, 2016**



Accredited by  
American Association for  
Laboratory Accreditation (A2LA)  
2582.01 & 2582.02



Certified Commercial  
Package Testing Laboratory  
(ISTA)



MIL-STD Laboratory  
Suitability Status by  
Defence Logistics Agency (DLA)

## LABORATORY LOCATIONS



**OREGON**  
5245-A NE Elam Young Pkwy.  
Hillsboro, OR, 97124 • Ph: 503-648-1818



**COLORADO**  
1530 Vista View Drive  
Longmont, CO, 80504 • Ph: 720-340-7810

[www.cascadetek.com](http://www.cascadetek.com)

Job Number: C1959

Rev.	Description of the Revision	Date
---	Initial Release of the Data Report.	January 26, 2016
A	Customer requested changes.	February 3, 2016

Test Title	Test Summary
Rapid Decompression	The test was conducted per the required standard with no deviations.



**Cascade Technical Sciences**  
[www.cascadetek.com](http://www.cascadetek.com)  
1-888-835-9250



TESTING CERT #2582.02

February 3, 2016

Certification No: CTC C1959

Attention:

ForeFlight LLC

Reference:

- a. Cascade Tek Job No.: C1959
- b. Cascade Tek Quote No.: CTQ 17964A
- c. Client Purchase Order No.: 1018
- d. Technical Specification: 1. RTCA DO-160G

Cascade Technical Sciences hereby certifies that Five (5) Electronic Devices, P/N: iPad Pro, iPad Air, iPad Mini, Stratus 1S, and Stratus 2S, S/N: as listed in data, were subjected to the following test:

1. Rapid Decompression Test per Reference (b) Item 1 and (d1), Section 4.6.2, the operating samples were stabilized at a pressure of 10.92 psiA corresponding to an altitude of 8,000 feet and then subjected to a reduction in pressure to 1.69 psiA corresponding to an altitude of 50,000 feet within 15 seconds. This altitude of 50,000 feet was then maintained for at least ten minutes.

Testing was done in accordance with the above references as evidenced and reported in the accompanying data. The test samples were returned to the customer for evaluation.

The original of this report is on file at Cascade Technical Sciences, Inc. under the above referenced certification number for review by authorized personnel. The results of the testing reported herein relate only to the actual items tested.

Respectfully submitted,



David Bowles  
Quality Administrator  
Cascade Technical Sciences, Inc.

This test certification shall not be reproduced, except in full, without written authorization from Cascade Technical Sciences Inc.

Total number of pages in this document is 13.

The objective of this test program was to subject customer provided test hardware to environmental simulation in compliance with customer stated specification, including any authorized modification, deviations or concessions to the original requirements. The hardware consisted of items identified in the appropriate sections of this report. In addition to test hardware identification, each section contains information that describes the associated test setup and performance and the resulting data. Cascade TEK, Inc. measuring instruments used in testing were calibrated according to the requirements of ANSI/NCSL Z540-1-1944 and ISO/IEC 17025, 2<sup>nd</sup> Edition and are NIST traceable. Calibration records are on file and available for inspection by request. Because the test methods are well established and are qualitative or semi-quantitative in nature, Cascade TEK, Inc. does not apply measurement uncertainty unless obligated by contract. Measured value related to the corresponding tolerance requirement is used to decide whether a test meets the requirements of the specification. Any test hardware operational setups and resulting evaluations or inspections performed by the customer are not included in this report, unless they were explicitly requested. While observations and/or specification compliance statements may be reported, no interpretations or opinions regarding customer product performance are intended. Unless otherwise indicated in the appropriate report section, all contract obligations were met and the test objective achieved.

GF9FR-10/2015

Cascade Technical Sciences, Inc.

5245-A NE Elam Young Pkwy, Hillsboro OR, 97124  
1530 Vista View Drive, Longmont, CO 80504



# Test Data Log

## Section 1 – Job Information

Job Number: C1959

Customer: ForeFlight LLC

Date Started: 1/20/2016

Date Completed: 1/20/2016

QA Reviewer: Meg Talbert

Signature: *Meg Talbert*

Responsible Technician: Keefe Hart

Quote Issued By: Michael Bosica

Customer Witness: No  Yes  Name: NA

## Section 2 – Test Parameters

Test Title: Rapid Decompression

Test Specification: RTCA DO-160G Section 4.6.2

Test Description: Samples will be stabilized at a pressure equivalent to 8,000 feet of altitude (10.92 psiA) and then pulled down to a pressure equivalent to 50,000 feet of altitude (1.69 psiA) in less than 15 seconds. Pressure will be maintained at this level for 10 minutes and then returned to site pressure.

## Section 3 – Test Sample Information

Sample Description	Sample P/N or Model No.	Sample S/N or Other Identifier	Qty.
Stratus 1S	153510-000007 SSID: Stratus 1S		1
Stratus 2S	SSID: Stratus2S device	PN not listed on	1
iPad Pro	Pro ML3N2LL/A; Model A1652	(602-00338-A)	1
iPad Mini	Mini 4 MK8A2LL/A; Model A1550	(602-00388-A)	1
iPad Air	Air 2 MH2N2LL/A; Model A1567	(602-00108-A)	1

## Section 4 – Test Equipment

ID No.	Description	Manufacturer	Model No.	Serial No.	Last Cal	Next Cal
1208	Altitude Chamber	Tenney	27ST-100400	8190	04/17/15	04/30/16
1228	Altitude Chamber	Tenney	8S	25720-02	08/05/15	08/31/16
FR447	Temperature/Relative Humidity Meter	Cole-Parmer	90080-03	130743104	03/07/14	03/31/16
FR411	Data Logger	Agilent	34970A	US37010202	03/30/15	03/31/16
FR412	Data Logger Input Module	Agilent	34901A	US37000277	04/10/15	04/30/16
403	Transducer	Omega	PX303-100A5V	NA	12/21/15	12/31/16
1151	Pressure Vessel	CTEK	---	1	Reference Only	
FR446	Stop Watch	Control Company	94460-28	130699687	01/22/14	01/31/16

**Section 5 – Test Log**

Customer Name: ForeFlight LLC

Laboratory Temperature: +72°F

Job Number: C1959

Laboratory Humidity: 22% RH

Initials	Date	Time	Notes	Photo
KH	1/20/2016	2130	Samples are placed in pressure vessel 1151 and vessel is sealed.	<input checked="" type="checkbox"/>
KH	1/20/2016	2200	Internal pressure in vessel is brought to an equivalent to 8,000 feet of altitude using chamber 1228 as a vacuum source.	<input type="checkbox"/>
KH	1/20/2016	2230	Vessel is maintained at 8,000 feet allowing samples time to stabilize. During this period of stabilization, chamber 1208 is brought to a pressure equivalent to 60,000 feet of altitude.	<input type="checkbox"/>
KH	1/20/2016	2232	Vacuum source from 1228 is closed off and vacuum source from 1208 is opened bringing the internal vessel pressure down to an equivalent to 50,000 feet of altitude. Pressure change occurs in about 7 seconds.	<input type="checkbox"/>
KH	1/20/2016	2245	Vessel pressure is maintained for a period greater than 10 minutes.	<input type="checkbox"/>
KH	1/20/2016	2250	Vessel internal conditions are returned to site conditions.	<input type="checkbox"/>
KH	1/20/2016	2300	Samples are removed from chamber.	<input type="checkbox"/>
KH	1/20/2016	2315	Samples are verified operational.	<input checked="" type="checkbox"/>
KH	1/20/2016	2315	Samples will be returned to customer.	<input type="checkbox"/>
KH	1/20/2016	2330	Testing is complete.	<input type="checkbox"/>

### Foreflight - J# C1959- Rapid Decompression

