





## TEST REPORT

Name & Address of the customer	<b>Identive GmbH</b> Oskar-Messter-Str. 13 85737 Ismaning, Germany.
Testing Location	<b>UL India Pvt Ltd</b> Laboratory Building, Kalyani Platina campus, Sy. No.129/4, EPIP Zone Phase II, Whitefield, Bangalore – 560066, India
Test Date	2013 / 03 / 28
Type of test	Refer to Test Details
Purpose of test	Qualification
Test Standard, edition	IEC 60068-2-1:2007, IEC 60068-2-2:2007, IEC 60068-2-78, IEC 60068-2-13, MIL 202F, MIL 202D, IEC 60068-2-32, IEC 60068-2-14:2009
Product Description	
Nomenclature of the Product	Card Reader
Manufacturer	IDENTIVE Gmbh
Model / Type No.	Cloud2700F
Serial No.	--
Quantity	01
Project Details	
Project No.	13CA14940
Report No.	13CA14940
Date of receipt of item	2013 / 03 / 20
Condition of item on its receipt	Good
Date of Completion	2013 / 05 / 16
Date of Issue	2013 / 05 / 18
Issued By	UL India Pvt. Ltd

Tested By	Authorized Signatory
	
Thresh.J	S.Nandakumar



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## Test Details

#	Test Nomenclature	Reference Standard	Test Specification	
1.	Cold Test (Operating, Storage)	IEC 60068-2-1:2007	0°C , 4Hrs	
2.	Dry Heat (Operating, Storage)	IEC 60068-2-2:2007	50°C , 4Hrs	
3.	Damp Heat (Operating, Storage)	IEC 60068-2-78	40°C , 93% R.H , 4Hrs	
4.	Vibration Test (Non-Operating)	MIL 202F, Method 204D	Axis	X, Y, Z
			Frequency	10-500Hz
			Amplitude	4 g
			Duration	4 Hr/Axis
			Sweep Rate	0.564 Oct/min 12 Sweep cycle
5.	Shock Test (Operating)	MIL 202F, Method 213B	Refer test profile	
6.	Altitude Test (Operating)	IEC 60068-2-13	25°C , 16404 Feet (5000 meters), 4Hrs	
7.	Drop Test	IEC 60068-2-32	Drop height of 75cm on all 6 directions, 10 drops/face	
8.	Thermal Shock Test (Non-operating)	IEC 60068-2-14:2009	100cycles between -20°C to 60°C	

### 1.1 Equipment Used for environmental test

Nomenclature	Climatic Chamber
Make	Espec
Model / Sl.no	EGNX28-6CWL / 1710837
UID Number	ECC06
Air velocity and direction	800 CFM, Circular
Calibrated On	Jan 02 <sup>nd</sup> 2013
Calibration Due	Jan 02 <sup>nd</sup> 2014



## 1.2 Equipment Used for Vibration test

Nomenclature	Thermal Chamber
Make	M/s. LDS Dactron
Model / Sl.no	Laser USB / 6881714
Calibration Due	December 04 <sup>th</sup> 2013
Nomenclature	Accelerometer
Make	PCB
Model / Sl.no	353B18 / 113750
Calibration Due	January 04 <sup>th</sup> 2014

## 1.3 Equipment Used for Altitude test

Nomenclature	Thermal Chamber
Make	M/s. Thermotron
Model / Sl.no	FA64-C-H-15-15 / 40156
Calibration Due	April 16 <sup>th</sup> 2013

## 1.4 Equipment Used for Thermal Shock test

Nomenclature	Thermal Shock Chamber
Make	M/s. Saraswati Dynamic Pvt Ltd.
Model / Sl.no	STSC 300 / 10050
Calibration Due	September 13 <sup>th</sup> 2013



## 2. Environmental Test Result Summary

Sl. No	Test	Specification	Requirement	Result	Verdict
1.	Cold Test Clause 5.4, 6.6, 6.8, 6.9,	Temperature Cyclic , Operating, Non- Operating (IEC60068-2-1, Test Ae)	a. Shall be operational during the test with the test tool S/W running.	a. Unit under operation during the test with the test tool S/W running.	Pass
			b. Performance check carried out after the cold test.	b. Unit satisfactorily functioning.	Pass
2.	Dry Heat Clause 5.4, 6.5, 6.8, 6.9, 6.13	Temperature Cyclic , Operating, Non- Operating (IEC60068-2-2, Test Be)	a. Shall be operational during the test with the test tool S/W running.	a. Unit under operation during the test with the test tool S/W running.	Pass
			b. Performance check carried out after heat test.	b. Unit satisfactorily functioning.	Pass
3.	Humidity Damp Heat Clause 6, Clause 8, Clause 10	Temperature Cyclic , Operating, Non- Operating (IEC60068-2-78, Test Be)	a. Shall be operational during the test with the test tool S/W running.	a. Unit under operation during the test with the test tool S/W running.	Pass
			b. Initial Performance check carried.	b. Unit satisfactorily functioning.	Pass
			c. Performance check carried out at the end of test.	c. Unit satisfactorily functioning.	Pass
4.	Altitude Test	Temperature Cyclic , Operating (IEC60068-2-13)	a. Shall be operational during the test with the test tool S/W running.	a. Unit under operation during the test with the test tool S/W running.	Pass



## 2. Environmental Test Result Summary-contd.

Sl. No	Test	Specification	Requirement	Result	Verdict
5.	Vibration Test	Sinusoidal, Non-Operating (MIL STD 202F Method 204D Test Condition B in sleep mode)	a. Initial Performance check carried before the test.	a. Unit performing normally with the test tool S/W running.	Pass
			b. Shall be non-operational during the test.	b. Unit under non-operating condition during the test.	Pass
			c. Performance check carried out after the test.	c. Satisfactorily functioning with the test tool S/W running.	Pass
			d. Inspected for physical damages before and after the test.	d. No physical damage observed before and after the test.	Pass
6.	Shock Test	Operating (MIL STD 202F Method 213B Test Condition A in sleep mode.)	a. Shall be operational during the test with the test tool S/W running.	a. Unit under operation during the test with the test tool S/W running.	Pass
			b. Inspected for physical damages before and after the test.	b. No physical damage observed before and after the test.	Pass



## 2. Environmental Test Result Summary-contd.

Sl. No	Test	Specification	Requirement	Result	Verdict
7.	Drop Test (with smart card inserted)	Unit is dropped from a height of 75cm over concrete onto each face, edge and corner. (10 drops per face)	a. Shall function normally upon power ON without any visual damage.	a. Satisfactorily functioning with the test tool S/W running. No visual damage observed.	Pass
	Drop Test (without smart card inserted)	Unit is dropped from a height of 75cm over concrete onto each face, edge and corner. (10 drops per face)	b. Shall function normally upon power ON without any visual damage.	b. Satisfactorily functioning with the test tool S/W running. No visual damage observed.	Pass
8.	Thermal Shock	Thermal Shock, Non-Operating (IEC60068-2-14, Test Na)	a. After the test there shall be no crack and no deformation shall be observed in the EUT	a. No physical damage observed before and after the test.	Pass
			b. Shall function normally upon power ON.	b. Satisfactorily functioning with the test tool S/W running.	Pass

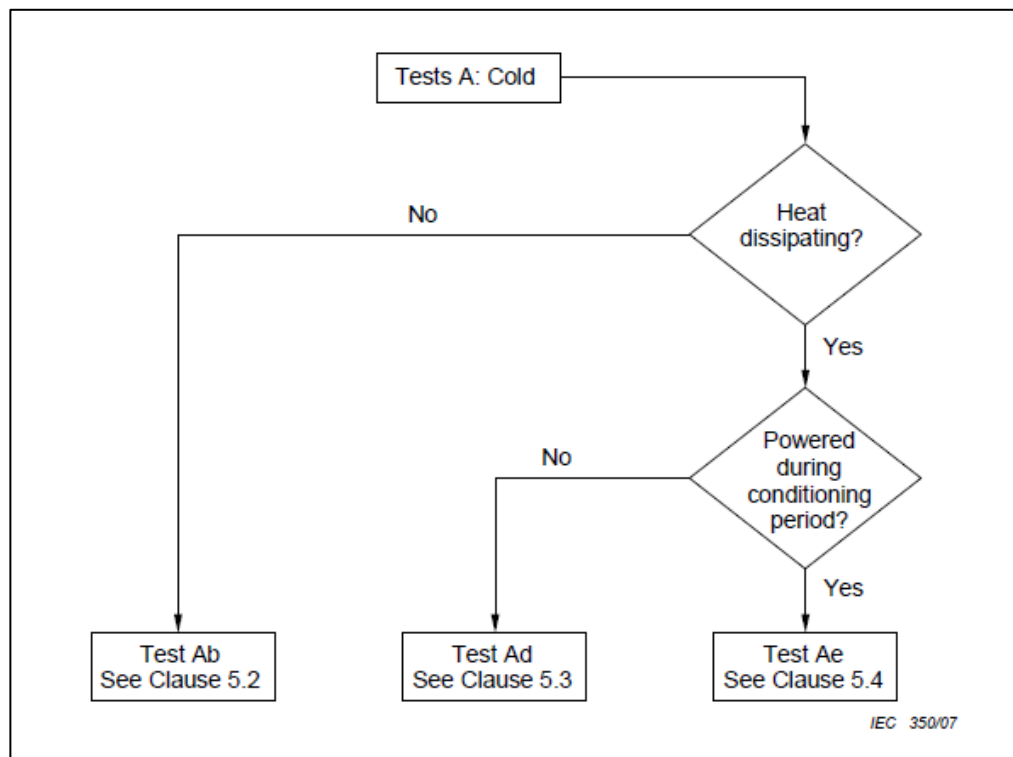
### 3. Test Conditions

#### 3.1 COLD TEST – OPERATING (IEC60068-2-1, TEST Ae)

##### Test Level:

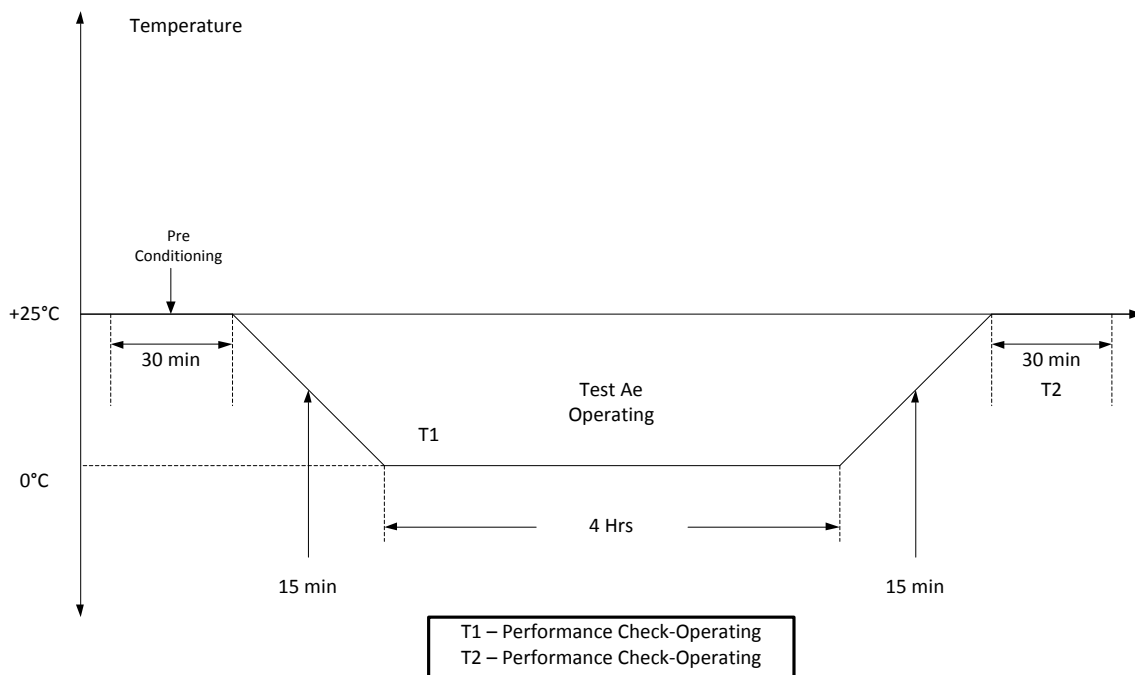
Cold	0 °C
Precondition	30 min.
Gradient	15 min
Duration	4 Hrs
Number of cycles	1

##### Block diagram for the choice of test





### Test Cycle:

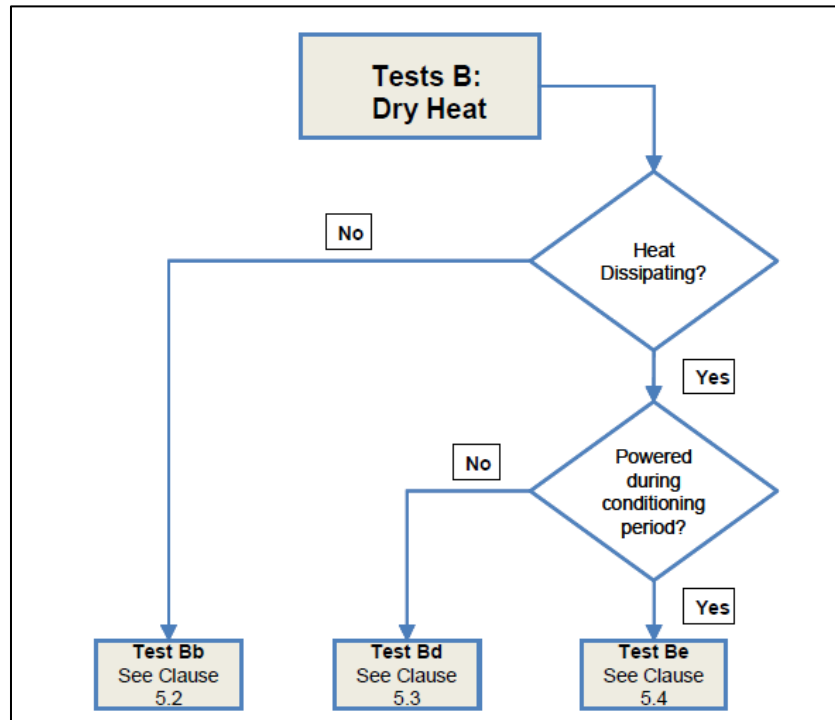


### 3.2 DRY HEAT – OPERATING (IEC60068-2, TEST BE)

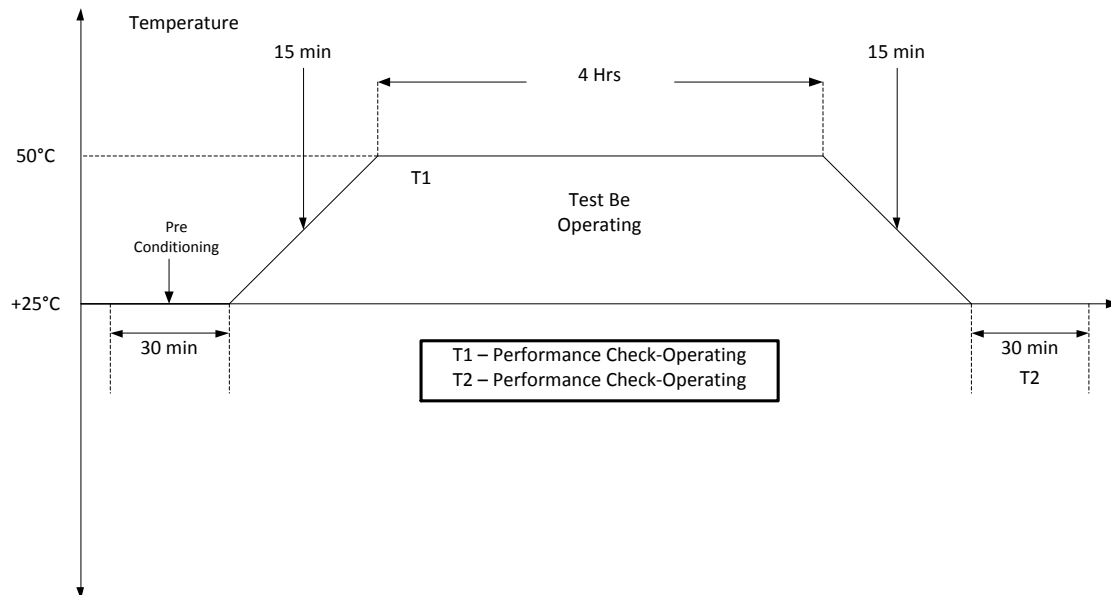
#### Test Level:

Cold	50 °C
Precondition	30 min.
Gradient	15min
Duration	4 Hrs
Number of cycles	1

## Block diagram for the choice of test



## Test Cycle:



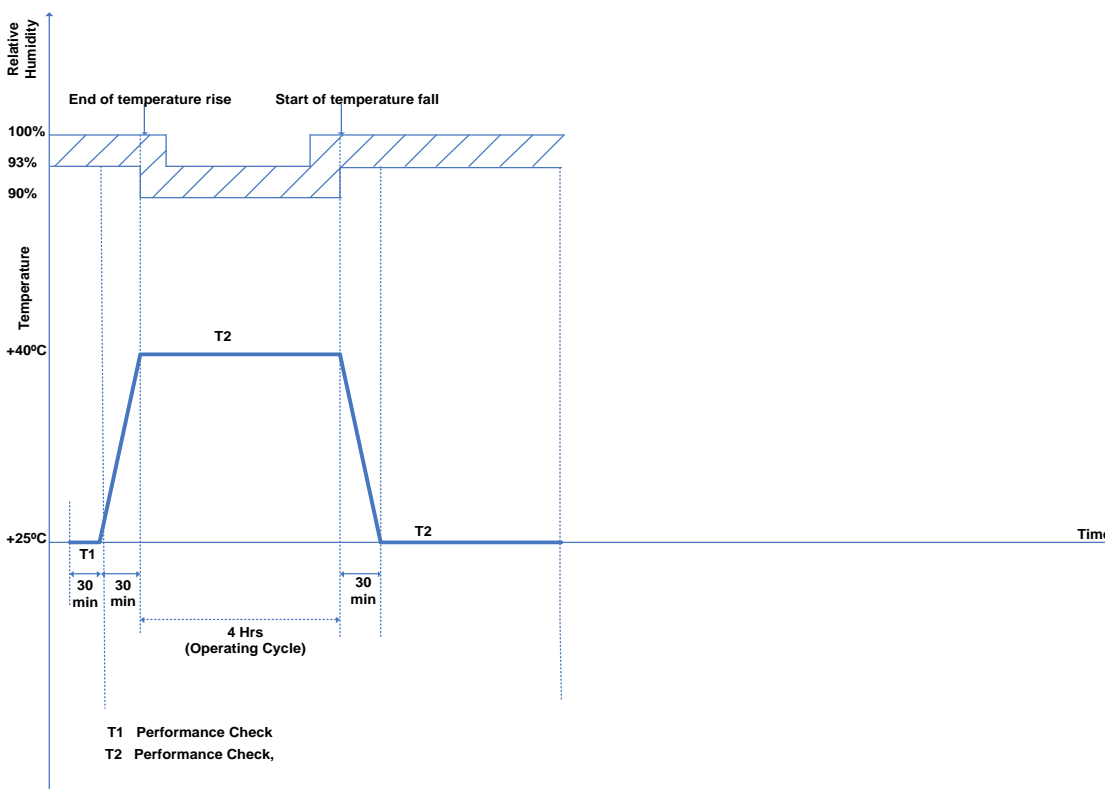


### 3.3 Humidity Damp Heat, Operating (IEC60068-2-78, TEST C A<sub>B</sub>)

#### Test Level:

Temperature Cycle Range	25-40-25 °C
Humidity Cycle Range	90-100 % condensing
Duration	4 Hrs
Number of cycles	1

#### Test Cycle:

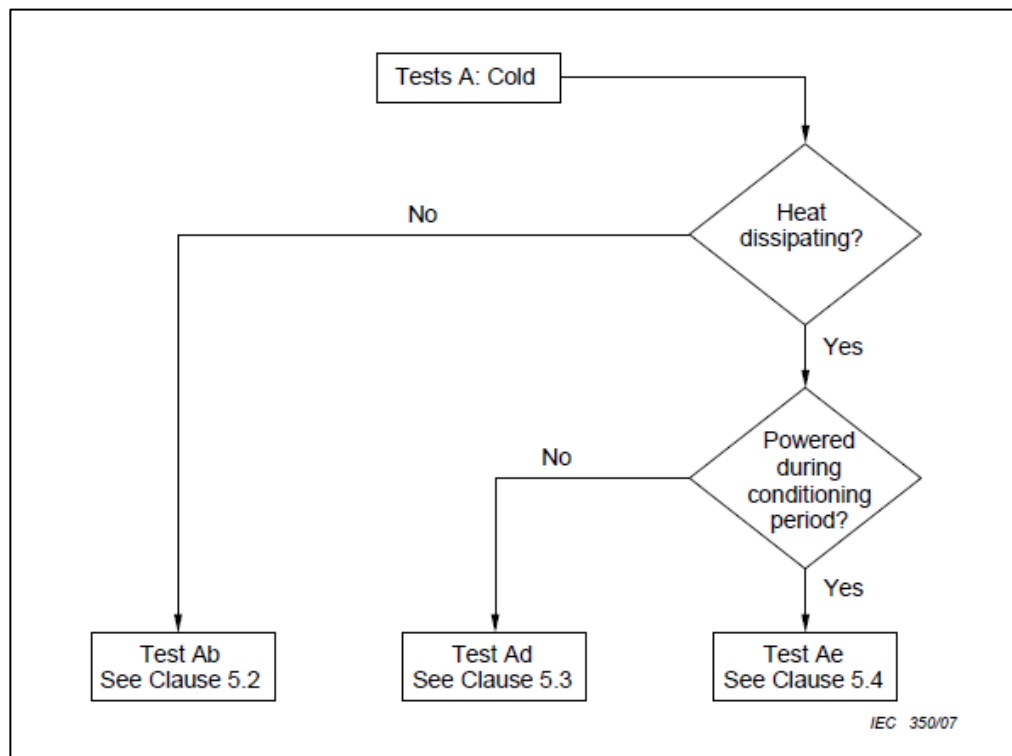


### 3.4 COLD TEST – STORAGE (IEC60068-2-1, TEST Ae)

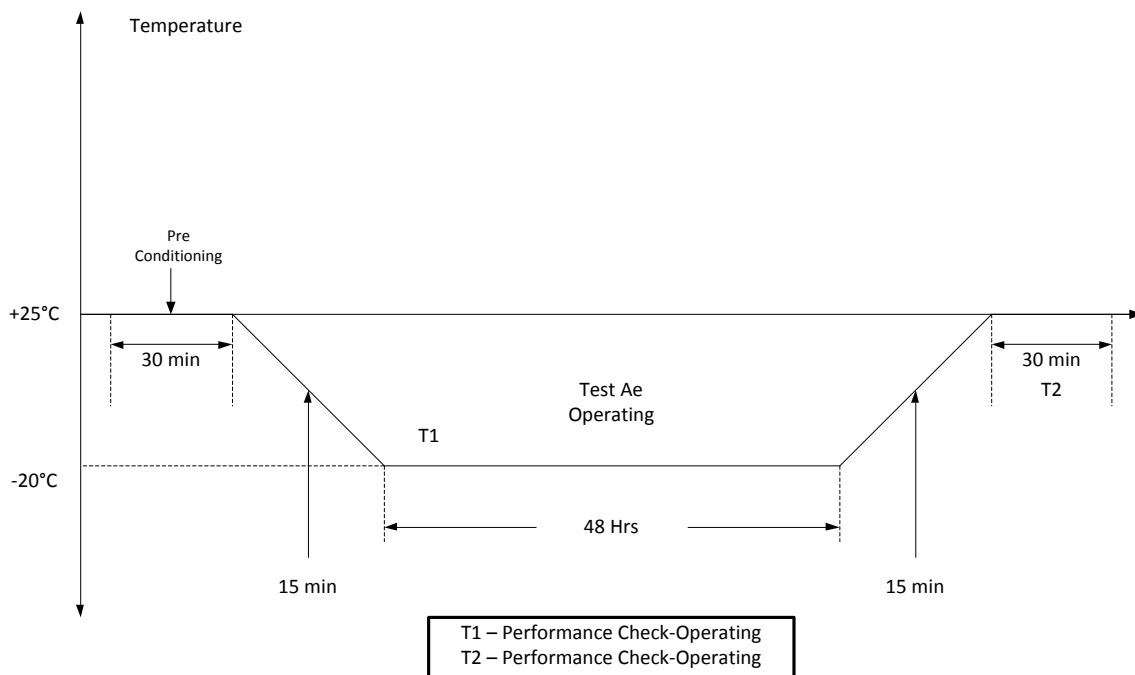
#### Test Level:

Cold	-20 °C
Precondition	30 min.
Gradient	15min
Duration	48 Hrs
Number of cycles	1

#### Block diagram for the choice of test



### Test Cycle:

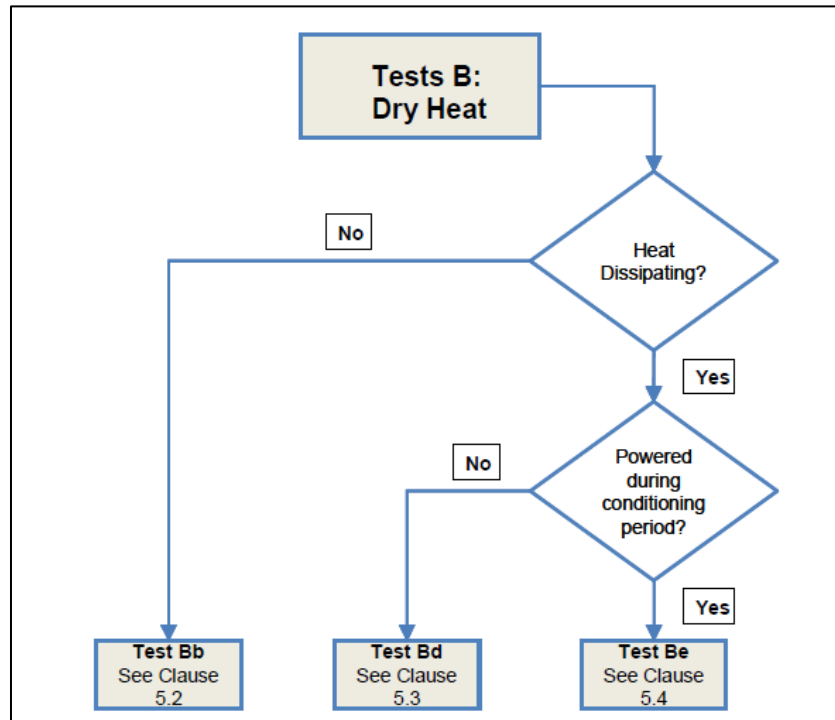


### **3.5 DRY HEAT – STORAGE (IEC60068-2, TEST BE)**

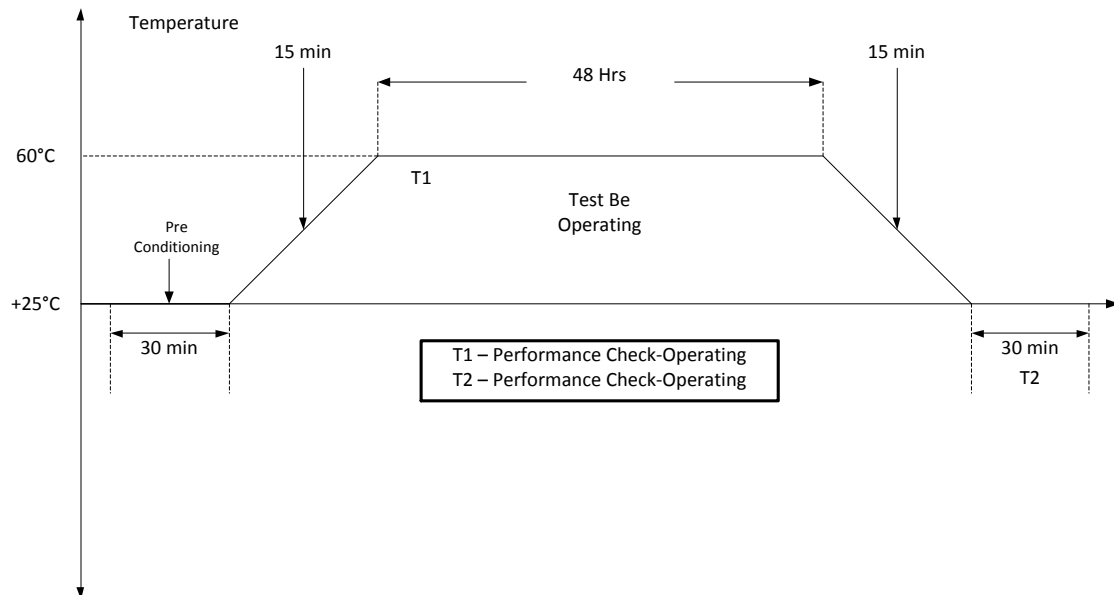
#### Test Level:

Cold	60 °C
Precondition	30 min.
Gradient	15 min
Duration	48 Hrs
Number of cycles	1

## Block diagram for the choice of test



## Test Cycle:



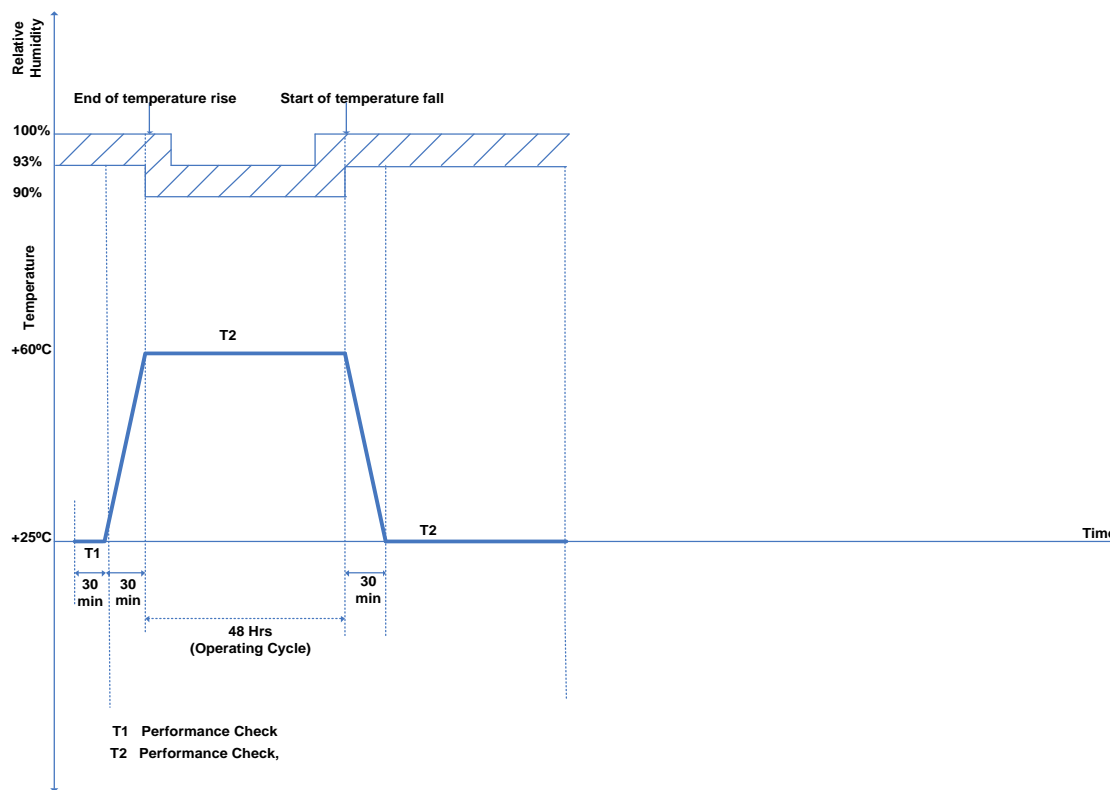


### 3.6 Humidity Damp Heat, Storage (IEC60068-2-78, TEST C A<sub>B</sub>)

#### Test Level:

Temperature Cycle Range	25-60-25 °C
Humidity Cycle Range	90-100 % condensing
Duration	48 Hrs
Number of cycles	1

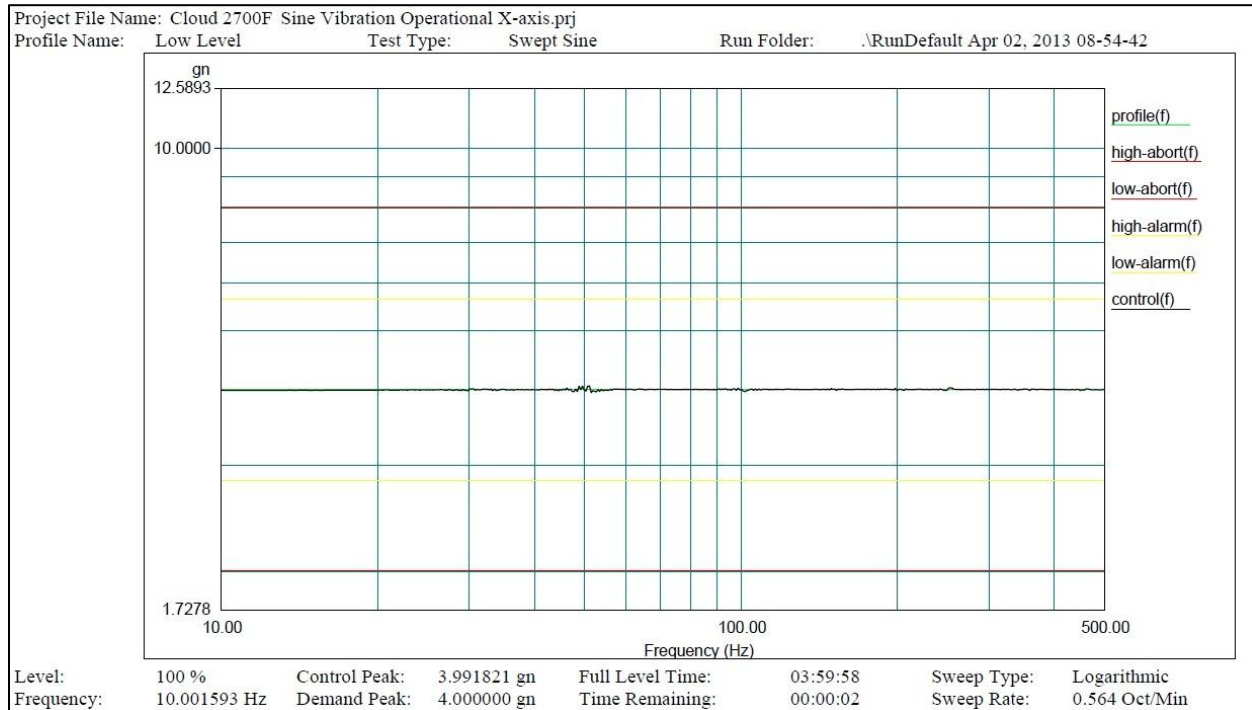
#### Test Cycle:



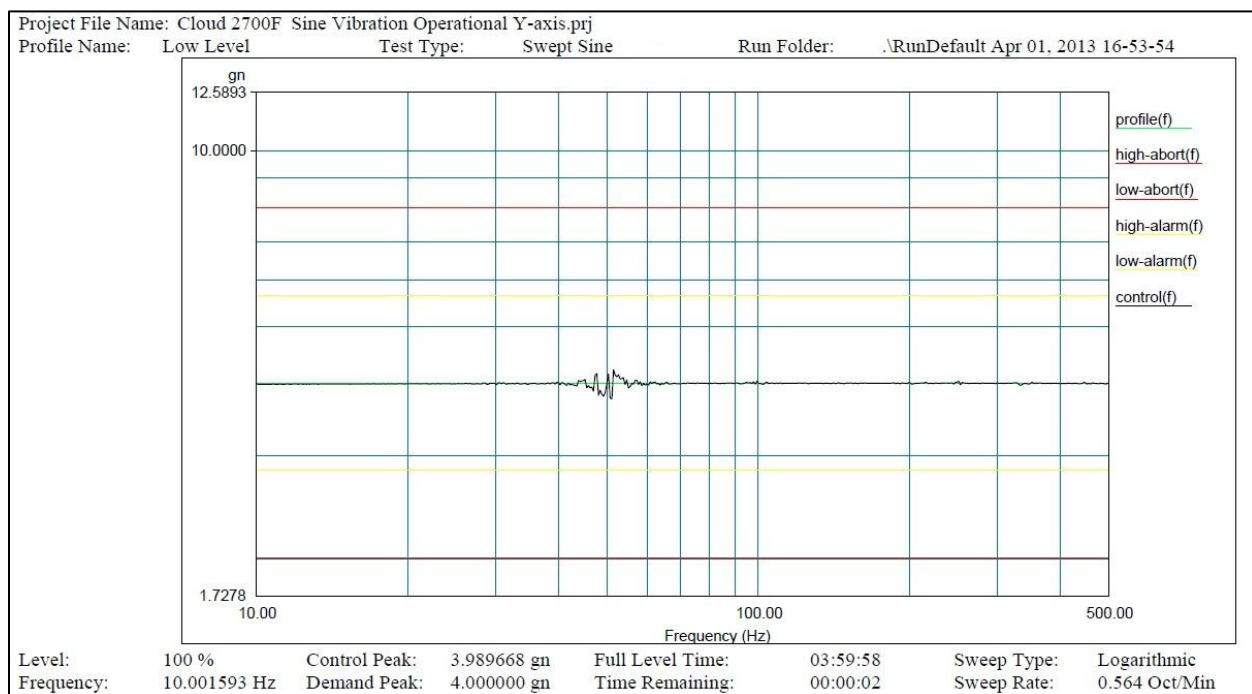


### 3.7 Vibration Test Profile

#### a. Test profile for Sine vibration X axis (Operational):



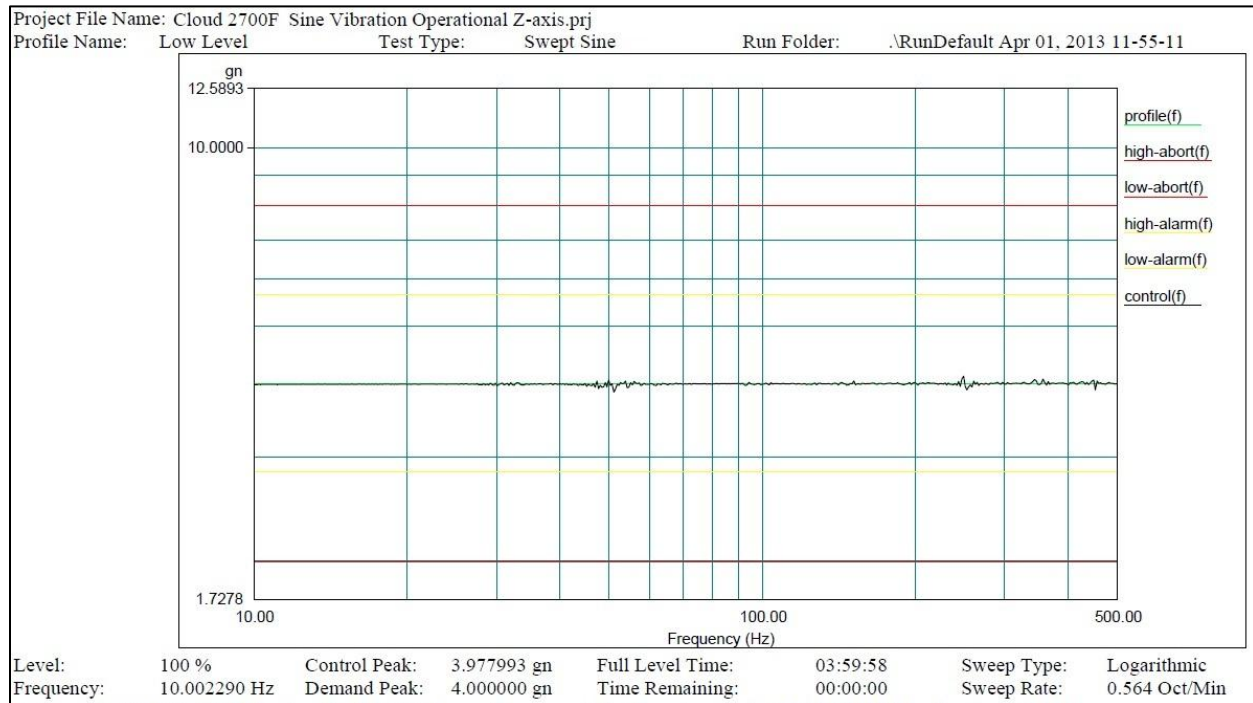
#### b. Test profile for Sine vibration Y axis (Operational):



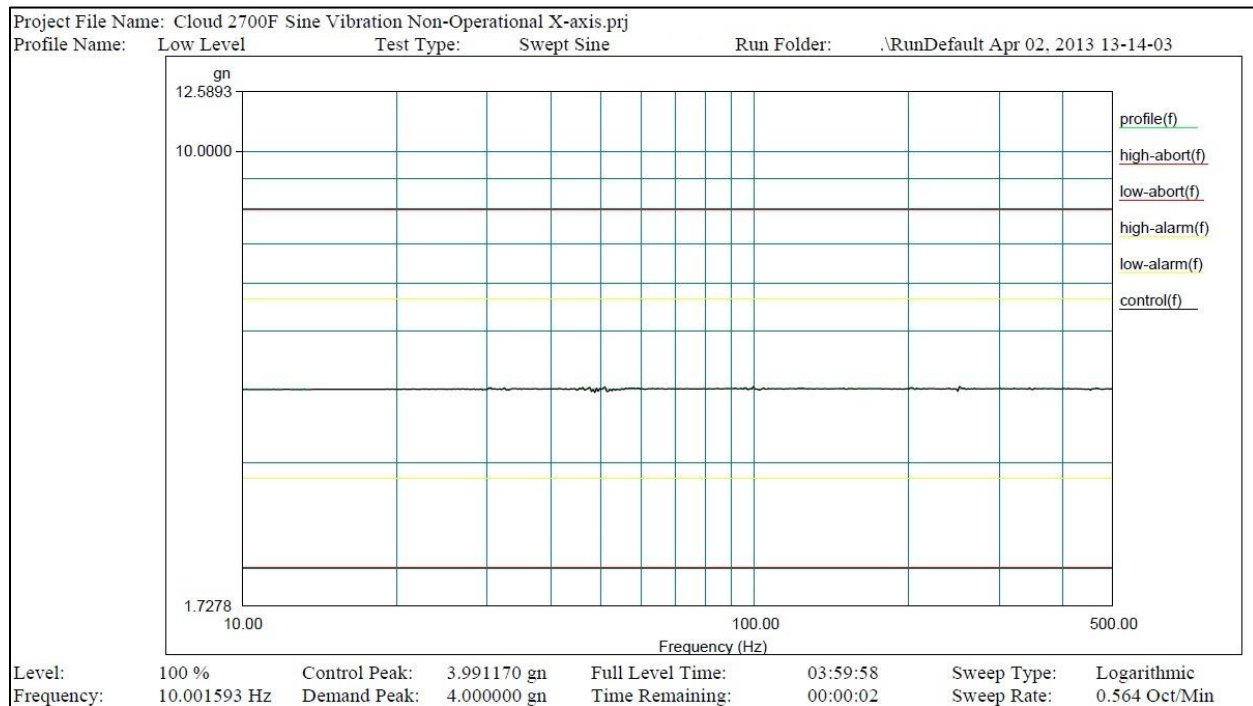




c. Test profile for Sine vibration Z axis (Operational):

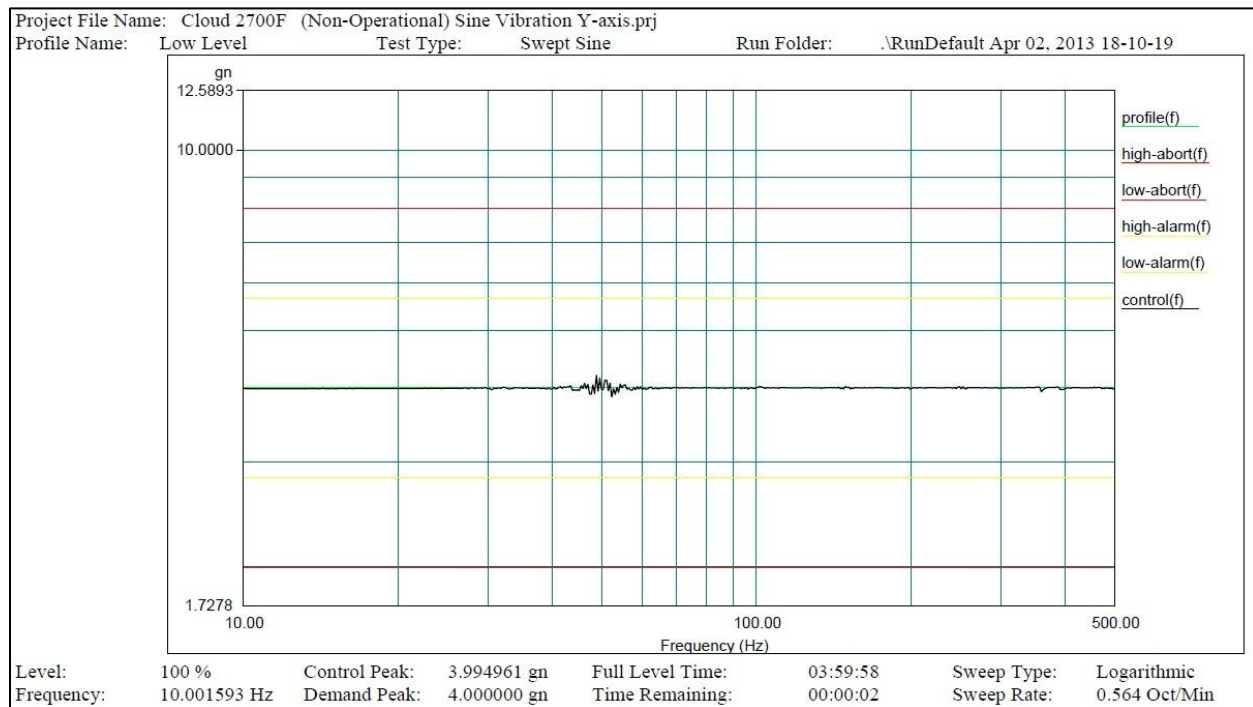


d. Test profile for Sine vibration X axis (Non-Operational):

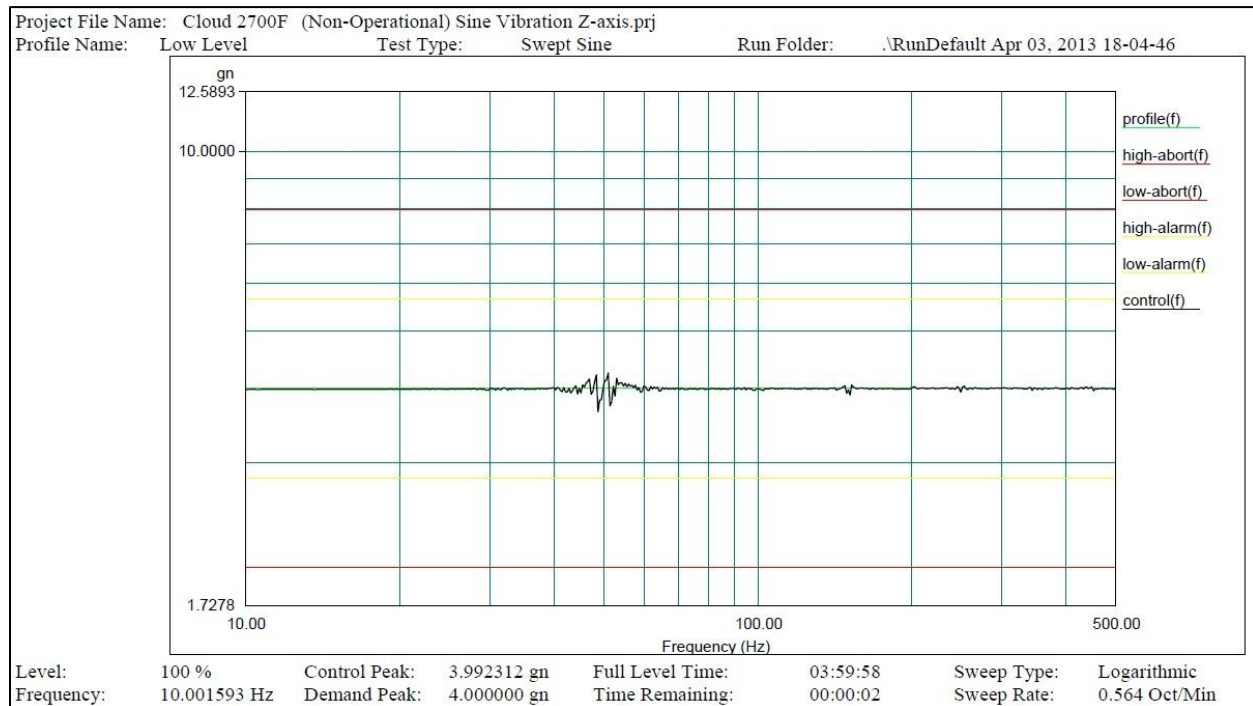




e. Test profile for Sine vibration Y axis (Non-Operational):



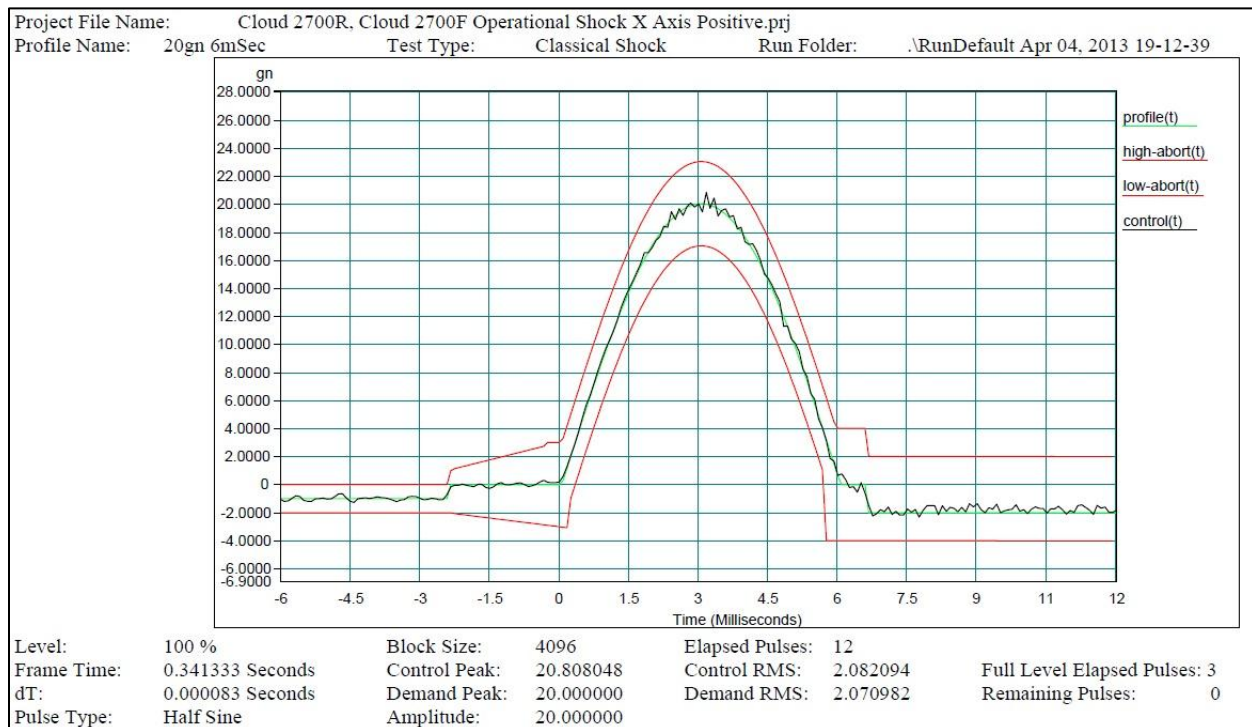
f. Test profile for Sine vibration Z axis (Non-Operational):



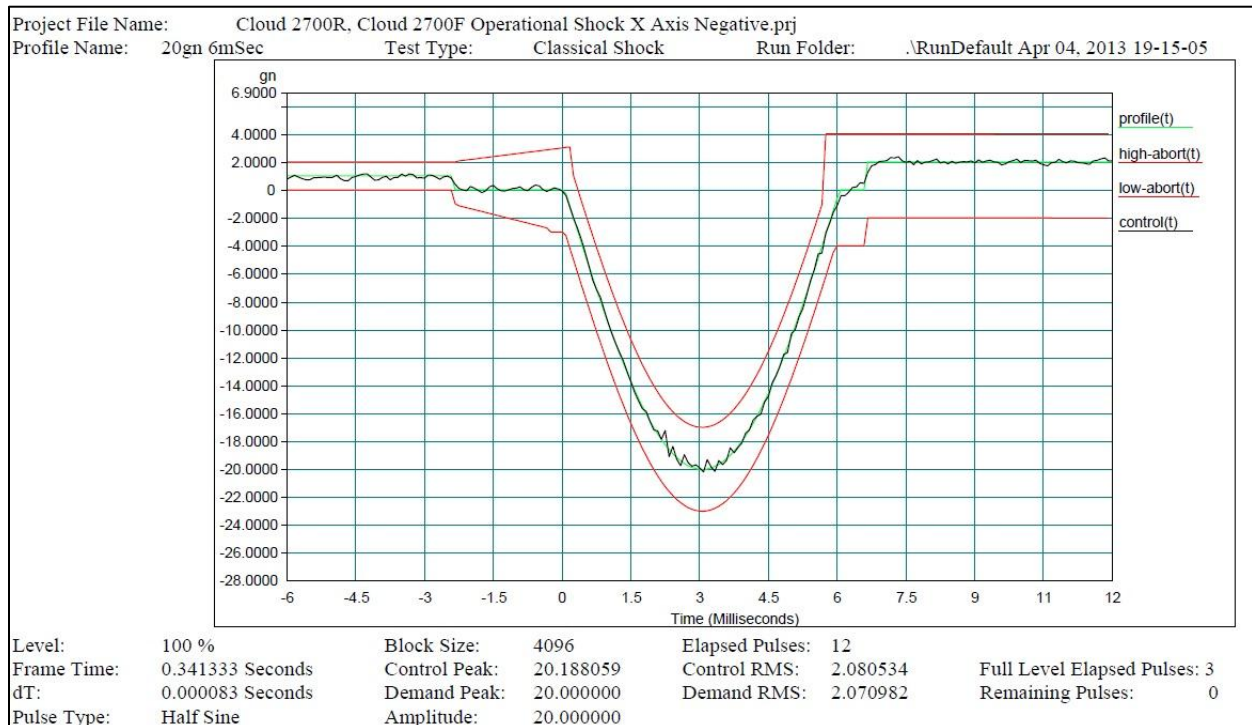


### 3.8 Shock Test

#### a. Test profile for Shock X axis positive peak (Operational):

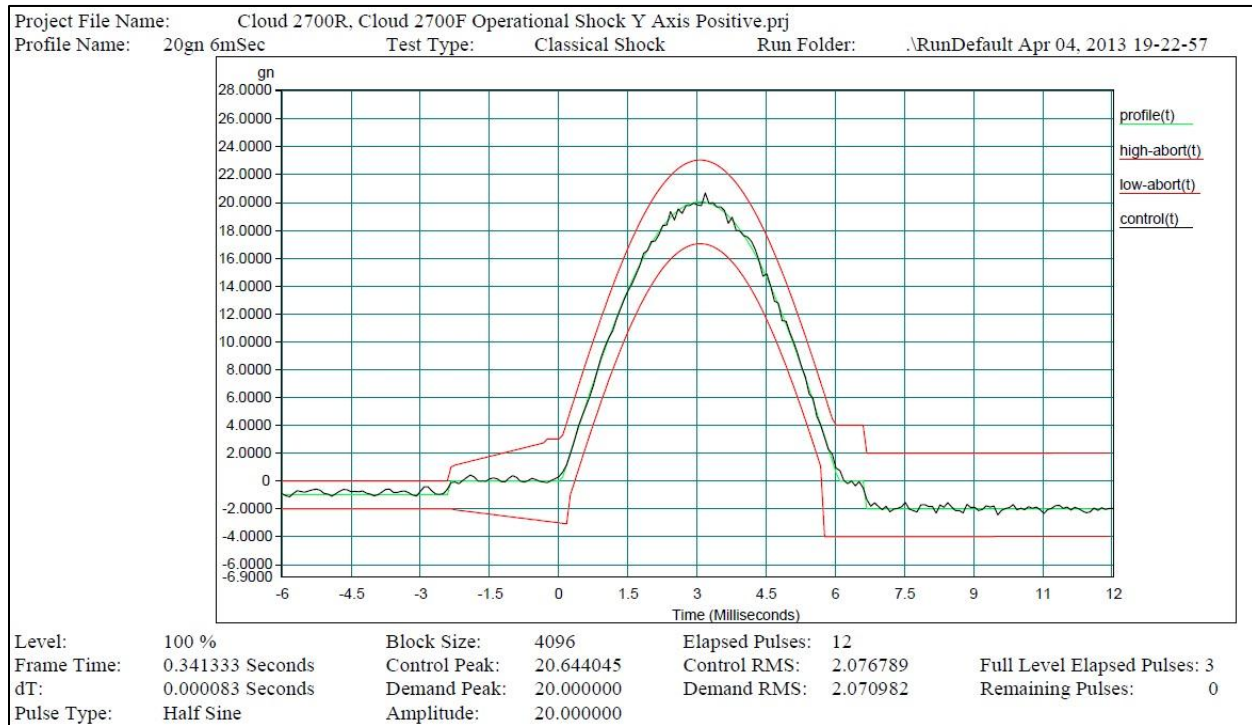


#### b. Test profile for Shock X axis negative peak (Operational):

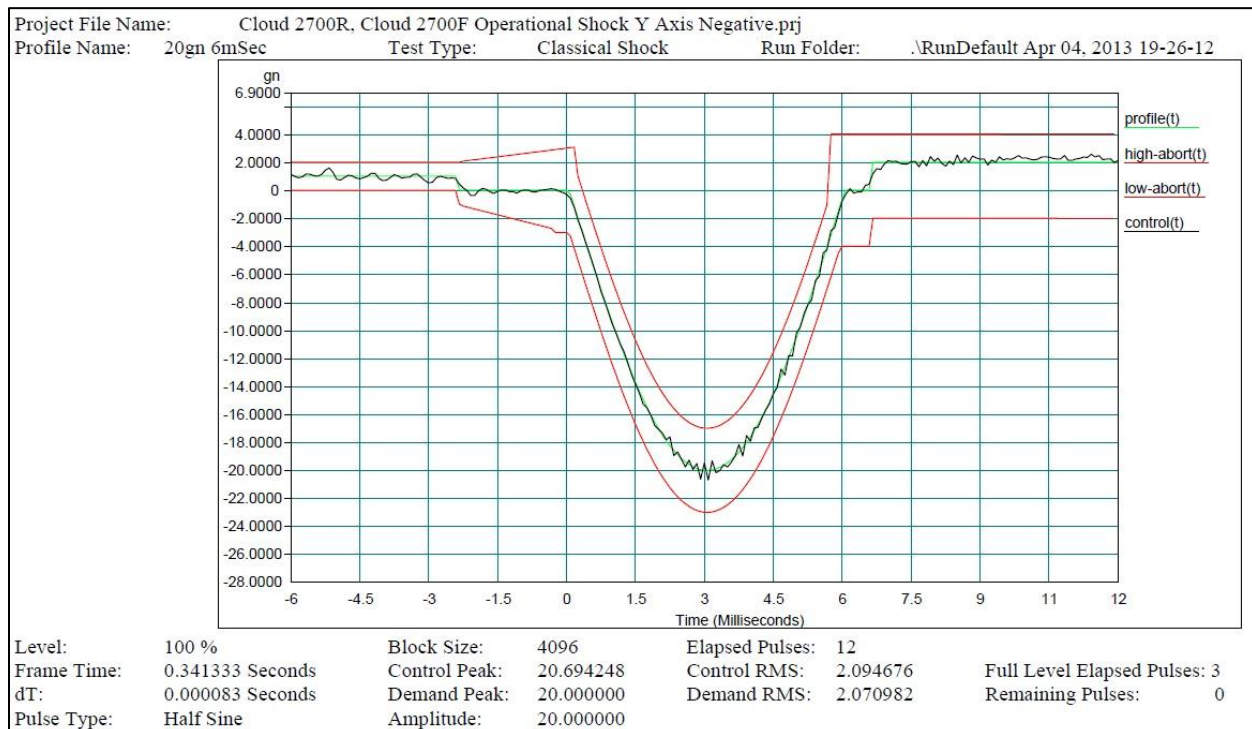




c. Test profile for Shock Y axis positive peak (Operational):



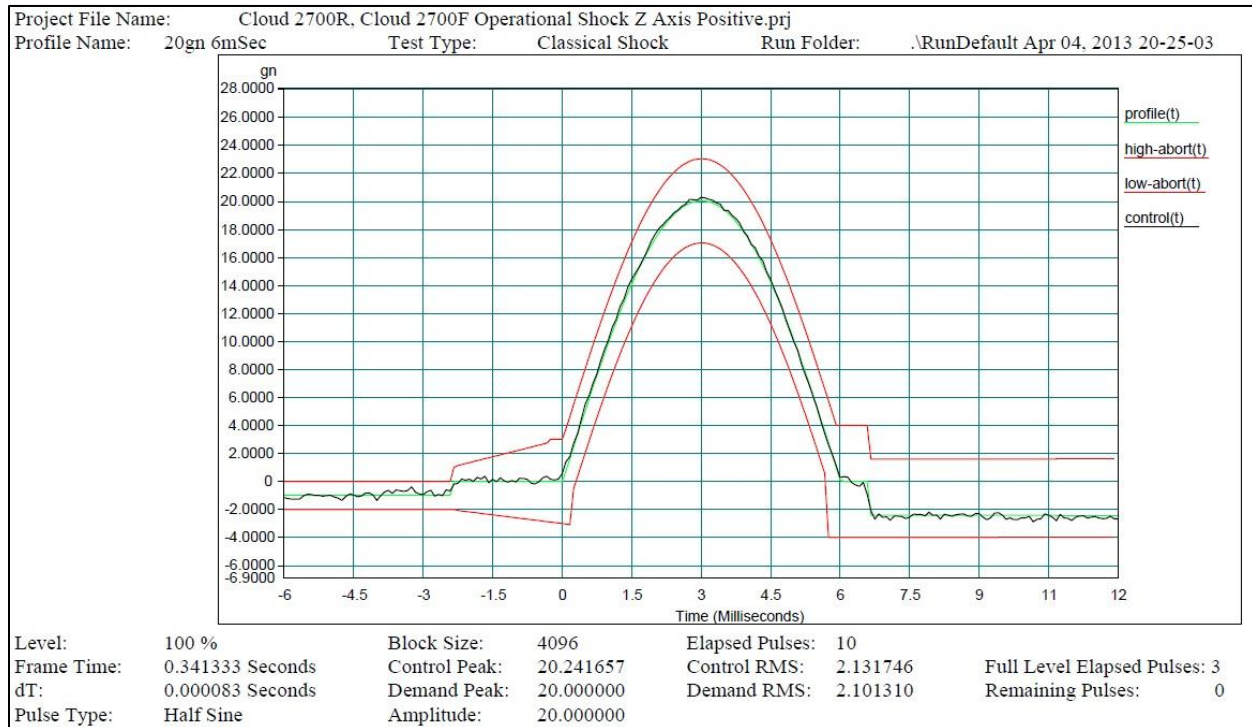
d. Test profile for Shock Y axis negative peak (Operational):



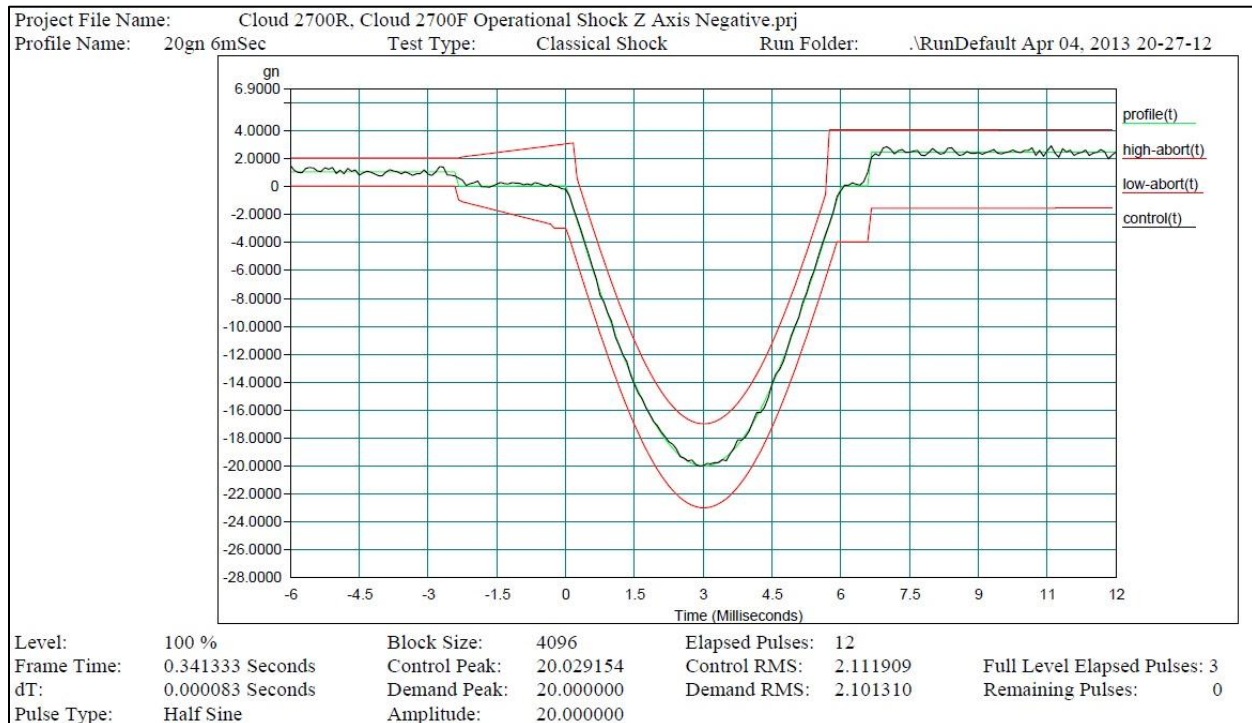




e. Test profile for Shock Z axis positive peak (Operational):

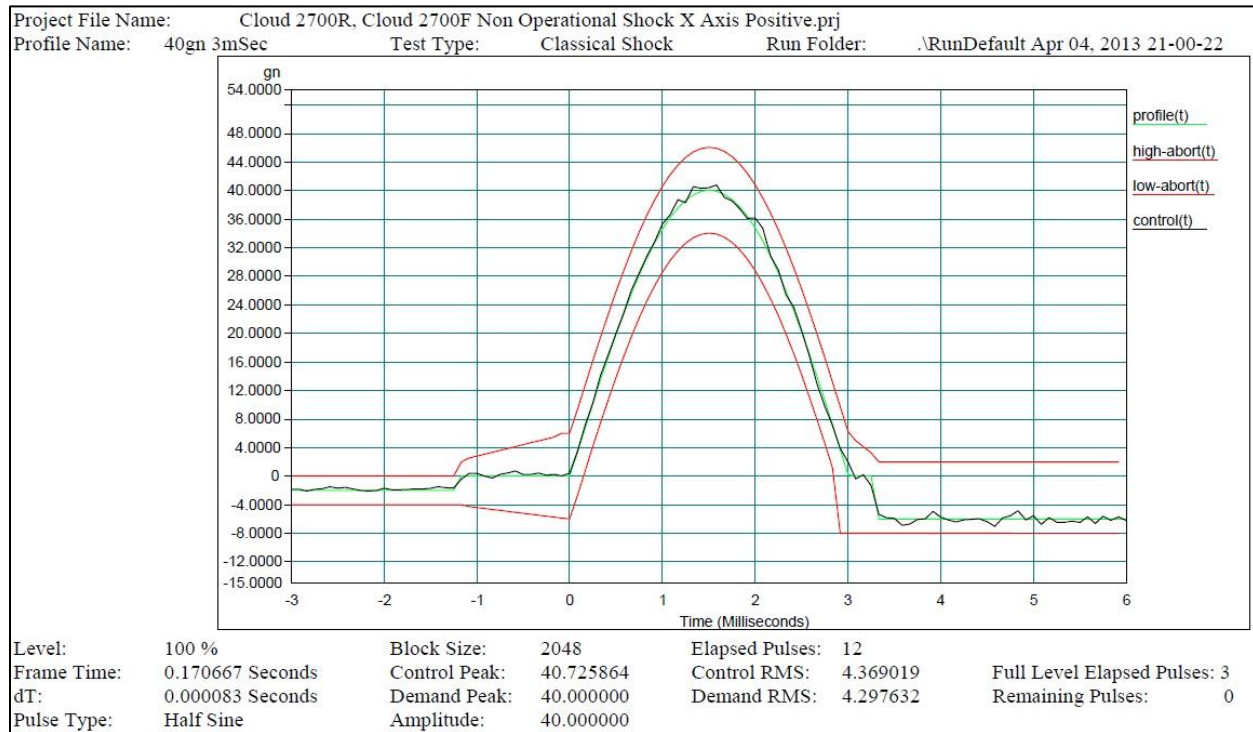


f. Test profile for Shock Z axis negative peak (Operational):

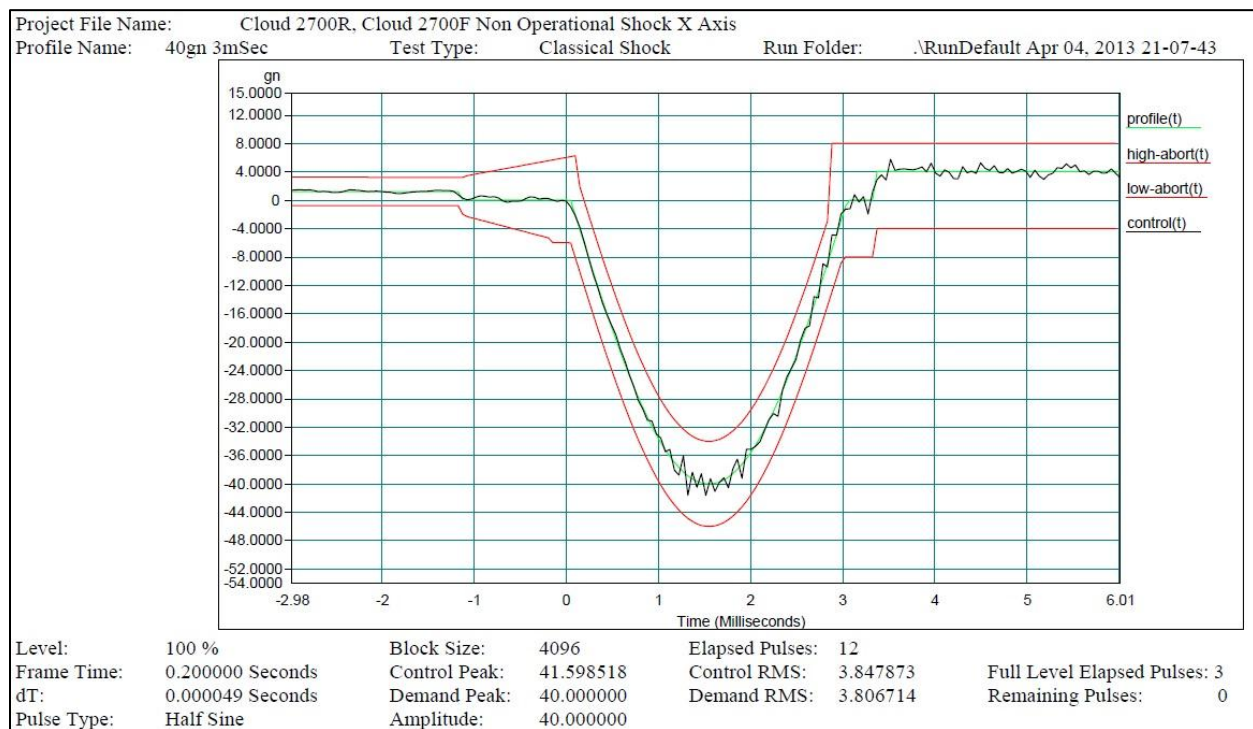




g. Test profile for Shock X axis positive peak (Non-Operational):

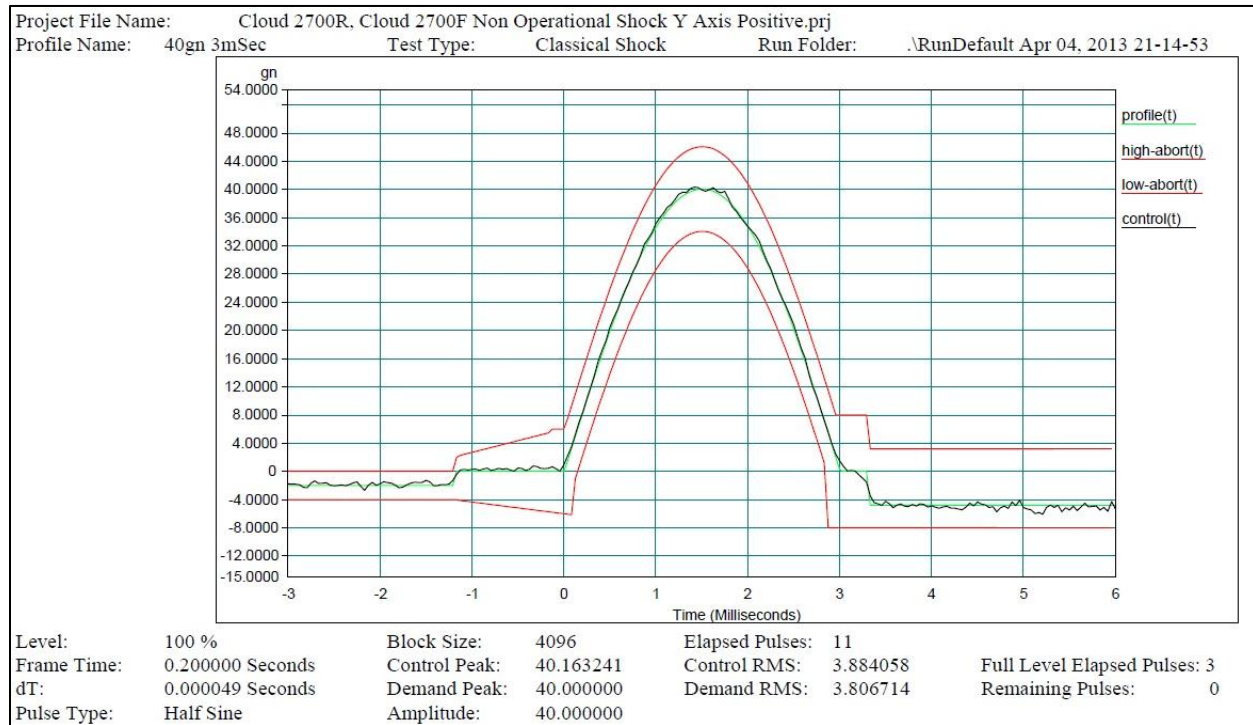


h. Test profile for Shock X axis negative peak (Non-Operational):

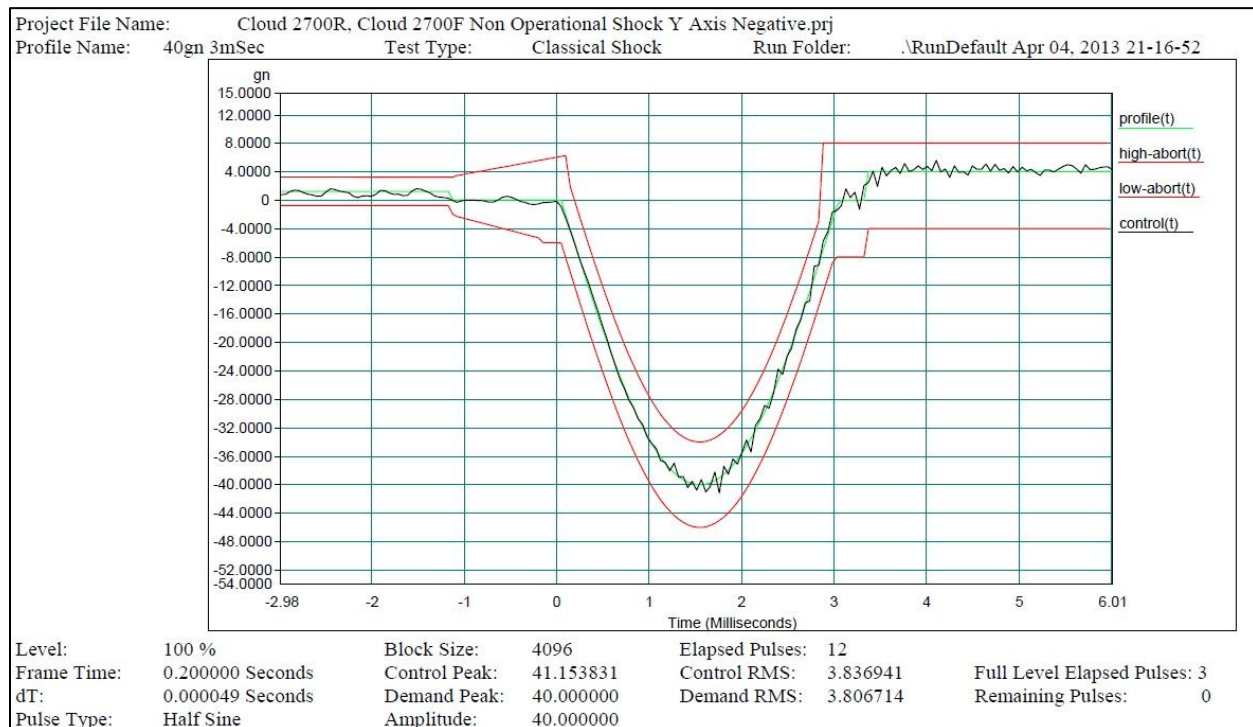




i. Test profile for Shock Y axis positive peak (Non-Operational):



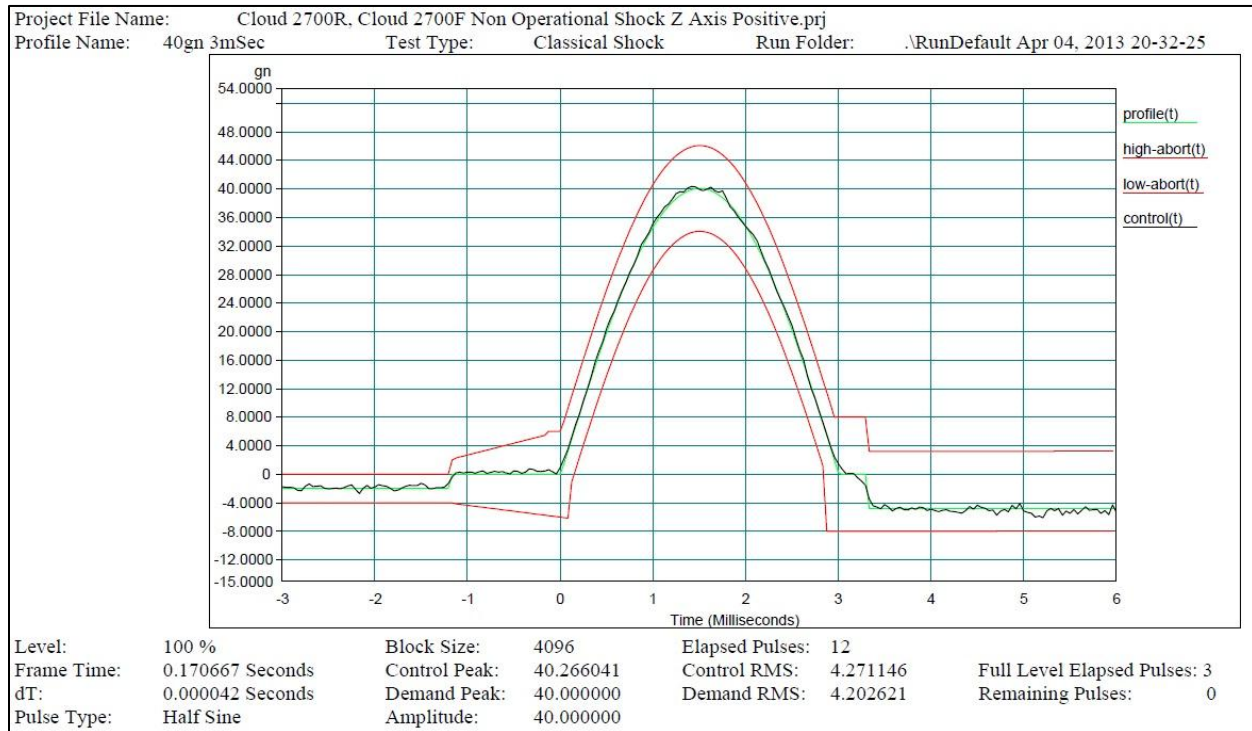
j. Test profile for Shock Y axis Negative peak (Non-Operational):



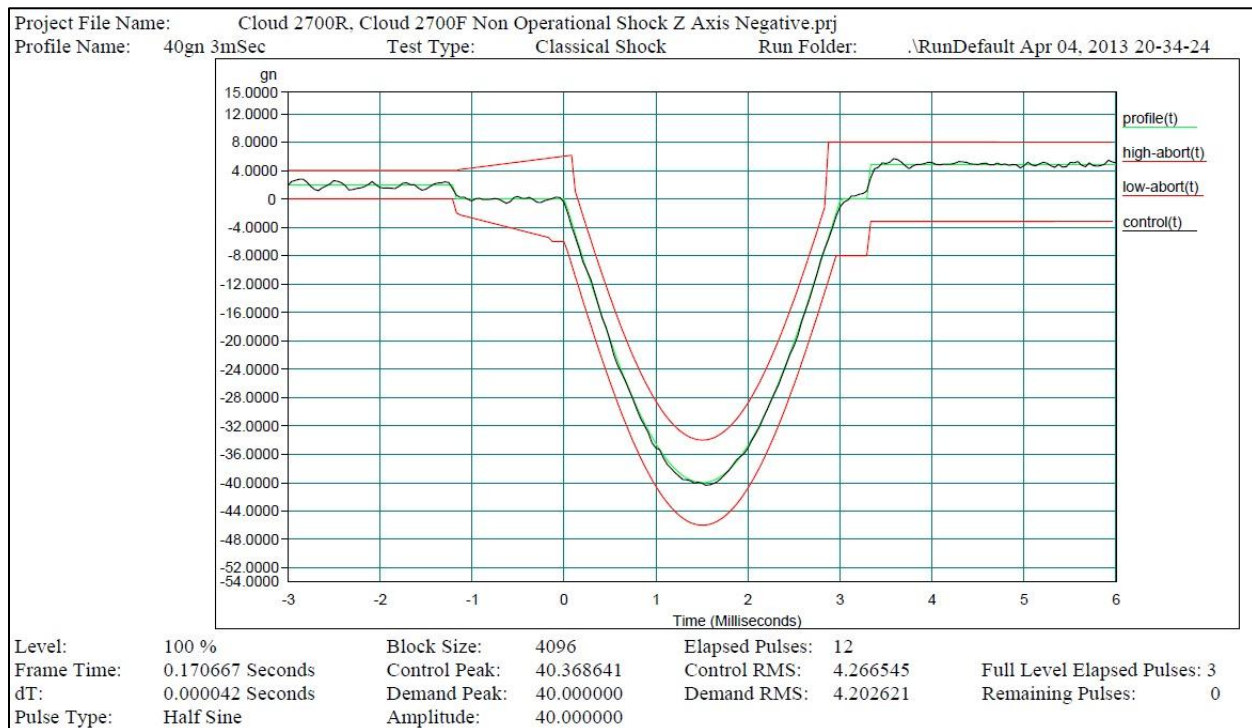




k. Test profile for Shock Z axis positive peak (Non-Operational):



l. Test profile for Shock Z axis Negative peak (Non-Operational):



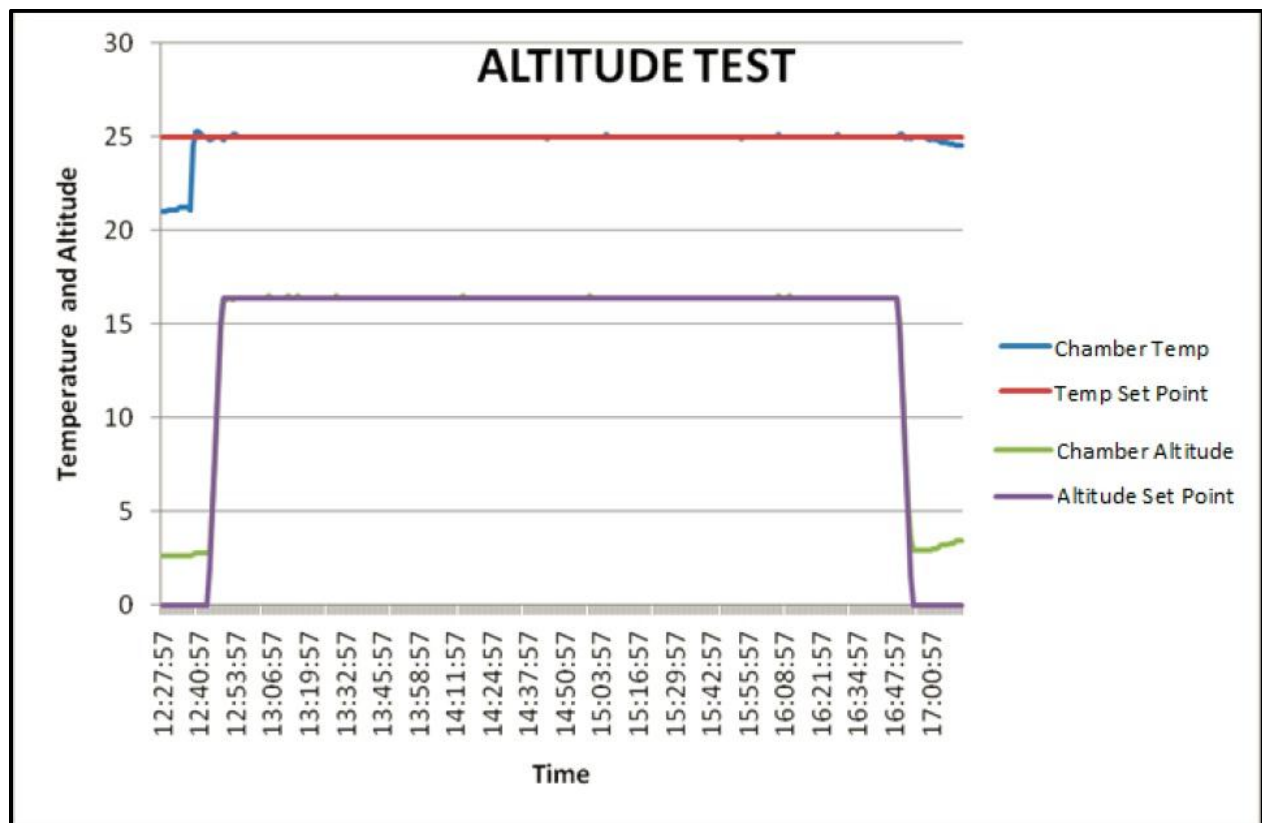


### 3.9 Altitude Test, Operating (IEC 60068-2-13)

#### Test Level:

Temperature	25 °C
Altitude	16404 Feet
	(5000 Meters)
Duration	4Hrs
Number of cycles	1

#### Test Cycle:

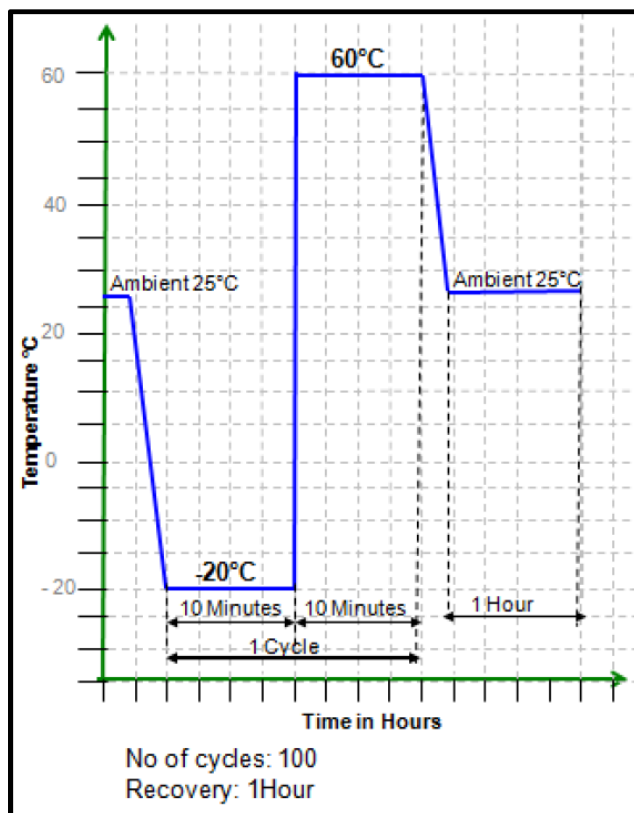


### 3.10 Thermal Shock, Non-Operational(IEC 60068-2-14, Test Na)

#### Test Level:

Cold	-20 °C
Hot	60 °C
Recovery Time	1 Hr
Duration	10 min in each temperature conditions
Number of cycles	100

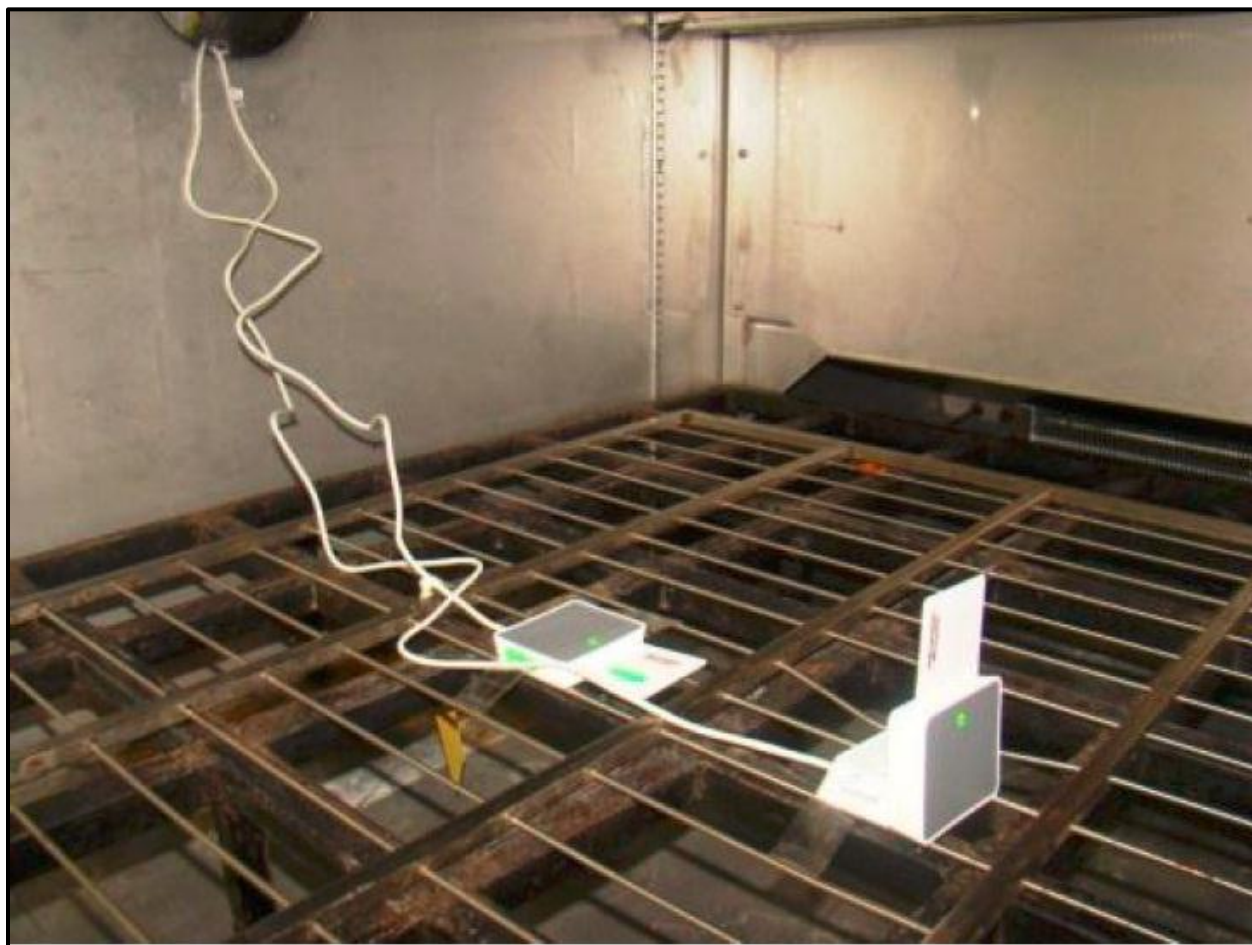
#### Test Cycle:



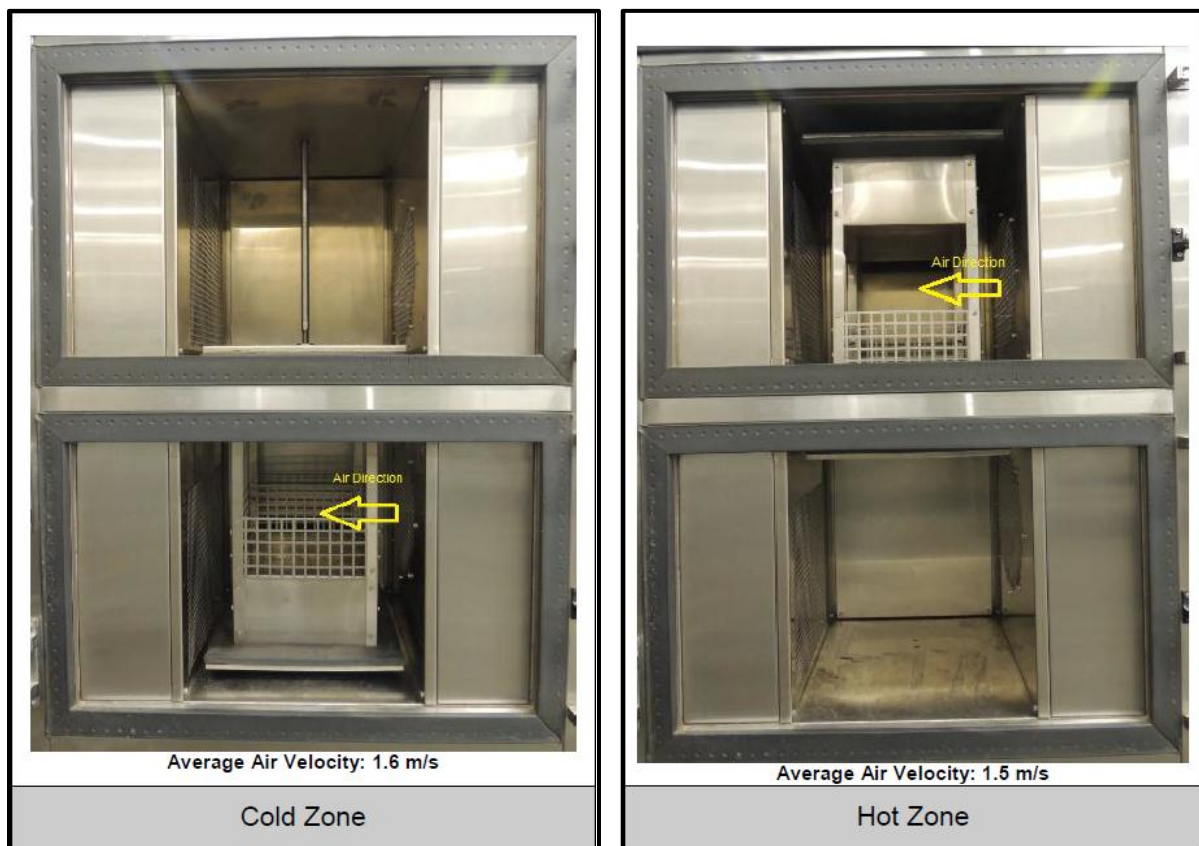
### 3.11 Vibration and Shock Test set up



### 3.12 Altitude Test set up



### 3.13 Thermal Shock Test set up



### 3.14 Sample Images

