



ENVIRONMENTAL TEST REPORT

FOR

Part No: PMC-3146514

PMI Part No: 27307960

Serial Numbers: PL5461 & PL5462

Electrical	D. Vescuso	04/27/09			<p align="center">ENVIRONMENTAL TEST REPORT</p> <p align="center">Prepared By: PMI April 25th, 2009</p>
Mechanical	D. Durbin	04/27/09			
Quality	P. Wood	04/25/09			



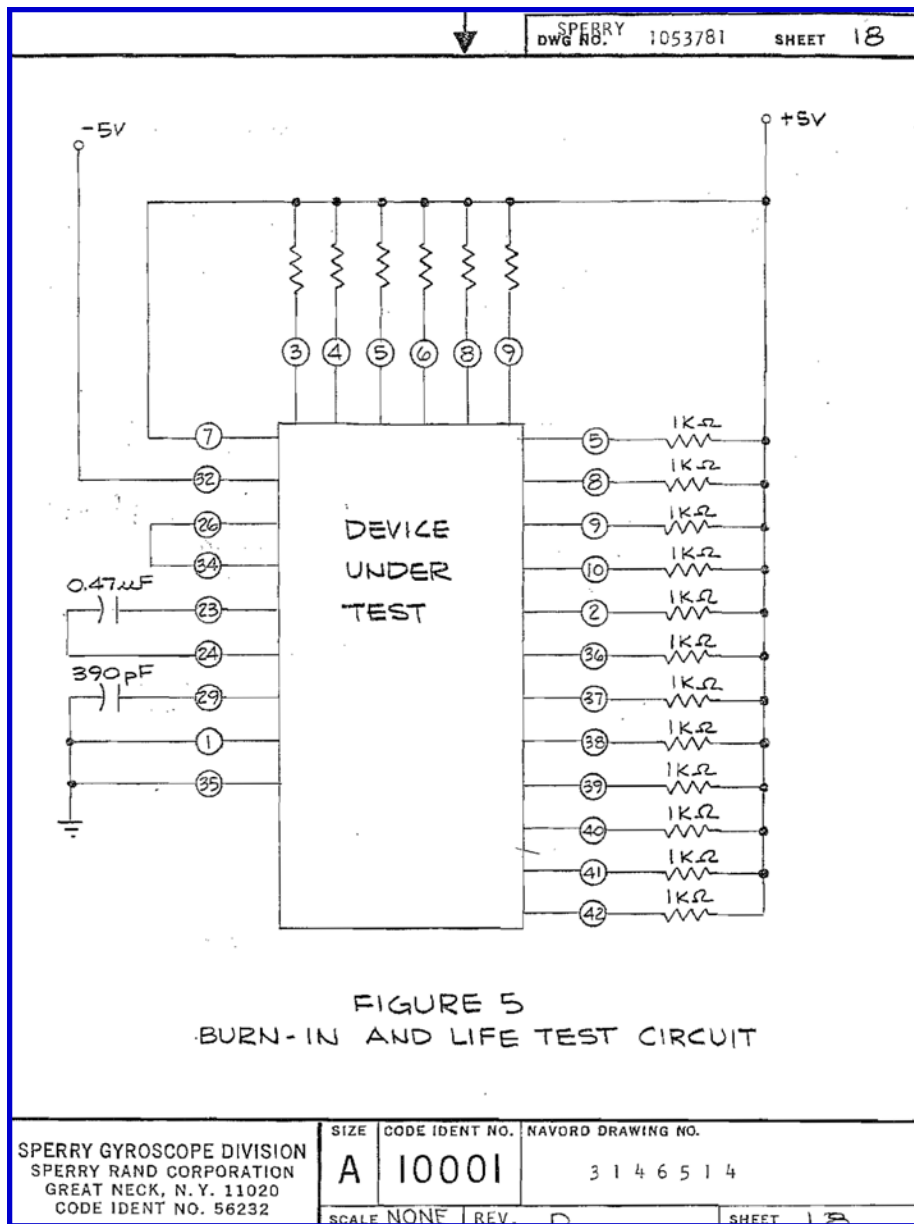
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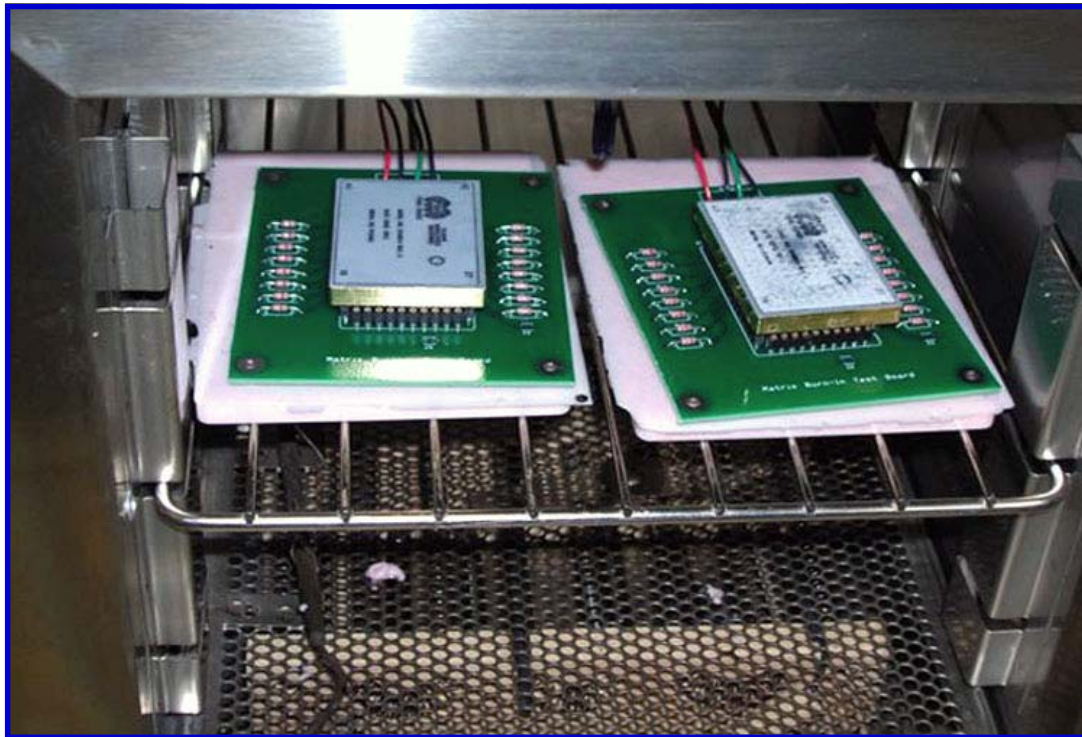
▶	BURN-IN	3
▶	SALT ATMOSPHERE	5
▶	MOSITURE RESISTANCE, MECHANICAL SHOCK, VIBRATION, CONSTANT ACCELERATION, HIGH TEMPERATURE STOR- AGE	9



BURN-IN

1.1.1.4 BURN-IN SHALL BE PERFORMED IN THE CIRCUIT SHOWN IN FIGURE 5 FOR 160 HOURS MINIMUM AT $T_{\Delta} = +75^{\circ}\text{C}$. PRE-AND POST BURN-IN





Date	Time	Temperature	Action	Approved
April 15, 2009	9:00 AM	+75°C ^{+5°C} / -0°C	Put units in to Burn-in	<i>[Signature]</i>
April 22, 2009	8:00 AM	+75°C ^{+5°C} / -0°C	Remove units from Burn-in	<i>[Signature]</i>
	167 hours duration			



SALT ATMOSPHERE

IAW MIL-STD-883, Method 1009, Condition "A"
(Omit Pre-Conditioning).



6120 Hanging Moss Road, Orlando, Florida, 32807 (407) 678-6900, FAX (407) 671-0664

Customer: **Planar Monolithics Industries**

Purchase Order #: **PET0900106**

Job No.: **281284-001**

Order Quantity: **1**

Mfg. P/N **N/A**

Customer P/N: **3146514 Rev. E**

Generic P/N **N/A**

Specification **Customer's PO & MIL-STD-883**

Part Type: **MicroCircuit**

Prepared By: **Michael Dombrowski**



Date Prepared: **3/20/09**

Reviewed By:

[Handwritten signature]



Date Reviewed: **3-20-09**

CERTIFICATE OF COMPLIANCE

This is to certify that the referenced item was subjected to a testing program in accordance with your Procurement Document, as defined in the attached test plan. This plan specifies the test sequence, outlines the test conditions and provides a summary for each test.

Sypris Test & Measurement does not infer or imply that the test methods utilized in the body of this report have been granted suitability by the Defense Supply Center Columbus, (DSCC). A current listing of approved suitability methods is available upon request.

Mfr.: Planar Monolithics Industries Date Code: 0912

Accept: 1

Reject: 0

SEE ATTACHED DOCUMENTATION

Approved By:

[Handwritten signature]



Date Approved: **4-9-09**

C of C 1/1/03



Page 2 of 3	Planar Monolithics Industries	281284	002			
TASK	CONDITIONS	Date Completed	Operator Stamp			
INCOMING INSPECTION	Visual check for shipping damage Verify packing slip information	3/24/09				
	<table border="1"> <thead> <tr> <th>Quantity</th> <th>Part #</th> <th>Serial #</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3146514 Rev. E</td> <td>PL5462</td> </tr> </tbody> </table>			Quantity	Part #	Serial #
Quantity	Part #	Serial #				
1	3146514 Rev. E	PL5462				

SALT ATMOSPHERE	<p>Documentation: Customer P.O. & MIL-STD-883G Method 1009.8</p> <p>Conditions: Test Condition: A Salt Atmosphere: 0.5% - 3.0% ph level: 6.5 To 7.2 @ +35° C Exposure time: 24 hours Temperature of Chamber: +35° C ±5° C</p> <p>Procedure:</p> <ol style="list-style-type: none"> Expose unit to conditional Salt atmosphere using conditional deposition rate for given exposure time and ph levels. Clean and inspect units upon completion. <p>Details: Operational: NA Failure criteria: illegible markings, flaking, pitting of the finish, pinholes, blistering or corrosion are cause for rejection.</p> <p>Operator's notes:</p> <p>Start Date & Time: <u>3/23/09 14:20</u> Stop Date & Time: <u>3/24/09 14:20</u> Actual PH: <u>6.8</u> Actual SALT % : <u>1.5%</u></p> <p>Test Serial Number PL5462 ONLY!</p> <p>Qty in: <u>1</u> Qty Out: <u>1</u></p>	3/24/09	



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TASK	CONDITIONS	Date Completed	Operator Stamp

USAGE LOG	All Equipment Station Logs Completed.	3/24/09						
				<table border="1"> <thead> <tr> <th>Manufacturer</th> <th>Model # / Function</th> <th>Asset #</th> <th>Cal. Due</th> </tr> </thead> <tbody> <tr> <td>Singleton</td> <td>Large Salt Fog Chamber</td> <td>83-PT1022</td> <td>5/22/09</td> </tr> </tbody> </table>	Manufacturer	Model # / Function	Asset #	Cal. Due
Manufacturer	Model # / Function	Asset #	Cal. Due					
Singleton	Large Salt Fog Chamber	83-PT1022	5/22/09					

PACK	Use original container or equivalent One copy of test plan.	3/24/09	
SHIP TO:	PLANAR ELECTRONICS TECHNOLOGY 7311-F GROVE ROAD FREDERICK, MD 21704		
SHIP VIA:	UPS GROUND		



MOISTURE RESISTANCE

IAW MIL-STD-883G, Method 1004.7

MECHANICAL SHOCK

IAW MIL-STD-883G, Method 2002.4, Condition B

VIBRATION

IAW MIL-STD-883G, Method 2007.3, Condition A

CONSTANT ACCELERATION

IAW MIL-STD-883G, Method 2001.2

HIGH TEMPERATURE STORAGE

IAW MIL-STD-883G, Method 1008.2, Condition B



6120 Hanging Moss Road, Orlando, Florida, 32807 (407) 678-6900, FAX (407) 671-0664

Customer: **Planar Monolithics Industries**

Purchase Order #: **PET0900106**

Job No.: **281284-002**

Order Quantity: **1**

Mfg. P/N **N/A**

Customer P/N: **3146514 Rev. E**

Generic P/N **N/A**

Specification **Customer's PO & MIL-STD-883**

Part Type: **MicroCircuit**

Prepared By: **Michael Dombrowski**



Date Prepared: **3/20/09**

Reviewed By:

[Signature]



Date Reviewed: **3-20-09**

CERTIFICATE OF COMPLIANCE

This is to certify that the referenced item was subjected to a testing program in accordance with your Procurement Document, as defined in the attached test plan. This plan specifies the test sequence, outlines the test conditions and provides a summary for each test.

Sypris Test & Measurement does not infer or imply that the test methods utilized in the body of this report have been granted suitability by the Defense Supply Center Columbus, (DSCC). A current listing of approved suitability methods is available upon request.

Mfr.: Planar Monolithics Industries Date Code: 0912

Accept: 1

Reject: 0

SEE ATTACHED DOCUMENTATION

Approved By:

[Signature]



Date Approved: **3-25-09**



Page 2 of 20	Planar Monolithics Industries	281284	001
TASK	CONDITIONS	Date Completed	Operator Stamp

INCOMING INSPECTION	Visual check for shipping damage Verify packing slip information	3/20/09				
	<table border="1"> <thead> <tr> <th>Quantity</th> <th>Part #</th> <th>Serial #</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3146514 Rev. E</td> <td>PL5461</td> </tr> </tbody> </table>			Quantity	Part #	Serial #
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1	3146514 Rev. E	PL5461				

MOISTURE RESISTANCE	<p>Documentation: Customers P.O & MIL-STD-883G Method 1004.7</p> <p>Conditions: Perform Initial Conditioning: No Perform Initial Measurements: No Step 7 applicable: No Number of Cycles: 10 Cycle Duration: 24 hours each (Per Figure 1004-1)</p> <p>Details: Operational: NA Failure criteria:</p> <ul style="list-style-type: none"> • Illegible part markings when examined at 1X to 3X. • Evidence of corrosion over more than 5 percent of the area of the finish or base metal of any package element. • Corrosion that completely crosses the element when viewed at 10X to 20X. • Leads damaged or missing, or partially separated. <p>Operator's Notes:</p> <p>Test Serial Number PL5461 ONLY!</p> <p>Date In: <u>3/20/09</u> Date Out: <u>3/30/09</u></p> <p>Time In: <u>2:25pm</u> Time Out: <u>2:25pm</u></p> <p>Qty in: <u>1</u> Qty Out: <u>1</u></p>	3/30/09	
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TASK	CONDITIONS	Date Completed	Operator Stamp

MECHANICAL SHOCK

Documentation:
Customer P.O. & MIL-STD-883G Method 2002.4

Conditions:

Test Condition	B
Amplitude:	1500 g's
Duration:	0.5 ms
Waveform:	Half-sine
Number of orientations:	6 (X1, X2, Y1, Y2 & Z1, Z2)
Number blows per Orientation:	5 in each direction
Total Blows:	30

- Procedure:**
1. Attach fixture to the shock table.
 2. Verify accelerometer operation.
 3. Mount the units on fixture using potting method.
 4. Shock Test units per conditions specified above.
 5. Repeat steps 1-4 for each conditional orientation of test unit.
 6. Repeat steps 1-5 for all test units until all quantity listed above have been tested.

Details:
Operational: N/A
Failure criteria: N/A

Operator's Notes:


Test Serial Number PL5461 ONLY!

Qty in: 1 Qty Out: 1


3/31/09






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TASK	CONDITIONS	Date Completed	Operator Stamp
VIBRATION VARIABLE FREQUENCY	<p>Documentation: Customer's P.O. & MIL-STD-883G, Method 2007.3</p> <p>Conditions: Test Condition: A Frequency range: 20Hz / 2000Hz / 20Hz Level: 20 g peak minimum Number of Sweeps: 4 Sweep time: 4 minutes Time per axis: 16 minutes Number of axis: 3 (X, Y & Z)</p> <p>Procedure:</p> <ol style="list-style-type: none"> 1. Verify accelerometer operation. 2. Attach fixture to the vibration unit using fixture PDT. 3. Perform vibration test on units per conditions specified above. 4. Repeat steps 1-3 for each conditional orientation of test unit. <p>Details: Operational: N/A Failure criteria: N/A</p> <p>Operator's Notes: Test Serial Number PL5461 ONLY!</p> <p>Qty in: <u> / </u> Qty Out: <u> / </u></p>	3/31/09	



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TASK	CONDITIONS	Date Completed	Operator Stamp
<p>CONSTANT ACCELERATION</p>	<p>Documentation: Customer P.O. & MIL-STD-883G Method 2001.2</p> <p>Conditions: Acceleration level: 10 g's Number of orientations: 6 (X1, X2, Y1, Y2 & Z1, Z2) Hold Time: 1 Minute</p> <p>Procedure:</p> <ol style="list-style-type: none"> 1. Mount units into test fixture. 2. Accelerate test lot per test conditions listed above. 3. Visually inspect units after test for damage. <p>Details: Operational: N/A Failure criteria: N/A.</p> <p>Operator's Notes:</p> <p>Test Serial Number PL5461 ONLY!</p> <p>Qty in: <u> 1 </u> Qty Out: <u> 1 </u></p>	<p>4/6/09</p>	<p></p>



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TASK	CONDITIONS	Date Completed	Operator Stamp
<p>HIGH TEMPERATURE STORAGE TEST</p>	<p>Documentation: Customer P.O. & MIL-STD-883G Method 1008.2</p> <p>Conditions: Test Condition: B Ambient Temperature: +25°C Hot Temperature: +125°C Hot Temperature Dwell Time: 24 Hours</p> <p>Procedure:</p> <ol style="list-style-type: none"> Place test item into temperature chamber. Close chamber door and ramp chamber to hot temperature following the conditions above. Dwell at hot temperature for conditional hot temperature dwell time. Return chamber to ambient temperature and allow unit to stabilize at room temperature before removing test item from temperature chamber. <p>Details: Failure criteria: N/A Operational: NO</p> <p>Operator's Notes:</p> <p>Test Serial Number PL5461 ONLY!</p> <p>Qty in: <u> 1 </u> Qty Out: <u> 1 </u></p>	<p>4/7/09</p>	<p></p>



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TASK	CONDITIONS	Date Completed	Operator Stamp

REPRESENTATIVE PHOTOS OF TEMPERATURE AND HUMIDITY TESTING





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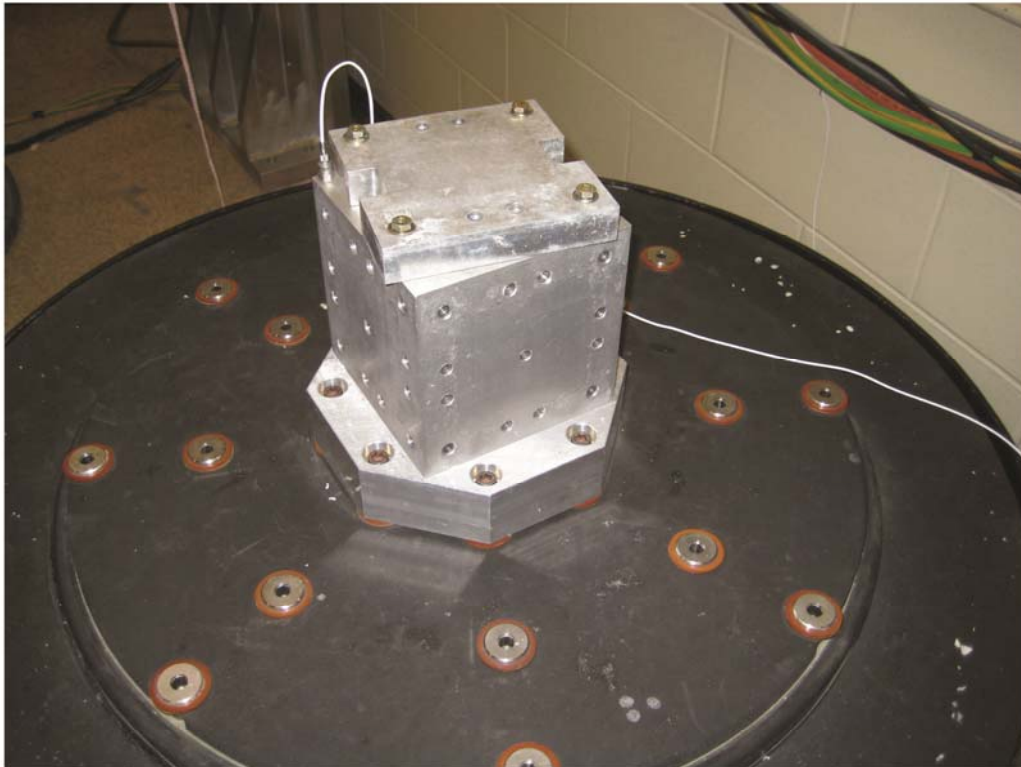
REPRESENTATIVE PHOTOS OF MECHANICAL SHOCK





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REPRESENTATIVE PHOTOS OF VIBRATION TESTING





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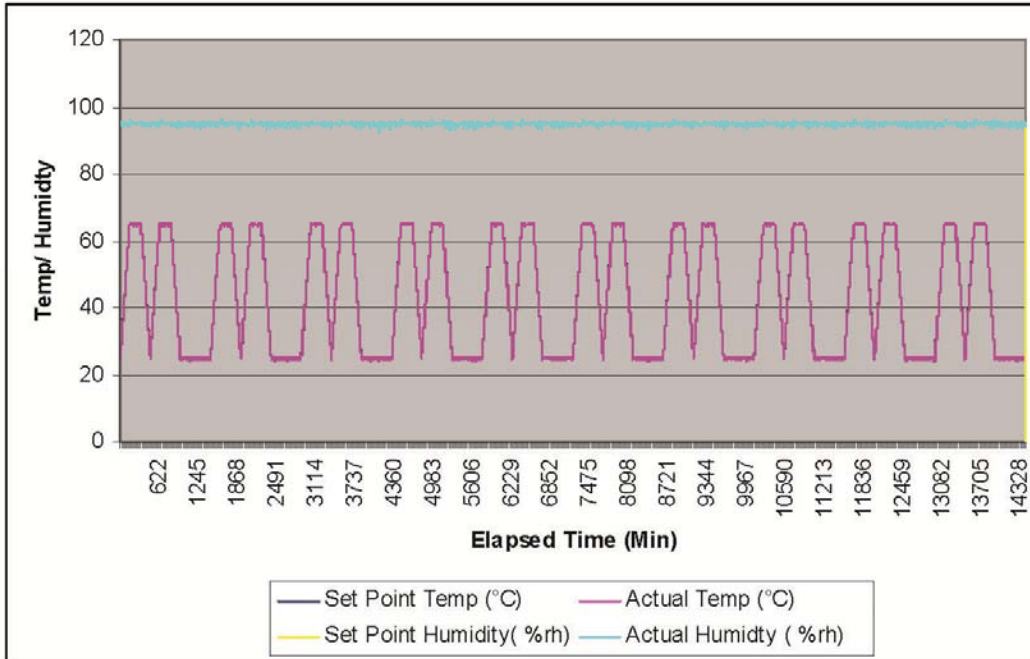
REPRESENTATIVE PHOTOS OF CONSTANT ACCELERATION TESTING





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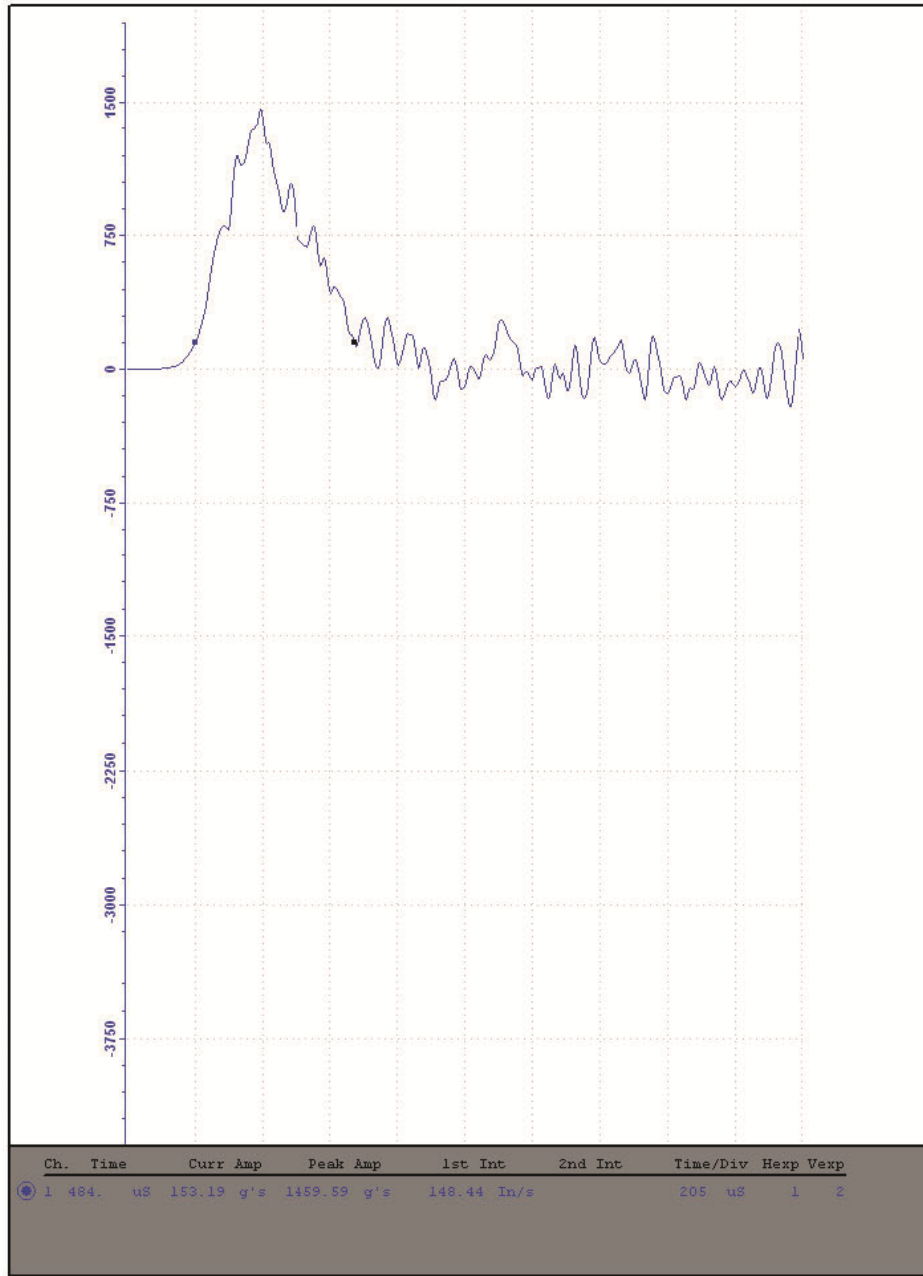
MOISTURE TEST DATA





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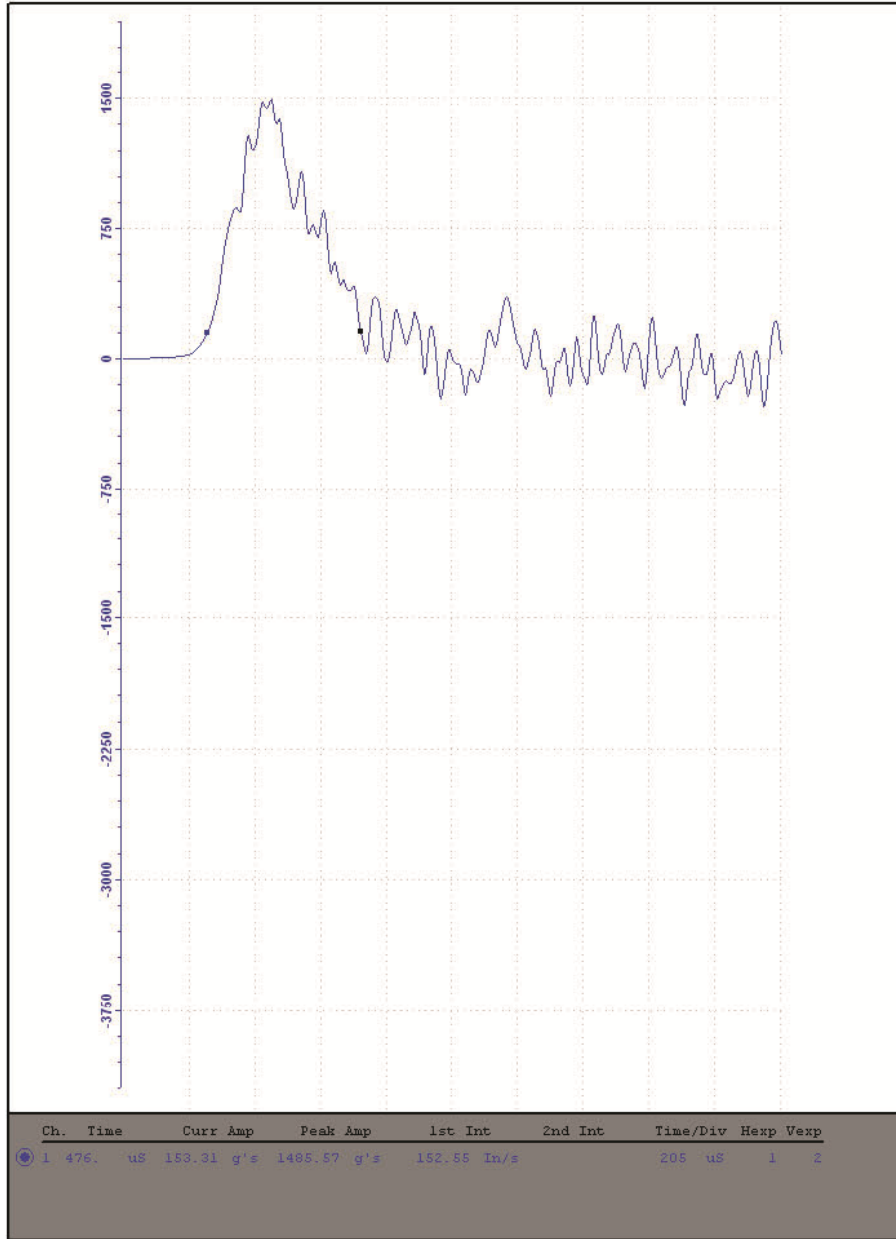
X AXIS MECHANICAL SHOCK DATA





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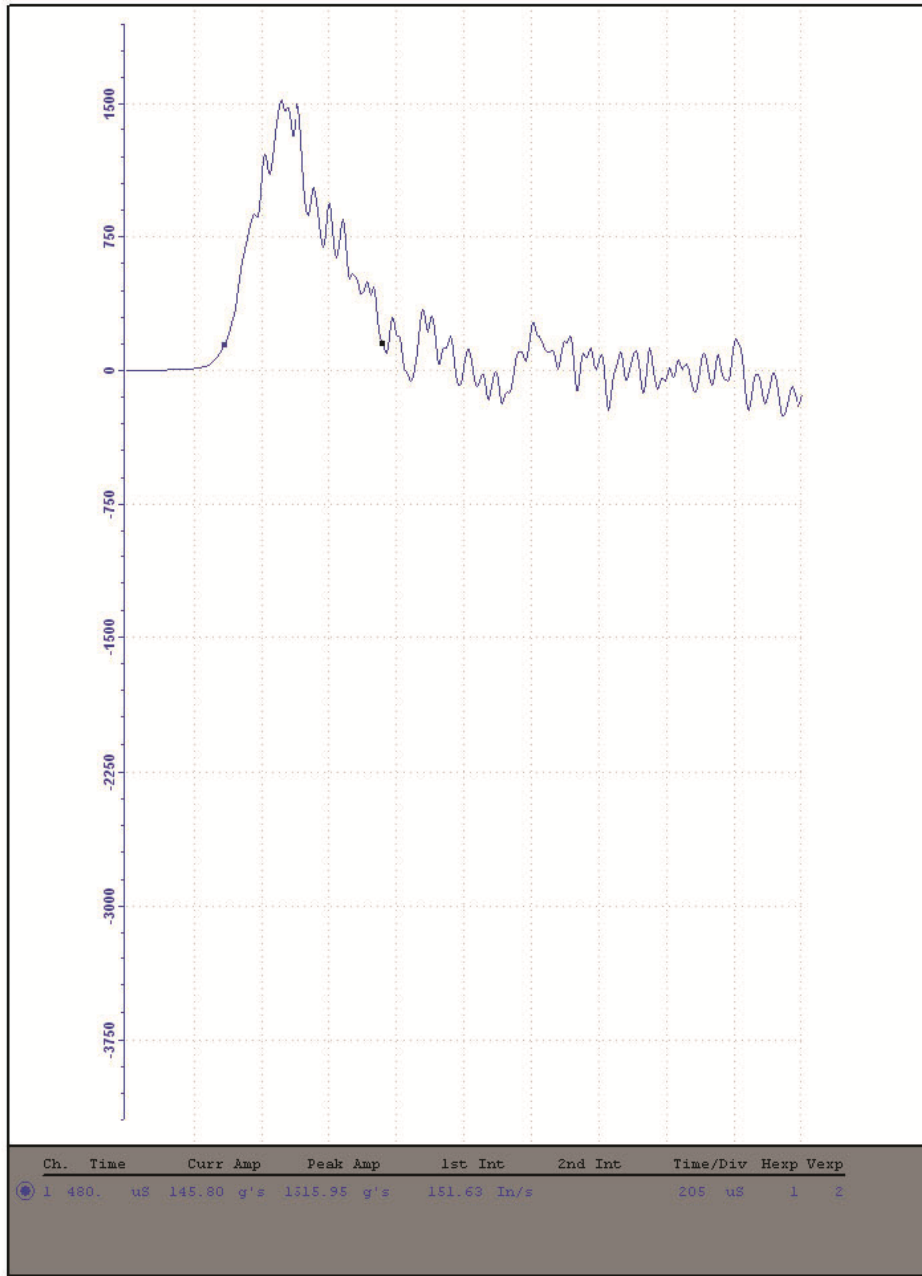
Y AXIS MECHANICAL SHOCK DATA





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TASK	CONDITIONS	Date Completed	Operator Stamp

Z AXIS MECHANICAL SHOCK DATA

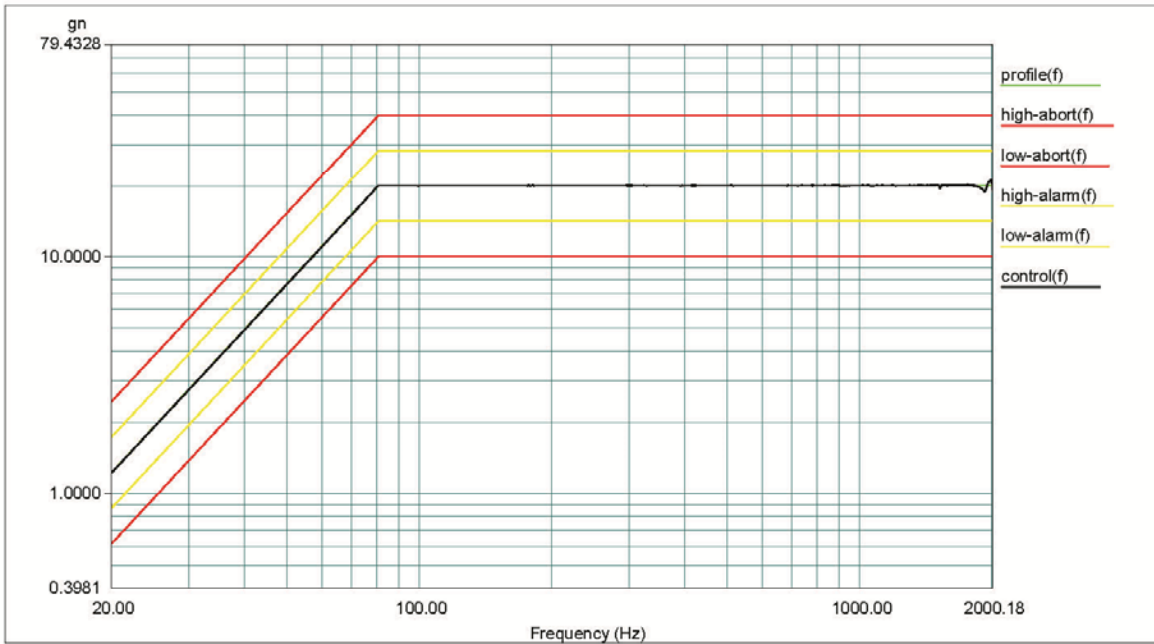




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TASK	CONDITIONS	Date Completed	Operator Stamp

X AXIS VIBRATION DATA

DUT: PLANNAR 281284 X AXIS
 Serial Number: PL5461
 Project File Name: MIL-STD-883_2007_20G.prj
 Profile Name: 1.0G & 0.05In Pk-Pk. Test Type: Swept Sine Run Folder: \TempData



Level: 100 % Full Level Time: 00:16:00 Sweep Type: Logarithmic
 Frequency: 20.008696 Hz Time Remaining: 00:00:00 Sweep Rate: 1.66 Oct/Min

Data saved at 11:01:10 AM, Tuesday, March 31, 2009

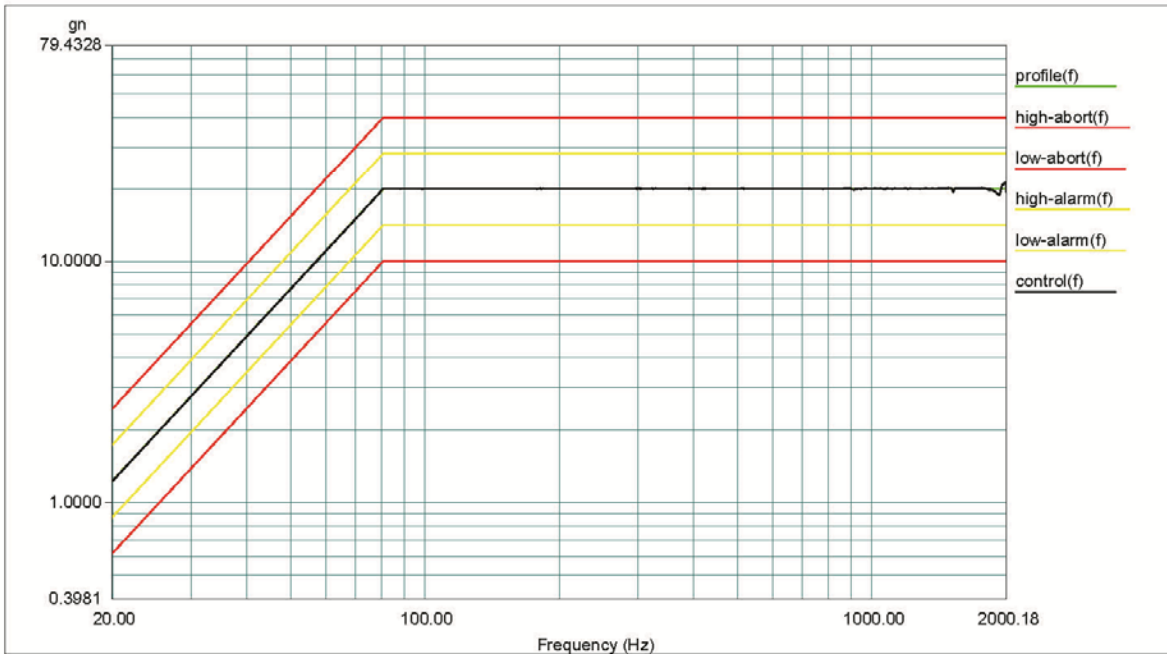
Report created at 11:01:10 AM, Tuesday, March 31, 2009



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TASK	CONDITIONS	Date Completed	Operator Stamp

Y AXIS VIBRATION DATA

DUT: PLANNAR 281284 Y AXIS
 Serial Number: PL5461
 Project File Name: MIL-STD-883_2007_20G.prj
 Profile Name: 1.0G & 0.05In Pk-Pk. Test Type: Swept Sine Run Folder: \TempData



Level: 100 % Full Level Time: 00:16:00 Sweep Type: Logarithmic
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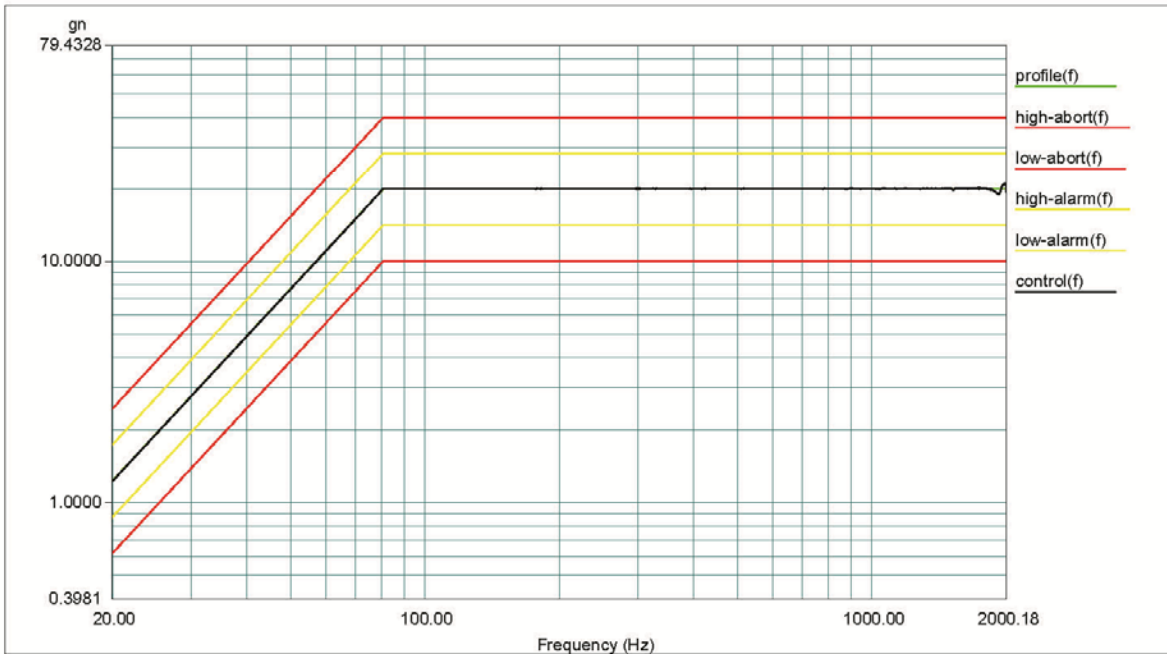
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TASK	CONDITIONS	Date Completed	Operator Stamp

Z AXIS VIBRATION DATA

DUT: PLANNAR 281284 Z AXIS
 Serial Number: PL5461
 Project File Name: MIL-STD-883_2007_20G.prj
 Profile Name: 1.0G & 0.05In Pk-Pk. Test Type: Swept Sine Run Folder: \TempData



Level: 100 % Full Level Time: 00:16:00 Sweep Type: Logarithmic
 Frequency: 20.020990 Hz Time Remaining: 00:00:00 Sweep Rate: 1.66 Oct/Min

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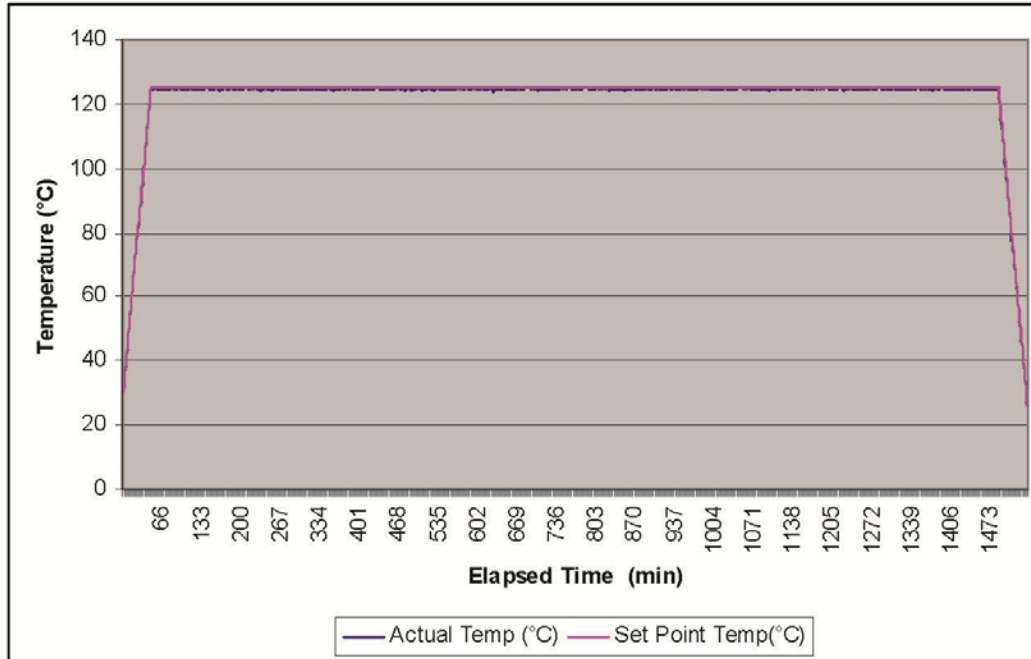


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TASK	CONDITIONS	Date Completed	Operator Stamp		
CONSTANT ACCELERATION DATA					
Axis	G level	RPM	Volts	Dial	Radius
+X	10	95	1.90	307	39"
-X	10	95	1.90	307	39"
+Y	10	96	1.91	308	38.5"
-Y	10	96	1.91	308	38.5"
+Z	10	92	1.83	295	42"
-Z	10	92	1.83	295	42"



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TASK	CONDITIONS	Date Completed	Operator Stamp

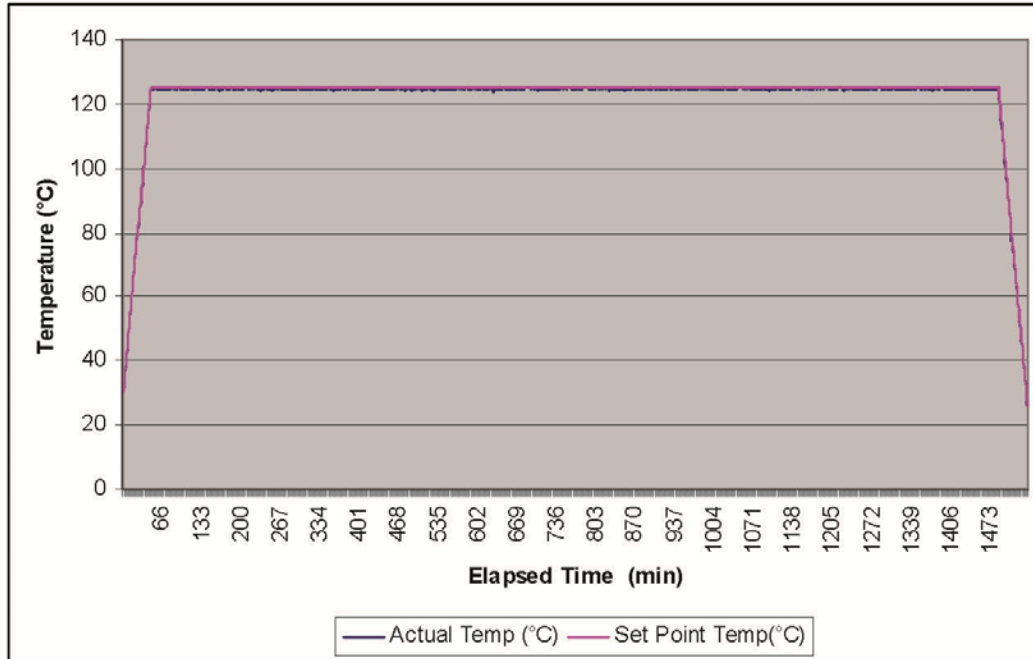
HIGH TEMPERATURE STORAGE TEST





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HIGH TEMPERATURE STORAGE TEST





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