

Report Details

Products tested	VCCS300x-12
Products Description	300W conduction cooled power supply.
Design Phase	4 – Pilot build
Product Serials	
Test Goals	Test according to IPC9592B standard.
Stress Goals	LOL & LDL < LSL-20C, UOL & UDL > USL+20C VOL & VDL > 30G _{RMS} LOIVL < $V_{IN(MIN)} * 0.9$, UOIVL & IVDL > $V_{IN(MAX)} * 1.1$ UOOCCL & OCCL > $I_{RATED} * 1.1$
Test dates	1 ST to 10 TH May 2021
Report date	15 TH May 2021

Authorisation

Brian McDonald

15/5/21

Test performed by (Print)

Date

Brian McDonald

15/5/21

Test report written by (Print)

Date

1. Objective

Highly Accelerated Life Testing (HALT) is a requirement of IPC-9592B and is performed throughout the development cycle. HALT consists of applying environmental and electrical stresses beyond specification limits to identify weaknesses that may point to insufficient margin in the design.

In order to ruggedise the product, the root cause of each failure needs to be determined and the problems corrected until the fundamental limit of the technology used in the product design can be reached. This process will yield the widest possible margin between product capabilities and the environment in which it operates, thus increasing the product's reliability, reducing the number of field returns and realizing long-term savings.

Limits referenced in HALT are listed below:

Abbreviation	Description
LSL/USL	Lower/Upper specification limits. (Defined in the product datasheet)
LOL/UOL	Lower/Upper operational limits. (Product may fail to meet specification but recovers once returned within LSL/USL limits.)
LDL/UDL	Lower/Upper destruct limits. (Product fails and does not recover)
VOL/VDL	Vibration Operational Limit/Vibration Destruct Limit.
LOIVL/UOIVL IVDL	Lower/Upper Operational Input Voltage Limits. Input Voltage Destruct Limit.
UOOCLOCDL	Upper Operational Output Current Limit/Output Current Destruct Limit

2. Executive summary

The table below gives a quick reference to the results obtained and any relevant test notes. A more in depth description of the test process and results is given in section 5.

Several test variants were performed to cover the worst-case stress points while adhering to specified line deratings. The test setup attempts to maintain the product temperature as close as possible to the ambient chamber temperature but there can still be significant differences. It is important to note that temperature test limit results are recorded as the ambient temperature rather than the product temperature.

2.1 Summary of product operating and destruct limits

Test Name	Test Variants	Results	Specification/Requirement	Operating Margin	Notes
Low Temperature Limit (IPC9592B-D.1.1.1)	$V_{AC} = 85V, 120V, 220V$	LOL = $< -60^{\circ}C$ LDL = $< -60^{\circ}C$	LSL = $-40^{\circ}C$	$> 20^{\circ}C$	Test stopped at $-60^{\circ}C$. No Failures.
High Temperature Limit (IPC9592B-D.1.1.2)	$V_{AC} = 85V, 120V, 220V$	UOL = $105^{\circ}C$ UDL = $> 120^{\circ}C$	USL = $50^{\circ}C$	$55^{\circ}C$	Test stopped at $120^{\circ}C$. No Failures. OP_OTP disabled. IP_OTP enabled.
Thermal Cycle (IPC9592B-D.1.1.3)	$V_{AC} = 220V$	$-50^{\circ}C$ to $+80^{\circ}C$ 30 cycles	NA	NA	No Failures.
Random Vibration (IPC9592B-D.1.1.4)	$V_{AC} = 120V$	$VOL = > 40G_{RMS}$ $VDL = > 40G_{RMS}$	$30 G_{RMS}$	$10 G_{RMS}$	No Failures.
Input Voltage Limit (IPC9592B-D.1.1.5)	$V_{AC_NOM} = 85V, 120V$	LOIML_85 = $61V_{AC}$ LOIML_120 = $93V_{AC}$ UOIML = $> 300V_{AC}$ IVDL = $> 300V_{AC}$	$V_{AC_MIN} * 0.9$ $V_{AC_MAX} * 1.1$	$V_{AC_MIN} * 0.78$ $V_{AC_MAX} * 1.13$	85V Test stopped at 42V. No Failures. 120V Test stopped at 61V. No Failures. IP_OCP enabled.
Output Load Limit (IPC9592B-D.1.1.6)	$P_{OUT_NOM} = 300W$	UOOCL = $I_{RATED} * 1.25$ OCDL $> I_{RATED} * 1.3$	$I_{RATED} * 1.1$	$I_{RATED} * 0.15$	No Failures.
Combined Stress (IPC9592B-D.1.1.7)	$V_{AC} = 120V$	$-50^{\circ}C$ to $+95^{\circ}C$ $102.3V_{AC}$ to $270V_{AC}$ $I_{rated} * 1.125$ 5 cycles to $36G_{RMS}$	NA	NA	No Failures. OP_OTP disabled. IP_OTP enabled. IP_OCP enabled.

Notes:

1. All temperature values are chamber setpoints unless stated otherwise. See appendix F for product levels.
2. All Vibration values are product mounting plate measurements unless stated otherwise. See appendix F for chamber setpoints.
3. The operating limit is defined as the applied stress below which the product is fully functional.
4. The destruct limit is defined as the applied stress below which the product returns to full operation when the applied stress is decreased to within the operating limit.
5. When the limit is preceded by a ">" or "<" sign it indicates that the test was stopped prior to a failure, either because of a limitation of the chamber, the test setup, or per customer request.
6. The limits shown are the worst-case limits. In other words, the limits for the product that had the lowest limits of all units tested under that stress. These limits reflect the product limits before any modifications.

2.2 Conclusions

The testing carried out has shown that the product meets or exceeds the required margins for all parameters.

3. HALT process description

The test procedure followed is outlined in the IPC9592B standard. Any deviations from this procedure are noted in the relevant report sections.

3.1 Low Temperature Limit Test (IPC9592B-D.1.1.1)

The low temperature limits test involves operating the device under test at 25 °C ambient with no vibration. The device is turned off and the temperature is decreased in defined steps. A functional test is performed after each temperature decrement and dwell and the test continues until the device under test fails or the chamber minimum temperature is reached.

Line deratings

The test is performed at the minimum input voltage allowed for full power output (eg. No power derating, 120V_{AC}) and at the minimum line voltage allowed with derating (eg. Power derated, 85V_{AC}).

Note: Different Lower Operating Limit temperatures may be identified and the relevant LOL should be used for subsequent tests.

DUT preparation

Any negative temperature protection circuitry shall be disabled during this testing, where possible.

3.2 High Temperature Performance & Limit Test (IPC9592B-D.1.1.2)

The high temperature limits test consists of operating the device under test at 25 °C ambient with no vibration. The device is turned off and the temperature is increased in defined steps. A functional test is performed after each temperature increment and dwell and the test continues until the device under test fails or the chamber maximum temperature is reached.

Line deratings

The test is performed at the minimum input voltage allowed for full power output (eg. Full Power, 120V_{AC}) and at the minimum line voltage allowed with derating (eg. Power derated, 85V_{AC}).

Note: Different Lower Operating Limit temperatures may be identified and the relevant LOL should be used for subsequent tests.

OTP operation

The test is first performed (minimum rated input voltage for maximum output power) with OTP enabled to ensure correct operation of OTP (Performance test. See Appendix F2), then tested with OTP disabled to determine the product stress limits and failure modes (Limits test. See Appendix F3).

DUT preparation

Any positive temperature protection circuitry shall be disabled during the limits test, where possible.

3.3 Rapid Thermal Cycle Test (IPC9592B-D.1.1.3)

The rapid thermal cycle test consists of operating the device with no vibration between the Thermal LOL+10°C and Thermal UOL-10°C at the maximum possible thermal transition.

A functional test is required following each dwell time of this procedure.

Line deratings

The test will be performed at the minimum input voltage allowed for full power output (eg. Full Power, 120V_{AC}) and the relevant LOL from the lower temperature limit test.

DUT preparation

Any negative or positive temperature protection circuitry shall be disabled during the test, where possible.

3.4 Random Vibration Limits Test (IPC9592B-D.1.1.4)

The random vibration limit test consists of operating the device under test at 25°C ambient and no vibration. The vibration is then increased in steps and held for a specific dwell time until the device under test fails or the chamber maximum vibration is reached.

A functional test is required following each increment and dwell time of this procedure.

DUT preparation

Protection circuitry shall **not** be disabled during the test.

3.5 Input Voltage Test (IPC9592B-D.1.1.5)

The objective of the Input Voltage Test is to stress the input section of the DUT to determine the operating and destruct limits of the product. The test consists of decreasing and increasing the input mains voltage in order to find the minimum and maximum operating and destructive limits.

No functional test is required during the steps of this procedure.

Line deratings

The test is performed at the minimum mains input voltage allowed for full power output (eg. Full Power, 120V_{AC}) and at the minimum mains input voltage allowed with derating (eg. Power derated, 85V_{AC}).

Note: Different Lower Operating Limit temperatures may have been identified in the Low temperature limit test and the relevant LOL should be used for each tests.

DUT preparation

Any negative or positive temperature protection circuitry shall be disabled during the test, where possible.

Any under voltage protection (UVP) circuitry shall be disabled during the test, where possible.

Any over power protection (OPP) circuitry shall be disabled during the test, where possible.

3.6 Output Load Test (IPC9592B-D.1.1.6)

The objective of the Output Load Test is to stress the output section of the DUT to determine the operating and destruct limits of the product. The test will continue until failure, or test equipment limitation, in order to identify the component(s) or circuits that may be damaged due to excessive current. The test consists of increasing the load current in steps from the maximum specified operating current until the unit's output drops out of regulation, the unit fails catastrophically, or test equipment limitation is reached.

No functional test is required during the steps of this procedure.

DUT preparation

Any negative or positive temperature protection circuitry shall be disabled during the test, if possible.

Any over current protection circuit shall be disabled during this test, if possible.

3.7 Combined Stress Test (IPC9592B-D.1.1.7)

The Combined Stress Test operates the device under test while combining the environmental effects of random vibration and rapid thermal cycling along with Input Voltage and Output Load transients.

No functional test is required during the steps of this procedure.

DUT preparation

Any negative or positive temperature protection circuitry shall be disabled during the test, if possible.

Any over current protection circuit shall be disabled during this test, if possible.

4. HALT setup

4.1 Description of Test Equipment

The test equipment listed in table 2 below was used to carry out the HALT test.

Table 2 – Equipment description			
Description	Manufacturer	Model	S/N
Thermal & Vibration test chamber	Qualmark	OVS 1.5	1512990366 (VOX0017)
Thermal test Chamber	Votsch	VT7010	521/83674 (VOX0015)
AC Source	Chroma	61505	000685 (VOX0097)
Electronic Load	Chroma	6314A+63103Ax4	0003599 (VOX0098)
Electronic Load	Chroma	6314A+63103Ax4	0003598 (VOX0099)
Oscilloscope	Keysight	DSO2014A	MY53160421 (VOX0095)
Datalogger	Agilent	34970A	MY41025109 (VOX0070)
Power Meter	Chroma	66202	662021001062 (VOX0101)
Vibration Meter (True RMS)	Dytran	4151HL	325 (VOX0110)
Accelerometer (IEPE)	Dytran	3030B5	15101 (VOX0111)

4.2 Data collection

Various environmental, electrical and product performance data is collected and logged at regular intervals throughout the process. Thermocouples are attached to various points on the devices under test using kapton tape or adhesive. The data to be collected is listed in the table below and the test results are detailed in appendix F.

Table 3 – Data to be collected	
Type	Description
Time	Time stamp
Step	Step number of test sequence
Chamber Temp. (°C)	Chamber air temperature (Read from Chamber)
Chamber Vibration (G_{RMS})	Table accelerometer
Chamber Temp. DL (°C)	Chamber air temperature (Read from Datalogger - thermocouple)
Product Temp. DL (°C)	Product temperature – (Read from Datalogger - thermocouple)
Product Vibration (G_{RMS})	Product vibration (Read from Scope – accelerometer at product mount)
Output Voltage (V_{DC})	Product output voltage
Output Current 1 (A)	Product output current in load 1
Output Current 2 (A)	Product output current in load 2
Output Current Total (A)	Calculated: Sum of output current 1 and 2
Input Voltage (V_{RMS})	Product input voltage
Input Power (W)	Product input power
Power Factor	Product input power-factor
Output Power (W)	Product output power
Efficiency	Product efficiency

4.3 Functional Test

The device under test was connected to external equipment and was functionally tested as described in the Functional Test Profile (Appendix C) when called by the HALT Test Profile (Appendix D. Line 29).

4.4 DUT Configuration and Ratings

4.4.1 DUT Ratings

4.4.1.1 Input & output electrical ratings

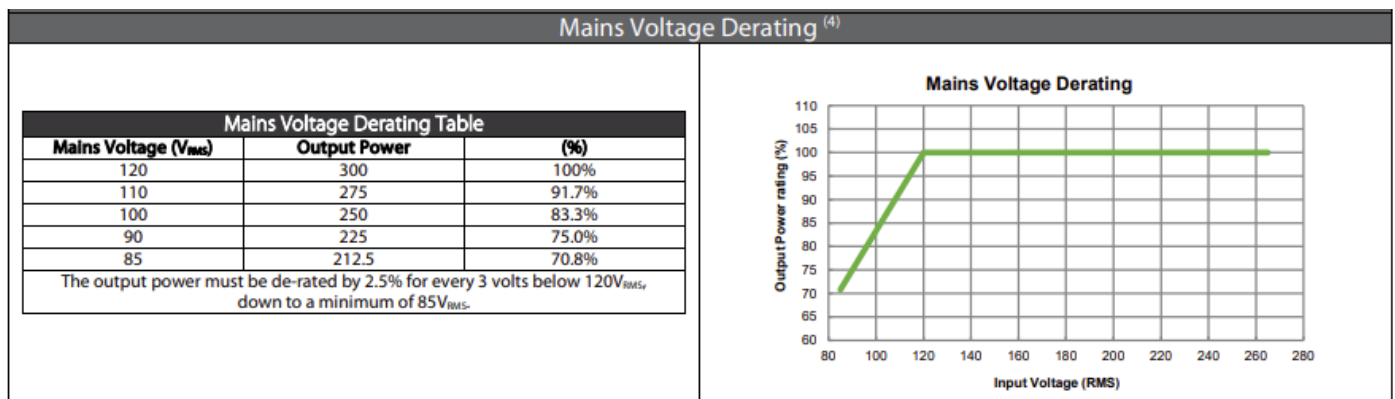
The product datasheet electrical ratings are shown below. Functional test limits are based on the limits given, however at extreme temperatures these limits may not be met. This does not necessarily constitute a failure and each result must be judged individually.

All specifications are measured @ $T_A = T_{BASE} = 25^\circ\text{C}$, rated input & rated load unless otherwise stated)

SPECIFICATIONS					
Parameter	Details	Min	Typical	Max	Units
AC Input Voltage	Nominal range is 100V _{RMS} to 240V _{RMS} .	85		264	V _{RMS}
AC Input Frequency	Contact factory for 400Hz operation.	47	50/60	63	Hz
DC Input Voltage	Not covered by safety approvals. Contact Vox Power.	120		370	V _{DC}
Input Current	300Watts output at 120 V _{RMS} input.			3	Amps
Input Current Limit			5		Amps
Inrush Current	265V _{RMS} , 25°C (cold start).			20	Amps
Fusing	Each line fused (5x20 Fast acting, 1500A breaking capacity).			5	Amps
Efficiency	See graphs.			95	%
Power Factor			0.99		
Holdup	300Watts output at 120V _{RMS} input.	14	16		mS
No load Power consumption	220V _{RMS} .		0.8	1	Watts
Output Power Rating	De-rate linearly from 300Watts at 120V _{RMS} to 212.5 Watts at 85V _{RMS} .			300	Watts
Output Voltage (Initial Setting, -25°C to 125°C)	VCCS300S-12	11.88	12	12.12	V _{DC}
	VCCS300S-24	23.76	24	24.24	
	VCCS300S-48	47.52	48	48.48	
Output Current Rating	VCCS300S-12			25	Amps
	VCCS300S-24			12.5	
	VCCS300S-48			6.25	
Output Power Rating	All Models. De-rate linearly from 300Watts at 120V _{RMS} to 212.5Watts at 85V _{RMS} .			300	Watts
Load Regulation	All Models.	-50		50	mV
Line Regulation	All Models.	-0.1		0.1	%V _O
Ripple & Noise ⁽²⁾	12V Mode, I. 20MHz BW, V _{INPK} .			1.5	%V _O
	All Other Models. 20MHz BW, V _{INPK} .			1	
Minimum Load	All Models.			0	Watts
Transient Response	25% to 75% I _{RATED} , 1A/uS.			6	%V _O uS
	Recovery to within 10% of V _O .			500	
Turn on Rise Time	All Models. 10% to 67% of V _O .		2		mS
Turn on Delay	All Models, All Vin, All loads.		800		mS
Current Share	All Models. Droop mode, Vmax @0% load, Vmin @100% Load.	-2.5%		+2.5%	%V _O
Temperature Coefficient	All Models.	-0.02		0.02	%V _O /°C
Over Current Protection	All Models. Constant current mode.	105	115	125	%I _{RATED}
Short Circuit Protection	All Models. Hiccup mode. Activation Threshold.			80	%V _O
Over Voltage Protection	All Models. Auto Restart.			125	%V _O
Over Temperature Protection	All Models. Auto Restart.	105		125	°C
Reliability ⁽¹⁾	All Models.		1.1		FPMH
Warranty	Standard terms and conditions apply.			5	Years
Size	101.3 (L) x 50.8 (W) x 40.2 (H). See diagram for tolerance details				mm
Weight	310				Grams
Notes					
1. 30°C base & ambient, 100% load, SR332 Issue 2 Method I, Case 3, Ground, Fixed, Controlled To ensure reliability, component temperatures must be maintained below recommended levels in the end application. The "System cooling" section of the user manual should be reviewed in detail and temperatures verified in the end application.					
2. Up to 3% in burst mode with no external capacitance.					

4.4.1.2 Mains voltage deratings

The product has a mains voltage derating as shown below. To cover typical working ranges in the testing some tests will be performed at 85V_{AC} or 120V_{AC} or 220V_{AC} or some combination of these.

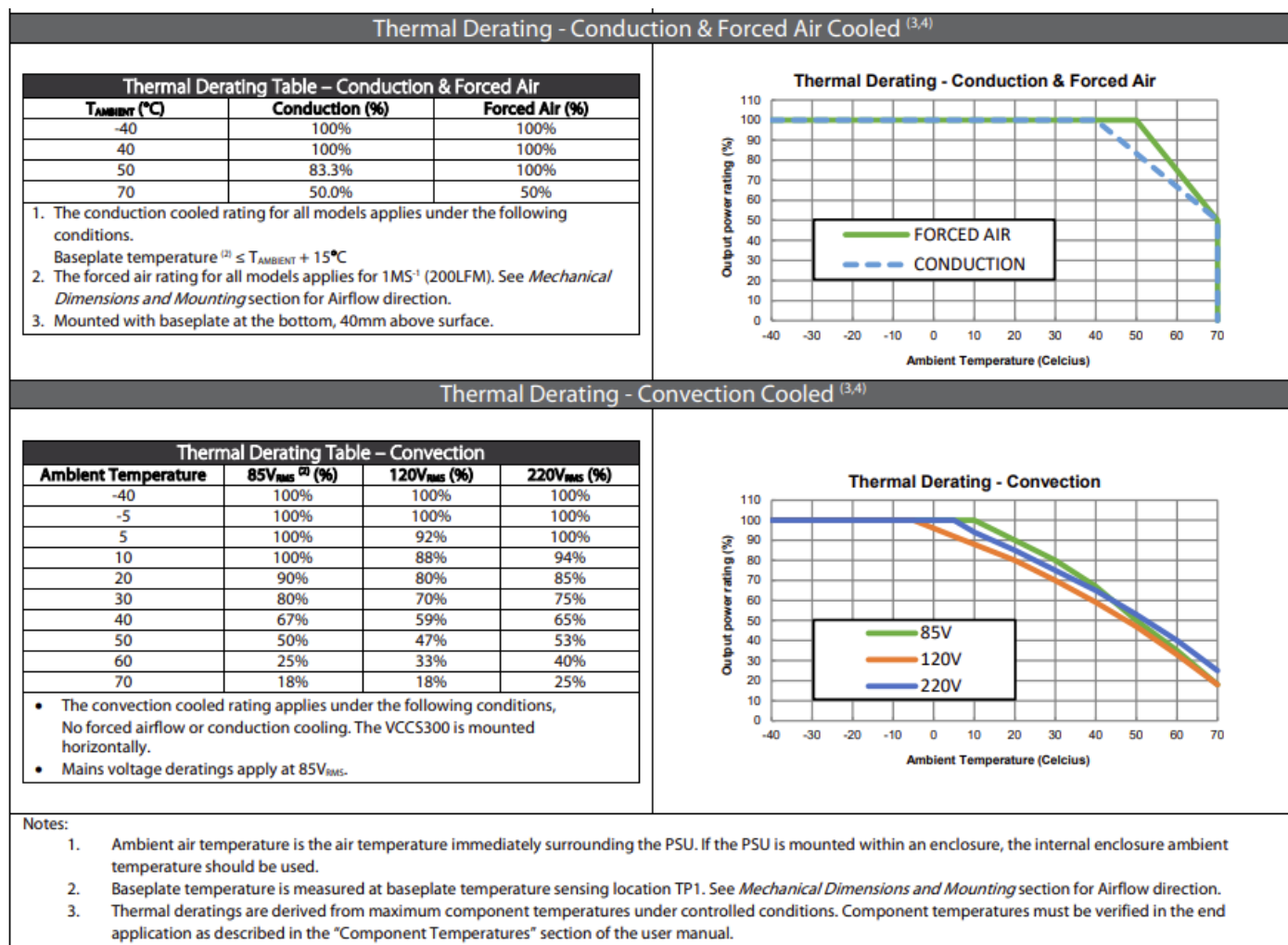


Where an output power derating applies, it shall be implemented. For example, the Input voltage test may be carried out at a nominal mains voltage of 85V_{AC}. In this case the nominal output power will be set at 212.5W. The output power will not be adjusted further as the input voltage changes throughout the test.

4.4.1.3 Thermal ratings

The VCCS300 PSU is a conduction cooled product that has operational thermal limits on both the ambient environment and the product baseplate as detailed below.

In order to carry out the HALT test efficiently, the product will be evaluated for forced air and conduction cooled ratings only. Thermal tests will be setup to minimise the temperature differential between chamber ambient and product.



4.4.2 DUT Configuration

The device under test (DUT) is a VCCS300M-12 which has the configuration shown below.

MODEL	Vo	Io	Po	Line_Low	Line_Mid	Line_High	PWR_Low	PWR_Mid
12V	12	25	300	85	120	264	212.5	300

The 12V series model is considered worst-case representative model. No other series members were tested.

4.4.3 DUT Protections

The DUT has several protection mechanisms to prevent failure of the device under abnormal operating conditions. For certain HALT tests it is required to disable these protections. Details of how the protections were disabled are given below.

Over Temperature Protection (OTP)

The output circuitry has one OTP implemented with switching type PTC thermistor in positions 60A.RT1. [OP_OTP]
The primary power circuitry has one OTP implemented with switching type PTC thermistors in position 60D.RT1. [IP_OTP]

OP_OTP was disabled for the following tests by shorting the 60A.RT1 PTC device.

- High Temperature Limit Test
- Rapid Thermal Cycle Test
- Random Vibration Limit Test
- Input Voltage Test
- Output Load Test
- Combined Stress Test

IP_OTP was not disabled for any tests.

Over Current Protection (OCP)

All outputs have over current protection set at approximately 115% of the rated current.

OP_OCP was disabled for the following tests by shorting 60A.U4.2 to 60A.U4.3.

- Output Load Test
- Combined Stress Test

The input module has an overcurrent protection on the PFC stage.
It is not possible to disable the IP_OCP.

Over Power Protection (OPP)

The product does not have a specific over power protection.

Under Voltage Protection (UVP)

The product does not have a specific under voltage protection.

4.5 Fixturing and Airflow

The products are tested one unit at a time. For vibration testing each product under test was secured to the vibration table using a custom mounting fixture. The vibration mounting fixture was designed to maximize transmission of kinetic energy from the vibration table to the product. The vibration measurement is made on the mounting fixture close to the product and a closed loop system is used to maintain the correct vibration level at that measurement point. For thermal tests the product temperature should be maintained as closely as possible to the ambient temperature. To achieve this, the unit is mounted on a heatsink which has a fan attached and the chamber airflow is directed onto the product. Pictures illustrating the fixturing and arrangement of test units in the test chamber are presented in appendix A.

5. Detailed HALT results

When interpreting the test results it is important to note that the thermal operational and destruct limit results are based on the temperature of the given process step where the product ceased operating or was destroyed. The actual product ambient temperature and product temperature may differ from the process step temperature.

5.1 Low Temperature Limits Test (IPC9592B-D.1.1.1)

Three tests were performed as detailed below.

Test #	P _{OUT} (W)	V _{IN_NOM} (V _{RMS})	T _{MIN} (°C)	T _{MAX} (°C)
1	300	220	-60	25
2	300	120	-60	25
3	212.5	85	-60	25

The DUT was subjected to cold thermal stress beginning at +25°C, with the temperature decreasing (as per the stress profile in appendix B) as far as -60°C.

For the V_{AC} = 85V test, the output load was reduced to 212.5W in accordance with the line deratings specified in the product datasheet.

For all tests the DUT operated correctly and passed all functional tests down to a chamber temperature of -60°C. Testing stopped at a chamber temperature of -60°C. The DUT remained operational when returned to 25°C and no LDL was observed.

The Lower Operating Limit of the product was -60°C.

The Lower Destruct Limit of the product was less than -60°C.

5.2 High Temperature Limits Test (IPC9592B-D.1.1.2)

Three tests were performed as detailed below.

Test #	P _{OUT} (W)	V _{IN_NOM} (V _{RMS})	T _{MIN} (°C)	T _{MAX} (°C)
1	300	220	25	120
2	300	120	25	120
3	212.5	85	25	120

The DUT was subjected to hot thermal stress beginning at +25°C, with the temperature increasing (as per the stress profile in appendix B) as far as 120°C.

For the V_{AC} = 85V test, the output load was reduced to 212.5W in accordance with the line deratings specified in the product datasheet.

For all tests the DUT operated correctly and passed all functional tests up to a chamber temperature of 105°C. Testing stopped at a chamber temperature of 120°C. The DUT remained operational when returned to 25°C and no UDL was observed.

The Upper Operating Limit of the product was 105°C.

The Upper Destruct Limit of the product was greater than >120°C.

5.3 Rapid Thermal Cycle Test (IPC9592B-D.1.1.3)

The rapid thermal cycle test was performed at 300W with a minimum nominal operating voltage of 220Vac.

The DUT was subjected to cold and hot thermal stresses as per the stress profile in appendix B.

The DUT operated correctly and passed all functional tests over 30 cycles. The unit was disassembled and inspected after the test. No issues were observed.

5.4 Random Vibration Limits Test (IPC9592B-D.1.1.4)

The random vibration test was performed at 300W with a minimum nominal operating voltage of 120Vac and at an ambient temperature of 25°C.

The DUT was subjected to vibration stresses as per the stress profile in appendix B.

The DUT operated correctly and passed all functional tests up to a vibration level of $40G_{RMS}$ at which point the test was terminated. The unit was disassembled and inspected after the test. No issues were observed.

The Vibration Operating Limit of the product was $>40G_{RMS}$.

The Vibration Destruct Limit of the product was $>40G_{RMS}$.

5.5 Input Voltage Limit Test (IPC9592B-D.1.1.5)

Two tests were performed as detailed below.

Test #	P _{OUT} (W)	V _{MIN_NOM} (V _{RMS})	V _{MAX_NOM} (V _{RMS})	T _{MIN} (°C)	T _{MAX} (°C)	V _{TEST_MIN} (V _{RMS})	V _{TEST_MAX} (V _{RMS})
1	300	120	264	-55	95	61	300
2	212.5	85	264	-55	95	42	300

The DUT was subjected to input voltage stresses as per the stress profiles in appendix B.

For the $V_{AC} = 85V$ test, the output load was reduced to 212.5W in accordance with the line deratings specified in the product datasheet.

Test # 1 results

The DUT operated correctly down to $93V_{AC}$. From $92V_{AC}$ to $61V_{AC}$, the unit entered hiccup mode due to input OCP. No failures occurred.

The DUT operated correctly up to $300V_{AC}$ at which point the test was stopped. No failures occurred.

Above $270V_{AC}$ the power factor was reduced due to peak input voltage greater than internal 380V bus voltage.

Test # 2 results

The DUT operated correctly down to $61V_{AC}$. From $60V_{AC}$ to $42V_{AC}$, the unit entered hiccup mode due to input OCP. No failures occurred.

The DUT operated correctly up to $300V_{AC}$ at which point the test was stopped. No failures occurred.

Above $270V_{AC}$ the power factor was reduced due to peak input voltage greater than internal 380V bus voltage.

The Lower Operating Input Voltage Limit of the product was $93V_{AC}$ @ $120V_{ACNOM}$ & $61V_{AC}$ @ $85V_{ACNOM}$

The Upper Operating Input Voltage Limit of the product was $>300V_{AC}$.

The Input Voltage Destruct Limit of the product was $>300V_{AC}$.

5.6 Output Load Limit Test (IPC9592B-D.1.1.6)

The output load limit test was performed at 300W using the results from the input voltage limit test #1. The final test parameters are detailed below.

P _{OUT_NOM} (W)	T _{MIN} (°C)	T _{MAX} (°C)	V _{TEST_MIN} (V _{RMS})	V _{TEST_MAX} (V _{RMS})
300	-55	95	98 ($93V \cdot 1.05$)	285 ($300V \cdot 0.95$)

The DUT was subjected to output load stresses as per the stress profile in appendix B.

The unit operated correctly up to 125% of the rated load (31.25A).

At 130% of the rated load (32.5A) and low input voltage the output voltage dropped to approximately 93% of nominal.

At 130% of the rated load (32.5A) and high input voltage the output voltage remained within specification.

This could be an indication of IP_OCP limiting the input power rather than a limitation of the output stage.

The test was stopped at 130% of rated load. No failures occurred.

The Upper Operating Limit of the product was 125% of I_{RATED} .

The Upper Destruct Limit of the product was greater than $>130\%$ of I_{RATED} .

5.7 Combined Stress Test (IPC9592B-D.1.1.7)

The DUT was subjected to combined stresses as per the stress profile in appendix B. Summary parameters are shown below.

T _{MIN} (°C)	T _{MAX} (°C)	G _{VIB_MAX} (G _{RMS})	V _{IN_MIN} (V _{RMS})	V _{IN_MAX} (V _{RMS})	I _{OUT_MAX} (%I _{RATED})
-50	95	36	102.3	270	112.5

The DUT operated correctly and passed all functional tests over 5 cycles. The unit was disassembled and inspected after the tests. No issues were observed.

6. HALT Failures

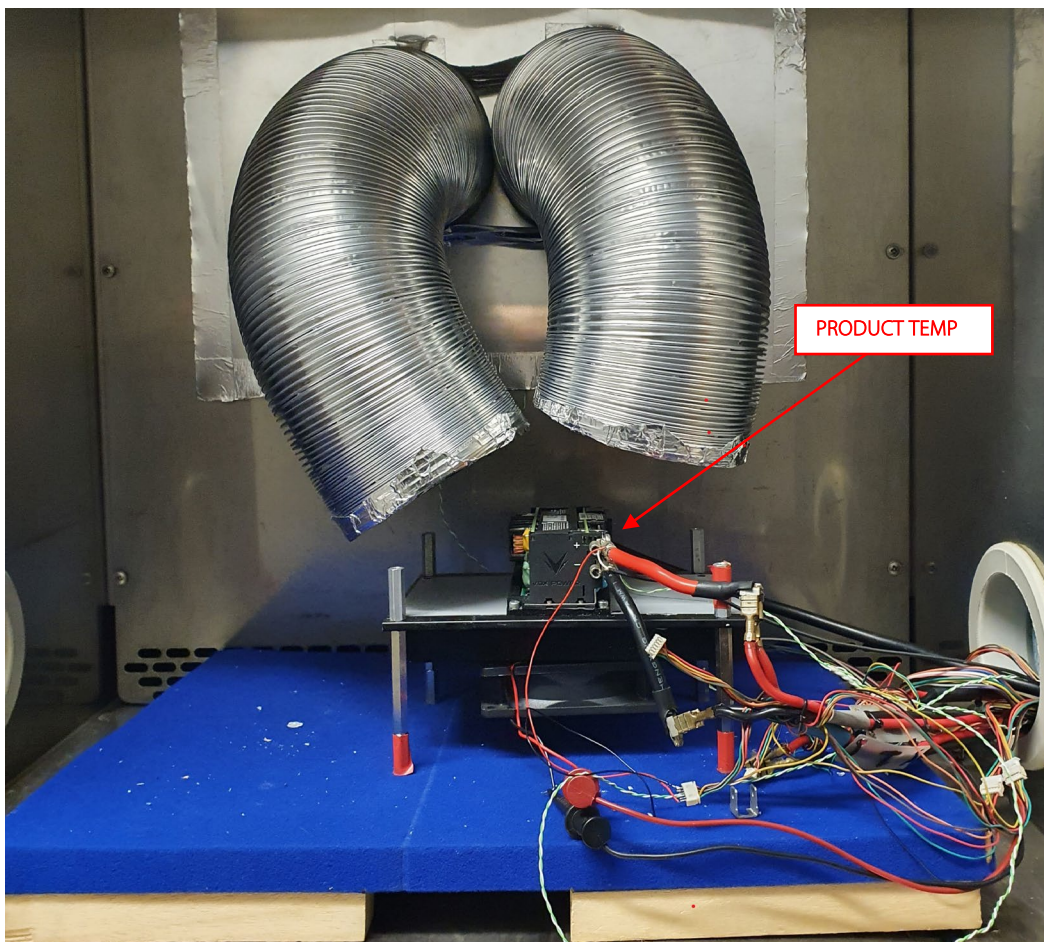
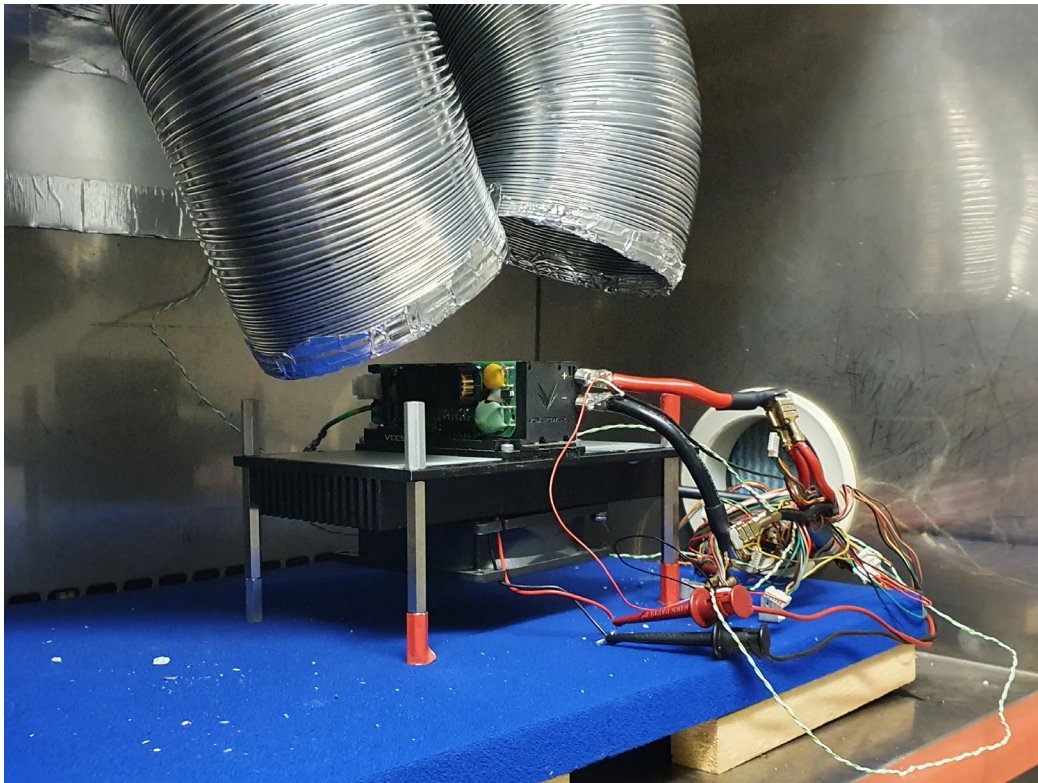
Each failure found during the HALT process needs to be examined and the root cause of the failure determined. Once the root cause of each failure is determined, engineering judgment is used to determine whether corrective action should be taken to fix the problem. The product should then undergo a verification HALT to ensure that the design margins have been increased to the fundamental limit of the technology and that the fixes made did not induce new failure modes. The ruggedisation of the product will not be increased unless each of the failures found during the HALT process are investigated to root cause and corrective action implemented.

6.1 Failure analysis

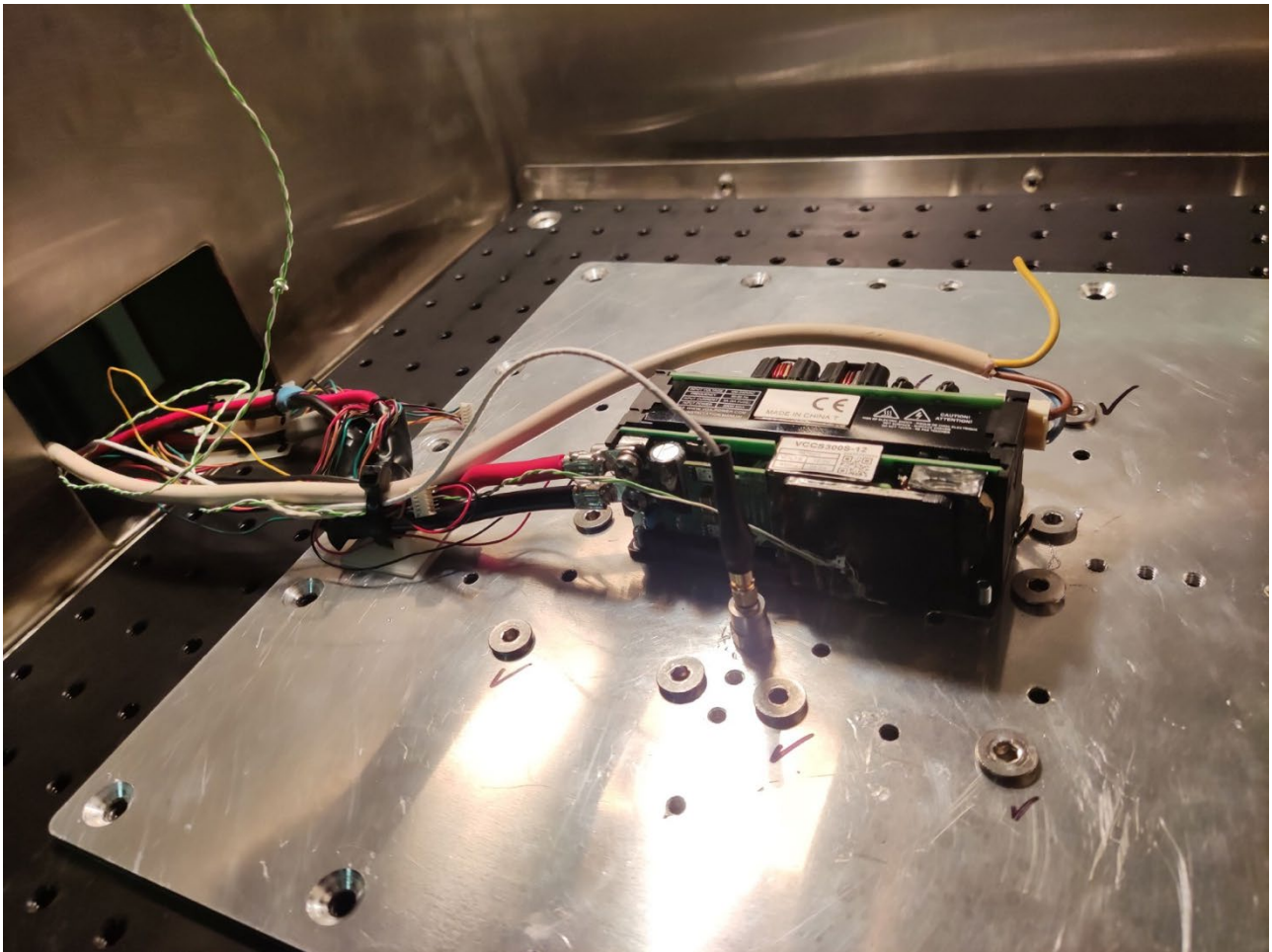
No failures were observed.

Appendix A – Setup Photographs

A.1 Temperature Limit, Temperature Cycle, Input Voltage & Output Load test Setup



A.2 Vibration Limit & Combined Stress test Setup



Appendix B – Stress Profiles

B.1 Low Temperature Limit Test

B.1.1 220V_{AC} Stress Profile

TESTLIST	Vac	Tamb	Load	Vib	Dwell	FCN_TST
0	0	25	0.000	0	240	OFF
1	220	25	25.0	0	600	ON
2	0	15	0.000	0	240	OFF
3	220	15	25.0	0	600	ON
4	0	5	0.000	0	240	OFF
5	220	5	25.0	0	600	ON
6	0	0	0.000	0	240	OFF
7	220	0	25.0	0	600	ON
8	0	-5	0.000	0	240	OFF
9	220	-5	25.0	0	600	ON
10	0	-10	0.000	0	240	OFF
11	220	-10	25.0	0	600	ON
12	0	-15	0.000	0	240	OFF
13	220	-15	25.0	0	600	ON
14	0	-20	0.000	0	240	OFF
15	220	-20	25.0	0	600	ON
16	0	-25	0.000	0	240	OFF
17	220	-25	25.0	0	600	ON
18	0	-30	0.000	0	240	OFF
19	220	-30	25.0	0	600	ON
20	0	-35	0.000	0	240	OFF
21	220	-35	25.0	0	600	ON
22	0	-40	0.000	0	240	OFF
23	220	-40	25.0	0	600	ON
24	0	-45	0.000	0	240	OFF
25	220	-45	25.0	0	600	ON
26	0	-50	0.000	0	240	OFF
27	220	-50	25.0	0	600	ON
28	0	-55	0.000	0	240	OFF
29	220	-55	25.0	0	600	ON
30	0	-60	0.000	0	240	OFF
31	220	-60	25.0	0	600	ON
32	0	25	0.000	0	600	OFF
33	220	25	25.0	0	600	ON

B.1.2 120V_{AC} Stress Profile

TESTLIST	Vac	Tamb	Load	Vib	Dwell	FCN_TST
0	0	25	0.000	0	240	OFF
1	120	25	25.0	0	600	ON
2	0	15	0.000	0	240	OFF
3	120	15	25.0	0	600	ON
4	0	5	0.000	0	240	OFF
5	120	5	25.0	0	600	ON
6	0	0	0.000	0	240	OFF
7	120	0	25.0	0	600	ON
8	0	-5	0.000	0	240	OFF
9	120	-5	25.0	0	600	ON
10	0	-10	0.000	0	240	OFF
11	120	-10	25.0	0	600	ON
12	0	-15	0.000	0	240	OFF
13	120	-15	25.0	0	600	ON
14	0	-20	0.000	0	240	OFF
15	120	-20	25.0	0	600	ON
16	0	-25	0.000	0	240	OFF
17	120	-25	25.0	0	600	ON
18	0	-30	0.000	0	240	OFF
19	120	-30	25.0	0	600	ON
20	0	-35	0.000	0	240	OFF
21	120	-35	25.0	0	600	ON
22	0	-40	0.000	0	240	OFF
23	120	-40	25.0	0	600	ON
24	0	-45	0.000	0	240	OFF
25	120	-45	25.0	0	600	ON
26	0	-50	0.000	0	240	OFF
27	120	-50	25.0	0	600	ON
28	0	-55	0.000	0	240	OFF
29	120	-55	25.0	0	600	ON
30	0	-60	0.000	0	240	OFF
31	120	-60	25.0	0	600	ON
32	0	25	0.000	0	600	OFF
33	120	25	25.0	0	600	ON

B.1.3 85V_{AC} Stress Profile

TESTLIST	Vac	Tamb	Load	Vib	Dwell	FCN_TST
0	0	25	0.000	0	240	OFF
1	85	25	17.7	0	600	ON
2	0	15	0.000	0	240	OFF
3	85	15	17.7	0	600	ON
4	0	5	0.000	0	240	OFF
5	85	5	17.7	0	600	ON
6	0	0	0.000	0	240	OFF
7	85	0	17.7	0	600	ON
8	0	-5	0.000	0	240	OFF
9	85	-5	17.7	0	600	ON
10	0	-10	0.000	0	240	OFF
11	85	-10	17.7	0	600	ON
12	0	-15	0.000	0	240	OFF
13	85	-15	17.7	0	600	ON
14	0	-20	0.000	0	240	OFF
15	85	-20	17.7	0	600	ON
16	0	-25	0.000	0	240	OFF
17	85	-25	17.7	0	600	ON
18	0	-30	0.000	0	240	OFF
19	85	-30	17.7	0	600	ON
20	0	-35	0.000	0	240	OFF
21	85	-35	17.7	0	600	ON
22	0	-40	0.000	0	240	OFF
23	85	-40	17.7	0	600	ON
24	0	-45	0.000	0	240	OFF
25	85	-45	17.7	0	600	ON
26	0	-50	0.000	0	240	OFF
27	85	-50	17.7	0	600	ON
28	0	-55	0.000	0	240	OFF
29	85	-55	17.7	0	600	ON
30	0	-60	0.000	0	240	OFF
31	85	-60	17.7	0	600	ON
32	0	25	0.000	0	600	OFF
33	85	25	17.7	0	600	ON

B.2 High Temperature Limit Test

B.2.1 220V_{AC} Stress Profile

TESTLIST	Vac	Tamb	Load	Vib	Dwell	FCN_TST
0	0	25	0.00	0	120	OFF
1	220	25	25.0	0	600	ON
2	0	30	0.00	0	120	OFF
3	220	30	25.0	0	600	ON
4	0	35	0.00	0	120	OFF
5	220	35	25.0	0	600	ON
6	0	40	0.00	0	120	OFF
7	220	40	25.0	0	600	ON
8	0	45	0.00	0	120	OFF
9	220	45	25.0	0	600	ON
10	0	50	0.00	0	120	OFF
11	220	50	25.0	0	600	ON
12	0	55	0.00	0	120	OFF
13	220	55	25.0	0	600	ON
14	0	60	0.00	0	120	OFF
15	220	60	25.0	0	600	ON
16	0	65	0.00	0	120	OFF
17	220	65	25.0	0	600	ON
18	0	70	0.00	0	120	OFF
19	220	70	25.0	0	600	ON
20	0	75	0.00	0	120	OFF
21	220	75	25.0	0	600	ON
22	0	80	0.00	0	120	OFF
23	220	80	25.0	0	600	ON
24	0	85	0.00	0	120	OFF
25	220	85	25.0	0	600	ON
26	0	90	0.00	0	120	OFF
27	220	90	25.0	0	600	ON
28	0	95	0.00	0	120	OFF
29	220	95	25.0	0	600	ON
30	0	100	0.00	0	120	OFF
31	220	100	25.0	0	600	ON
32	0	105	0.00	0	120	OFF
33	220	105	25.0	0	600	ON
34	0	110	0.00	0	120	OFF
35	220	110	25.0	0	600	ON
36	0	115	0.00	0	120	OFF
37	220	115	25.0	0	600	ON
38	0	120	0.00	0	120	OFF
39	220	120	25.0	0	600	ON
40	0	125	0.00	0	120	OFF
41	220	125	25.0	0	600	ON
42	0	25	0.00	0	120	OFF

B.2.2 120V_{AC} Stress Profile

TESTLIST	Vac	Tamb	Load	Vib	Dwell	FCN_TST
0	0	25	0.00	0	120	OFF
1	120	25	25.0	0	600	ON
2	0	30	0.00	0	120	OFF
3	120	30	25.0	0	600	ON
4	0	35	0.00	0	120	OFF
5	120	35	25.0	0	600	ON
6	0	40	0.00	0	120	OFF
7	120	40	25.0	0	600	ON
8	0	45	0.00	0	120	OFF
9	120	45	25.0	0	600	ON
10	0	50	0.00	0	120	OFF
11	120	50	25.0	0	600	ON
12	0	55	0.00	0	120	OFF
13	120	55	25.0	0	600	ON
14	0	60	0.00	0	120	OFF
15	120	60	25.0	0	600	ON
16	0	65	0.00	0	120	OFF
17	120	65	25.0	0	600	ON
18	0	70	0.00	0	120	OFF
19	120	70	25.0	0	600	ON
20	0	75	0.00	0	120	OFF
21	120	75	25.0	0	600	ON
22	0	80	0.00	0	120	OFF
23	120	80	25.0	0	600	ON
24	0	85	0.00	0	120	OFF
25	120	85	25.0	0	600	ON
26	0	90	0.00	0	120	OFF
27	120	90	25.0	0	600	ON
28	0	95	0.00	0	120	OFF
29	120	95	25.0	0	600	ON
30	0	100	0.00	0	120	OFF
31	120	100	25.0	0	600	ON
32	0	105	0.00	0	120	OFF
33	120	105	25.0	0	600	ON
34	0	110	0.00	0	120	OFF
35	120	110	25.0	0	600	ON
36	0	115	0.00	0	120	OFF
37	120	115	25.0	0	600	ON
38	0	120	0.00	0	120	OFF
39	120	120	25.0	0	600	ON
40	0	125	0.00	0	120	OFF
41	120	125	25.0	0	600	ON
42	0	25	0.00	0	120	OFF

B.2.3 85V_{AC} Stress Profile

TESTLIST	Vac	Tamb	Load	Vib	Dwell	FCN_TST
0	0	25	0.00	0	120	OFF
1	85	25	17.7	0	600	ON
2	0	30	0.00	0	120	OFF
3	85	30	17.7	0	600	ON
4	0	35	0.00	0	120	OFF
5	85	35	17.7	0	600	ON
6	0	40	0.00	0	120	OFF
7	85	40	17.7	0	600	ON
8	0	45	0.00	0	120	OFF
9	85	45	17.7	0	600	ON
10	0	50	0.00	0	120	OFF
11	85	50	17.7	0	600	ON
12	0	55	0.00	0	120	OFF
13	85	55	17.7	0	600	ON
14	0	60	0.00	0	120	OFF
15	85	60	17.7	0	600	ON
16	0	65	0.00	0	120	OFF
17	85	65	17.7	0	600	ON
18	0	70	0.00	0	120	OFF
19	85	70	17.7	0	600	ON
20	0	75	0.00	0	120	OFF
21	85	75	17.7	0	600	ON
22	0	80	0.00	0	120	OFF
23	85	80	17.7	0	600	ON
24	0	85	0.00	0	120	OFF
25	85	85	17.7	0	600	ON
26	0	90	0.00	0	120	OFF
27	85	90	17.7	0	600	ON
28	0	95	0.00	0	120	OFF
29	85	95	17.7	0	600	ON
30	0	100	0.00	0	120	OFF
31	85	100	17.7	0	600	ON
32	0	105	0.00	0	120	OFF
33	85	105	17.7	0	600	ON
34	0	110	0.00	0	120	OFF
35	85	110	17.7	0	600	ON
36	0	115	0.00	0	120	OFF
37	85	115	17.7	0	600	ON
38	0	120	0.00	0	120	OFF
39	85	120	17.7	0	600	ON
40	0	125	0.00	0	120	OFF
41	85	125	17.7	0	600	ON
42	0	25	0.00	0	120	OFF

B.3 Rapid Thermal Cycle

TESTLIST	Vac	Tamb	Load	Vib	Dwell	FCN_TST
0	0	25	0.000	0	120	ON
1	220	-50	0.000	0	1800	ON
2	220	80	25.0	0	1800	ON
3	220	-50	0.000	0	1800	ON
4	220	80	25.0	0	1800	ON
5	220	-50	0.000	0	1800	ON
6	220	80	25.0	0	1800	ON
7	220	-50	0.000	0	1800	ON
8	220	80	25.0	0	1800	ON
9	220	-50	0.000	0	1800	ON
10	220	80	25.0	0	1800	ON
11	220	-50	0.000	0	1800	ON
12	220	80	25.0	0	1800	ON
13	220	-50	0.000	0	1800	ON
14	220	80	25.0	0	1800	ON
15	220	-50	0.000	0	1800	ON
16	220	80	25.0	0	1800	ON
17	220	-50	0.000	0	1800	ON
18	220	80	25.0	0	1800	ON
19	220	-50	0.000	0	1800	ON
20	220	80	25.0	0	1800	ON
21	220	-50	0.000	0	1800	ON
22	220	80	25.0	0	1800	ON
23	220	-50	0.000	0	1800	ON
24	220	80	25.0	0	1800	ON
25	220	-50	0.000	0	1800	ON
26	220	80	25.0	0	1800	ON
27	220	-50	0.000	0	1800	ON
28	220	80	25.0	0	1800	ON
29	220	-50	0.000	0	1800	ON
30	220	80	25.0	0	1800	ON
31	220	-50	0.000	0	1800	ON
32	220	80	25.0	0	1800	ON
33	220	-50	0.000	0	1800	ON
34	220	80	25.0	0	1800	ON
35	220	-50	0.000	0	1800	ON
36	220	80	25.0	0	1800	ON
37	220	-50	0.000	0	1800	ON
38	220	80	25.0	0	1800	ON
39	220	-50	0.000	0	1800	ON
40	220	80	25.0	0	1800	ON
41	220	-50	0.000	0	1800	ON
42	220	80	25.0	0	1800	ON
43	220	-50	0.000	0	1800	ON
44	220	80	25.0	0	1800	ON
45	220	-50	0.000	0	1800	ON
46	220	80	25.0	0	1800	ON
47	220	-50	0.000	0	1800	ON
48	220	80	25.0	0	1800	ON
49	220	-50	0.000	0	1800	ON
50	220	80	25.0	0	1800	ON
51	220	-50	0.000	0	1800	ON
52	220	80	25.0	0	1800	ON
53	220	-50	0.000	0	1800	ON
54	220	80	25.0	0	1800	ON
55	220	-50	0.000	0	1800	ON
56	220	80	25.0	0	1800	ON
57	220	-50	0.000	0	1800	ON
58	220	80	25.0	0	1800	ON
59	220	-50	0.000	0	1800	ON
60	220	80	25.0	0	1800	ON
61	0	25	0.000	0	120	OFF

B.4 Random Vibration

TESTLIST	Vac	Tamb	Load	Vib	Dwell	FCN_TST
0	0	25	0.000	0	120	OFF
1	120	25	25.0	0	600	ON
2	120	25	25.0	5	600	ON
3	120	25	25.0	10	600	ON
4	120	25	25.0	15	600	ON
5	120	25	25.0	20	600	ON
6	120	25	25.0	25	600	ON
7	120	25	25.0	30	600	ON
8	120	25	25.0	35	600	ON
9	120	25	25.0	40	600	ON
10	0	25	0.000	0	120	OFF

B.5 Input Voltage Limit Test

B.5.1 120V_{AC} Stress Profile

TESTLIST	Vac	Tamb	Load	Vib	Dwell	FCN_TST
0	0	-55	0.000	0	300	OFF
1	130	-55	25.0	0	60	OFF
2	0	-55	0.000	0	20	OFF
3	129	-55	25.0	0	40	OFF
4	0	-55	0.000	0	20	OFF
5	128	-55	25.0	0	40	OFF
6	0	-55	0.000	0	20	OFF
7	127	-55	25.0	0	40	OFF
8	0	-55	0.000	0	20	OFF
9	126	-55	25.0	0	40	OFF
10	0	-55	0.000	0	20	OFF
11	125	-55	25.0	0	40	OFF
12	0	-55	0.000	0	20	OFF
13	124	-55	25.0	0	40	OFF
14	0	-55	0.000	0	20	OFF
15	123	-55	25.0	0	40	OFF
16	0	-55	0.000	0	20	OFF
17	122	-55	25.0	0	40	OFF
18	0	-55	0.000	0	20	OFF
19	121	-55	25.0	0	40	OFF
20	0	-55	0.000	0	20	OFF
21	120	-55	25.0	0	40	OFF
22	0	-55	0.000	0	20	OFF
23	119	-55	25.0	0	40	OFF
24	0	-55	0.000	0	20	OFF
25	118	-55	25.0	0	40	OFF
26	0	-55	0.000	0	20	OFF
27	117	-55	25.0	0	40	OFF
28	0	-55	0.000	0	20	OFF
29	116	-55	25.0	0	40	OFF
30	0	-55	0.000	0	20	OFF
31	115	-55	25.0	0	40	OFF
32	0	-55	0.000	0	20	OFF
33	114	-55	25.0	0	40	OFF
34	0	-55	0.000	0	20	OFF
35	113	-55	25.0	0	40	OFF
36	0	-55	0.000	0	20	OFF
37	112	-55	25.0	0	40	OFF
38	0	-55	0.000	0	20	OFF
39	111	-55	25.0	0	40	OFF
40	0	-55	0.000	0	20	OFF
41	110	-55	25.0	0	40	OFF
42	0	-55	0.000	0	20	OFF
43	109	-55	25.0	0	40	OFF
44	0	-55	0.000	0	20	OFF
45	108	-55	25.0	0	40	OFF
46	0	-55	0.000	0	20	OFF
47	107	-55	25.0	0	40	OFF
48	0	-55	0.000	0	20	OFF
49	106	-55	25.0	0	40	OFF
50	0	-55	0.000	0	20	OFF
51	105	-55	25.0	0	40	OFF
52	0	-55	0.000	0	20	OFF
53	104	-55	25.0	0	40	OFF
54	0	-55	0.000	0	20	OFF
55	103	-55	25.0	0	40	OFF
56	0	-55	0.000	0	20	OFF
57	102	-55	25.0	0	40	OFF
58	0	-55	0.000	0	20	OFF
59	101	-55	25.0	0	40	OFF
60	0	-55	0.000	0	20	OFF
61	100	-55	25.0	0	40	OFF
62	0	-55	0.000	0	20	OFF
63	99	-55	25.0	0	40	OFF
64	0	-55	0.000	0	20	OFF
65	98	-55	25.0	0	40	OFF
66	0	-55	0.000	0	20	OFF

67	97	-55	25.0	0	40	OFF
68	0	-55	0.000	0	20	OFF
69	96	-55	25.0	0	40	OFF
70	0	-55	0.000	0	20	OFF
71	95	-55	25.0	0	40	OFF
72	0	-55	0.000	0	20	OFF
73	94	-55	25.0	0	40	OFF
74	0	-55	0.000	0	20	OFF
75	93	-55	25.0	0	40	OFF
76	0	-55	0.000	0	20	OFF
77	92	-55	25.0	0	40	OFF
78	0	-55	0.000	0	20	OFF
79	91	-55	25.0	0	40	OFF
80	0	-55	0.000	0	20	OFF
81	90	-55	25.0	0	40	OFF
82	0	-55	0.000	0	20	OFF
83	89	-55	25.0	0	40	OFF
84	0	-55	0.000	0	20	OFF
85	88	-55	25.0	0	40	OFF
86	0	-55	0.000	0	20	OFF
87	87	-55	25.0	0	40	OFF
88	0	-55	0.000	0	20	OFF
89	86	-55	25.0	0	40	OFF
90	0	-55	0.000	0	20	OFF
91	85	-55	25.0	0	40	OFF
92	0	-55	0.000	0	20	OFF
93	84	-55	25.0	0	40	OFF
94	0	-55	0.000	0	20	OFF
95	83	-55	25.0	0	40	OFF
96	0	-55	0.000	0	20	OFF
97	82	-55	25.0	0	40	OFF
98	0	-55	0.000	0	20	OFF
99	81	-55	25.0	0	40	OFF
100	0	-55	0.000	0	20	OFF
101	80	-55	25.0	0	40	OFF
102	0	-55	0.000	0	20	OFF
103	79	-55	25.0	0	40	OFF
104	0	-55	0.000	0	20	OFF
105	78	-55	25.0	0	40	OFF
106	0	-55	0.000	0	20	OFF
107	77	-55	25.0	0	40	OFF
108	0	-55	0.000	0	20	OFF
109	76	-55	25.0	0	40	OFF
110	0	-55	0.000	0	20	OFF
111	75	-55	25.0	0	40	OFF
112	0	-55	0.000	0	20	OFF
113	74	-55	25.0	0	40	OFF
114	0	-55	0.000	0	20	OFF
115	73	-55	25.0	0	40	OFF
116	0	-55	0.000	0	20	OFF
117	72	-55	25.0	0	40	OFF
118	0	-55	0.000	0	20	OFF
119	71	-55	25.0	0	40	OFF
120	0	-55	0.000	0	20	OFF
121	70	-55	25.0	0	40	OFF
122	0	-55	0.000	0	20	OFF
123	69	-55	25.0	0	40	OFF
124	0	-55	0.000	0	20	OFF
125	68	-55	25.0	0	40	OFF
126	0	-55	0.000	0	20	OFF
127	67	-55	25.0	0	40	OFF
128	0	-55	0.000	0	20	OFF
129	66	-55	25.0	0	40	OFF
130	0	-55	0.000	0	20	OFF
131	65	-55	25.0	0	40	OFF
132	0	-55	0.000	0	20	OFF
133	64	-55	25.0	0	40	OFF
134	0	-55	0.000	0	20	OFF
135	63	-55	25.0	0	40	OFF
136	0	-55	0.000	0	20	OFF
137	62	-55	25.0	0	40	OFF
138	0	-55	0.000	0	20	OFF

139	61	-55	25.0	0	40	OFF
140	254	-55	25.0	0	60	OFF
141	0	-55	0.0	0	20	OFF
142	255	-55	25.0	0	60	OFF
143	0	-55	0.000	0	20	OFF
144	256	-55	25.0	0	40	OFF
145	0	-55	0.000	0	20	OFF
146	257	-55	25.0	0	40	OFF
147	0	-55	0.000	0	20	OFF
148	258	-55	25.0	0	40	OFF
149	0	-55	0.000	0	20	OFF
150	259	-55	25.0	0	40	OFF
151	0	-55	0.000	0	20	OFF
152	260	-55	25.0	0	40	OFF
153	0	-55	0.000	0	20	OFF
154	261	-55	25.0	0	40	OFF
155	0	-55	0.000	0	20	OFF
156	262	-55	25.0	0	40	OFF
157	0	-55	0.000	0	20	OFF
158	263	-55	25.0	0	40	OFF
159	0	-55	0.000	0	20	OFF
160	264	-55	25.0	0	40	OFF
161	0	-55	0.000	0	20	OFF
162	265	-55	25.0	0	40	OFF
163	0	-55	0.000	0	20	OFF
164	266	-55	25.0	0	40	OFF
165	0	-55	0.000	0	20	OFF
166	267	-55	25.0	0	40	OFF
167	0	-55	0.000	0	20	OFF
168	268	-55	25.0	0	40	OFF
169	0	-55	0.000	0	20	OFF
170	269	-55	25.0	0	40	OFF
171	0	-55	0.000	0	20	OFF
172	270	-55	25.0	0	40	OFF
173	0	-55	0.000	0	20	OFF
174	271	-55	25.0	0	40	OFF
175	0	-55	0.000	0	20	OFF
176	272	-55	25.0	0	40	OFF
177	0	-55	0.000	0	20	OFF
178	273	-55	25.0	0	40	OFF
179	0	-55	0.000	0	20	OFF
180	274	-55	25.0	0	40	OFF
181	0	-55	0.000	0	20	OFF
182	275	-55	25.0	0	40	OFF
183	0	-55	0.000	0	20	OFF
184	276	-55	25.0	0	40	OFF
185	0	-55	0.000	0	20	OFF
186	277	-55	25.0	0	40	OFF
187	0	-55	0.000	0	20	OFF
188	278	-55	25.0	0	40	OFF
189	0	-55	0.000	0	20	OFF
190	279	-55	25.0	0	40	OFF
191	0	-55	0.000	0	20	OFF
192	280	-55	25.0	0	40	OFF
193	0	-55	0.000	0	20	OFF
194	281	-55	25.0	0	40	OFF
195	0	-55	0.000	0	20	OFF
196	282	-55	25.0	0	40	OFF
197	0	-55	0.000	0	20	OFF
198	283	-55	25.0	0	40	OFF
199	0	-55	0.000	0	20	OFF
200	284	-55	25.0	0	40	OFF
201	0	-55	0.000	0	20	OFF
202	285	-55	25.0	0	40	OFF
203	0	-55	0.000	0	20	OFF
204	286	-55	25.0	0	40	OFF
205	0	-55	0.000	0	20	OFF
206	287	-55	25.0	0	40	OFF
207	0	-55	0.000	0	20	OFF
208	288	-55	25.0	0	40	OFF
209	0	-55	0.000	0	20	OFF
210	289	-55	25.0	0	40	OFF

211	0	-55	0.000	0	20	OFF
212	290	-55	25.0	0	40	OFF
213	0	-55	0.000	0	20	OFF
214	291	-55	25.0	0	40	OFF
215	0	-55	0.000	0	20	OFF
216	292	-55	25.0	0	40	OFF
217	0	-55	0.000	0	20	OFF
218	293	-55	25.0	0	40	OFF
219	0	-55	0.000	0	20	OFF
220	294	-55	25.0	0	40	OFF
221	0	-55	0.000	0	20	OFF
222	295	-55	25.0	0	40	OFF
223	0	-55	0.000	0	20	OFF
224	296	-55	25.0	0	40	OFF
225	0	-55	0.000	0	20	OFF
226	297	-55	25.0	0	40	OFF
227	0	-55	0.000	0	20	OFF
228	298	-55	25.0	0	40	OFF
229	0	-55	0.000	0	20	OFF
230	299	-55	25.0	0	40	OFF
231	0	-55	0.000	0	20	OFF
232	300	-55	25.0	0	40	OFF
233	130	95	25.0	0	60	OFF
234	0	95	0.000	0	20	OFF
235	129	95	25.0	0	40	OFF
236	0	95	0.000	0	20	OFF
237	128	95	25.0	0	40	OFF
238	0	95	0.000	0	20	OFF
239	127	95	25.0	0	40	OFF
240	0	95	0.000	0	20	OFF
241	126	95	25.0	0	40	OFF
242	0	95	0.000	0	20	OFF
243	125	95	25.0	0	40	OFF
244	0	95	0.000	0	20	OFF
245	124	95	25.0	0	40	OFF
246	0	95	0.000	0	20	OFF
247	123	95	25.0	0	40	OFF
248	0	95	0.000	0	20	OFF
249	122	95	25.0	0	40	OFF
250	0	95	0.000	0	20	OFF
251	121	95	25.0	0	40	OFF
252	0	95	0.000	0	20	OFF
253	120	95	25.0	0	40	OFF
254	0	95	0.000	0	20	OFF
255	119	95	25.0	0	40	OFF
256	0	95	0.000	0	20	OFF
257	118	95	25.0	0	40	OFF
258	0	95	0.000	0	20	OFF
259	117	95	25.0	0	40	OFF
260	0	95	0.000	0	20	OFF
261	116	95	25.0	0	40	OFF
262	0	95	0.000	0	20	OFF
263	115	95	25.0	0	40	OFF
264	0	95	0.000	0	20	OFF
265	114	95	25.0	0	40	OFF
266	0	95	0.000	0	20	OFF
267	113	95	25.0	0	40	OFF
268	0	95	0.000	0	20	OFF
269	112	95	25.0	0	40	OFF
270	0	95	0.000	0	20	OFF
271	111	95	25.0	0	40	OFF
272	0	95	0.000	0	20	OFF
273	110	95	25.0	0	40	OFF
274	0	95	0.000	0	20	OFF
275	109	95	25.0	0	40	OFF
276	0	95	0.000	0	20	OFF
277	108	95	25.0	0	40	OFF
278	0	95	0.000	0	20	OFF
279	107	95	25.0	0	40	OFF
280	0	95	0.000	0	20	OFF
281	106	95	25.0	0	40	OFF
282	0	95	0.000	0	20	OFF

283	105	95	25.0	0	40	OFF
284	0	95	0.000	0	20	OFF
285	104	95	25.0	0	40	OFF
286	0	95	0.000	0	20	OFF
287	103	95	25.0	0	40	OFF
288	0	95	0.000	0	20	OFF
289	102	95	25.0	0	40	OFF
290	0	95	0.000	0	20	OFF
291	101	95	25.0	0	40	OFF
292	0	95	0.000	0	20	OFF
293	100	95	25.0	0	40	OFF
294	0	95	0.000	0	20	OFF
295	99	95	25.0	0	40	OFF
296	0	95	0.000	0	20	OFF
297	98	95	25.0	0	40	OFF
298	0	95	0.000	0	20	OFF
299	97	95	25.0	0	40	OFF
300	0	95	0.000	0	20	OFF
301	96	95	25.0	0	40	OFF
302	0	95	0.000	0	20	OFF
303	95	95	25.0	0	40	OFF
304	0	95	0.000	0	20	OFF
305	94	95	25.0	0	40	OFF
306	0	95	0.000	0	20	OFF
307	93	95	25.0	0	40	OFF
308	0	95	0.000	0	20	OFF
309	92	95	25.0	0	40	OFF
310	0	95	0.000	0	20	OFF
311	91	95	25.0	0	40	OFF
312	0	95	0.000	0	20	OFF
313	90	95	25.0	0	40	OFF
314	0	95	0.000	0	20	OFF
315	89	95	25.0	0	40	OFF
316	0	95	0.000	0	20	OFF
317	88	95	25.0	0	40	OFF
318	0	95	0.000	0	20	OFF
319	87	95	25.0	0	40	OFF
320	0	95	0.000	0	20	OFF
321	86	95	25.0	0	40	OFF
322	0	95	0.000	0	20	OFF
323	85	95	25.0	0	40	OFF
324	0	95	0.000	0	20	OFF
325	84	95	25.0	0	40	OFF
326	0	95	0.000	0	20	OFF
327	83	95	25.0	0	40	OFF
328	0	95	0.000	0	20	OFF
329	82	95	25.0	0	40	OFF
330	0	95	0.000	0	20	OFF
331	81	95	25.0	0	40	OFF
332	0	95	0.000	0	20	OFF
333	80	95	25.0	0	40	OFF
334	0	95	0.000	0	20	OFF
335	79	95	25.0	0	40	OFF
336	0	95	0.000	0	20	OFF
337	78	95	25.0	0	40	OFF
338	0	95	0.000	0	20	OFF
339	77	95	25.0	0	40	OFF
340	0	95	0.000	0	20	OFF
341	76	95	25.0	0	40	OFF
342	0	95	0.000	0	20	OFF
343	75	95	25.0	0	40	OFF
344	0	95	0.000	0	20	OFF
345	74	95	25.0	0	40	OFF
346	0	95	0.000	0	20	OFF
347	73	95	25.0	0	40	OFF
348	0	95	0.000	0	20	OFF
349	72	95	25.0	0	40	OFF
350	0	95	0.000	0	20	OFF
351	71	95	25.0	0	40	OFF
352	0	95	0.000	0	20	OFF
353	70	95	25.0	0	40	OFF
354	0	95	0.000	0	20	OFF

355	69	95	25.0	0	40	OFF
356	0	95	0.000	0	20	OFF
357	68	95	25.0	0	40	OFF
358	0	95	0.000	0	20	OFF
359	67	95	25.0	0	40	OFF
360	0	95	0.000	0	20	OFF
361	66	95	25.0	0	40	OFF
362	0	95	0.000	0	20	OFF
363	65	95	25.0	0	40	OFF
364	0	95	0.000	0	20	OFF
365	64	95	25.0	0	40	OFF
366	0	95	0.000	0	20	OFF
367	63	95	25.0	0	40	OFF
368	0	95	0.000	0	20	OFF
369	62	95	25.0	0	40	OFF
370	0	95	0.000	0	20	OFF
371	61	95	25.0	0	40	OFF
372	254	95	25.0	0	60	OFF
373	0	95	0.000	0	20	OFF
374	255	95	25.0	0	40	OFF
375	0	95	0.000	0	20	OFF
376	256	95	25.0	0	40	OFF
377	0	95	0.000	0	20	OFF
378	257	95	25.0	0	40	OFF
379	0	95	0.000	0	20	OFF
380	258	95	25.0	0	40	OFF
381	0	95	0.000	0	20	OFF
382	259	95	25.0	0	40	OFF
383	0	95	0.000	0	20	OFF
384	260	95	25.0	0	40	OFF
385	0	95	0.000	0	20	OFF
386	261	95	25.0	0	40	OFF
387	0	95	0.000	0	20	OFF
388	262	95	25.0	0	40	OFF
389	0	95	0.000	0	20	OFF
390	263	95	25.0	0	40	OFF
391	0	95	0.000	0	20	OFF
392	264	95	25.0	0	40	OFF
393	0	95	0.000	0	20	OFF
394	265	95	25.0	0	40	OFF
395	0	95	0.000	0	20	OFF
396	266	95	25.0	0	40	OFF
397	0	95	0.000	0	20	OFF
398	267	95	25.0	0	40	OFF
399	0	95	0.000	0	20	OFF
400	268	95	25.0	0	40	OFF
401	0	95	0.000	0	20	OFF
402	269	95	25.0	0	40	OFF
403	0	95	0.000	0	20	OFF
404	270	95	25.0	0	40	OFF
405	0	95	0.000	0	20	OFF
406	271	95	25.0	0	40	OFF
407	0	95	0.000	0	20	OFF
408	272	95	25.0	0	40	OFF
409	0	95	0.000	0	20	OFF
410	273	95	25.0	0	40	OFF
411	0	95	0.000	0	20	OFF
412	274	95	25.0	0	40	OFF
413	0	95	0.000	0	20	OFF
414	275	95	25.0	0	40	OFF
415	0	95	0.000	0	20	OFF
416	276	95	25.0	0	40	OFF
417	0	95	0.000	0	20	OFF
418	277	95	25.0	0	40	OFF
419	0	95	0.000	0	20	OFF
420	278	95	25.0	0	40	OFF
421	0	95	0.000	0	20	OFF
422	279	95	25.0	0	40	OFF
423	0	95	0.000	0	20	OFF
424	280	95	25.0	0	40	OFF
425	0	95	0.000	0	20	OFF
426	281	95	25.0	0	40	OFF

427	0	95	0.000	0	20	OFF
428	282	95	25.0	0	40	OFF
429	0	95	0.000	0	20	OFF
430	283	95	25.0	0	40	OFF
431	0	95	0.000	0	20	OFF
432	284	95	25.0	0	40	OFF
433	0	95	0.000	0	20	OFF
434	285	95	25.0	0	40	OFF
435	0	95	0.000	0	20	OFF
436	286	95	25.0	0	40	OFF
437	0	95	0.000	0	20	OFF
438	287	95	25.0	0	40	OFF
439	0	95	0.000	0	20	OFF
440	288	95	25.0	0	40	OFF
441	0	95	0.000	0	20	OFF
442	289	95	25.0	0	40	OFF
443	0	95	0.000	0	20	OFF
444	290	95	25.0	0	40	OFF
445	0	95	0.000	0	20	OFF
446	291	95	25.0	0	40	OFF
447	0	95	0.000	0	20	OFF
448	292	95	25.0	0	40	OFF
449	0	95	0.000	0	20	OFF
450	293	95	25.0	0	40	OFF
451	0	95	0.000	0	20	OFF
452	294	95	25.0	0	40	OFF
453	0	95	0.000	0	20	OFF
454	295	95	25.0	0	40	OFF
455	0	95	0.000	0	20	OFF
456	296	95	25.0	0	40	OFF
457	0	95	0.000	0	20	OFF
458	297	95	25.0	0	40	OFF
459	0	95	0.000	0	20	OFF
460	298	95	25.0	0	40	OFF
461	0	95	0.000	0	20	OFF
462	299	95	25.0	0	40	OFF
463	0	95	0.000	0	20	OFF
464	300	95	25.0	0	40	OFF
465	0	95	0.000	0	120	OFF

B.5.2 85V_{AC} Stress Profile

TESTLIST	Vac	Tamb	Load	Vib	Dwell	FCN_TST
0	0	-55	0.000	0	300	OFF
1	95	-55	17.7	0	60	OFF
2	0	-55	0.000	0	20	OFF
3	94	-55	17.7	0	40	OFF
4	0	-55	0.000	0	20	OFF
5	93	-55	17.7	0	40	OFF
6	0	-55	0.000	0	20	OFF
7	92	-55	17.7	0	40	OFF
8	0	-55	0.000	0	20	OFF
9	91	-55	17.7	0	40	OFF
10	0	-55	0.000	0	20	OFF
11	90	-55	17.7	0	40	OFF
12	0	-55	0.000	0	20	OFF
13	89	-55	17.7	0	40	OFF
14	0	-55	0.000	0	20	OFF
15	88	-55	17.7	0	40	OFF
16	0	-55	0.000	0	20	OFF
17	87	-55	17.7	0	40	OFF
18	0	-55	0.000	0	20	OFF
19	86	-55	17.7	0	40	OFF
20	0	-55	0.000	0	20	OFF
21	85	-55	17.7	0	40	OFF
22	0	-55	0.000	0	20	OFF
23	84	-55	17.7	0	40	OFF
24	0	-55	0.000	0	20	OFF
25	83	-55	17.7	0	40	OFF
26	0	-55	0.000	0	20	OFF
27	82	-55	17.7	0	40	OFF
28	0	-55	0.000	0	20	OFF
29	81	-55	17.7	0	40	OFF
30	0	-55	0.000	0	20	OFF
31	80	-55	17.7	0	40	OFF
32	0	-55	0.000	0	20	OFF
33	79	-55	17.7	0	40	OFF
34	0	-55	0.000	0	20	OFF
35	78	-55	17.7	0	40	OFF
36	0	-55	0.000	0	20	OFF
37	77	-55	17.7	0	40	OFF
38	0	-55	0.000	0	20	OFF
39	76	-55	17.7	0	40	OFF
40	0	-55	0.000	0	20	OFF
41	75	-55	17.7	0	40	OFF
42	0	-55	0.000	0	20	OFF
43	74	-55	17.7	0	40	OFF
44	0	-55	0.000	0	20	OFF
45	73	-55	17.7	0	40	OFF
46	0	-55	0.000	0	20	OFF
47	72	-55	17.7	0	40	OFF
48	0	-55	0.000	0	20	OFF
49	71	-55	17.7	0	40	OFF
50	0	-55	0.000	0	20	OFF
51	70	-55	17.7	0	40	OFF
52	0	-55	0.000	0	20	OFF
53	69	-55	17.7	0	40	OFF
54	0	-55	0.000	0	20	OFF
55	68	-55	17.7	0	40	OFF
56	0	-55	0.000	0	20	OFF
57	67	-55	17.7	0	40	OFF
58	0	-55	0.000	0	20	OFF
59	66	-55	17.7	0	40	OFF
60	0	-55	0.000	0	20	OFF
61	65	-55	17.7	0	40	OFF
62	0	-55	0.000	0	20	OFF
63	64	-55	17.7	0	40	OFF
64	0	-55	0.000	0	20	OFF
65	63	-55	17.7	0	40	OFF
66	0	-55	0.000	0	20	OFF
67	62	-55	17.7	0	40	OFF
68	0	-55	0.000	0	20	OFF

69	61	-55	17.7	0	40	OFF
70	0	-55	0.000	0	20	OFF
71	60	-55	17.7	0	40	OFF
72	0	-55	0.000	0	20	OFF
73	59	-55	17.7	0	40	OFF
74	0	-55	0.000	0	20	OFF
75	58	-55	17.7	0	40	OFF
76	0	-55	0.000	0	20	OFF
77	57	-55	17.7	0	40	OFF
78	0	-55	0.000	0	20	OFF
79	56	-55	17.7	0	40	OFF
80	0	-55	0.000	0	20	OFF
81	55	-55	17.7	0	40	OFF
82	0	-55	0.000	0	20	OFF
83	54	-55	17.7	0	40	OFF
84	0	-55	0.000	0	20	OFF
85	53	-55	17.7	0	40	OFF
86	0	-55	0.000	0	20	OFF
87	52	-55	17.7	0	40	OFF
88	0	-55	0.000	0	20	OFF
89	51	-55	17.7	0	40	OFF
90	0	-55	0.000	0	20	OFF
91	50	-55	17.7	0	40	OFF
92	0	-55	0.000	0	20	OFF
93	49	-55	17.7	0	40	OFF
94	0	-55	0.000	0	20	OFF
95	48	-55	17.7	0	40	OFF
96	0	-55	0.000	0	20	OFF
97	47	-55	17.7	0	40	OFF
98	0	-55	0.000	0	20	OFF
99	46	-55	17.7	0	40	OFF
100	0	-55	0.000	0	20	OFF
101	45	-55	17.7	0	40	OFF
102	0	-55	0.000	0	20	OFF
103	44	-55	17.7	0	40	OFF
104	0	-55	0.000	0	20	OFF
105	43	-55	17.7	0	40	OFF
106	0	-55	0.000	0	20	OFF
107	42	-55	17.7	0	40	OFF
108	254	-55	25.0	0	60	OFF
109	0	-55	0.0	0	20	OFF
110	255	-55	25.0	0	60	OFF
111	0	-55	0.000	0	20	OFF
112	256	-55	25.0	0	40	OFF
113	0	-55	0.000	0	20	OFF
114	257	-55	25.0	0	40	OFF
115	0	-55	0.000	0	20	OFF
116	258	-55	25.0	0	40	OFF
117	0	-55	0.000	0	20	OFF
118	259	-55	25.0	0	40	OFF
119	0	-55	0.000	0	20	OFF
120	260	-55	25.0	0	40	OFF
121	0	-55	0.000	0	20	OFF
122	261	-55	25.0	0	40	OFF
123	0	-55	0.000	0	20	OFF
124	262	-55	25.0	0	40	OFF
125	0	-55	0.000	0	20	OFF
126	263	-55	25.0	0	40	OFF
127	0	-55	0.000	0	20	OFF
128	264	-55	25.0	0	40	OFF
129	0	-55	0.000	0	20	OFF
130	265	-55	25.0	0	40	OFF
131	0	-55	0.000	0	20	OFF
132	266	-55	25.0	0	40	OFF
133	0	-55	0.000	0	20	OFF
134	267	-55	25.0	0	40	OFF
135	0	-55	0.000	0	20	OFF
136	268	-55	25.0	0	40	OFF
137	0	-55	0.000	0	20	OFF
138	269	-55	25.0	0	40	OFF
139	0	-55	0.000	0	20	OFF
140	270	-55	25.0	0	40	OFF

141	0	-55	0.000	0	20	OFF
142	271	-55	25.0	0	40	OFF
143	0	-55	0.000	0	20	OFF
144	272	-55	25.0	0	40	OFF
145	0	-55	0.000	0	20	OFF
146	273	-55	25.0	0	40	OFF
147	0	-55	0.000	0	20	OFF
148	274	-55	25.0	0	40	OFF
149	0	-55	0.000	0	20	OFF
150	275	-55	25.0	0	40	OFF
151	0	-55	0.000	0	20	OFF
152	276	-55	25.0	0	40	OFF
153	0	-55	0.000	0	20	OFF
154	277	-55	25.0	0	40	OFF
155	0	-55	0.000	0	20	OFF
156	278	-55	25.0	0	40	OFF
157	0	-55	0.000	0	20	OFF
158	279	-55	25.0	0	40	OFF
159	0	-55	0.000	0	20	OFF
160	280	-55	25.0	0	40	OFF
161	0	-55	0.000	0	20	OFF
162	281	-55	25.0	0	40	OFF
163	0	-55	0.000	0	20	OFF
164	282	-55	25.0	0	40	OFF
165	0	-55	0.000	0	20	OFF
166	283	-55	25.0	0	40	OFF
167	0	-55	0.000	0	20	OFF
168	284	-55	25.0	0	40	OFF
169	0	-55	0.000	0	20	OFF
170	285	-55	25.0	0	40	OFF
171	0	-55	0.000	0	20	OFF
172	286	-55	25.0	0	40	OFF
173	0	-55	0.000	0	20	OFF
174	287	-55	25.0	0	40	OFF
175	0	-55	0.000	0	20	OFF
176	288	-55	25.0	0	40	OFF
177	0	-55	0.000	0	20	OFF
178	289	-55	25.0	0	40	OFF
179	0	-55	0.000	0	20	OFF
180	290	-55	25.0	0	40	OFF
181	0	-55	0.000	0	20	OFF
182	291	-55	25.0	0	40	OFF
183	0	-55	0.000	0	20	OFF
184	292	-55	25.0	0	40	OFF
185	0	-55	0.000	0	20	OFF
186	293	-55	25.0	0	40	OFF
187	0	-55	0.000	0	20	OFF
188	294	-55	25.0	0	40	OFF
189	0	-55	0.000	0	20	OFF
190	295	-55	25.0	0	40	OFF
191	0	-55	0.000	0	20	OFF
192	296	-55	25.0	0	40	OFF
193	0	-55	0.000	0	20	OFF
194	297	-55	25.0	0	40	OFF
195	0	-55	0.000	0	20	OFF
196	298	-55	25.0	0	40	OFF
197	0	-55	0.000	0	20	OFF
198	299	-55	25.0	0	40	OFF
199	0	-55	0.000	0	20	OFF
200	300	-55	25.0	0	40	OFF
201	95	95	17.7	0	60	OFF
202	0	95	0.000	0	20	OFF
203	94	95	17.7	0	40	OFF
204	0	95	0.000	0	20	OFF
205	93	95	17.7	0	40	OFF
206	0	95	0.000	0	20	OFF
207	92	95	17.7	0	40	OFF
208	0	95	0.000	0	20	OFF
209	91	95	17.7	0	40	OFF
210	0	95	0.000	0	20	OFF
211	90	95	17.7	0	40	OFF
212	0	95	0.000	0	20	OFF

213	89	95	17.7	0	40	OFF
214	0	95	0.000	0	20	OFF
215	88	95	17.7	0	40	OFF
216	0	95	0.000	0	20	OFF
217	87	95	17.7	0	40	OFF
218	0	95	0.000	0	20	OFF
219	86	95	17.7	0	40	OFF
220	0	95	0.000	0	20	OFF
221	85	95	17.7	0	40	OFF
222	0	95	0.000	0	20	OFF
223	84	95	17.7	0	40	OFF
224	0	95	0.000	0	20	OFF
225	83	95	17.7	0	40	OFF
226	0	95	0.000	0	20	OFF
227	82	95	17.7	0	40	OFF
228	0	95	0.000	0	20	OFF
229	81	95	17.7	0	40	OFF
230	0	95	0.000	0	20	OFF
231	80	95	17.7	0	40	OFF
232	0	95	0.000	0	20	OFF
233	79	95	17.7	0	40	OFF
234	0	95	0.000	0	20	OFF
235	78	95	17.7	0	40	OFF
236	0	95	0.000	0	20	OFF
237	77	95	17.7	0	40	OFF
238	0	95	0.000	0	20	OFF
239	76	95	17.7	0	40	OFF
240	0	95	0.000	0	20	OFF
241	75	95	17.7	0	40	OFF
242	0	95	0.000	0	20	OFF
243	74	95	17.7	0	40	OFF
244	0	95	0.000	0	20	OFF
245	73	95	17.7	0	40	OFF
246	0	95	0.000	0	20	OFF
247	72	95	17.7	0	40	OFF
248	0	95	0.000	0	20	OFF
249	71	95	17.7	0	40	OFF
250	0	95	0.000	0	20	OFF
251	70	95	17.7	0	40	OFF
252	0	95	0.000	0	20	OFF
253	69	95	17.7	0	40	OFF
254	0	95	0.000	0	20	OFF
255	68	95	17.7	0	40	OFF
256	0	95	0.000	0	20	OFF
257	67	95	17.7	0	40	OFF
258	0	95	0.000	0	20	OFF
259	66	95	17.7	0	40	OFF
260	0	95	0.000	0	20	OFF
261	65	95	17.7	0	40	OFF
262	0	95	0.000	0	20	OFF
263	64	95	17.7	0	40	OFF
264	0	95	0.000	0	20	OFF
265	63	95	17.7	0	40	OFF
266	0	95	0.000	0	20	OFF
267	62	95	17.7	0	40	OFF
268	0	95	0.000	0	20	OFF
269	61	95	17.7	0	40	OFF
270	0	95	0.000	0	20	OFF
271	60	95	17.7	0	40	OFF
272	0	95	0.000	0	20	OFF
273	59	95	17.7	0	40	OFF
274	0	95	0.000	0	20	OFF
275	58	95	17.7	0	40	OFF
276	0	95	0.000	0	20	OFF
277	57	95	17.7	0	40	OFF
278	0	95	0.000	0	20	OFF
279	56	95	17.7	0	40	OFF
280	0	95	0.000	0	20	OFF
281	55	95	17.7	0	40	OFF
282	0	95	0.000	0	20	OFF
283	54	95	17.7	0	40	OFF
284	0	95	0.000	0	20	OFF

285	53	95	17.7	0	40	OFF
286	0	95	0.000	0	20	OFF
287	52	95	17.7	0	40	OFF
288	0	95	0.000	0	20	OFF
289	51	95	17.7	0	40	OFF
290	0	95	0.000	0	20	OFF
291	50	95	17.7	0	40	OFF
292	0	95	0.000	0	20	OFF
293	49	95	17.7	0	40	OFF
294	0	95	0.000	0	20	OFF
295	48	95	17.7	0	40	OFF
296	0	95	0.000	0	20	OFF
297	47	95	17.7	0	40	OFF
298	0	95	0.000	0	20	OFF
299	46	95	17.7	0	40	OFF
300	0	95	0.000	0	20	OFF
301	45	95	17.7	0	40	OFF
302	0	95	0.000	0	20	OFF
303	44	95	17.7	0	40	OFF
304	0	95	0.000	0	20	OFF
305	43	95	17.7	0	40	OFF
306	0	95	0.000	0	20	OFF
307	42	95	17.7	0	40	OFF
308	254	95	25.0	0	60	OFF
309	0	95	0.000	0	20	OFF
310	255	95	25.0	0	40	OFF
311	0	95	0.000	0	20	OFF
312	256	95	25.0	0	40	OFF
313	0	95	0.000	0	20	OFF
314	257	95	25.0	0	40	OFF
315	0	95	0.000	0	20	OFF
316	258	95	25.0	0	40	OFF
317	0	95	0.000	0	20	OFF
318	259	95	25.0	0	40	OFF
319	0	95	0.000	0	20	OFF
320	260	95	25.0	0	40	OFF
321	0	95	0.000	0	20	OFF
322	261	95	25.0	0	40	OFF
323	0	95	0.000	0	20	OFF
324	262	95	25.0	0	40	OFF
325	0	95	0.000	0	20	OFF
326	263	95	25.0	0	40	OFF
327	0	95	0.000	0	20	OFF
328	264	95	25.0	0	40	OFF
329	0	95	0.000	0	20	OFF
330	265	95	25.0	0	40	OFF
331	0	95	0.000	0	20	OFF
332	266	95	25.0	0	40	OFF
333	0	95	0.000	0	20	OFF
334	267	95	25.0	0	40	OFF
335	0	95	0.000	0	20	OFF
336	268	95	25.0	0	40	OFF
337	0	95	0.000	0	20	OFF
338	269	95	25.0	0	40	OFF
339	0	95	0.000	0	20	OFF
340	270	95	25.0	0	40	OFF
341	0	95	0.000	0	20	OFF
342	271	95	25.0	0	40	OFF
343	0	95	0.000	0	20	OFF
344	272	95	25.0	0	40	OFF
345	0	95	0.000	0	20	OFF
346	273	95	25.0	0	40	OFF
347	0	95	0.000	0	20	OFF
348	274	95	25.0	0	40	OFF
349	0	95	0.000	0	20	OFF
350	275	95	25.0	0	40	OFF
351	0	95	0.000	0	20	OFF
352	276	95	25.0	0	40	OFF
353	0	95	0.000	0	20	OFF
354	277	95	25.0	0	40	OFF
355	0	95	0.000	0	20	OFF
356	278	95	25.0	0	40	OFF

357	0	95	0.000	0	20	OFF
358	279	95	25.0	0	40	OFF
359	0	95	0.000	0	20	OFF
360	280	95	25.0	0	40	OFF
361	0	95	0.000	0	20	OFF
362	281	95	25.0	0	40	OFF
363	0	95	0.000	0	20	OFF
364	282	95	25.0	0	40	OFF
365	0	95	0.000	0	20	OFF
366	283	95	25.0	0	40	OFF
367	0	95	0.000	0	20	OFF
368	284	95	25.0	0	40	OFF
369	0	95	0.000	0	20	OFF
370	285	95	25.0	0	40	OFF
371	0	95	0.000	0	20	OFF
372	286	95	25.0	0	40	OFF
373	0	95	0.000	0	20	OFF
374	287	95	25.0	0	40	OFF
375	0	95	0.000	0	20	OFF
376	288	95	25.0	0	40	OFF
377	0	95	0.000	0	20	OFF
378	289	95	25.0	0	40	OFF
379	0	95	0.000	0	20	OFF
380	290	95	25.0	0	40	OFF
381	0	95	0.000	0	20	OFF
382	291	95	25.0	0	40	OFF
383	0	95	0.000	0	20	OFF
384	292	95	25.0	0	40	OFF
385	0	95	0.000	0	20	OFF
386	293	95	25.0	0	40	OFF
387	0	95	0.000	0	20	OFF
388	294	95	25.0	0	40	OFF
389	0	95	0.000	0	20	OFF
390	295	95	25.0	0	40	OFF
391	0	95	0.000	0	20	OFF
392	296	95	25.0	0	40	OFF
393	0	95	0.000	0	20	OFF
394	297	95	25.0	0	40	OFF
395	0	95	0.000	0	20	OFF
396	298	95	25.0	0	40	OFF
397	0	95	0.000	0	20	OFF
398	299	95	25.0	0	40	OFF
399	0	95	0.000	0	20	OFF
400	300	95	25.0	0	40	OFF
401	0	95	0.000	0	120	OFF

B.6 Output Load Limit Test

B.6.1 300W Stress Profile

TESTLIST	Vac	Tamb	Load	Vib	Dwell	FCN_TST	Notes
0	0	95	0.000	0	120	OFF	
1	97.65	95	25.000	0	300	OFF	on FL. Stabilise temp
2	0	95	0.000	0	30	OFF	off
3	97.65	95	0.000	0	30	OFF	on NL
4	97.65	95	25.000	0	30	OFF	on FL
5	97.65	95	26.250	0	600	OFF	on FL +5%
6	97.65	95	25.000	0	30	OFF	on FL
7	285	95	26.250	0	600	OFF	on FL +5%
8	285	95	0.000	0	30	OFF	on NL
9	0	95	0.000	0	30	OFF	
10	97.65	95	25.000	0	300	OFF	on FL. Stabilise temp
11	0	95	0.000	0	30	OFF	off
12	97.65	95	0.000	0	30	OFF	on NL
13	97.65	95	25.000	0	30	OFF	on FL
14	97.65	95	27.500	0	600	OFF	on FL +10%
15	97.65	95	25.000	0	30	OFF	on FL
16	285	95	27.500	0	600	OFF	on FL +10%
17	285	95	0.000	0	30	OFF	on NL
18	0	95	0.000	0	30	OFF	
19	97.65	95	25.000	0	300	OFF	on FL. Stabilise temp
20	0	95	0.000	0	30	OFF	off
21	97.65	95	0.000	0	30	OFF	on NL
22	97.65	95	25.000	0	30	OFF	on FL
23	97.65	95	28.750	0	600	OFF	on FL +15%
24	97.65	95	25.000	0	30	OFF	on FL
25	285	95	28.750	0	600	OFF	on FL +15%
26	285	95	0.000	0	30	OFF	on NL
27	0	95	0.000	0	30	OFF	
28	97.65	95	25.000	0	300	OFF	on FL. Stabilise temp
29	0	95	0.000	0	30	OFF	off
30	97.65	95	0.000	0	30	OFF	on NL
31	97.65	95	25.000	0	30	OFF	on FL
32	97.65	95	30.000	0	600	OFF	on FL +20%
33	97.65	95	25.000	0	30	OFF	on FL
34	285	95	30.000	0	600	OFF	on FL +20%
35	285	95	0.000	0	30	OFF	on NL
36	0	95	0.000	0	30	OFF	
37	97.65	95	25.000	0	300	OFF	on FL. Stabilise temp
38	0	95	0.000	0	30	OFF	off
39	97.65	95	0.000	0	30	OFF	on NL
40	97.65	95	25.000	0	30	OFF	on FL
41	97.65	95	31.250	0	600	OFF	on FL +25%
42	97.65	95	25.000	0	30	OFF	on FL
43	285	95	31.250	0	600	OFF	on FL +25%
44	285	95	0.000	0	30	OFF	on NL
45	0	95	0.000	0	30	OFF	
46	97.65	95	25.000	0	300	OFF	on FL. Stabilise temp
47	0	95	0.000	0	30	OFF	off
48	97.65	95	0.000	0	30	OFF	on NL
49	97.65	95	25.000	0	30	OFF	on FL
50	97.65	95	32.500	0	600	OFF	on FL +30%
51	97.65	95	25.000	0	30	OFF	on FL
52	285	95	32.500	0	600	OFF	on FL +30%
53	285	95	0.000	0	30	OFF	on NL
54	0	95	0.000	0	30	OFF	

B.7 Combined Stress

TESTLIST	Vac (Vrms)	Tamb (°C)	Load (A)	Vib (Grms)	Dwell (Minutes)
0	102.3	-50	0.000	7.2	1
1	102.3	-50	28.125	7.2	5
2	0	-50	0.000	7.2	1
3	270	-50	0.000	7.2	1
4	270	-50	28.125	7.2	5
5	102.3	-50	28.125	7.2	6
6	0	-50	0.000	7.2	1
7	270	-50	28.125	7.2	6
8	102.3	-50	28.125	7.2	6
9	0	-50	0.000	7.2	1
10	270	-50	28.125	7.2	6
11	102.3	-50	28.125	7.2	6
12	0	-50	0.000	7.2	1
13	270	-50	28.125	7.2	6
14	102.3	-50	0.000	7.2	1
15	102.3	-50	28.125	7.2	6
16	0	-50	0.000	7.2	1
17	270	-50	0.000	7.2	1
18	270	-50	28.125	7.2	6
19	0	95	0.000	7.2	1
20	102.3	95	0.000	7.2	1
21	102.3	95	28.125	7.2	6
22	0	95	0.000	7.2	1
23	270	95	0.000	7.2	1
24	270	95	28.125	7.2	6
25	102.3	95	28.125	7.2	6
26	0	95	0.000	7.2	1
27	270	95	28.125	7.2	6
28	102.3	95	28.125	7.2	6
29	0	95	0.000	7.2	1
30	270	95	28.125	7.2	6
31	102.3	95	28.125	7.2	6
32	0	95	0.000	7.2	1
33	270	95	28.125	7.2	6
34	102.3	95	0.000	7.2	1
35	102.3	95	28.125	7.2	6
36	0	95	0.000	7.2	1
37	270	95	0.000	7.2	1
38	270	95	28.125	7.2	6
39	102.3	-50	0.000	14.4	1
40	102.3	-50	28.125	14.4	5
41	0	-50	0.000	14.4	1
42	270	-50	0.000	14.4	1
43	270	-50	28.125	14.4	5
44	102.3	-50	28.125	14.4	6
45	0	-50	0.000	14.4	1
46	270	-50	28.125	14.4	6
47	102.3	-50	28.125	14.4	6
48	0	-50	0.000	14.4	1
49	270	-50	28.125	14.4	6
50	102.3	-50	28.125	14.4	6
51	0	-50	0.000	14.4	1
52	270	-50	28.125	14.4	6
53	102.3	-50	0.000	14.4	1
54	102.3	-50	28.125	14.4	6
55	0	-50	0.000	14.4	1
56	270	-50	0.000	14.4	1
57	270	-50	28.125	14.4	6
58	0	95	0.000	14.4	1
59	102.3	95	0.000	14.4	1
60	102.3	95	28.125	14.4	6
61	0	95	0.000	14.4	1
62	270	95	0.000	14.4	1
63	270	95	28.125	14.4	6
64	102.3	95	28.125	14.4	6
65	0	95	0.000	14.4	1
66	270	95	28.125	14.4	6
67	102.3	95	28.125	14.4	6
68	0	95	0.000	14.4	1

69	270	95	28.125	14.4	6
70	102.3	95	28.125	14.4	6
71	0	95	0.000	14.4	1
72	270	95	28.125	14.4	6
73	102.3	95	0.000	14.4	1
74	102.3	95	28.125	14.4	6
75	0	95	0.000	14.4	1
76	270	95	0.000	14.4	1
77	270	95	28.125	14.4	6
78	102.3	-50	0.000	21.6	1
79	102.3	-50	28.125	21.6	5
80	0	-50	0.000	21.6	1
81	270	-50	0.000	21.6	1
82	270	-50	28.125	21.6	5
83	102.3	-50	28.125	21.6	6
84	0	-50	0.000	21.6	1
85	270	-50	28.125	21.6	6
86	102.3	-50	28.125	21.6	6
87	0	-50	0.000	21.6	1
88	270	-50	28.125	21.6	6
89	102.3	-50	28.125	21.6	6
90	0	-50	0.000	21.6	1
91	270	-50	28.125	21.6	6
92	102.3	-50	0.000	21.6	1
93	102.3	-50	28.125	21.6	6
94	0	-50	0.000	21.6	1
95	270	-50	0.000	21.6	1
96	270	-50	28.125	21.6	6
97	0	95	0.000	21.6	1
98	102.3	95	0.000	21.6	1
99	102.3	95	28.125	21.6	6
100	0	95	0.000	21.6	1
101	270	95	0.000	21.6	1
102	270	95	28.125	21.6	6
103	102.3	95	28.125	21.6	6
104	0	95	0.000	21.6	1
105	270	95	28.125	21.6	6
106	102.3	95	28.125	21.6	6
107	0	95	0.000	21.6	1
108	270	95	28.125	21.6	6
109	102.3	95	28.125	21.6	6
110	0	95	0.000	21.6	1
111	270	95	28.125	21.6	6
112	102.3	95	0.000	21.6	1
113	102.3	95	28.125	21.6	6
114	0	95	0.000	21.6	1
115	270	95	0.000	21.6	1
116	270	95	28.125	21.6	6
117	102.3	-50	0.000	28.8	1
118	102.3	-50	28.125	28.8	5
119	0	-50	0.000	28.8	1
120	270	-50	0.000	28.8	1
121	270	-50	28.125	28.8	5
122	102.3	-50	28.125	28.8	6
123	0	-50	0.000	28.8	1
124	270	-50	28.125	28.8	6
125	102.3	-50	28.125	28.8	6
126	0	-50	0.000	28.8	1
127	270	-50	28.125	28.8	6
128	102.3	-50	28.125	28.8	6
129	0	-50	0.000	28.8	1
130	270	-50	28.125	28.8	6
131	102.3	-50	0.000	28.8	1
132	102.3	-50	28.125	28.8	6
133	0	-50	0.000	28.8	1
134	270	-50	0.000	28.8	1
135	270	-50	28.125	28.8	6
136	0	95	0.000	28.8	1
137	102.3	95	0.000	28.8	1
138	102.3	95	28.125	28.8	6
139	0	95	0.000	28.8	1
140	270	95	0.000	28.8	1

141	270	95	28.125	28.8	6
142	102.3	95	28.125	28.8	6
143	0	95	0.000	28.8	1
144	270	95	28.125	28.8	6
145	102.3	95	28.125	28.8	6
146	0	95	0.000	28.8	1
147	270	95	28.125	28.8	6
148	102.3	95	28.125	28.8	6
149	0	95	0.000	28.8	1
150	270	95	28.125	28.8	6
151	102.3	95	0.000	28.8	1
152	102.3	95	28.125	28.8	6
153	0	95	0.000	28.8	1
154	270	95	0.000	28.8	1
155	270	95	28.125	28.8	6
156	102.3	-50	0.000	36	1
157	102.3	-50	28.125	36	5
158	0	-50	0.000	36	1
159	270	-50	0.000	36	1
160	270	-50	28.125	36	5
161	102.3	-50	28.125	36	6
162	0	-50	0.000	36	1
163	270	-50	28.125	36	6
164	102.3	-50	28.125	36	6
165	0	-50	0.000	36	1
166	270	-50	28.125	36	6
167	102.3	-50	28.125	36	6
168	0	-50	0.000	36	1
169	270	-50	28.125	36	6
170	102.3	-50	0.000	36	1
171	102.3	-50	28.125	36	6
172	0	-50	0.000	36	1
173	270	-50	0.000	36	1
174	270	-50	28.125	36	6
175	0	95	0.000	36	1
176	102.3	95	0.000	36	1
177	102.3	95	28.125	36	6
178	0	95	0.000	36	1
179	270	95	0.000	36	1
180	270	95	28.125	36	6
181	102.3	95	28.125	36	6
182	0	95	0.000	36	1
183	270	95	28.125	36	6
184	102.3	95	28.125	36	6
185	0	95	0.000	36	1
186	270	95	28.125	36	6
187	102.3	95	28.125	36	6
188	0	95	0.000	36	1
189	270	95	28.125	36	6
190	102.3	95	0.000	36	1
191	102.3	95	28.125	36	6
192	0	95	0.000	36	1
193	270	95	0.000	36	1
194	270	95	28.125	36	6

Appendix C – Functional Test Profile

Line	CMD	Param1	Notes
1	StoreResult	1_LowTemp,7,5	Sheet
2	StoreResult	,8,5	Step
3	Time		
4	DL_MeasTemp	301,K	Chamber Temp DL
5	DL_MeasTemp	302,K	Product Temp
6	DL_MeasVoltDC	101	Vout
7	PF	220,25	Param1 = (Vac,I1,I2,I3,I4)
8	NL_PWR	120,LOW,A04,10	Param1 = (Vac)
9	EFF	120,25	Param1 = (Vac,I1,I2,I3,I4)
10	EFF	220,25	Param1 = (Vac,I1,I2,I3,I4)
11	HOLDUP	0.016,120,25	Param1 = (Thold,Vac,I1,I2,I3,I4)
12	Loadreg	0:25	Param1 = (I1a:I1b,I2a:I2b,I3a:I3b,I4a:I4b)
13	Linereg	120:220,0:25	(Vac1:Vac2,I1a:I1b,I2a:I2b,I3a:I3b,I4a:I4b)
14	Ripple	0,10e-3	Param1 = (I1ab)
15	Ripple	25,10e-6	Param1 = (I1ab)
16	VtransParal	6.25:18.75	Param1 = (I1a:I1b,I2a:I2b,I3a:I3b,I4a:I4b)
17	TtransParal	6.25:18.75	Param1 = (I1a:I1b,I2a:I2b,I3a:I3b,I4a:I4b)
18	TriseVCCS300	0	Param1 = (I1)
19	TriseVCCS300	25	Param1 = (I1)
20	OCPParal	10.8:25	Param1 = (Irated,Vnom*0.9)
21	StoreResult2	1_LowTemp,36,1,TestResults	
22	Repeat	19,-1	
23	End		

Appendix D – HALT Test Profile

Line	CMD	Param1	Notes
1	StoreResult	0,31,5	Set Start Point
2	Call	Connection	Connect Equipment
3	SetVac	0	Initialise
4	SetIac	16	
5	SetLoad	0.0	
6	SetTemp	25	
7	SetGRMS	0	
8	SetOutp	ON	Turn on AC Source
9	OVSSTAT	ON	Turn on Chamber
10	SetVac	0	Control
11	SetIac	16	
12	SetLoad	0.0	
13	SetTemp	25	
14	SetGRMS	0	
15	ReadTemp		Chamber Temp
16	DL_MeasTemp	301,K	Ambient Temp
17	DL_MeasTemp	302,K	Product Temp
18	ReadGRMS		
19	Call	LogProcess	Logging
20	Skipto	21	Manual skip
21	Skipto	15	Wait for Temp
22	Time		Record start time
23	Time		Current Time
24	Blank	00:00:00	Time elapsed
25	Call	LogProcess	Logging
26	DL_MeasTemp	302,K	Product Temp
27	BLANK	0	
28	Skipto	23	Log until dwell expired
29	Skipto	30	Functional Test
30	Repeat	33,-20	Main count
31	SetVac	0	Finalise
32	SetIac	0	
33	SetLoad	0	
34	SetTemp	25	
35	SetGRMS	0	
36	SetOutp	OFF	Turn off AC Source
37	OVSSTAT	OFF	Turn off Chamber
38	End		

Appendix E – Data Collection Profile

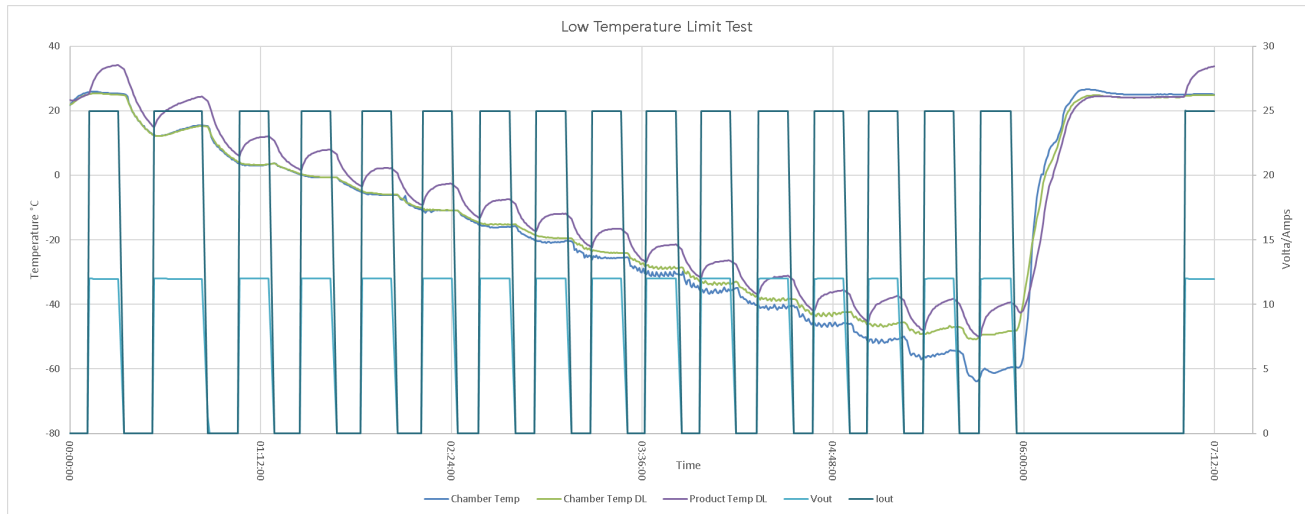
Line	CMD	Param1	Notes
1	Time		Time
2	StoreResult	0,3,5	Step #
3	ReadTemp		Chamber Temp
4	ReadGRMS		Chamber Vibration
5	DL_MeasTemp	301,K	Chamber Temp DL
6	DL_MeasTemp	302,K	Product Temp DL
7	StoreResult	,8,5	Product Vibration
8	DL_MeasVoltDC	101	Vo1
9	ReadLoad	1	Io1
10	ReadLoad	3	Io2
11	StoreResult	0,12,5	Iout
12	DM_Read	V	Vin (V)
13	DM_Read	W	Pin (W)
14	DM_Read	PF	PF
15	StoreResult	0,16,5	Pout
16	StoreResult	0,17,5,17,5	Eff
17	StoreResult2	,2,3,Log	
18	Repeat	15,-1	
19	Delay	10	
20	End		

Appendix F – Collected Test Data

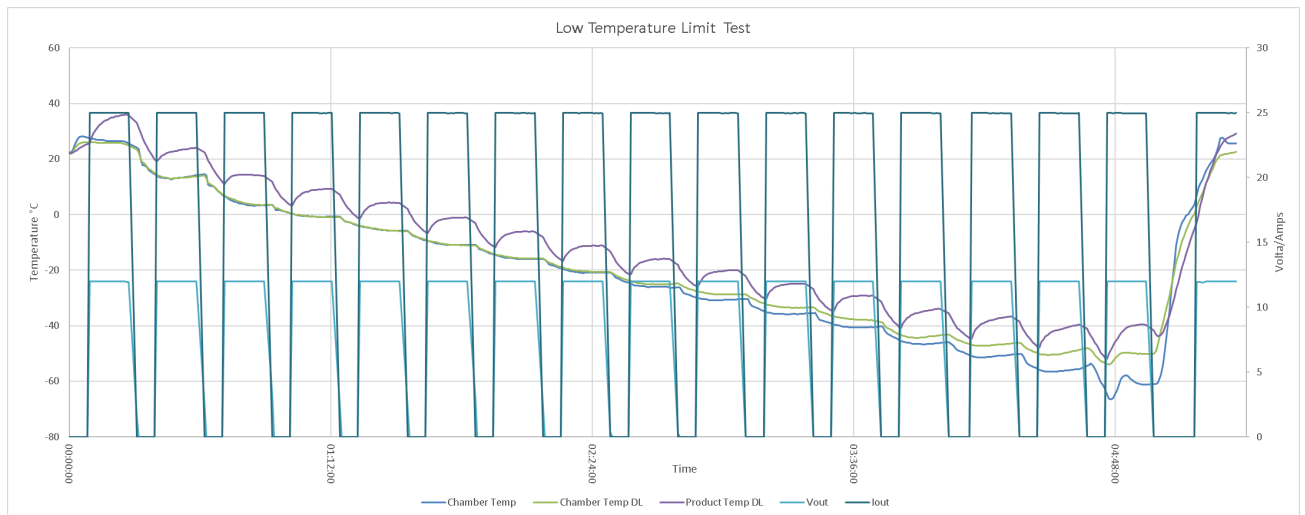
F.1 Low Temperature Limits Test

F.1.1 Output Voltage and current

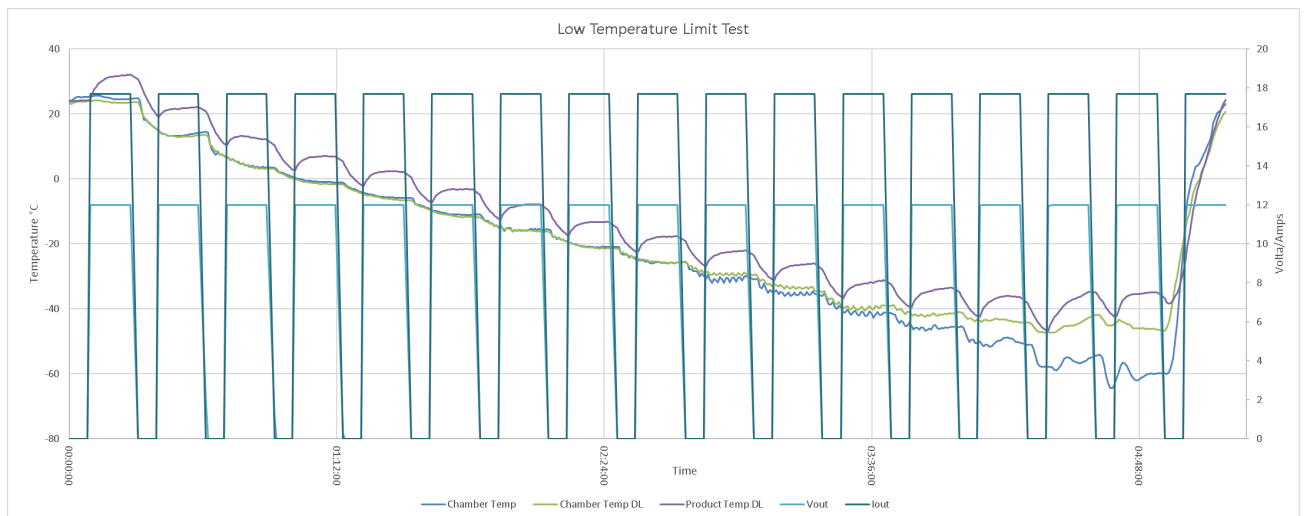
F.1.1.a 220V



F.1.1.b 120V

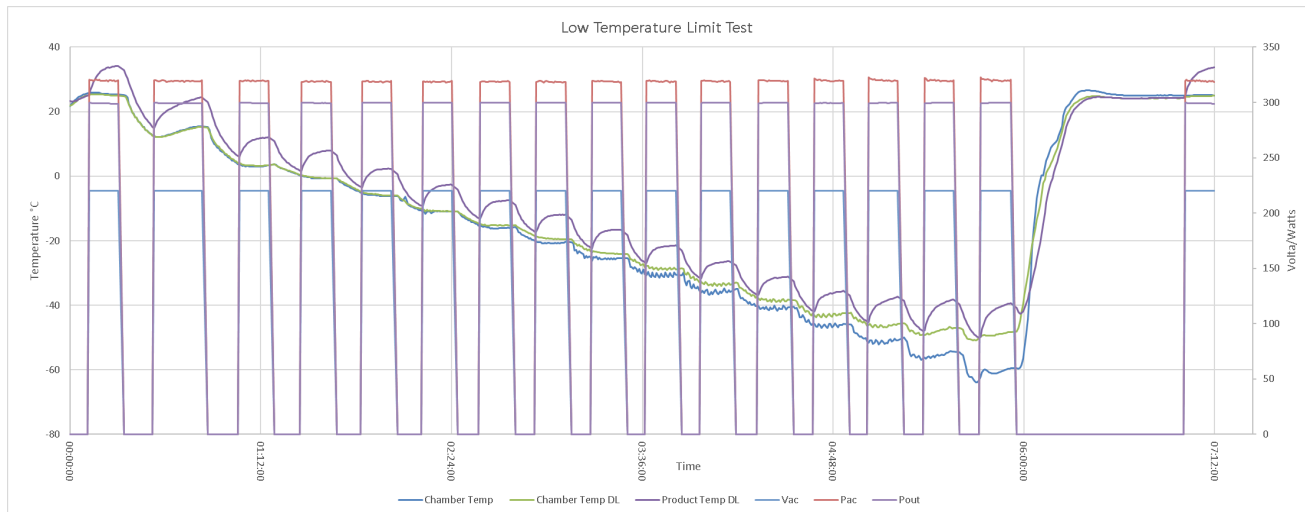


F.1.1.c 85V

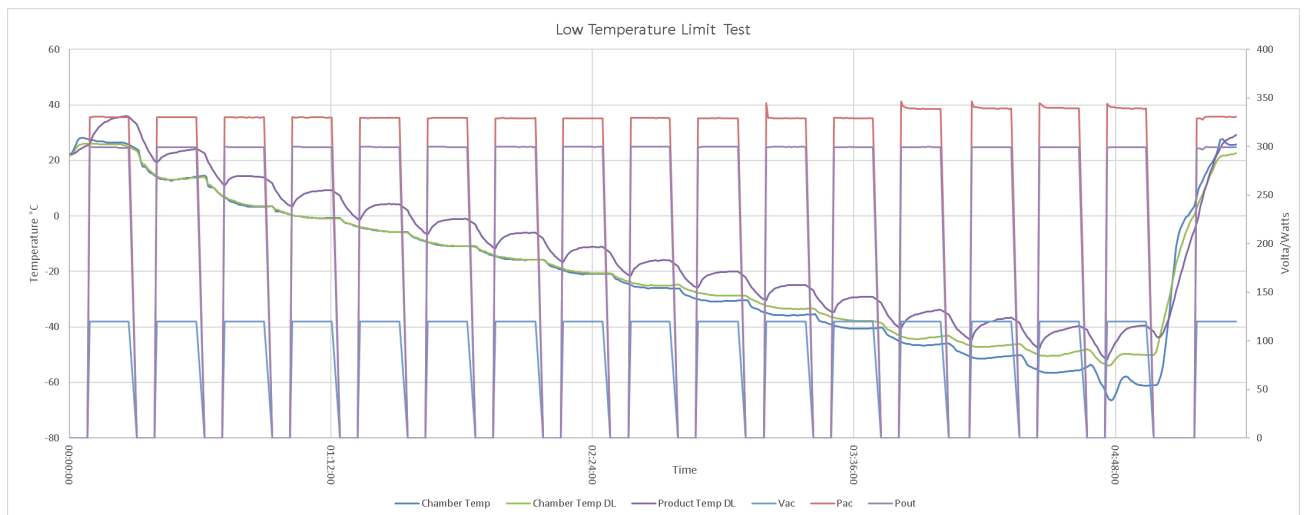


F.1.2 Input Voltage, Input Power, Output Power

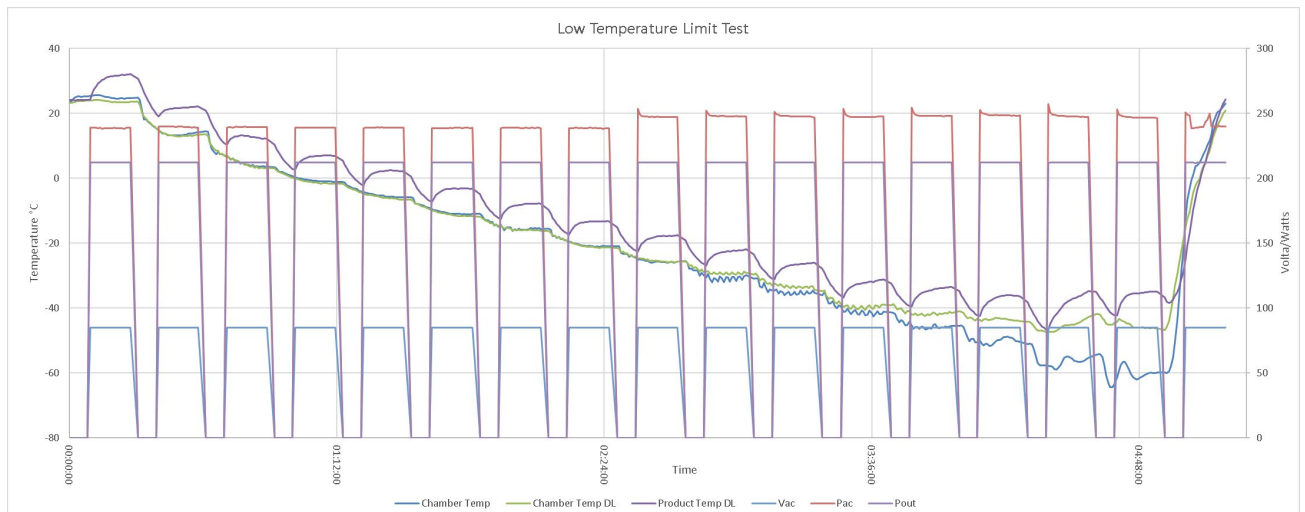
F.1.2.a 220V



F.1.2.b 120V

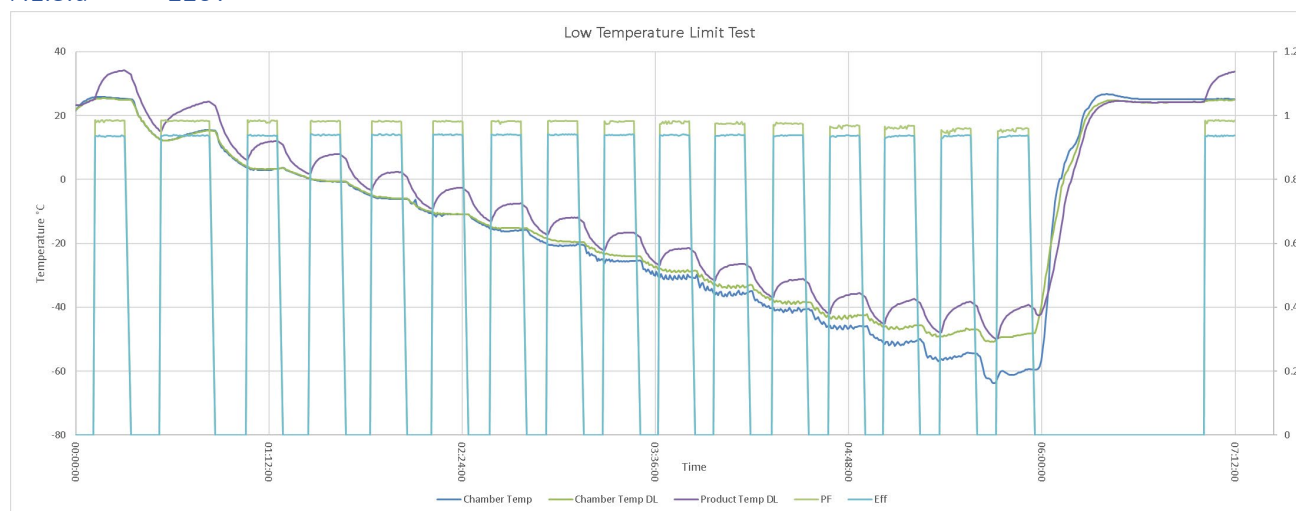


F.1.2.c 85V

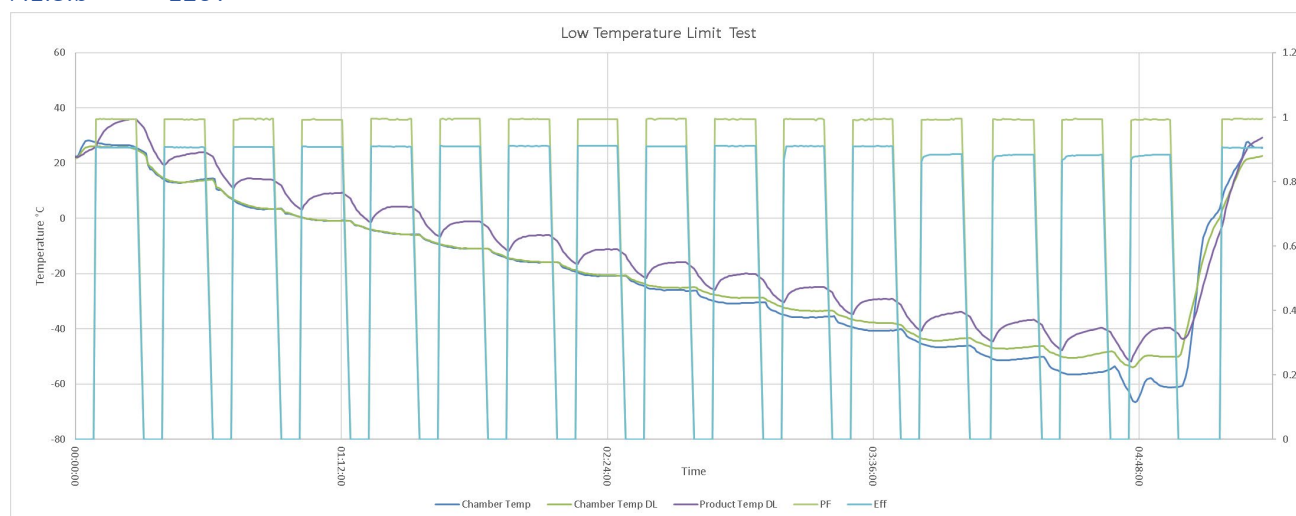


F.1.3 Power Factor & Efficiency

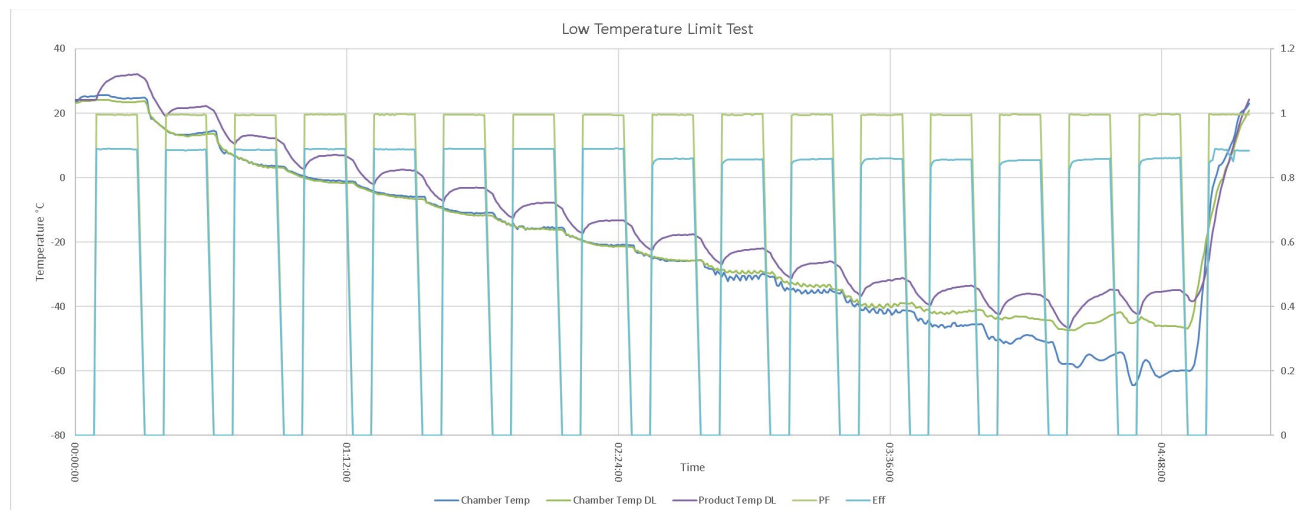
F.1.3.a 220V



F.1.3.b 120V



F.1.3.c 85V



F.1.4 Functional Test Results

F.1.4.a 220V

Sheet	Step	Time	Chamber Temp DL	Product Temp	Vout	PF	NL_PWR	EFF120	EFF220	HOLDUP	Loadreg	Linereg	Ripple_NL	Ripple	Vtrans	Ttrans	Trise_NL	Trise	OCF
1_LowTemp	1	17:57:35	24.99	34.25	11.97	0.9850	0.712	0.902	0.926	-0.6300	0.0006930	-0.000781	0.1570	0.1650	0.690	0.0000570	0.000350	0.001511	29.39
1_LowTemp	3	18:29:09	15.29	24.51	11.98	0.9850	0.734	0.905	0.929	-0.6800	0.0001760	-0.001474	0.1610	0.1570	0.716	0.0000500	0.000368	0.001465	29.41
1_LowTemp	5	18:54:18	3.45	12.21	11.99	0.9850	0.710	0.905	0.928	-0.7200	-0.0005830	0.0002420	0.1610	0.1810	0.772	0.0000450	0.000355	0.001628	29.44
1_LowTemp	7	19:17:46	-0.61	8.01	11.99	0.9840	0.714	0.910	0.932	-0.7700	0.0011000	-0.000616	0.1770	0.1690	0.770	0.0000420	0.000359	0.001628	29.45
1_LowTemp	9	19:40:40	-6.04	2.19	11.99	0.9840	0.747	0.911	0.931	-0.8200	0.0006710	-0.000418	0.1810	0.1530	0.860	0.0000380	0.000351	0.001625	29.46
1_LowTemp	11	20:03:29	-10.86	-2.59	11.99	0.9840	0.759	0.911	0.932	-0.8700	0.0011990	-0.000891	0.1970	0.2130	0.870	0.0000360	0.000345	0.001762	29.47
1_LowTemp	13	20:25:13	-15.17	-7.41	12.00	0.9830	0.687	0.911	0.932	-0.9400	0.0003410	-0.000352	0.2050	0.1730	0.950	0.0000370	0.000339	0.001080	29.48
1_LowTemp	15	20:46:21	-19.56	-11.91	12.00	0.9830	0.730	0.911	0.931	-0.9600	0.0000770	0.0001760	0.2170	0.2010	1.000	0.0000370	0.000348	0.001904	29.49
1_LowTemp	17	21:07:25	-24.02	-16.61	12.00	0.9820	0.702	0.910	0.932	-1.1600	0.0001430	0.0001320	0.2450	0.1770	1.050	0.0000370	0.000323	0.002044	29.49
1_LowTemp	19	21:27:57	-28.72	-21.56	12.00	0.9810	0.739	0.910	0.931	-1.1600	11.9961480	-0.000055	0.2650	0.2010	1.100	0.0000350	0.000317	0.001866	29.50
1_LowTemp	21	21:48:32	-33.20	-26.37	12.00	0.9800	0.775	0.860	0.931	-1.4200	0.0002010	0.0001540	0.2810	0.2450	1.190	0.0000340	0.000323	0.001282	29.50
1_LowTemp	23	22:10:14	-38.65	-31.16	11.99	0.9780	0.759	0.909	0.931	-1.4200	11.9929860	0.0006710	0.2970	0.3780	1.240	0.0000360	0.000295	0.001419	29.51
1_LowTemp	25	22:31:19	-42.39	-35.48	11.99	0.9680	-3.000	0.909	0.928	-1.5700	-0.0000780	0.0021780	0.3060	0.3500	1.280	0.0000370	0.000302	0.001263	29.52
1_LowTemp	27	22:51:46	-45.76	-37.37	11.99	0.9660	-3.000	0.908	0.928	-0.0700	0.0000770	0.0004510	0.3100	0.3580	1.250	0.0000350	0.000296	0.001439	29.51
1_LowTemp	29	23:12:51	-47.32	-38.07	11.99	0.9610	0.052	0.865	0.929	-2.4003	-0.0001760	0.0002200	0.2930	0.3780	1.240	0.0000370	0.000290	0.002076	29.52
1_LowTemp	31	23:34:26	-48.18	-39.13	11.99	0.9600	-3.000	0.841	0.928	-1.4000	-0.0001430	0.0001980	0.2890	0.3620	1.210	0.0000370	0.000521	0.001150	29.52
1_LowTemp	33	08:58:14	24.87	33.75	11.97	0.9850	0.730	0.905	0.929	-0.6500	0.0001910	-0.001177	0.1610	0.1930	0.675	0.0000580	0.000371	0.001613	29.39

F.1.4.b 120V

Sheet	Step	Time	Chamber Temp DL	Product Temp	Vout	PF	NL_PWR	EFF120	EFF220	HOLDUP	Loadreg	Linereg	Ripple_NL	Ripple	Vtrans	Ttrans	Trise_NL	Trise	OCF
1_LowTemp	1	09:51:23	24.65	35.78	11.97	0.9850	0.757	0.902	0.927	-0.6300	0.0003850	-0.001122	0.1570	0.1770	0.672	0.0000600	0.000358	0.001481	29.39
1_LowTemp	3	10:10:01	13.98	24.30	11.98	0.9850	0.763	0.904	0.928	-0.6800	0.0006380	-0.000748	0.1690	0.1810	0.684	0.0000520	0.000367	0.001624	29.41
1_LowTemp	5	10:28:37	3.44	13.85	11.99	0.9850	0.721	0.905	0.930	-0.7700	0.0003210	-0.000737	0.1490	0.1690	0.740	0.0000450	0.000363	0.001635	29.43
1_LowTemp	7	10:47:18	-0.91	9.30	11.99	0.9850	0.751	0.906	0.930	-0.7200	0.0006050	-0.000297	0.1610	0.1770	0.753	0.0000410	0.000356	0.001701	29.45
1_LowTemp	9	11:05:58	-6.02	4.20	11.99	0.9850	0.706	0.906	0.931	-0.7500	0.0004510	-0.000726	0.1690	0.1730	0.790	0.0000410	0.000359	0.001718	29.46
1_LowTemp	11	11:24:35	-10.94	-1.00	11.99	0.9850	0.749	0.907	0.929	-0.8000	-0.0000290	-0.000550	0.2170	0.1850	0.850	0.0000380	0.000356	0.001703	29.47
1_LowTemp	13	11:43:17	-15.88	-6.09	12.00	0.9840	0.682	0.907	0.931	-0.8700	0.0005490	-0.000440	0.2010	0.2010	0.880	0.0000390	0.000383	0.001651	29.48
1_LowTemp	15	12:01:48	-20.55	-11.09	12.00	0.9840	0.745	0.907	0.930	-1.0400	0.0003430	0.0001870	0.2170	0.2050	0.950	0.0000380	0.000405	0.001256	29.48
1_LowTemp	17	12:20:23	-24.88	-15.90	12.00	0.9840	0.720	0.908	0.931	-1.1300	11.9382580	0.0002530	0.2330	0.2050	1.030	0.0000340	0.000321	0.001223	13.41
1_LowTemp	19	12:39:05	-28.74	-20.05	12.00	0.9830	0.694	0.907	0.930	-1.2100	0.0001310	0.0000990	0.2610	0.2210	1.100	0.0000340	0.000310	0.001226	29.50
1_LowTemp	21	12:57:42	-33.50	-24.78	12.00	0.9830	0.751	0.901	0.929	-1.2300	0.0000440	0.0003190	0.2770	0.2810	1.150	0.0000370	0.000347	0.001414	29.51
1_LowTemp	23	13:16:17	-37.93	-29.16	11.99	0.9820	0.760	0.853	0.929	-1.4200	-0.0000550	0.0002860	0.2890	0.3220	1.190	0.0000350	0.000308	0.002041	29.51
1_LowTemp	25	13:34:53	-43.35	-33.67	11.99	0.9820	0.744	0.907	0.931	-1.6400	-0.0000880	0.0002970	0.2810	0.3020	1.210	0.0000340	0.000298	0.000839	29.51
1_LowTemp	27	13:54:23	-46.31	-36.73	11.99	0.9820	0.698	0.907	0.929	-1.7600	-0.0001130	0.0001100	0.3060	0.2130	1.300	0.0000340	0.000303	0.004995	29.51
1_LowTemp	29	14:13:02	-48.54	-39.34	11.99	0.9820	0.744	0.868	0.928	-1.6400	0.0001340	0.0005280	0.3260	0.2930	1.310	0.0000370	0.000290	0.002058	29.53
1_LowTemp	31	14:31:25	-50.20	-39.57	11.99	0.9820	0.679	0.906	0.930	-1.6600	0.0000960	0.0005170	0.3140	0.3460	1.300	0.0000350	0.000481	0.001950	29.52
1_LowTemp	33	14:56:20	22.82	29.53	11.97	0.9850	0.712	0.902	0.927	-0.6300	0.0008250	-0.001375	0.1610	0.1730	0.672	0.0000540	0.000362		

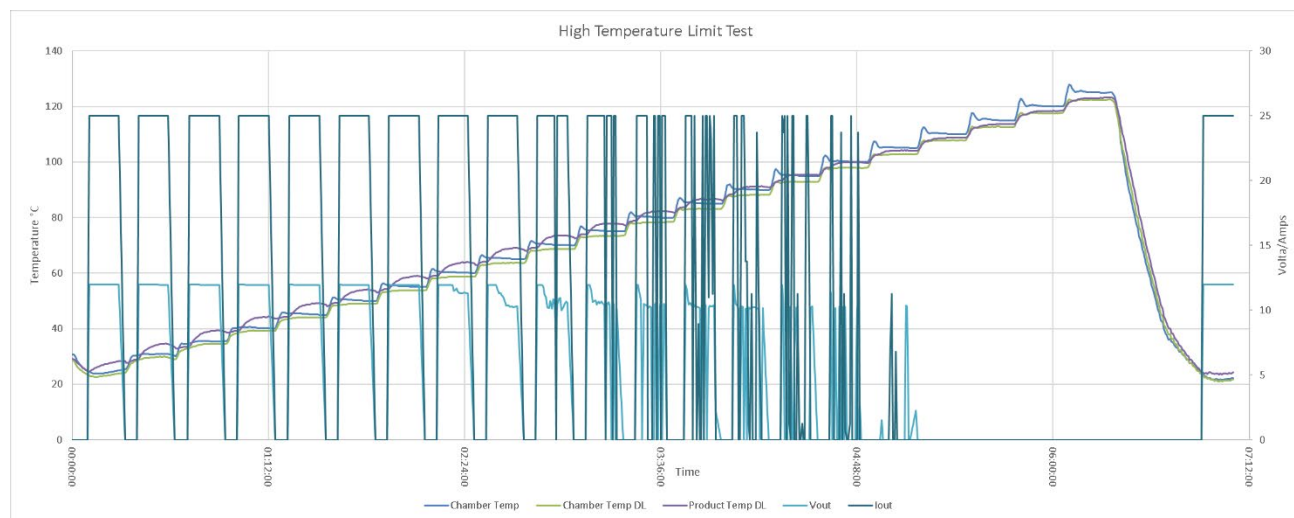
F.1.4.c 85V

Sheet	Step	Time	Chamber Temp DL	Product Temp	Vout	PF	NL_PWR	EFF120	EFF220	HOLDUP	Loadreg	Linereg	Ripple_NL	Ripple	Vtrans	Ttrans	Trise_NL	Trise	OCp
1_LowTemp	1	17:05:28	23.69	32.22	11.98	0.9860	0.738	0.906	0.930	-0.6800	0.0006930	-0.000550	0.1530	0.1510	0.703	0.0000520	0.000371	0.001459	29.41
1_LowTemp	3	17:23:44	13.46	22.25	11.99	0.9850	0.754	0.906	0.929	-0.7500	0.0005720	-0.000693	0.1450	0.1510	0.730	0.0000460	0.000365	0.001627	29.43
1_LowTemp	5	17:42:12	3.02	12.12	11.99	0.9850	0.692	0.907	0.931	-0.7700	0.0001540	-0.000484	0.1590	0.1590	0.780	0.0000410	0.000362	0.001629	29.43
1_LowTemp	7	18:00:35	-1.69	6.98	11.99	0.9850	0.752	0.908	0.931	-0.8200	0.0007260	-0.000319	0.1710	0.1570	0.820	0.0000410	0.000359	0.001661	29.45
1_LowTemp	9	18:19:01	-6.52	2.13	12.00	0.9850	0.696	0.907	0.930	-0.8700	0.0002200	-0.000110	0.1910	0.1510	0.870	0.0000380	0.000348	0.001664	29.46
1_LowTemp	11	18:37:32	-11.78	-3.27	12.00	0.9850	0.728	0.908	0.930	-0.9900	0.0003280	-0.000286	0.2010	0.1870	0.910	0.0000360	0.000336	0.001718	29.47
1_LowTemp	13	18:56:00	-16.13	-7.77	12.00	0.9840	0.737	0.907	0.930	-0.9400	0.0001320	0.0002640	0.2170	0.1770	0.940	0.0000360	0.000334	0.001715	29.47
1_LowTemp	15	19:14:26	-21.39	-13.29	12.00	0.9840	0.715	0.907	0.931	-1.0900	0.0004070	0.0003740	0.2350	0.1710	1.010	0.0000370	0.000328	0.001242	13.46
1_LowTemp	17	19:32:50	-25.63	-17.61	12.00	0.9840	0.662	0.908	0.930	-1.3500	0.0000220	0.0000990	0.2170	0.1670	1.080	0.0000340	0.000317	0.001851	29.48
1_LowTemp	19	19:51:14	-29.61	-22.04	11.99	0.9840	0.679	0.908	0.930	-1.4700	-0.000165	0.0001760	0.2010	0.1730	1.180	0.0000340	0.000316	0.001485	29.49
1_LowTemp	21	20:09:44	-34.36	-26.16	12.00	0.9830	0.685	0.908	0.931	-1.4000	0.0000550	0.0000880	0.2170	0.1890	1.210	0.0000370	0.000302	0.001839	29.51
1_LowTemp	23	20:28:16	-39.39	-31.08	11.99	0.9830	0.695	0.868	0.930	-1.4700	0.0000780	0.0004510	0.1450	0.2890	1.200	0.0000370	0.000293	0.002038	29.51
1_LowTemp	25	20:46:34	-41.21	-33.38	11.99	0.9820	0.783	0.907	0.929	-1.8100	-0.000165	0.0002640	0.1590	0.2010	1.250	0.0000330	0.000420	0.002041	29.51
1_LowTemp	27	21:04:57	-44.29	-36.53	11.99	0.9820	0.788	0.907	0.929	-1.7100	-0.000198	0.0004510	0.2170	0.2530	1.260	0.0000330	0.000297	0.001626	29.51
1_LowTemp	29	21:23:25	-42.38	-34.37	11.99	0.9820	0.709	0.869	0.931	-1.6200	0.0000550	0.0003960	0.2350	0.2030	1.210	0.0000360	0.000430	0.001637	29.51
1_LowTemp	31	21:41:54	-46.21	-35.00	11.99	0.9830	0.757	0.908	0.930	-1.4200	-0.000047	0.0002090	0.1910	0.3120	1.250	0.0000380	0.000294	0.002041	29.51
1_LowTemp	33	22:00:19	21.68	25.44	11.99	0.9850	0.725	0.905	0.928	-0.7200	0.0008350	-0.000517	0.1650	0.1510	0.721	0.0000490	0.000366	0.001623	29.42

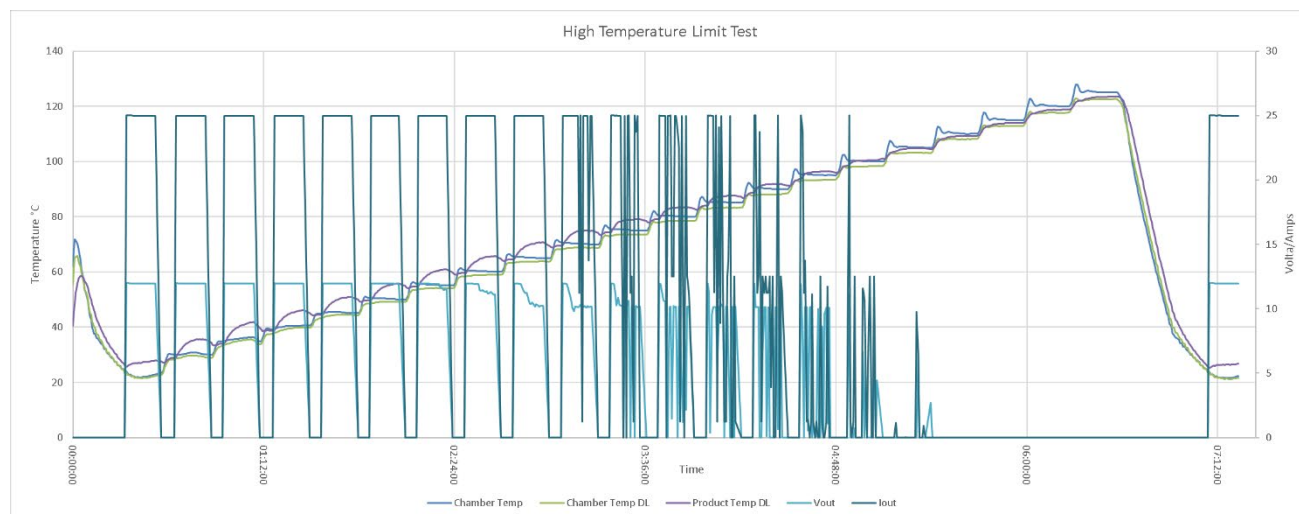
F.2 High Temperature Performance Test (OP_OTP enabled)

F.2.1 Output Voltage and current

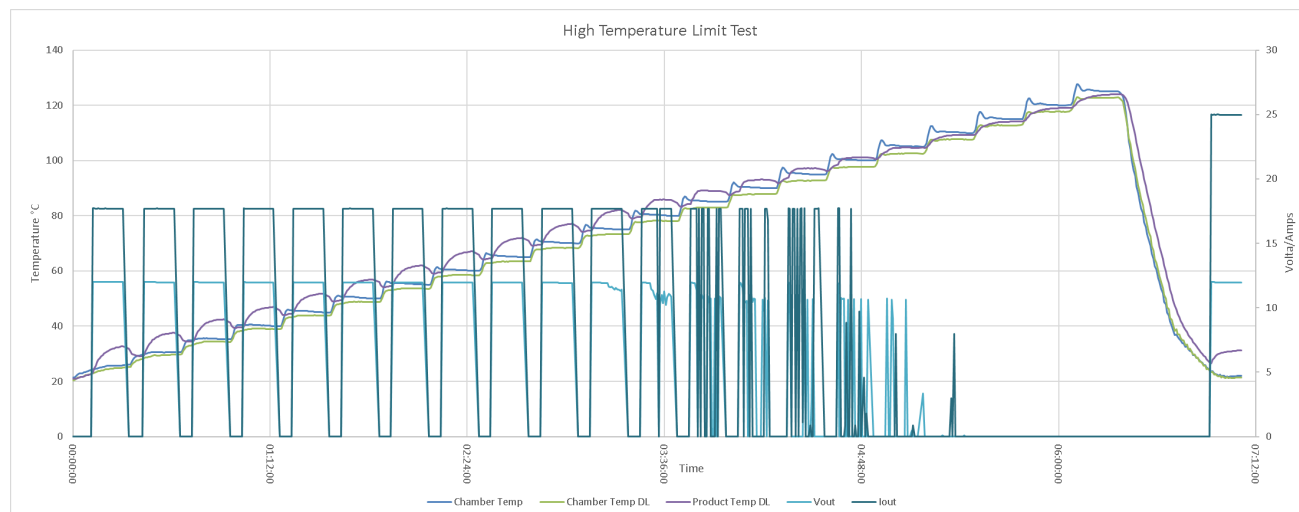
F.2.1.a 220V



F.2.1.b 120V

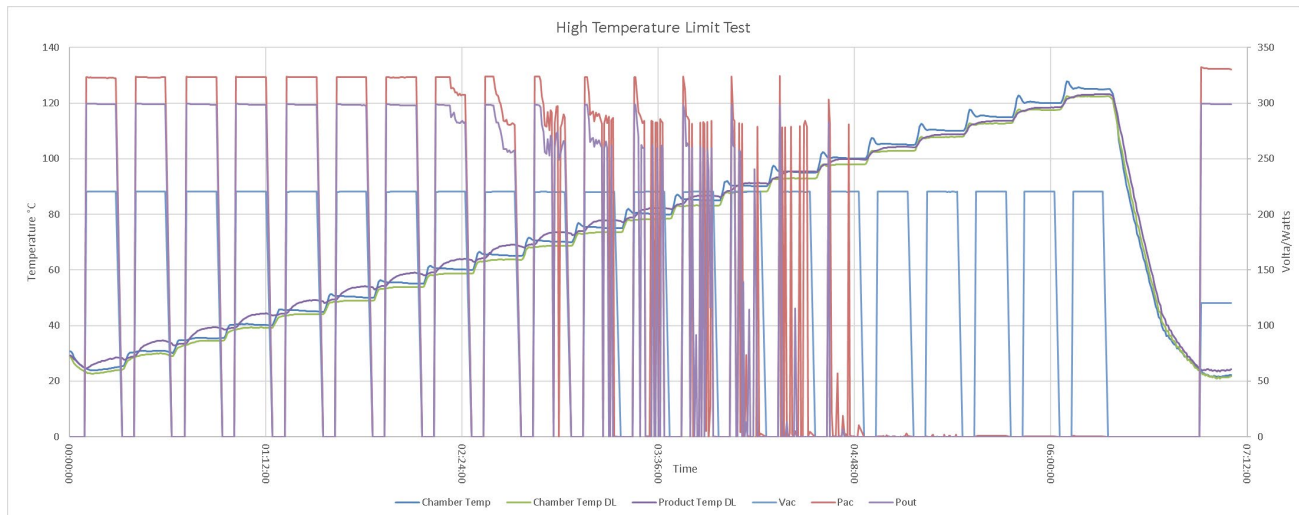


F.2.1.c 85V

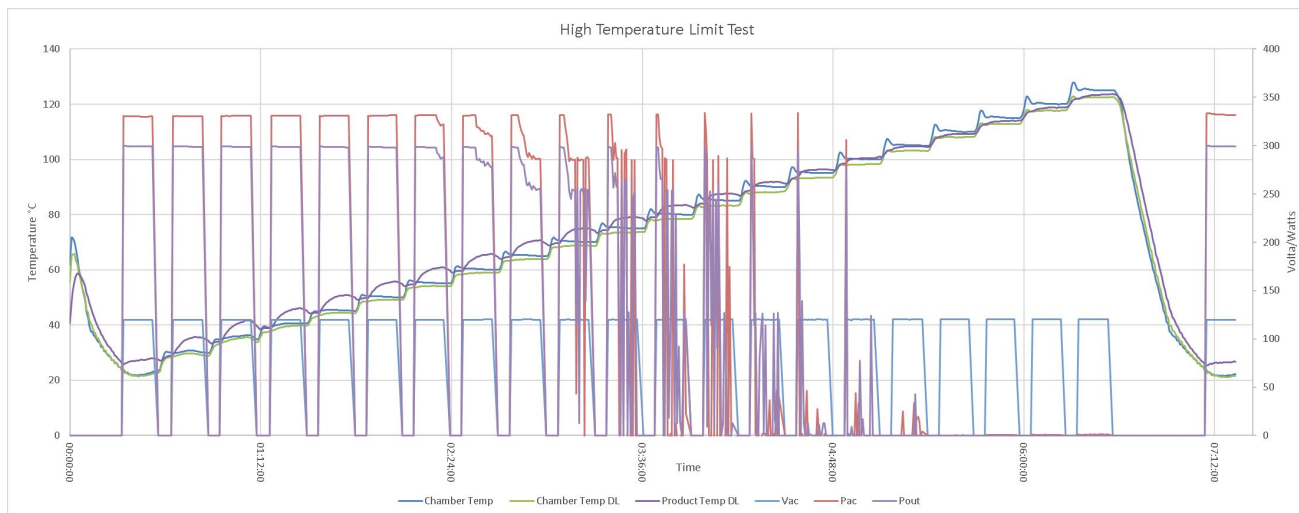


F.2.2 Input Voltage, Input Power, Output Power

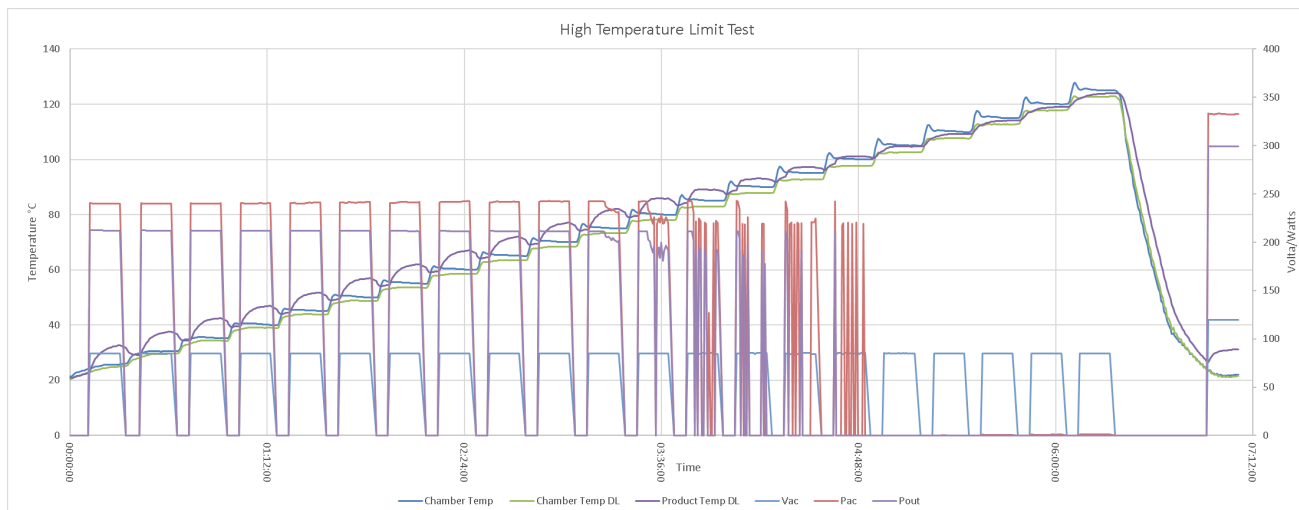
F.2.2.a 220V



F.2.2.b 120V

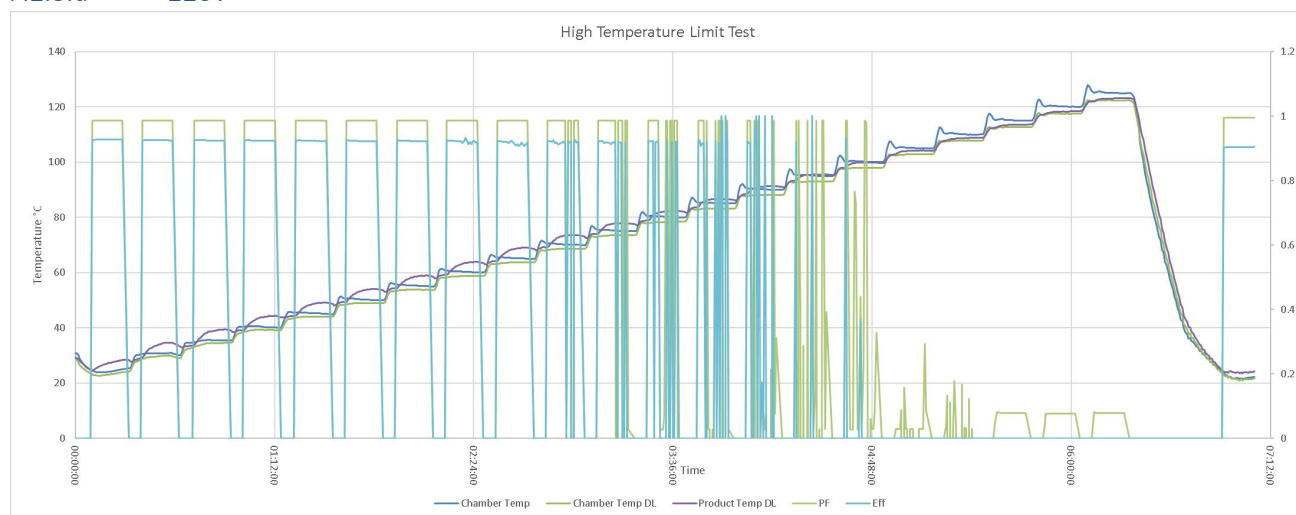


F.2.2.c 85V

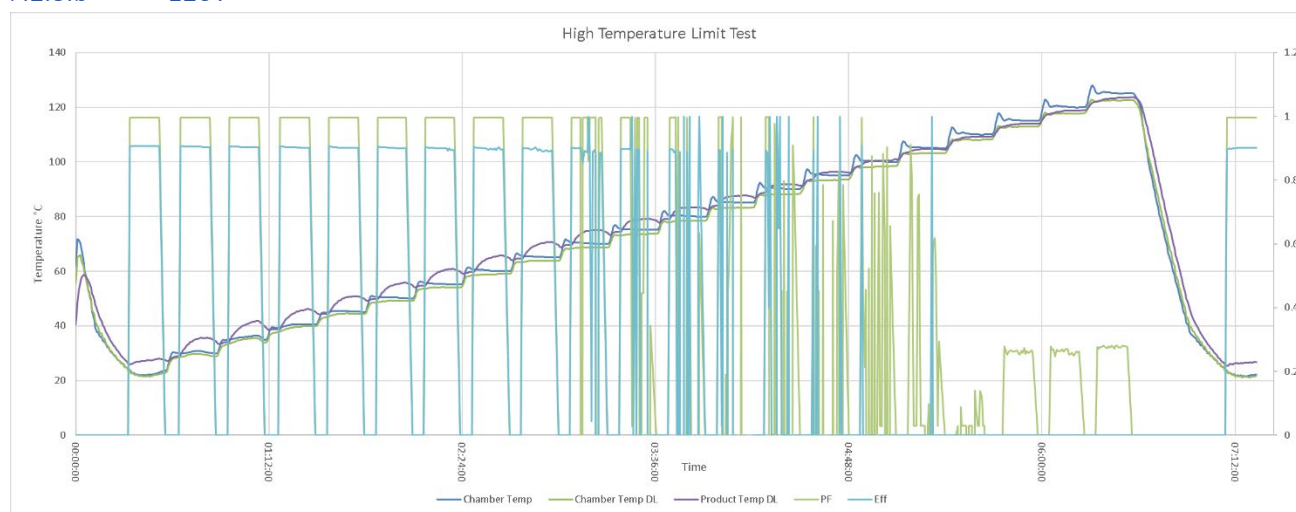


F.2.3 Power Factor & Efficiency

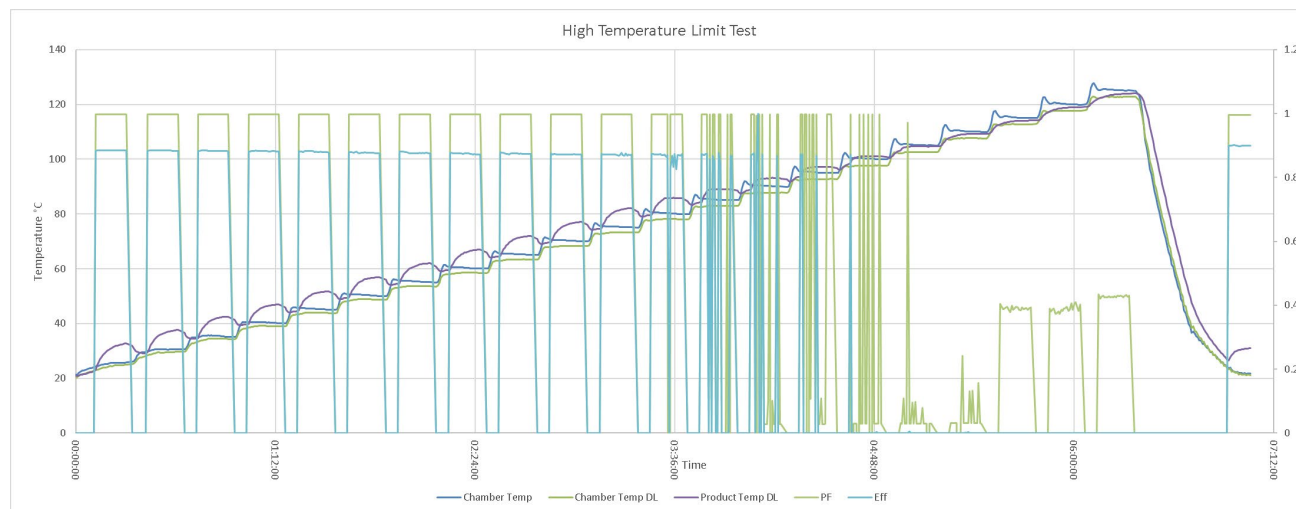
F.2.3.a 220V



F.2.3.b 120V



F.2.3.c 85V



F.2.4 Functional Test Results

F.2.4.a 220V

Step	Time	Chamber Temp DL	Product Temp	Vout	PF	NL_PWR	EFF120	EFF220	HOLDUP	Loadreg	Linereg	Ripple_NL	Ripple	Vtrans	Ttrans	Trise_NL	Trise	OCP
1	14:07:18	24.07	28.48	11.97	0.9860	1.075	0.904	0.927	-0.6300	0.0021560	0.0008030	0.1930	0.0960	0.643	0.0000570	0.000414	0.001713	29.41
3	14:25:27	29.57	34.57	11.96	0.9860	3.324	0.902	0.925	-0.6000	0.0025410	0.0007150	0.1930	0.1050	0.635	0.0000650	0.000372	0.001723	29.39
5	14:44:10	34.53	39.49	11.96	0.9860	1.047	0.902	0.925	-0.4800	0.0067870	0.0006600	0.1810	0.1130	0.611	0.0000710	0.000377	0.001738	29.38
7	15:02:22	39.20	44.24	11.95	0.9860	0.962	0.901	0.923	-0.3600	0.0014740	-0.0033780	0.1770	0.1010	0.603	0.0000760	0.000366	0.001845	29.37
9	15:20:58	44.02	49.19	11.94	0.9860	0.927	0.899	0.923	-0.3400	0.0025080	-0.0013970	0.1610	0.1090	0.588	0.0000800	0.000356	0.001718	29.36
11	15:39:12	48.95	54.11	11.94	0.9860	0.885	0.900	0.922	-0.3100	0.0035450	0.0029040	0.1490	0.1130	0.596	0.0001040	0.000340	0.001590	29.34
13	15:57:21	53.80	59.11	11.93	0.9860	0.924	0.899	0.924	-0.2900	0.0039380	0.0059620	0.1410	0.1050	0.581	0.0001020	0.000340	0.001622	29.34
15	16:15:28	58.72	64.10	11.34	0.9860	0.903	0.897	0.921	-0.2400	0.0041440	-0.0010560	0.1370	0.1050	0.588	0.0001210	0.000341	0.001588	29.33
17	16:33:39	63.73	69.25	10.21	0.9850	0.856	0.896	0.917	-0.2400	-5.8532920	-0.0088000	0.1410	0.1050	0.573	0.0001100	0.000340	0.001535	29.32
19	16:51:57	68.60	73.55	10.67	0.9850	0.686	0.859	0.887	-0.2300	-5.8100820	-2.5725950	X	0.1090	0.579	0.0001220	0.000338	0.001565	29.32
21	17:10:10	73.46	77.79	10.52	0.9860	0.972	0.832	0.000	-0.0600	-11.0383040	-5.2390020	0.1570	0.1050	0.572	0.0001040	0.000334	0.001558	29.31
23	17:28:25	78.33	82.25	2.05	0.9860	0.682	0.814	0.933	-0.0600	-10.6083720	-3.0185360	X	0.1050	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
25	17:46:21	83.17	86.64	10.35	0.9860	0.699	0.000	0.000	-0.0400	-3.6817230	0.9064020	X	0.1770	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
27	18:03:43	88.12	91.25	10.15	0.9860	0.784	0.000	-12.493	X	3.8823090	11.6554260	X	0.1880	NOOUTP	NOOUTP	NOOUTP	NOOUTP	29.30
29	18:21:48	92.94	95.46	10.32	0.2820	0.728	0.031	0.000	-0.0400	6.6693090	11.4437680	X	0.1180	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
31	18:39:49	97.83	99.83	6.58	0.0280	1.018	0.000	0.000	-0.0400	6.5087380	11.0653610	X	0.0100	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
33	18:57:49	102.83	104.22	0.00	0.0280	0.729	0.000	0.000	-0.0200	-0.0001450	1.9951240	X	0.0100	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
35	19:15:56	107.73	108.76	0.00	0.0590	0.754	0.000	0.000	X	-0.0000030	0.0000000	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
37	19:33:46	112.67	113.61	0.00	0.0790	0.062	0.000	0.000	X	0.0000010	0.0000030	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
39	19:51:35	117.57	118.47	0.00	0.0760	0.066	0.000	0.000	X	0.0000000	-0.0000020	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
41	20:09:23	122.43	123.19	0.00	0.0780	0.070	0.000	0.000	X	0.0000050	-0.0000020	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
43	20:56:23	21.77	24.27	11.97	0.9860	3.798	0.906	0.927	-0.4800	0.0012210	0.0006490	0.1930	0.1050	0.651	0.0000560	0.000407	0.001787	29.40

F.2.4.b 120V

Step	Time	Chamber Temp DL	Product Temp	Vout	PF	NL_PWR	EFF120	EFF220	HOLDUP	Loadreg	Linereg	Ripple_NL	Ripple	Vtrans	Ttrans	Trise_NL	Trise	OCP
1	16:23:42	22.47	28.17	11.97	0.9860	1.063	0.905	0.927	-0.5300	0.003740	-0.0016720	0.2010	0.105	0.627	0.000058	0.00038	0.001746	29.40
3	16:42:30	29.12	35.47	11.96	0.9860	1.181	0.906	0.928	-0.5500	0.005555	0.0087340	0.1810	0.121	0.619	0.000069	0.00036	0.001836	29.40
5	17:00:47	35.13	41.70	11.95	0.9860	0.908	0.904	0.926	-0.5300	0.002531	0.0013970	0.1570	0.113	0.603	0.000074	0.000376	0.001864	29.37
7	17:19:35	39.92	46.11	11.95	0.9860	0.865	0.903	0.926	-0.3600	0.002552	-0.0013970	0.1650	0.109	0.596	0.0000880	0.000373	0.001829	29.36
9	17:37:49	44.40	51.01	11.94	0.9860	0.836	0.902	0.925	-0.3400	0.002827	0.0061270	0.1530	0.109	0.588	0.0000960	0.000359	0.001621	29.36
11	17:55:41	49.17	55.83	11.93	0.9860	0.919	0.901	0.924	-0.3100	0.002607	-0.0016390	0.1490	0.101	0.573	0.0001030	0.000347	0.001684	29.35
13	18:13:38	54.08	60.96	11.56	0.9860	0.958	0.901	0.924	-0.2900	0.002871	-0.0026180	0.1370	0.109	0.573	0.0001120	0.000342	0.001613	29.33
15	18:31:52	58.96	65.82	11.09	0.9860	0.879	0.899	0.898	-0.3200	-3.648183	-0.0026950	0.1290	0.1090	0.572	0.0001260	0.000341	0.001618	29.33
17	18:50:06	63.83	70.63	10.18	0.9860	0.808	0.871	0.896	-0.2600	-6.181507	-4.2438710	0.1490	0.1050	0.558	0.0001260	0.000342	0.001620	29.32
19	19:08:24	68.82	75.07	10.34	0.9860	1.048	0.838	0.000	-0.0600	-11.432779	-0.0015070	0.1450	0.1090	0.550	0.0001140	0.000337	0.001633	29.31
21	19:26:41	73.62	79.19	0.00	0.9860	0.778	0.826	-84.541	-0.0400	-3.0105400	-8.4704050	X	0.1050	0.557	0.0000830	0.000337	0.001626	29.31
23	19:44:58	78.49	83.48	0.00	0.9860	0.686	0.812	0.000	-0.0600	-0.0000150	-9.0602630	X	0.1680	0.513	NOOUTP	NOOUTP	NOOUTP	0.00
25	20:02:43	83.28	87.65	10.14	0.9860	0.718	0.000	0.045	X	-6.4547220	-0.8896820	X	0.1220	NOOUTP	NOOUTP	NOOUTP	0.001633	29.31
27	20:20:19	88.11	91.83	10.10	0.9860	1.002	0.000	0.000	-1.4400	5.9484140	2.5578770	X	0.0630	NOOUTP	NOOUTP	0.000337	0.001626	29.31

29	14:53:42	93.41	96.35	0.00	0.7140	0.734	-36.246	0.000	X	0.1751430	11.3388480	X	0.0800	NOOUTP	NOOUTP	0.000333	0.001600	29.30
31	17:59:39	98.30	100.46	0.00	-3.000	0.785	0.000	0.000	-0.0400	0.0000390	10.6977130	X	0.0710	NOOUTP	NOOUTP	0.000322	NOOUTP	0.00
33	09:32:05	103.15	104.69	0.00	-3.000	0.745	0.000	0.000	X	6.9415590	-2.0252530	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
35	09:49:38	108.15	109.30	0.00	0.0340	0.758	0.000	0.000	X	-0.0000010	-0.0000010	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
37	10:06:59	112.82	114.02	0.00	-3.000	0.774	0.000	0.000	X	0.0000020	-0.0000010	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
39	10:24:21	117.67	118.77	0.00	0.0420	0.824	0.000	0.000	X	-0.0000010	0.0000040	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
41	10:42:13	122.47	123.55	0.00	0.1950	0.929	0.000	0.000	X	-0.0000030	-0.0000050	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
43	11:30:21	21.73	26.84	11.97	0.9860	3.028	0.902	0.926	-0.4300	0.0004620	0.0025520	0.1970	0.1050	0.643	0.0000540	0.000382	0.001733	29.41

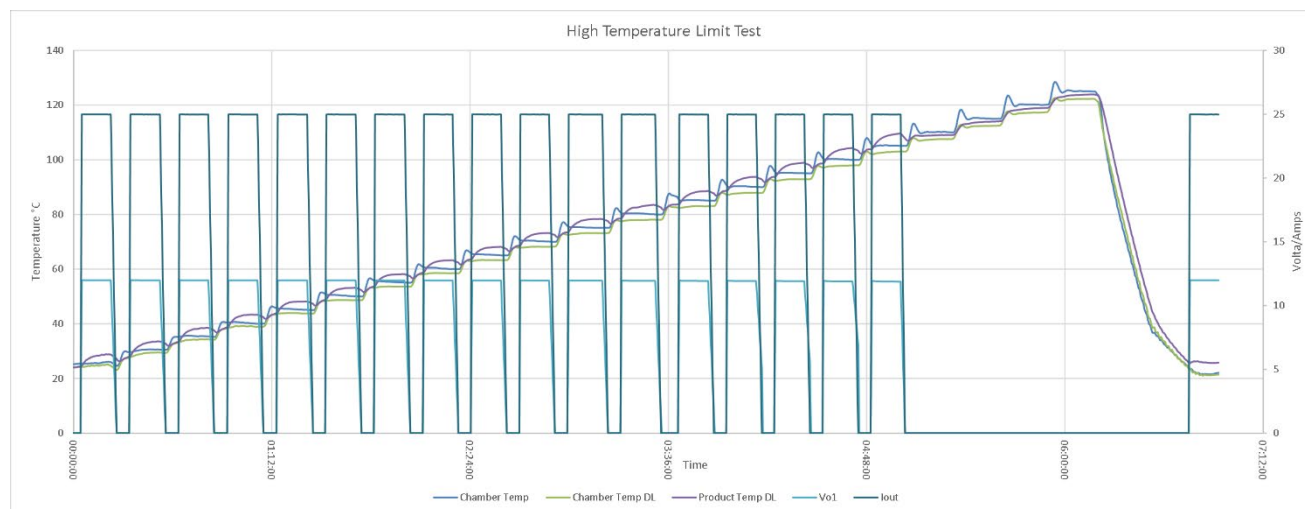
F.2.4.c 85V

Step	Time	Chamber Temp DL	Product Temp	Vout	PF	NL_PWR	EFF120	EFF220	HOLDUP	Loadreg	Linereg	Ripple_NL	Ripple	Vtrans	Ttrans	Trise_NL	Trise	OCF
1	09:47:20	25.07	32.71	11.98	0.9860	3.586	0.905	0.926	-0.4800	0.0033440	-0.0021780	0.2050	0.1010	0.667	0.0000560	0.000377	0.001835	29.40
3	10:06:04	29.70	37.69	11.98	0.9860	3.778	0.904	0.926	-0.4300	0.0036080	-0.0037950	0.1970	0.1010	0.633	0.0000590	0.000386	0.001774	29.39
5	10:24:13	34.35	42.50	11.97	0.9860	3.515	0.901	0.925	-0.4300	0.0060320	-0.0008140	0.1930	0.1130	0.633	0.0000630	0.000368	0.001841	29.38
7	10:42:23	39.04	46.94	11.97	0.9860	0.989	0.902	0.927	-0.3600	0.0038610	0.0049830	0.1890	0.1050	0.627	0.0000710	0.000363	0.001841	29.37
9	11:00:33	43.87	51.81	11.96	0.9860	0.952	0.901	0.926	-0.3400	0.0045110	0.0011330	0.2050	0.1050	0.627	0.0000760	0.000361	0.001689	29.36
11	11:18:42	48.80	57.03	11.96	0.9860	0.898	0.899	0.924	-0.3100	0.0058630	-0.0008800	0.1610	0.1090	0.603	0.0001000	0.000348	0.001620	29.35
13	11:36:55	53.63	62.04	11.95	0.9860	0.859	0.898	0.924	-0.2900	0.0048510	-0.0017380	0.1890	0.1090	0.603	0.0001090	0.000337	0.001638	29.34
15	11:55:07	58.49	67.16	11.94	0.9860	0.865	0.898	0.922	-0.2700	0.0042130	-0.0008360	0.1850	0.1090	0.603	0.0001120	0.000339	0.001580	29.33
17	12:13:17	63.47	72.09	11.94	0.9860	0.915	0.895	0.922	-0.2400	0.0042310	0.0007810	0.1730	0.1090	0.588	0.0001040	0.000335	0.001564	29.32
19	12:31:27	68.34	77.13	11.93	0.9860	0.922	0.893	0.890	-0.2400	-5.676220	-7.5474470	0.1490	0.1050	0.573	0.0001070	0.000333	0.001626	29.31
21	12:49:37	73.35	82.28	11.22	0.9860	0.915	0.818	1387.505	X	7.1907510	-8.9702690	0.1610	0.1090	0.579	0.0000850	0.000333	0.001649	29.31
23	13:07:47	78.06	85.66	10.64	0.9860	0.693	0.813	-88.276	X	-4.779387	-9.4588470	X	0.1450	0.547	NOOUTP	NOOUTP	NOOUTP	0.00
25	13:25:45	82.94	89.00	0.00	0.9860	0.751	0.000	-85.699	X	-5.062954	1.7526330	X	0.1280	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
27	13:43:35	87.80	92.98	10.66	0.0280	0.635	0.000	0.000	-1.8298	0.0000110	-2.0042420	X	0.0860	NOOUTP	NOOUTP	NOOUTP	NOOUTP	29.30
29	14:01:35	92.76	97.00	10.65	0.0280	0.726	0.000	0.000	X	3.4568180	11.1933430	X	0.1120	NOOUTP	NOOUTP	NOOUTP	0.001436	0.00
31	14:19:34	97.70	101.07	0.00	0.2740	0.748	0.000	0.000	-0.0600	6.4020500	10.7945550	X	0.0660	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
33	14:37:36	102.53	104.67	0.00	0.1290	0.791	0.000	0.000	X	5.1020680	10.4256180	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
35	14:55:45	107.63	109.29	0.00	0.1010	0.747	0.000	0.000	X	0.0000000	0.0000020	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
37	15:13:32	112.69	114.08	0.00	0.0350	0.713	0.000	0.000	X	0.0000040	-0.0000020	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
39	15:31:18	117.71	119.03	0.00	0.0360	0.818	0.000	0.000	X	0.0000010	0.0000010	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
41	15:49:02	122.87	123.97	0.00	0.0360	0.909	0.000	0.000	X	0.0000020	0.0000030	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
43	16:35:53	21.58	31.25	11.97	0.9860	5.833	0.900	0.924	-0.4800	0.0037840	0.0011550	0.1890	0.1050	0.633	0.0000560	0.000372	0.001801	29.41

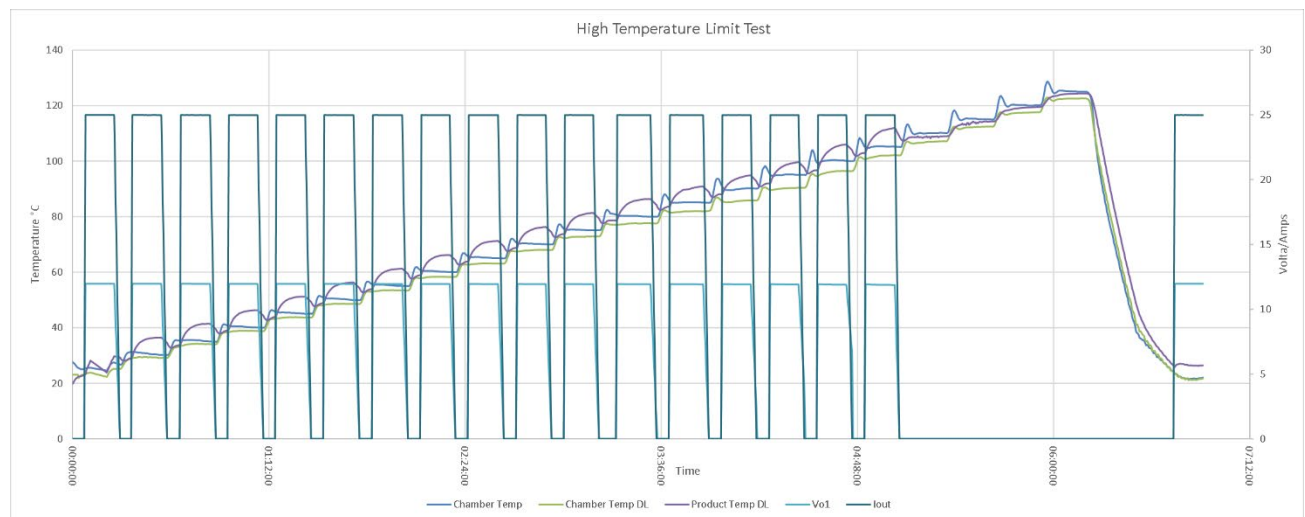
F.3 High Temperature Performance Test (OP_OTP Disabled)

F.3.1 Output Voltage and current

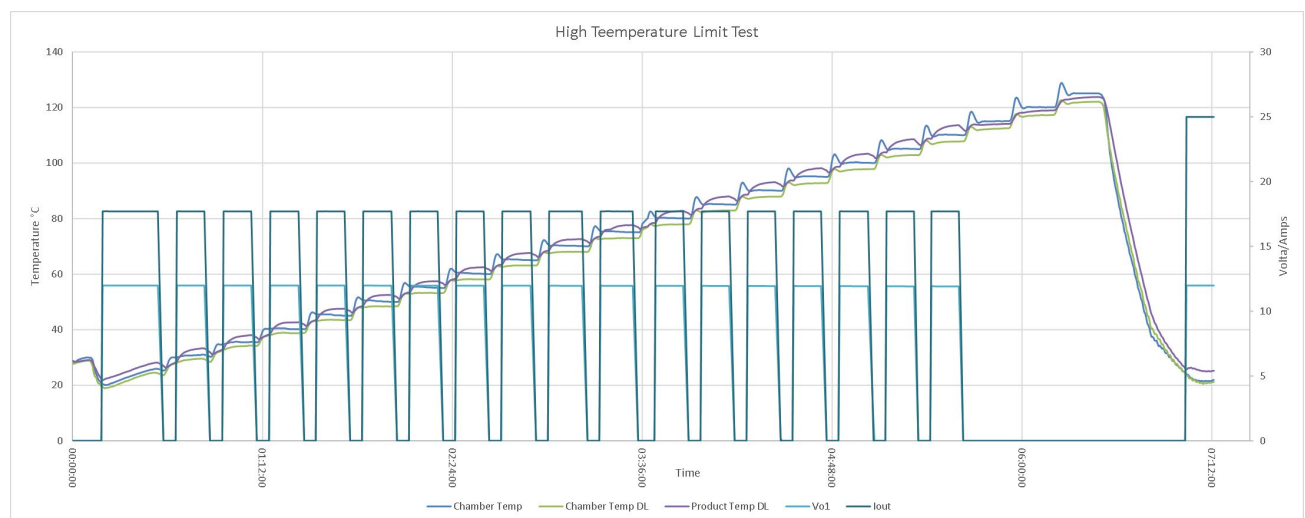
F.3.1.a 220V



F.3.1.b 120V

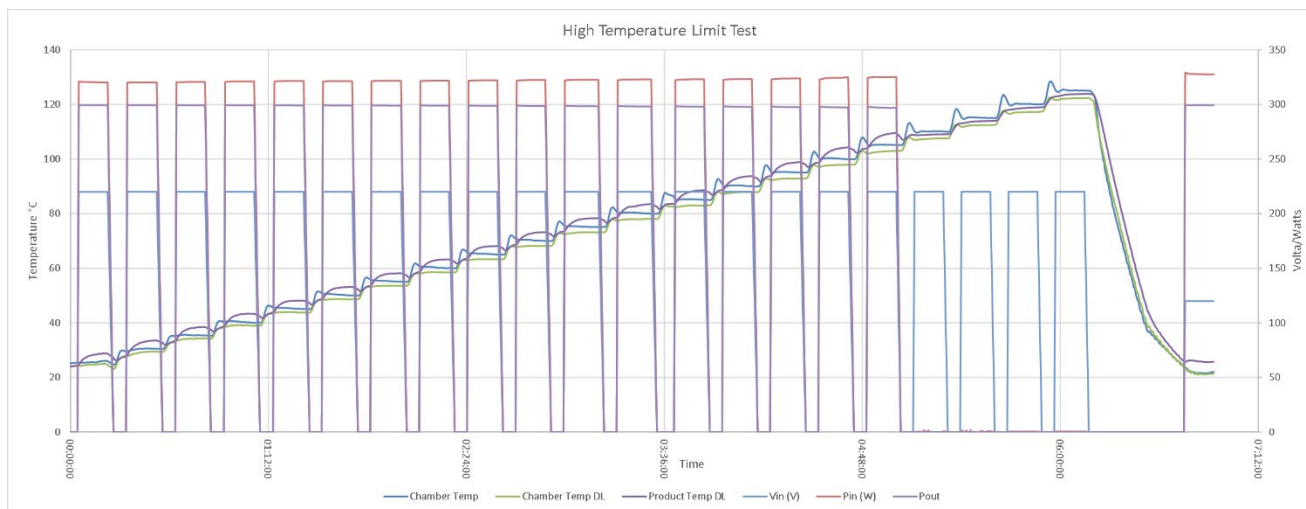


F.3.1.c 85V

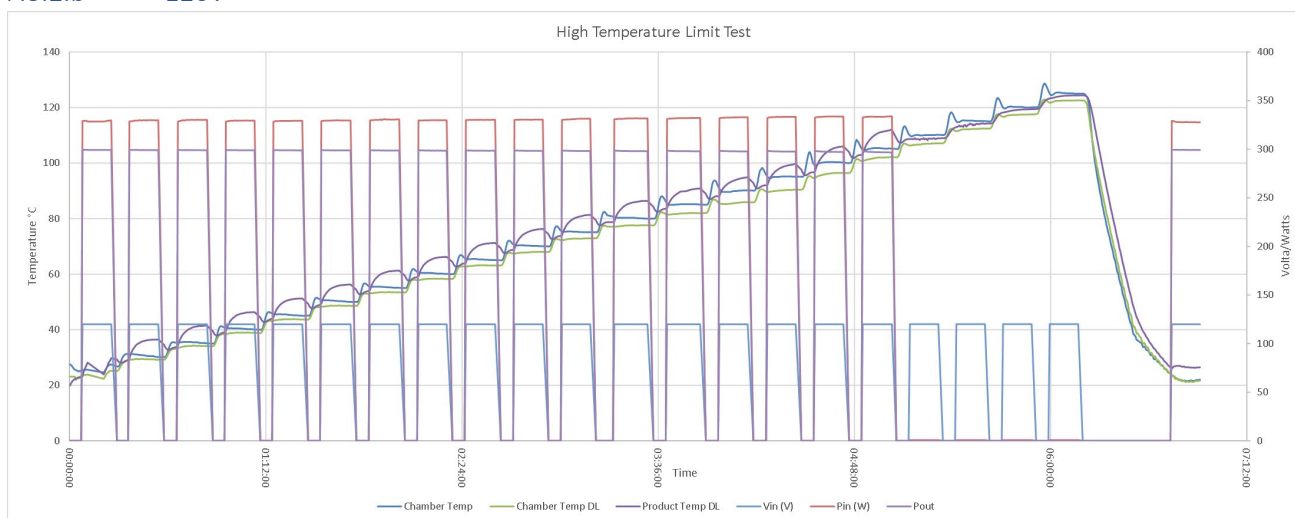


F.3.2 Input Voltage, Input Power, Output Power

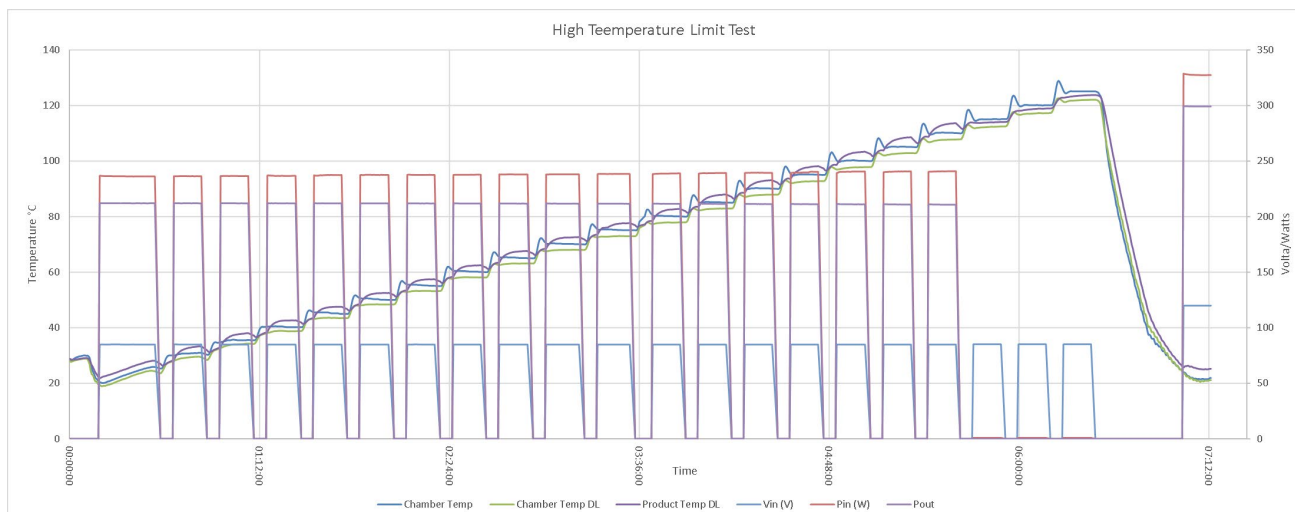
F.3.2.a 220V



F.3.2.b 120V

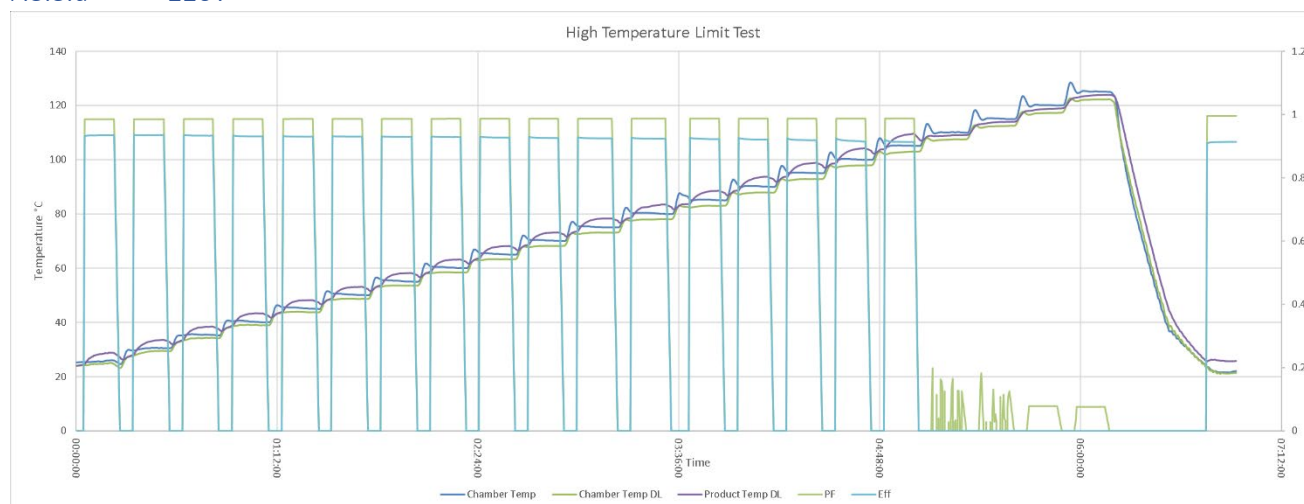


F.3.2.c 85V

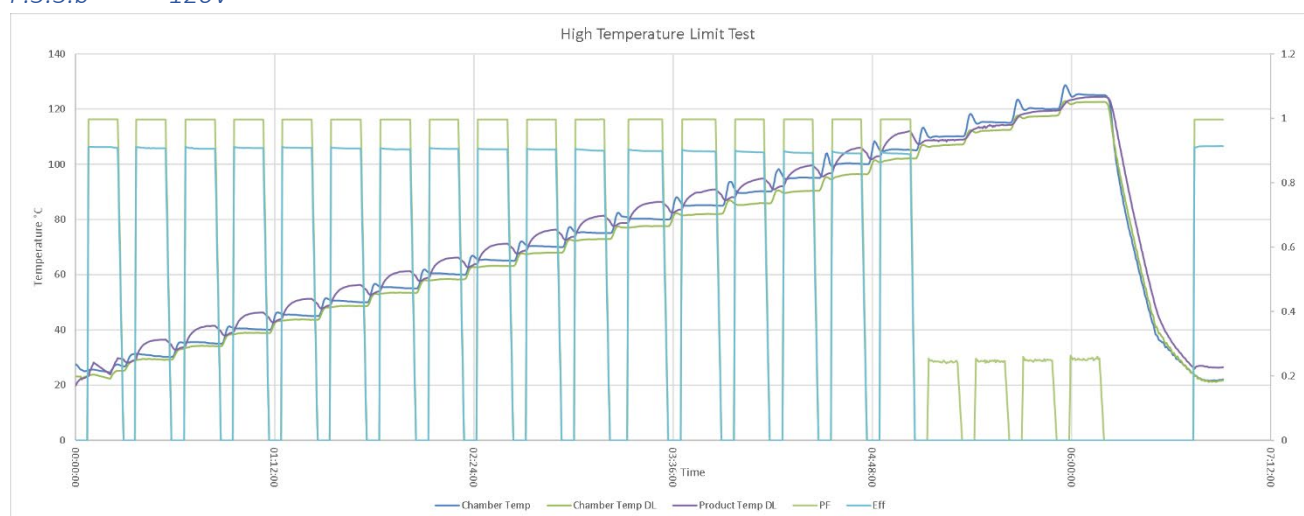


F.3.3 Power Factor & Efficiency

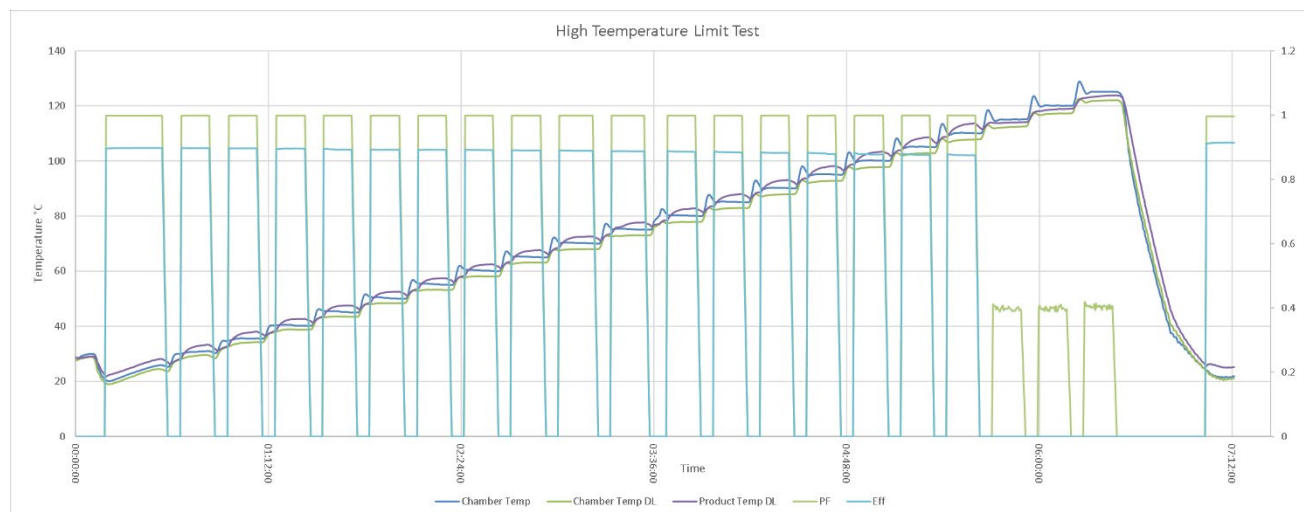
F.3.3.a 220V



F.3.3.b 120V



F.3.3.c 85V



F.3.4 Functional Test Results

F.3.4.a 220V

Step	Time	Chamber Temp DL	Product Temp	Vout	PF	NL_PWR	EFF120	EFF220	HOLDUP	Loadreg	Linereg	Ripple_NL	Ripple	Vtrans	Ttrans	Trise_NL	Trise	OCP
1	09:59:32	24.39	28.73	11.98	0.9850	0.687	0.915	0.935	-0.6400	0.0022770	-0.0062150	0.2970	0.1010	0.476	0.0000780	0.000349	0.001590	26.74
3	10:17:22	29.48	33.52	11.98	0.9850	0.692	0.915	0.935	-0.6200	-0.0097350	-0.0097130	0.2730	0.1090	0.470	0.0000810	0.000356	0.001590	26.50
5	10:34:57	34.31	38.49	11.98	0.9860	0.719	0.913	0.934	-0.6200	0.0074250	0.0002090	0.2650	0.1130	0.482	0.0000810	0.000342	0.001550	24.89
7	10:52:49	39.00	43.39	11.97	0.9860	0.673	0.911	0.932	-0.6000	-0.0098780	-0.0087560	0.2650	0.1130	0.476	0.0000840	0.000337	0.001483	24.90
9	11:10:50	43.72	48.16	11.97	0.9860	0.715	0.909	0.932	-0.5400	0.0079750	0.0002640	0.2970	0.1170	0.464	0.0000670	0.000341	0.001508	24.68
11	11:28:26	48.67	53.14	11.97	0.9860	0.673	0.909	0.932	-0.5400	0.0095780	-0.0082830	0.2610	0.1050	0.464	0.0000710	0.000349	0.001506	25.11
13	11:46:11	53.62	58.26	11.96	0.9860	0.706	0.908	0.930	-0.5300	-0.0030140	0.0105060	0.2490	0.1170	0.476	0.0000720	0.000342	0.001404	24.92
15	12:03:39	58.50	63.24	11.96	0.9870	0.695	0.908	0.929	-0.5200	-0.0071040	-0.0068970	0.2570	0.1170	0.494	0.0000980	0.000329	0.001410	24.89
17	12:21:13	63.27	68.17	11.96	0.9870	0.692	0.907	0.929	-0.5000	0.0044460	0.0048080	0.2730	0.1090	0.513	0.0000980	NOTRG	0.001418	24.70
19	12:38:42	68.18	73.27	11.95	0.9870	0.715	0.905	0.928	-0.4100	-0.0037180	-0.0174910	0.2770	0.1170	0.533	0.0001020	NOTRG	0.001379	24.46
21	12:56:12	73.11	78.27	11.94	0.9870	0.753	0.904	0.926	-0.3900	-0.0068430	0.0023880	0.2530	0.1130	0.554	0.0001060	NOTRG	0.001399	24.26
23	13:13:40	78.08	83.48	11.94	0.9870	0.779	0.902	0.925	-0.5700	-0.0092820	0.0057090	0.2650	0.1130	0.601	0.0000840	NOTRG	0.001376	24.81
25	13:31:08	82.95	88.60	11.93	0.9870	0.731	0.902	0.924	-0.5300	0.0024200	-0.0017050	0.2690	0.1090	0.649	0.0001160	NOTRG	0.001311	24.45
27	13:48:36	87.98	93.72	11.92	0.9870	0.746	0.900	0.922	-0.3000	0.0018190	-0.0027060	0.1170	0.1050	0.651	0.0000880	NOTRG	0.001294	23.98
29	14:06:04	92.86	98.90	11.91	0.9870	0.730	0.896	0.921	-0.2800	-0.0011110	-0.0021670	0.1290	0.1090	0.658	0.0000930	NOTRG	0.001273	24.65
31	14:23:35	97.97	104.34	11.90	0.9870	0.759	0.897	0.917	-0.0900	0.0004510	-0.0015400	0.1210	0.0920	0.643	0.0000980	NOTRG	0.001241	24.28
33	14:41:03	103.05	109.66	11.88	0.9880	0.684	0.000	0.000	NOOUTP	0.0000020	0.0000020	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
35	14:58:09	107.52	109.03	0.00	-3.000	0.782	0.000	0.000	NOOUTP	0.0000000	-0.0000010	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
37	15:15:15	112.46	114.01	0.00	0.0340	0.762	0.000	0.000	NOOUTP	-0.0000020	0.0000020	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
39	15:32:21	117.32	118.89	0.00	0.0780	0.063	0.000	0.000	NOOUTP	0.0000000	0.0000030	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
41	15:49:27	122.30	123.89	0.00	0.0760	0.067	0.000	0.000	NOOUTP	-0.0000010	-0.0000030	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
43	16:36:31	21.49	25.82	11.98	0.9860	0.730	0.914	0.937	-0.6200	0.0086910	0.0048510	0.2770	0.1050	0.482	0.0000740	0.000396	0.001635	24.33

F.3.4.b 120V

Step	Time	Chamber Temp DL	Product Temp	Vout	PF	NL_PWR	EFF120	EFF220	HOLDUP	Loadreg	Linereg	Ripple_NL	Ripple	Vtrans	Ttrans	Trise_NL	Trise	OCP
1	13:52:05	25.30	30.01	11.97	0.9850	0.714	0.909	0.933	-0.6500	-0.0065400	0.0032450	0.2890	0.1130	0.476	0.0000810	0.000389	0.001475	23.72
3	14:09:22	29.20	36.52	11.97	0.9860	0.724	0.908	0.932	-0.6300	-0.0114290	-0.0025630	0.2690	0.1170	0.470	0.0000840	0.000354	0.001570	24.56
5	14:27:17	34.02	41.42	11.97	0.9860	0.668	0.908	0.930	-0.6100	0.0058140	-0.0026620	0.2530	0.1130	0.464	0.0000840	0.000344	0.001524	25.00
7	14:44:42	38.92	46.33	11.96	0.9860	0.683	0.909	0.932	-0.6100	0.0065660	0.0033330	0.2490	0.1090	0.464	0.0000880	0.000351	0.001455	24.83
9	15:02:13	43.75	51.33	11.96	0.9860	0.731	0.909	0.930	-0.5400	-0.0056880	0.0026620	0.2570	0.1090	0.470	0.0000920	0.000339	0.001490	24.61
11	15:19:57	48.64	56.30	11.96	0.9860	0.754	0.906	0.929	-0.5900	-0.0071370	-0.0069300	0.2570	0.1170	0.482	0.0000930	0.000339	0.001455	24.44
13	15:37:47	53.53	61.38	11.95	0.9870	0.756	0.907	0.929	-0.5200	0.0110450	0.0020020	0.2730	0.1130	0.494	0.0000970	0.000350	0.001437	24.49
15	15:55:12	58.29	66.27	11.95	0.9870	0.736	0.906	0.928	-0.5400	0.0003100	0.0019690	0.2650	0.1130	0.519	0.0001030	0.000337	0.001408	24.36
17	16:12:58	63.16	71.31	11.94	0.9870	0.655	0.904	0.927	-0.4600	-0.0106270	-0.0130900	0.2610	0.1130	0.547	0.0001040	0.000337	0.001374	24.23
19	16:30:28	68.06	76.34	11.94	0.9870	0.800	0.903	0.925	-0.4400	-0.0018920	-0.0056980	0.2770	0.1130	0.554	0.0001070	NOTRG	0.001346	24.77
21	16:47:53	72.92	81.42	11.93	0.9870	0.674	0.901	0.924	-0.4600	-0.0003480	-0.0024860	0.2490	0.1130	0.596	0.0001040	NOTRG	0.001354	24.14
23	17:05:26	77.61	86.35	11.93	0.9870	0.756	0.899	0.923	-0.4600	-0.0070840	-0.0030360	0.2610	0.1090	0.619	0.0001080	NOTRG	0.001361	24.86
25	17:22:59	81.97	90.89	11.92	0.9870	0.758	0.898	0.923	-0.4800	-0.0097580	0.0006270	0.1170	0.1130	0.659	0.0000890	NOTRG	0.001282	24.49
27	17:40:26	85.95	94.96	11.92	0.9870	0.755	0.895	0.921	-0.4600	-0.0055440	0.0016500	0.1170	0.1130	0.675	0.0001150	NOTRG	0.001304	23.54
29	17:58:03	90.46	99.72	11.91	0.9870	0.757	0.895	0.918	-0.3600	0.0009900	-0.0048070	0.1170	0.1050	0.659	0.0000940	NOTRG	0.001232	23.74
31	18:15:34	96.44	106.03	11.89	0.9870	0.779	0.892	0.913	-0.2400	-0.0025080	-0.0044220	0.1370	0.0960	0.635	0.0001000	NOTRG	0.001140	24.05

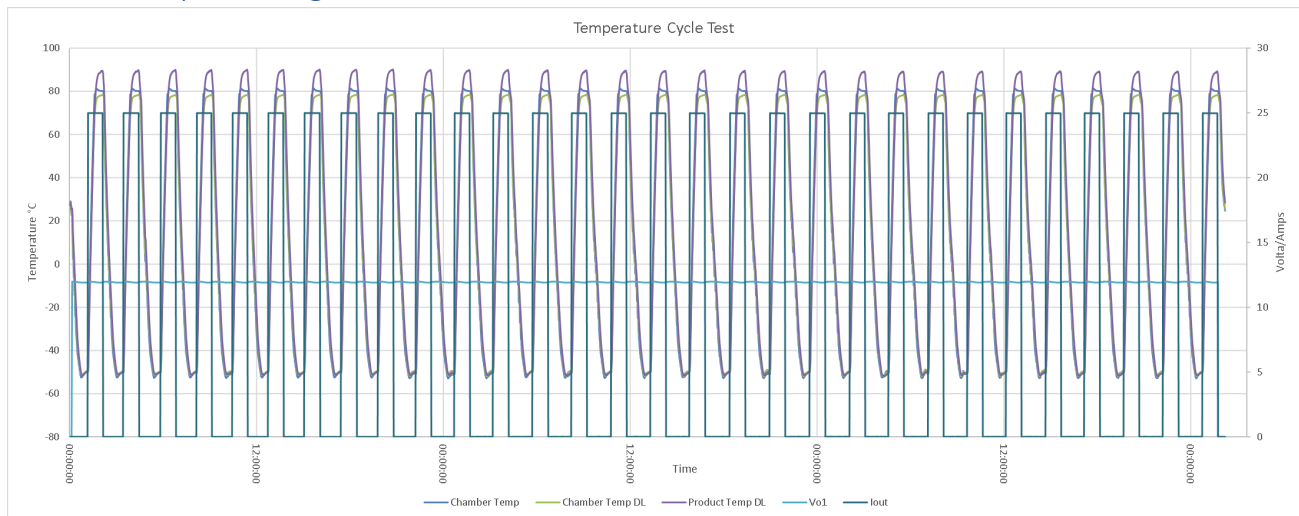
33	18:33:22	102.21	112.05	11.88	0.9880	0.757	0.000	0.000	X	0.0000000	0.0000040	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
35	18:50:26	107.14	109.13	0.00	0.1910	0.751	0.000	0.000	X	-0.0000020	-0.0000020	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
37	19:07:31	112.44	114.36	0.00	0.1560	0.763	0.000	0.000	X	-0.0000010	-0.0000050	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
39	19:24:38	117.57	119.43	0.00	-3.000	0.798	0.000	0.000	X	-0.0000030	0.0000030	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
41	19:41:44	122.58	124.37	0.00	0.1660	0.781	0.000	0.000	X	0.0000020	-0.0000030	X	X	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
43	20:26:26	21.73	26.50	11.98	0.9860	0.729	0.915	0.936	-0.6300	0.0044330	-0.0062700	0.2770	0.1090	0.476	0.0000740	0.000353	0.001579	24.70

F.3.4.c 85V

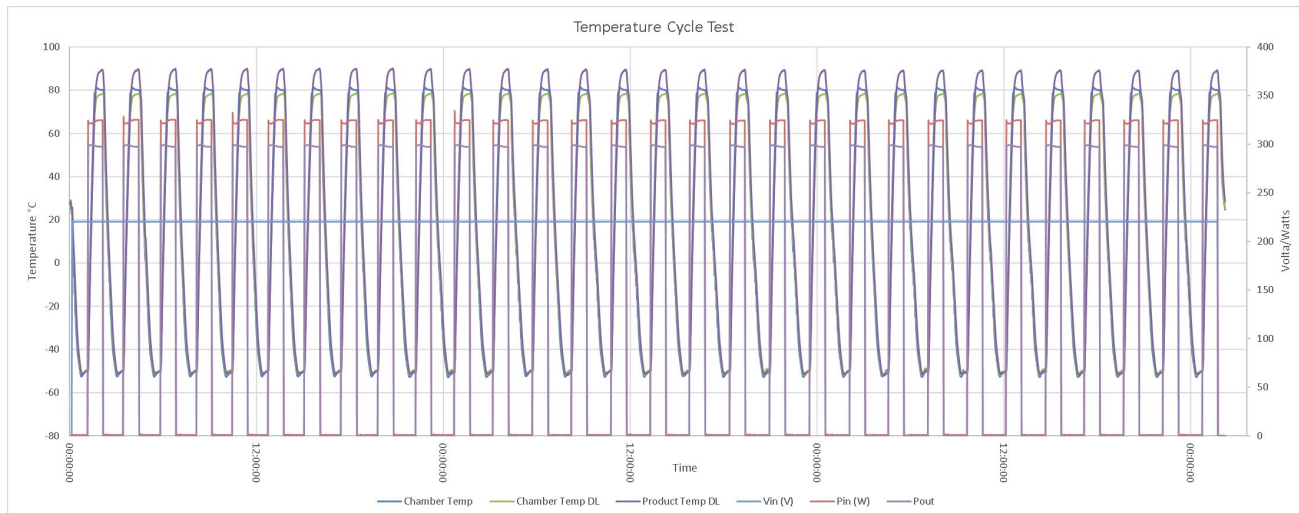
Step	Time	Chamber Temp DL	Product Temp	Vout	PF	NL_PWR	EFF120	EFF220	HOLDUP	Loadreg	Linereg	Ripple_NL	Ripple	Vtrans	Ttrans	Trise_NL	Trise	OCP
1	18:00:53	24.22	28.12	11.98	0.9860	0.693	0.915	0.936	-0.6300	0.0087020	0.0091190	0.2930	0.1130	0.476	0.0000610	0.000390	0.001587	24.02
3	18:18:31	29.30	33.25	11.98	0.9860	0.718	0.915	0.936	-0.6100	0.0005670	0.0008910	0.2890	0.1090	0.470	0.0000760	0.000359	0.001459	23.83
5	18:36:17	34.23	38.06	11.98	0.9860	0.703	0.913	0.934	-0.5900	-0.000860	-0.005456	0.2850	0.1090	0.464	0.0000820	0.000337	0.001566	23.74
7	18:54:15	38.76	42.68	11.98	0.9860	0.710	0.912	0.934	-0.5900	-0.004516	0.0041910	0.2690	0.1090	0.476	0.0000840	0.000349	0.001600	23.43
9	19:11:42	43.50	47.52	11.97	0.9860	0.656	0.910	0.931	-0.5600	0.0054190	-0.002310	0.2890	0.1170	0.476	0.0000860	0.000354	0.001453	23.23
11	19:29:28	48.41	52.56	11.97	0.9870	0.689	0.910	0.932	-0.5000	0.0051030	0.0026290	0.2570	0.1130	0.470	0.0000710	0.000342	0.001485	23.09
13	19:46:59	53.17	57.49	11.97	0.9870	0.727	0.909	0.931	-0.5200	0.0074010	-0.003256	0.2690	0.1090	0.470	0.0000910	0.000337	0.001446	24.04
15	20:04:26	58.14	62.50	11.97	0.9870	0.721	0.908	0.929	-0.4800	-0.005126	0.0003740	0.2730	0.1130	0.476	0.0000960	0.000330	0.001368	23.83
17	20:22:12	63.13	67.62	11.96	0.9870	0.721	0.907	0.929	-0.5000	0.0055040	0.0077230	0.2770	0.1090	0.495	0.0001000	NOTRG	0.001382	24.36
19	20:39:58	68.07	72.67	11.96	0.9870	0.716	0.906	0.927	-0.3900	0.0069710	-0.008856	0.2850	0.1130	0.521	0.0000990	NOTRG	0.001411	24.35
21	20:57:25	72.99	77.73	11.96	0.9870	0.731	0.905	0.927	-0.3700	-0.013442	0.0026850	0.2810	0.1050	0.540	0.0001070	0.000332	0.001378	24.45
23	21:14:52	77.92	82.81	11.95	0.9870	0.752	0.902	0.926	-0.3700	0.0175130	0.0032670	0.2530	0.1130	0.579	0.0001020	NOTRG	0.001400	24.56
25	21:32:19	82.93	88.02	11.95	0.9870	0.755	0.900	0.923	-0.3700	0.0136400	-0.000726	0.2650	0.1130	0.619	0.0000810	NOTRG	0.001359	24.73
27	21:49:46	87.91	93.15	11.94	0.9870	0.751	0.898	0.922	-0.4100	0.0093720	-0.002178	0.2730	0.1090	0.680	0.0000850	NOTRG	0.001297	24.67
29	22:07:11	92.78	98.21	11.93	0.9870	0.810	0.897	0.919	-0.0900	0.0027170	-0.003058	0.2850	0.1130	0.643	0.0000900	NOTRG	0.001282	24.65
31	22:24:58	97.78	103.41	11.92	0.9880	0.767	0.895	0.915	-0.2600	-0.009559	0.0006820	0.1370	0.0960	0.667	0.0000950	NOTRG	0.001233	24.56
33	22:42:26	102.86	108.56	11.92	0.9880	0.738	0.000	0.000	NOOUTP	0.0000050	0.0000040	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
35	22:59:27	107.79	113.71	11.91	0.9880	0.783	0.000	0.000	NOOUTP	0.0000020	0.0000050	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
37	23:16:33	112.52	114.09	0.00	-3.000	0.769	0.000	0.000	NOOUTP	0.0000000	-0.000002	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
39	23:33:36	117.29	118.92	0.00	-3.000	0.769	0.000	0.000	NOOUTP	-0.000004	0.0000070	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
41	23:50:41	122.05	123.77	0.00	-3.000	0.821	0.000	0.000	NOOUTP	0.0000010	-0.000007	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	NOOUTP	0.00
43	00:36:08	21.15	25.22	11.98	0.9860	0.713	0.915	0.936	-0.6400	-0.003487	-0.000968	0.3020	0.1050	0.476	0.0000740	0.000354	0.001510	25.57

F.4 Rapid Thermal Cycle Test

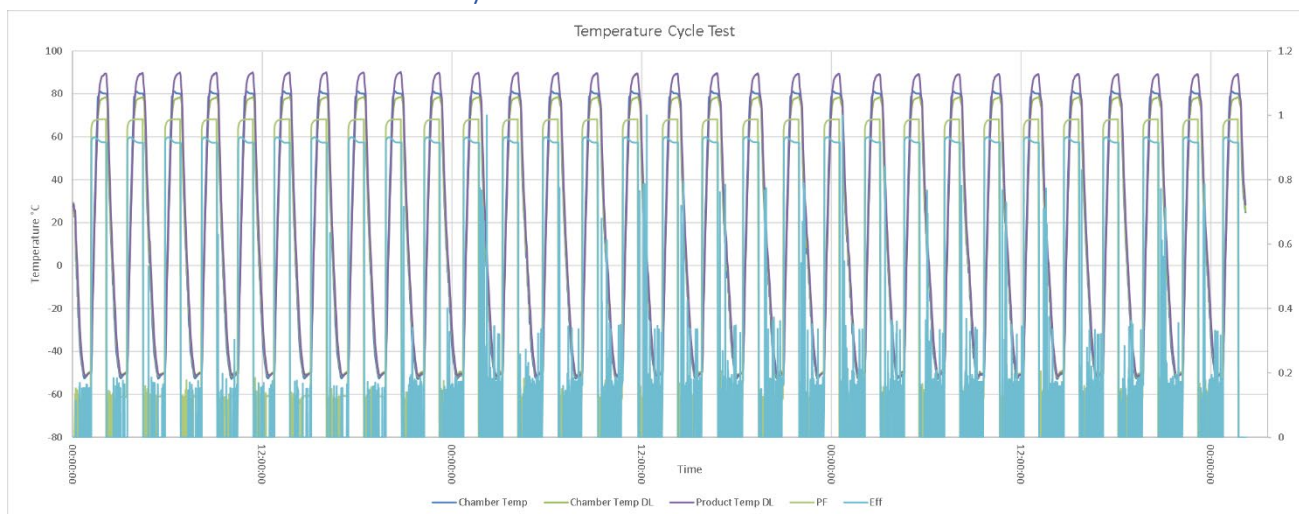
F.4.1 Output Voltage and current



F.4.2 Input Voltage, Input Power, Output Power



F.4.3 Power Factor & Efficiency



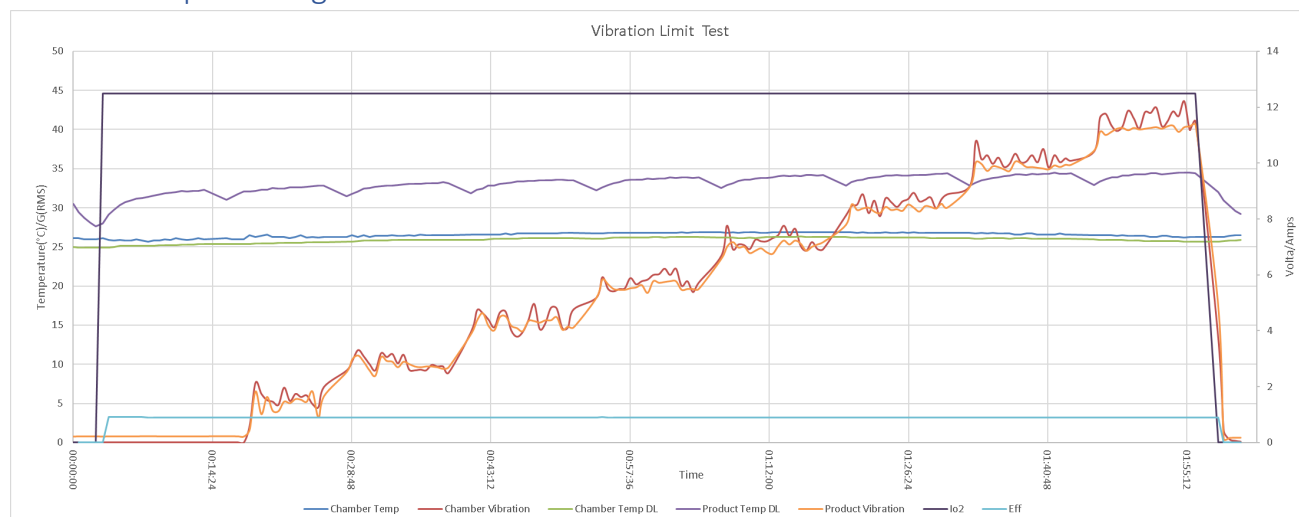
F.4.4 Functional Test Results

Step	Time	Chamber Temp DL	Product Temp	Vout	PF	NL_PWR	EFF120	EFF220	HOLDUP	Loadreg	Linereg	Ripple_NL	Ripple	Vtrans	Ttrans	Trise_NL	Trise	OCP
0	18:16:35	23.01	24.89	0.00	0.9850	0.717	0.907	0.933	-0.6300	-0.0028600	-0.0109230	0.2770	0.1010	0.476	0.0000740	0.000538	0.000755	30.93
1	19:17:59	-49.64	-49.87	11.91	0.7500	0.691	0.836	0.909	-2.3860	-0.0011120	0.0026300	X	0.6510	2.290	X	0.000110	X	31.41
2	20:16:02	78.38	89.74	11.90	0.9880	0.730	0.888	0.919	-0.4300	-0.0027830	0.0009350	0.1130	0.1050	0.650	0.0000930	NOTRG	0.001231	30.31
3	21:34:44	-49.71	-49.93	11.91	0.7490	0.684	0.829	0.907	-2.3858	-0.0016620	0.0004300	X	0.5230	1.860	0.0000420	0.000112	0.012623	31.41
4	22:33:22	78.34	89.68	11.90	0.9870	0.720	0.886	0.918	-0.4300	0.0025190	-0.0026290	0.1170	0.1170	0.650	0.0000950	NOTRG	0.000950	30.31
5	23:53:39	-49.68	-50.02	11.91	0.7460	0.684	0.832	0.908	-2.3855	-0.0016180	0.0006490	X	0.4940	2.440	0.0000590	0.000108	0.000700	31.40
6	00:52:16	78.43	89.76	11.90	0.9870	0.776	0.885	0.917	-0.4300	0.0052360	-0.0067760	0.1170	0.1010	0.642	0.0000950	NOTRG	0.001036	30.30
7	02:12:34	-49.77	-49.97	11.91	0.7460	0.674	0.871	0.907	-2.3853	-0.0012110	0.0007040	X	X	2.470	0.0000440	0.000116	0.013921	31.41
8	03:10:39	78.31	89.95	11.90	0.9870	0.737	0.886	0.917	-0.4100	-0.0024420	0.0040590	0.1090	0.1010	0.651	0.0000940	NOTRG	0.000930	30.29
9	04:30:23	-50.47	-50.40	11.91	0.7400	0.671	0.871	0.907	-2.3858	-0.0013870	0.0014640	X	0.4300	2.490	0.0000400	0.000110	0.001659	31.41
10	05:28:26	78.31	89.99	11.90	0.9870	0.741	0.886	0.917	-0.4800	0.0012230	0.0044220	0.1090	0.1090	0.635	0.0000970	NOTRG	0.000763	30.30
11	06:48:14	-49.69	-49.97	11.91	0.7450	0.679	0.828	0.907	-2.3858	-0.0002090	0.0022450	X	0.4820	Error	0.0000370	0.000133	0.001236	31.41
12	07:47:21	78.33	89.86	11.90	0.9870	0.766	0.887	0.917	-0.4800	-0.0013640	-0.0053020	0.1170	0.1130	0.642	0.0000970	NOTRG	0.000775	30.29
13	09:07:41	-49.73	-50.07	11.91	0.7410	0.684	0.870	0.906	-2.3865	-0.0014630	0.0011780	X	0.4260	1.770	Error	0.000098	0.001121	31.41
14	10:08:08	78.37	89.75	11.90	0.9870	0.784	0.886	0.916	-0.3900	-0.0014080	-0.0037510	0.1170	0.0960	0.650	0.0001020	NOTRG	0.000718	30.30
15	11:29:16	-49.64	-49.95	11.91	0.7440	0.680	0.825	0.908	-2.3858	-0.0004730	0.0016610	X	0.5150	Error	0.0000660	0.000112	0.001162	31.42
16	12:29:23	78.38	89.86	11.90	0.9870	0.731	0.886	0.917	-0.4600	0.0006380	-0.0026400	0.1170	0.0960	0.651	0.0000950	NOTRG	0.000818	30.30
17	13:51:20	-49.44	-49.84	11.91	0.7470	0.671	0.831	0.907	-2.3865	-0.0015290	0.0005610	X	0.3580	Error	X	0.000110	X	31.42
18	14:50:46	78.56	90.06	11.90	0.9870	0.748	0.885	0.916	-0.4300	-0.0033000	0.0034870	0.1090	0.1130	0.642	0.0000970	NOTRG	0.000901	30.30
19	16:17:14	-50.42	-50.28	11.91	0.7400	0.682	0.829	0.907	-2.3858	-0.0015840	0.0011550	X	0.5750	2.180	0.0000660	0.000116	0.001567	31.42
20	17:16:02	78.46	89.91	11.90	0.9870	0.760	0.886	0.917	-0.4800	-0.0007330	-0.0054560	0.1170	0.1050	0.642	0.0000960	NOTRG	0.000925	30.31
21	18:45:57	-50.35	-50.44	11.91	0.7360	0.827	0.818	0.906	-2.3860	-0.0012870	0.0022010	X	0.3860	2.040	X	0.000094	0.000826	31.43
22	19:45:27	78.45	89.85	11.90	0.9870	0.745	0.887	0.917	-0.6000	-0.0136950	0.0033000	0.1130	0.0960	0.633	0.0000950	NOTRG	0.000881	30.31
23	21:14:42	-49.95	-49.94	11.91	0.7410	0.684	0.818	0.907	-2.3863	-0.0014300	0.0019470	X	0.5870	2.020	0.0000370	0.000596	0.001017	31.42
24	22:14:12	78.41	89.87	11.90	0.9870	0.760	0.887	0.918	-0.3100	-0.0001420	0.0040150	0.1130	0.1050	0.643	0.0001260	NOTRG	0.000837	30.31
25	23:47:01	-49.42	-49.75	11.91	0.7500	0.676	0.764	0.906	-2.3865	-0.0011000	0.0005610	X	0.4540	1.930	0.0000420	0.000109	X	31.43
26	00:46:35	78.46	89.78	11.90	0.9870	0.734	0.888	0.918	-0.4600	0.0017050	-0.0034870	0.1130	0.1130	0.651	0.0000950	NOTRG	0.000972	30.31
27	02:17:15	-49.32	-50.28	11.91	0.7300	0.679	0.870	0.907	-2.3860	-0.0012540	0.0009470	X	X	1.970	Error	0.000118	0.012749	31.42
28	03:16:00	78.45	89.44	11.91	0.9870	0.796	0.886	0.918	-0.4100	0.0011660	-0.0025080	0.1130	0.1010	0.659	0.0000950	NOTRG	0.000892	30.31
29	04:50:17	-49.51	-49.87	11.91	0.7410	0.829	0.814	0.907	-2.3868	-0.0001100	0.0018490	X	0.6190	Error	0.0000680	0.000122	X	31.43
30	05:48:58	78.38	89.44	11.90	0.9870	0.776	0.887	0.917	-0.3100	-0.0055770	-0.0003850	0.1090	0.0960	0.643	0.0000960	NOTRG	0.000903	30.31
31	07:21:47	-49.55	-49.96	11.91	0.7460	0.677	0.872	0.908	-2.5300	-0.0013640	0.0004620	X	0.6190	X	X	0.000117	0.011828	31.43
32	08:20:38	78.30	89.55	11.90	0.9870	0.735	0.887	0.919	-0.3400	-0.0048290	-0.0027280	0.1210	0.1170	0.643	0.0000980	NOTRG	0.000966	30.31
33	09:52:04	-49.51	-50.13	11.91	0.7310	0.854	0.818	0.907	-2.3863	-0.0017380	0.0011220	X	X	2.540	0.0000400	0.000116	X	31.42
34	10:51:35	78.30	89.25	11.90	0.9870	0.754	0.888	0.919	-0.4800	0.0039710	-0.0032340	0.1090	0.0960	0.651	0.0001240	NOTRG	0.001054	30.32
35	12:27:19	-49.71	-49.96	11.91	0.7430	0.682	0.817	0.907	-2.3855	-0.0019040	0.0025200	X	0.4180	1.960	0.0000550	0.000113	0.000913	31.42
36	13:26:10	78.38	89.47	11.90	0.9870	0.766	0.889	0.919	-0.4100	-0.0116050	-0.0074250	0.1170	0.1010	0.642	0.0000980	NOTRG	0.000881	30.31
37	15:01:10	-50.28	-50.37	11.91	0.7430	0.686	0.872	0.908	-2.3868	11.7795240	0.0005720	X	X	2.500	0.0000450	0.000112	0.000904	31.42
38	15:59:58	78.40	89.34	11.91	0.9870	0.760	0.887	0.919	-0.4300	-0.0000110	-0.0036850	0.1130	0.1050	0.651	0.0000950	NOTRG	0.000868	30.31
39	17:35:14	-49.66	-50.01	11.91	0.7440	0.675	0.818	0.908	-2.3865	-0.0004840	0.0005290	X	X	2.390	0.0000680	0.000597	0.001135	31.42
40	18:34:27	78.29	89.48	11.90	0.9870	0.751	0.887	0.919	-0.4600	-0.0043670	0.0072380	0.1130	0.1050	0.643	0.0000950	NOTRG	0.001002	30.30
41	20:09:42	-49.72	-50.05	11.91	0.7440	0.682	0.823	0.907	-2.3865	-0.0020690	0.0004070	X	0.4100	1.890	0.0000570	0.000110	0.000704	31.42
42	21:08:05	78.24	89.39	11.90	0.9870	0.754	0.887	0.918	-0.4600	0.0011550	0.0053790	0.1210	0.0960	0.659	0.0000950	NOTRG	0.000928	30.30

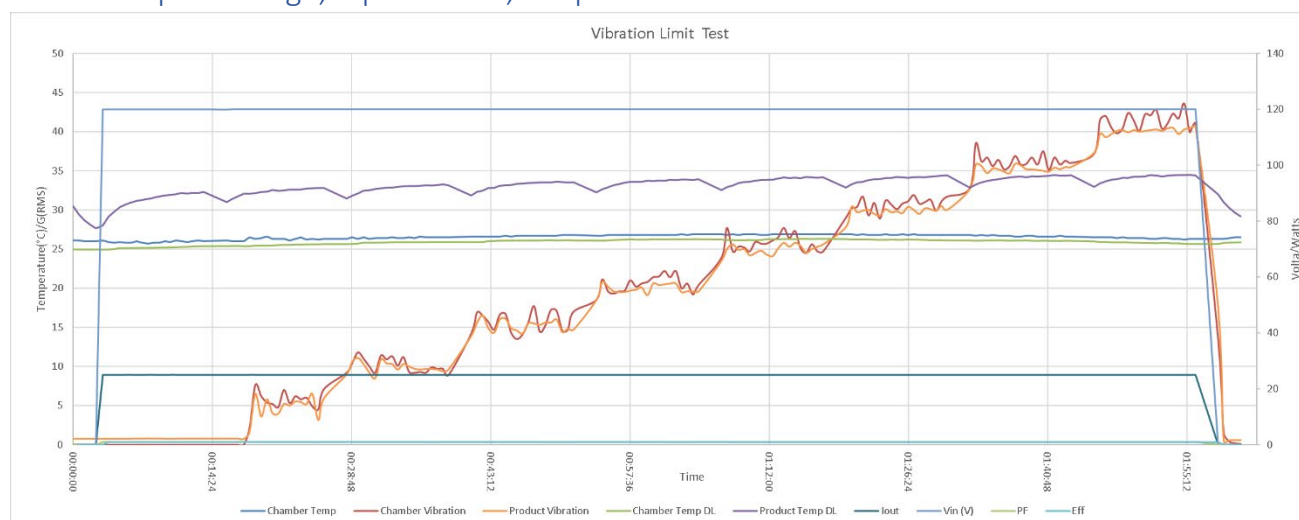
43	22:38:59	-50.77	-50.63	11.91	0.7190	0.890	0.815	0.907	-2.3870	-0.0014300	0.0005170	X	0.3860	Error	0.0000390	0.000112	0.000391	31.42
44	23:37:22	78.29	89.19	11.90	0.9870	0.771	0.885	0.919	-0.4800	-0.0403050	-0.0000880	0.1170	0.1050	0.635	0.0000960	NOTRG	0.001093	30.31
45	01:11:47	-50.06	-50.39	11.91	0.7470	0.680	0.826	0.908	-2.3858	-0.0013090	0.0013320	X	0.5630	2.010	X	0.000091	0.000761	31.42
46	02:10:14	78.40	89.26	11.90	0.9870	0.788	0.886	0.917	-0.5800	-0.0024090	0.0008910	0.1250	0.0920	0.651	0.0000960	NOTRG	0.000970	30.30
47	03:42:38	-50.24	-50.50	11.91	0.7310	0.681	0.819	0.907	-2.3868	-0.0012980	0.0017160	X	0.5870	2.440	0.0000350	0.000106	0.000778	31.42
48	04:41:09	78.35	89.07	11.90	0.9870	0.778	0.887	0.917	-0.4800	-0.0026400	0.0035530	0.1130	0.1050	0.633	0.0001000	NOTRG	0.001038	30.30
49	06:11:57	-49.91	-50.25	11.91	0.7310	0.919	0.809	0.906	-2.3858	-0.0015630	0.0005610	X	0.5030	2.440	0.0000560	0.000125	0.001099	31.41
50	07:10:24	78.32	89.29	11.90	0.9870	0.782	0.885	0.917	-0.3100	0.0006490	0.0020240	0.1210	0.0960	0.643	0.0001230	NOTRG	0.001124	30.31
51	08:44:54	-50.08	-49.98	11.91	0.7480	0.673	0.823	0.908	-2.3860	-0.0004730	0.0014080	X	0.6150	2.490	0.0000470	0.000104	0.000719	31.41
52	09:43:23	78.43	89.26	11.90	0.9870	0.747	0.886	0.917	-0.3400	-0.0091850	-0.0035970	0.1130	0.1130	0.658	0.0000960	NOTRG	0.001212	30.31
53	11:13:35	-50.37	-50.41	11.91	0.7310	0.681	0.810	0.907	-2.3880	-0.0020020	0.0014310	X	0.6110	2.530	X	0.000120	0.012495	31.43
54	12:12:43	78.42	89.06	11.91	0.9870	0.763	0.886	0.919	-0.3400	-0.0228910	-0.0042350	0.1050	0.1010	0.643	0.0000940	NOTRG	0.001136	30.31
55	13:45:44	-49.39	-50.16	11.91	0.7320	0.675	0.816	0.906	-2.3860	-0.0012770	0.0010560	X	0.6830	2.540	0.0000570	0.000113	0.013597	31.41
56	14:44:12	78.24	89.00	11.90	0.9870	0.729	0.886	0.917	-0.4300	-0.0006270	-0.0010670	0.1130	0.1010	0.659	0.0000940	NOTRG	0.001053	30.31
57	16:16:32	-49.84	-50.41	11.91	0.7280	0.676	0.868	0.906	-2.3868	-0.0012760	0.0005060	X	0.6550	X	Error	0.000111	0.012408	31.42
58	17:15:45	78.38	89.13	11.90	0.9870	0.800	0.886	0.917	-0.4100	-0.0023430	0.0019910	0.1170	0.0920	0.651	0.0000940	NOTRG	0.001155	30.31
59	18:48:54	-49.81	-50.18	11.91	0.7320	0.982	0.808	0.906	-2.3855	-0.0021350	0.0005400	X	0.6070	2.050	0.0000530	0.000111	0.012243	31.42
60	19:47:25	78.23	89.08	11.90	0.9870	0.705	0.885	0.919	-0.3400	0.0085360	-0.0031350	0.1130	0.1090	0.658	0.0001210	NOTRG	0.001217	30.31

F.5 Random Vibration Limits Test

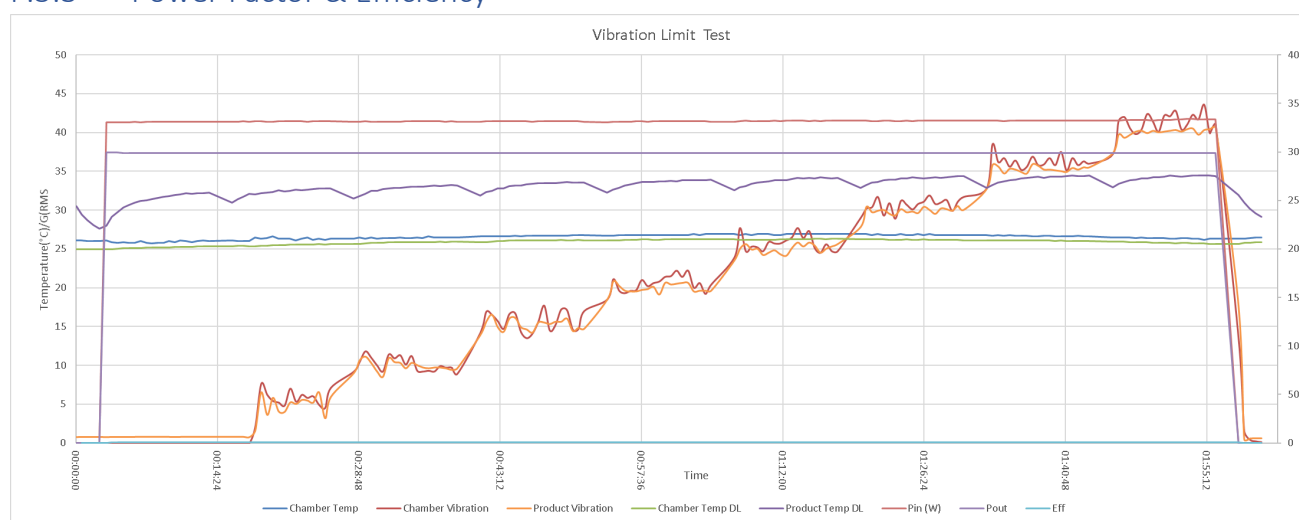
F.5.1 Output Voltage and current



F.5.2 Input Voltage, Input Power, Output Power



F.5.3 Power Factor & Efficiency



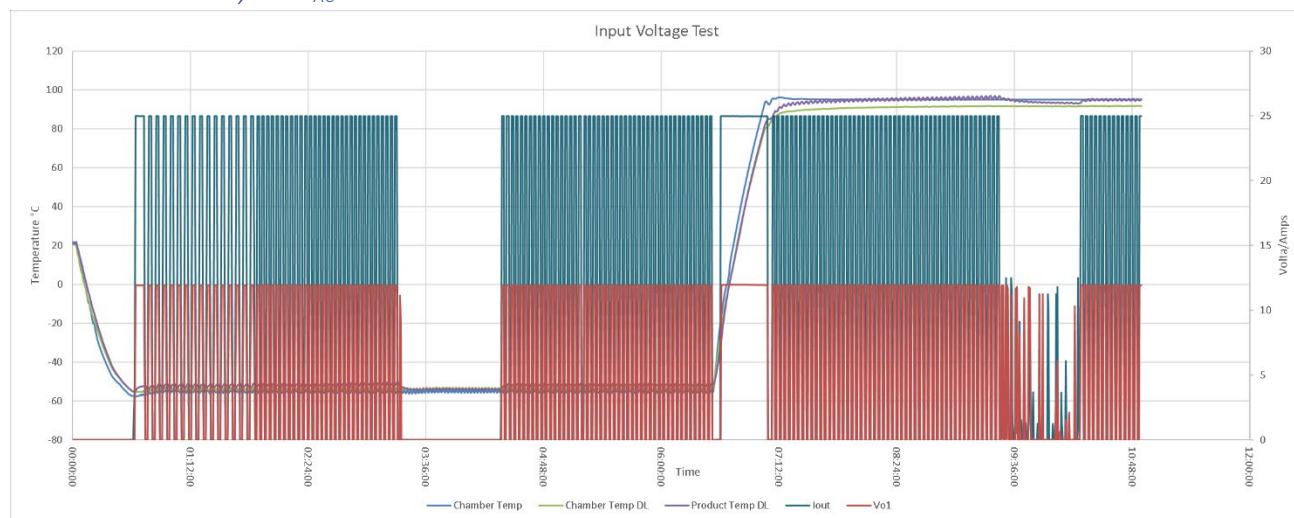
F.5.4 Functional Test Results

Step	Time	Chamber Temp DL	Product Temp	Vout (CH101)	PF	NL_PWR	EFF120	EFF220	HOLDUP	Loadreg	Linereg	Ripple_NL	Ripple	Vtrans	Ttrans	Trise_NL	Trise	OCF
1	18:28:45	25.39	32.28	11.97	0.9860	0.697	0.904	0.932	-0.6100	0.0066330	-0.0029920	0.2730	0.1130	0.464	0.0000860	0.000504	0.000792	21.90
2	18:41:11	25.64	32.86	11.97	0.9860	0.677	0.904	0.930	-0.5900	0.0017750	-0.0020020	0.2850	0.1250	0.470	0.0000850	0.000505	0.000847	22.00
3	18:54:03	25.95	33.19	11.97	0.9860	0.677	0.904	0.931	-0.5900	-0.0022740	0.0126390	0.2770	0.1130	0.470	0.0000850	0.000494	0.000871	22.01
4	19:07:00	26.10	33.58	11.97	0.9860	0.692	0.903	0.929	-0.6000	0.0053050	0.0050270	0.2770	0.1130	0.458	0.0000870	0.000511	0.000928	22.30
5	19:19:55	26.27	33.99	11.97	0.9860	0.744	0.905	0.931	-0.6000	-0.0226500	-0.0014960	0.2690	0.1130	0.470	0.0000890	0.000495	0.000832	22.00
6	19:32:49	26.30	34.24	11.97	0.9860	0.694	0.902	0.927	-0.6000	-0.0022990	-0.0044660	0.2810	0.1130	0.458	0.0000870	0.000480	0.000917	22.01
7	19:45:39	26.13	34.27	11.97	0.9860	0.729	0.902	0.928	-0.6000	0.0043670	0.0100980	0.2770	0.1170	0.470	0.0000870	0.000497	0.000815	22.01
8	19:58:28	26.03	34.45	11.97	0.9860	0.709	0.900	0.927	-0.5800	-0.0122540	0.0099550	0.2690	0.1130	0.470	0.0000850	0.000487	0.000937	22.25
9	20:11:19	25.67	34.47	11.97	0.9860	0.738	0.898	0.927	-0.6000	0.0072050	0.0027830	0.2730	0.1130	0.476	0.0000880	0.000476	0.000963	21.96

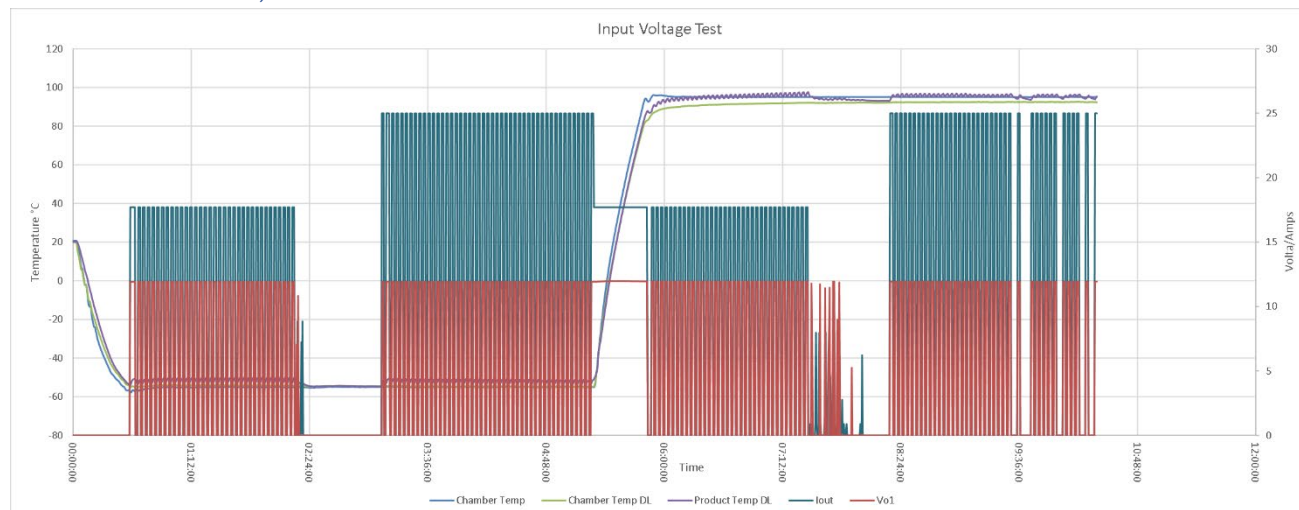
F.6 Input Voltage Test (300W, 120V_{AC})

F.6.1 Output Voltage and current

F.6.1.a 300W, 120V_{AC}

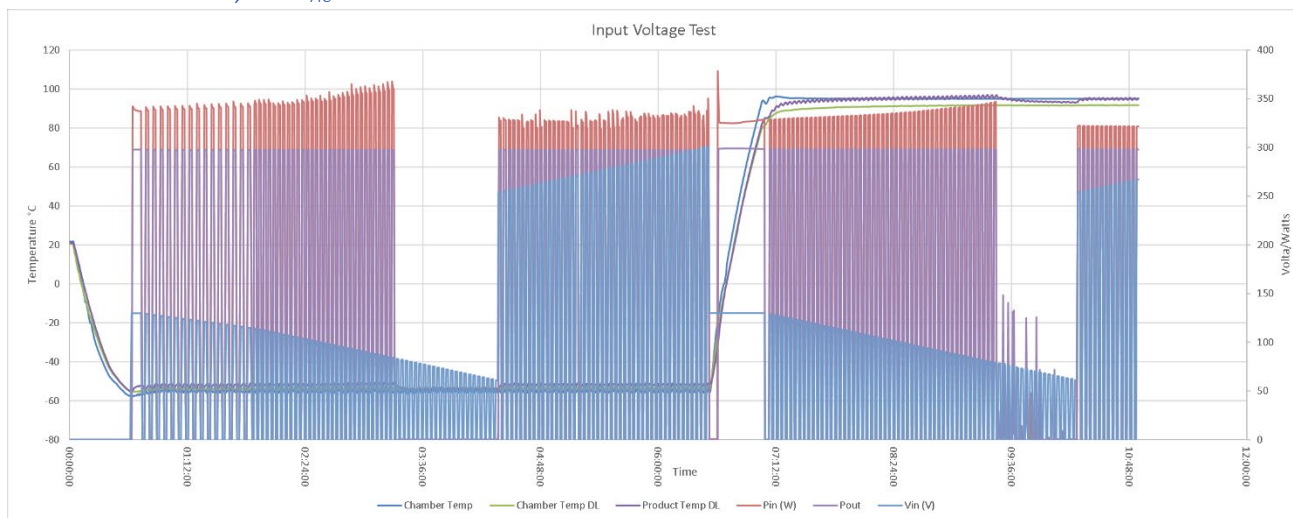


F.6.1.b 212.5W, 85V_{AC}

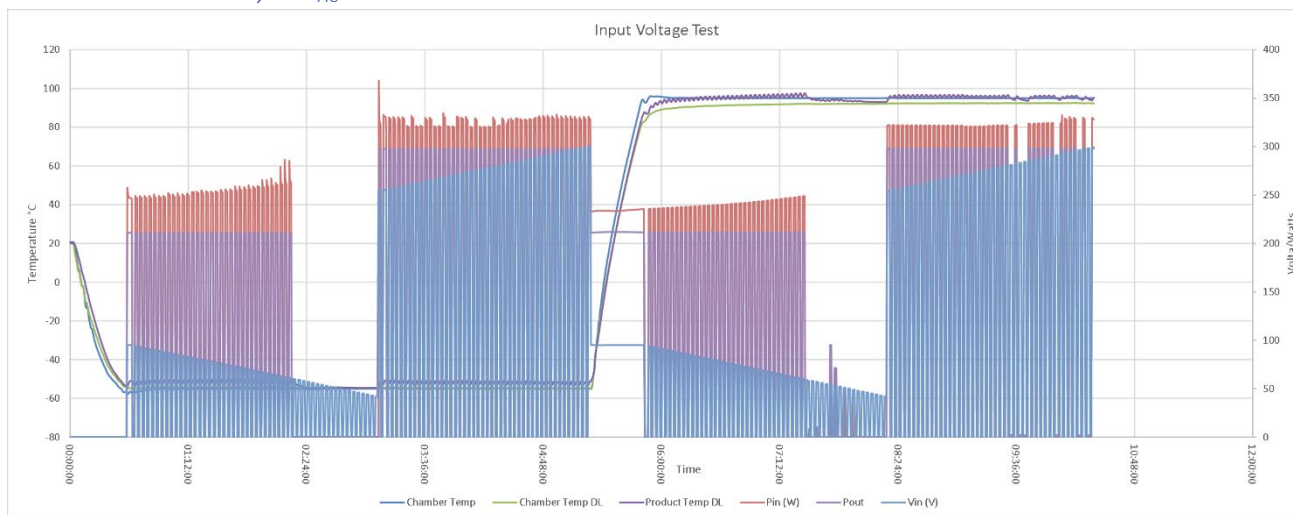


F.6.2 Input Voltage, Input Power, Output Power

F.6.2.a 300W, 120V_{AC}

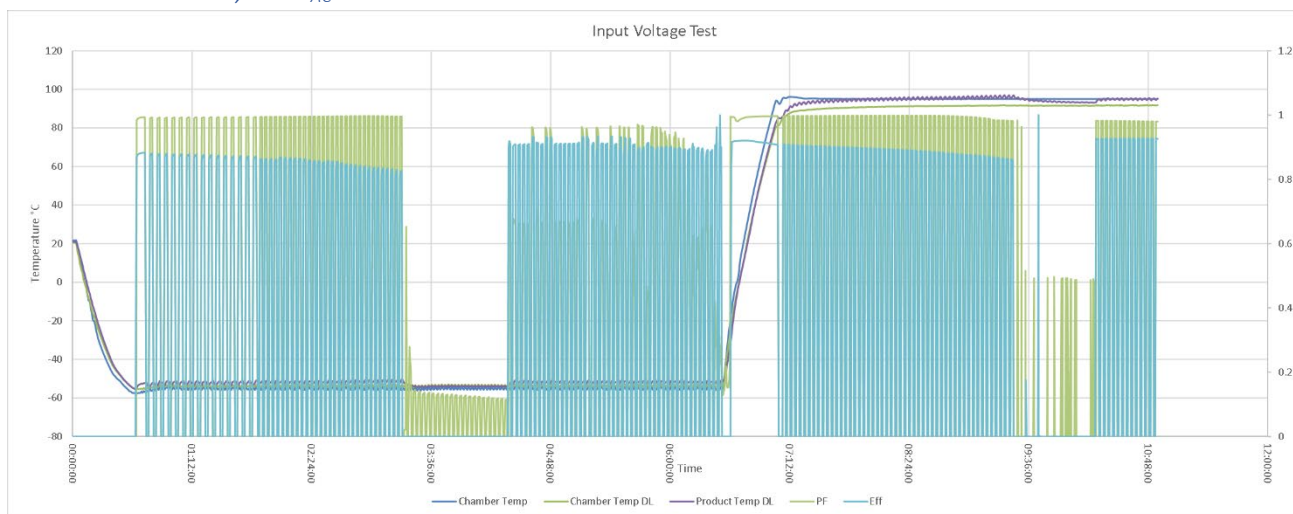


F.6.2.b 212.5W, 85V_{AC}

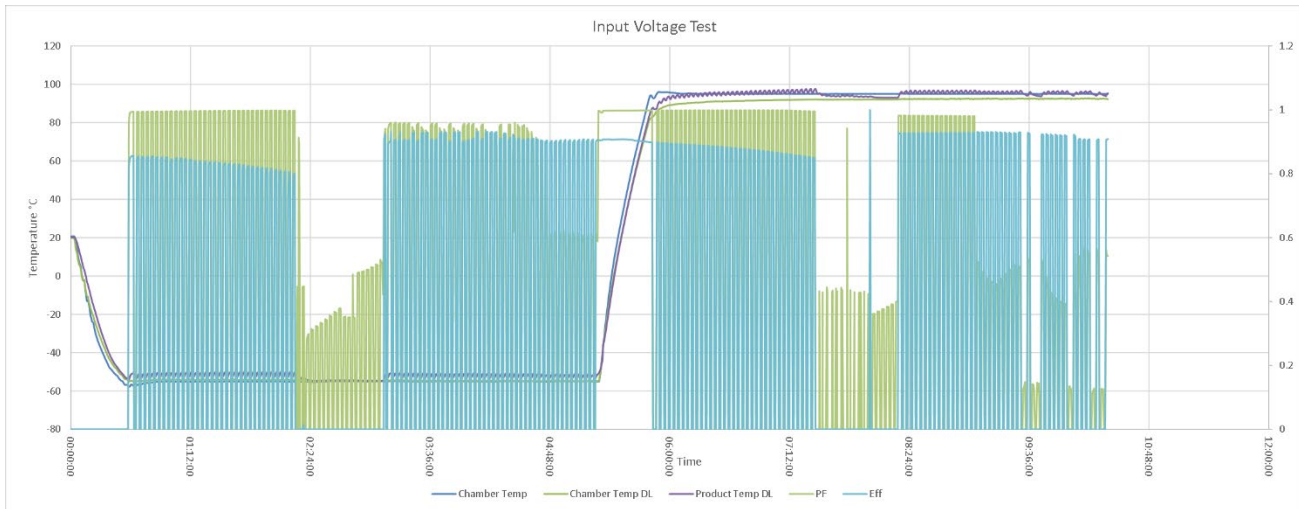


F.6.3 Power Factor & Efficiency

F.6.3.a 300W, 120V_{AC}

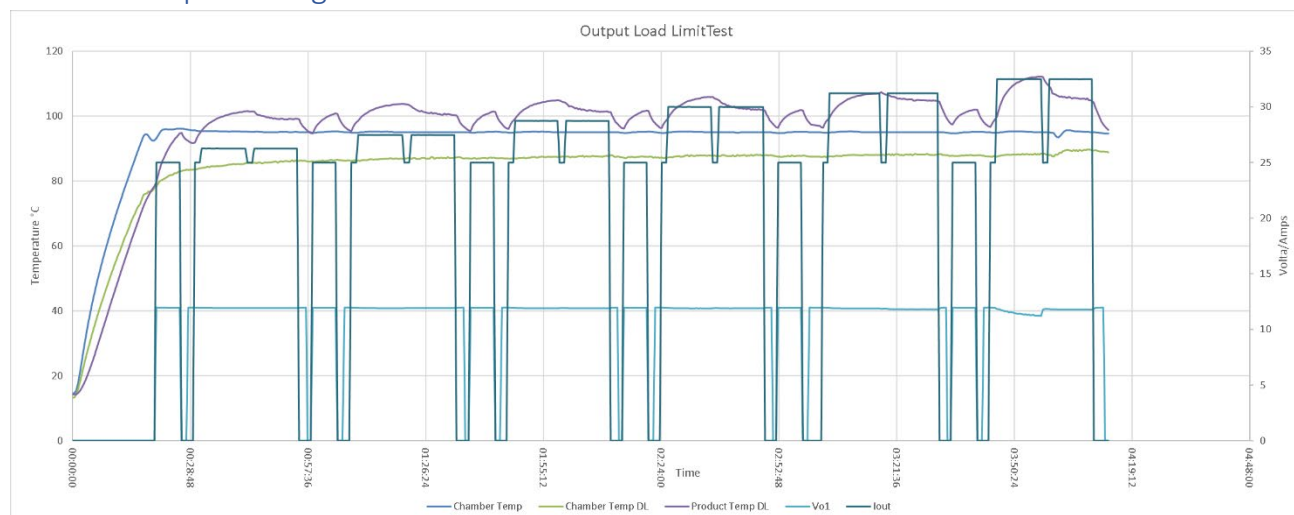


F.6.3.b 212.5W, 85V_{AC}



F.7 Output Load Test

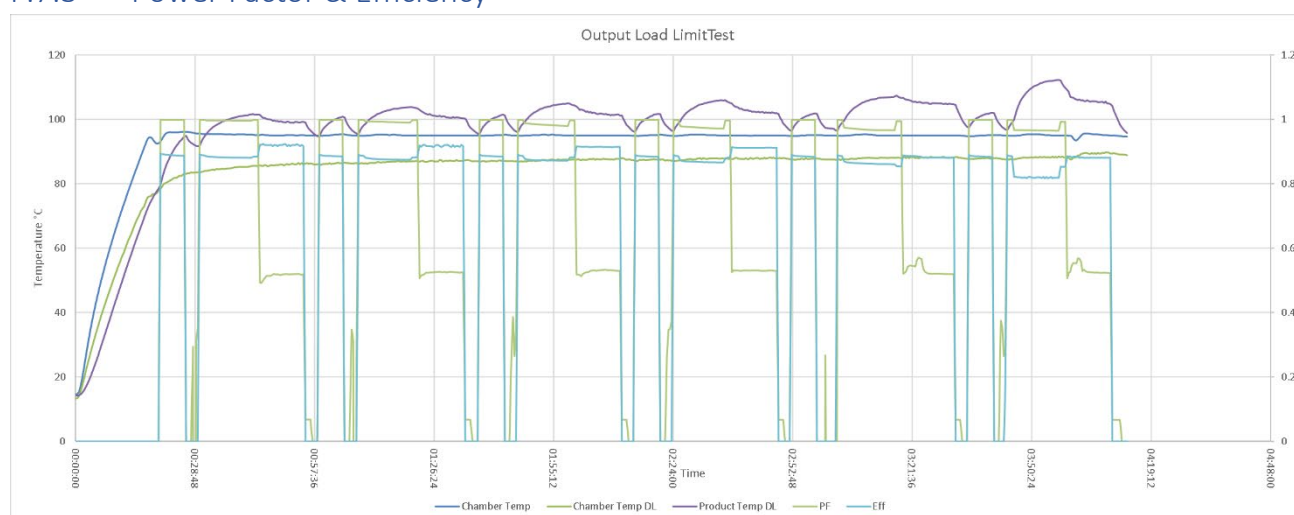
F.7.1 Output Voltage and current



F.7.2 Input Voltage, Input Power, Output Power

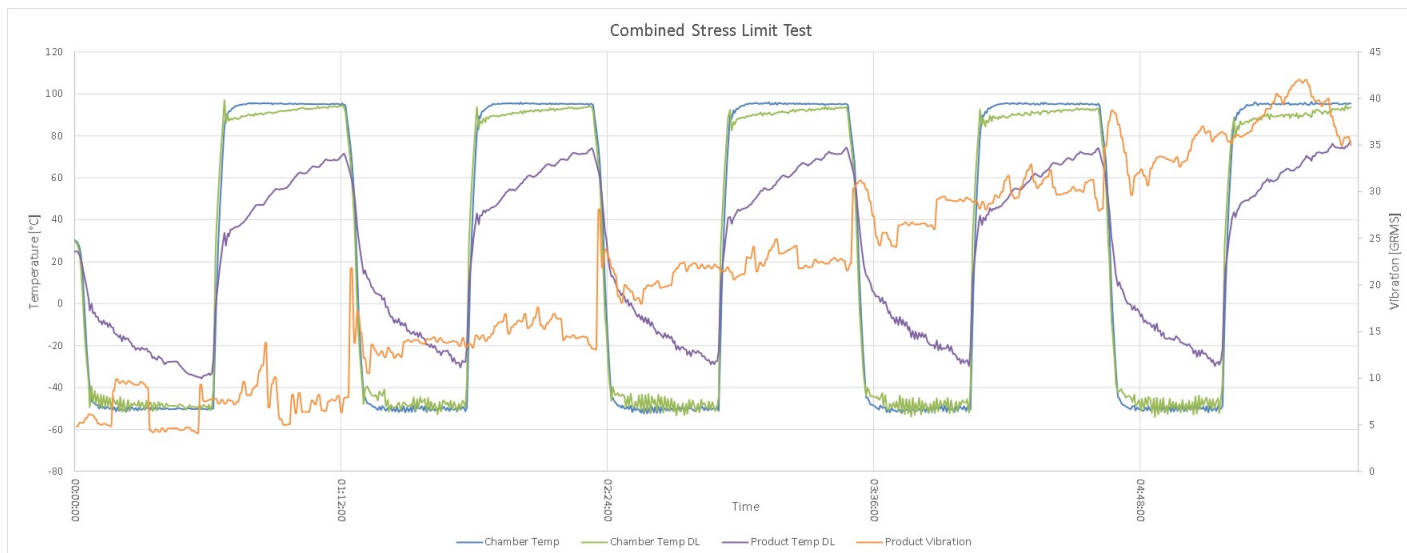


F.7.3 Power Factor & Efficiency

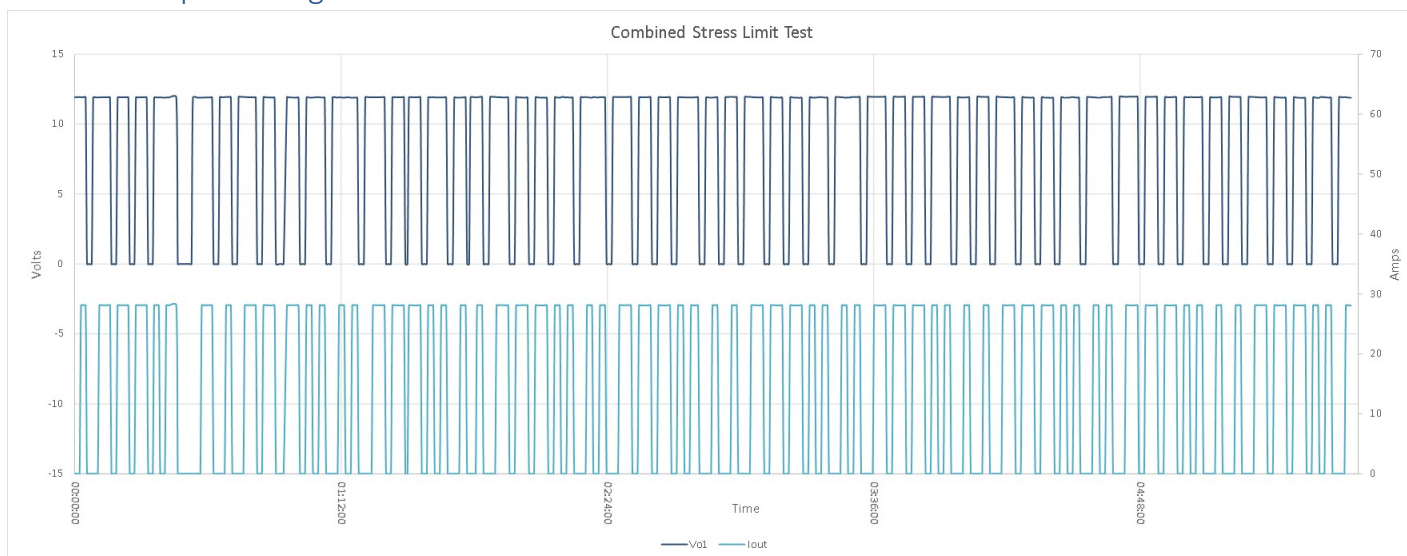


F.8 Combined Stress Test

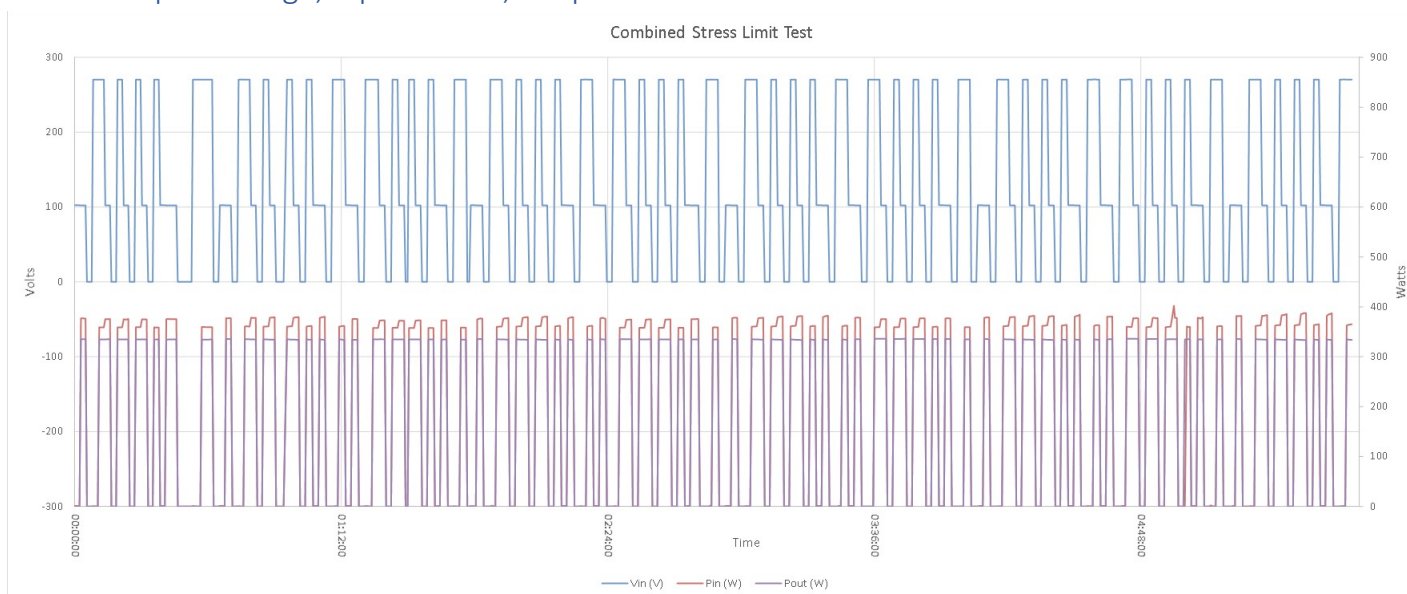
F.8.1 Thermal & Vibration



F.8.2 Output Voltage and current



F.8.3 Input Voltage, Input Power, Output Power



F.8.4 Power Factor & Efficiency

