



IMPACT ASSESSMENT

GTS TE82988-2 - Lambda GENH60-12.5-LAN Power Supply S/N: 09M1035A

Date: 26 July 2019

Purpose: To assess the impact to the 8 PCBA models (refer Table 1) tested in Waters GTS with calibration out of specification based on latest calibration using instrument TDK Lambda GENH60-12.5-LAN Power Supply.

Background: On 17 July, 2019 Waters GTS implemented new calibration method to calibrate GTS Functional tester using Calibration Fixture (TE83063) & Waters Milford Calibration software based on procedure #735004006 Rev A.

After on-site calibration completed it was found one of the instrument TDK Lambda GENH60-12.5-LAN Power Supply calibration to be out of specification for DC voltage accuracy 30V and above as per below calibration report. Refer Attachment 2.

DC Voltage Accuracy

Function Tested	Nominal	Lower Limit	As Found	As Left	Upper Limit	Result	Uncertainty ($\pm$)
15.000 V	15.000 V	14.920 V	15.065 V	15.065 V	15.080 V	PASS	0.00014 V
30.000 V	30.000 V	29.910 V	30.121 V	30.121 V	30.090 V	FAIL	0.00025 V
45.000 V	45.000 V	44.850 V	45.178 V	45.178 V	45.110 V	FAIL	0.00036 V
60.000 V	60.000 V	59.830 V	60.234 V	60.234 V	60.120 V	FAIL	0.00047 V

Impact assessment:

1. Based on previous calibration certificate # NSF/Lab/C/18/11-0037 for TDK Lambda GENH60-12.5-LAN Power Supply dated on 27th Nov 2018 (Attachment 1), the equipment was calibrated by following the OEM Calibration standard tolerance range $\pm 0.5\%$.
2. Current calibration done on 17 Jul 19 by using Calibration Fixture (TE83063) & Waters Milford Calibration software based on procedure #735004006 Rev A, the tolerance range for TDK Lambda GENH60-12.5-LAN Power Supply is tighten to $\pm 0.3\%$, result failed at measure value (30.121V) with calibration tolerance range of (29.91V – 30.09V) $\pm 0.3\%$. However, the measured value is still within the OEM Calibration standard tolerance range of (29.85V – 30.15V) $\pm 0.5\%$.
3. With both measured value (from previous calibration – year 2018 and till 17 Jul 19), it is within the OEM calibration standard tolerance range of $\pm 0.5\%$, which indicate no impact exhibit to the tested product during past 1-year duration.
4. Failed voltage measurement for range 45V & 60V have no impact to product testing as the usage range of product falls under voltage range below 25V (refer below Table 1)



Table 1:

Highest voltage use at GTS is 25V as listed below.

No	GTS Model	GTS Used Voltage Range During Product Testing	GTS Test Tolerance (0V - 15V) (Volts, V)	GTS Test Tolerance (16V - 25V) (Volts, V)
1	210000345	-14V to 25V	+/- 0.5V	+/- 1V
2	210000384	3.267V to 5V	+/- 0.5V	+/- 1V
3	210000411	1.75V to 5.1V	+/- 0.5V	+/- 1V
4	210000414	-10.8V to 24V	+/- 0.5V	+/- 1V
5	210000415	-13.5V to 25V	+/- 0.5V	+/- 1V
6	210000444	-24.5V to 24.5V	+/- 0.5V	+/- 1V
7	210001164	-14.2V to 15.3V	+/- 0.5V	+/- 1V
8	210001203	-14.2V to 15.3V	+/- 0.5V	+/- 1V

Note: Please refer Attachment 3 for the GTS Tester detailed voltage specification in each test step by model (345, 384, 411, 414, 415, 444, 1164, 1203)

Action:

On 24 Jul 19, Senai replace calibrated spare TDK Lambda Power Supply (SN: 11K5895Z) from WPPL. Reviewed the calibrate value is within Waters new calibration specification as table below.

Comparison Power Supply#2 SN: 11K5895Z Calibration result for OEM Standard & Waters Specification

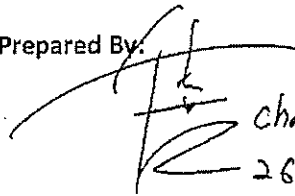
Device Calibrated	Nominal	OEM Calibration Standard				Waters Calibration Standard			
		Lower Limit	Calibration Measure	Upper Limit	Result	Lower Limit	Calibration Measure	Upper Limit	Result
Power Supply#2 SN: 11K5895Z	15V	14.92500V	14.99629V	15.07500V	PASSED	14.920V	14.99629V	15.080V	PASSED
	30V	29.85000V	29.99237V	30.15000V	PASSED	29.910V	29.99237V	30.090V	PASSED
	60V	59.70000V	59.99275V	60.30000V	PASSED	59.880V	59.99275V	60.120V	PASSED



Conclusion:

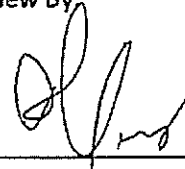
Per above review, all the 8 PCBA models (as per above Table 1) tested under GTS functional tester from the last calibration dated 27th Nov 2018 till the latest calibration dated 17th Jul 19 were verified and concluded as no impact since within the OEM Calibration standard tolerance range.

Prepared By:


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26 July 2019

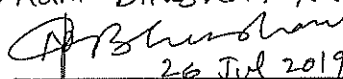
Test Engineering
Flex Senai, Johor

Review By:

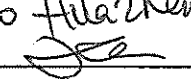

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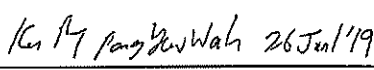
Product Quality Engineering
Flex Senai, Johor

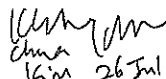
Approve By:

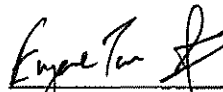
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