

EMC TEST REPORT

For The 3 Phase Power Supply

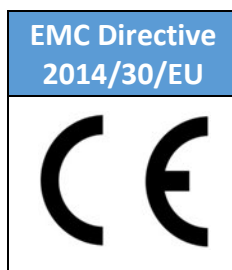
Model: TPS300048

Prepared for:
TDK-Lambda Americas Inc.
401 Mile of Cars Way, Suite 325
National City, CA 91950

Testing performed per the following:



FCC Standard Description



PREPARED on 4/19/2016

REPORT NUMBER: 2016 04307273 EMC FCC-EU R1

PROJECT NUMBER: Q10298265

NEX NUMBER: 307273



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2210 Faraday Ave, Suite 150
Carlsbad, CA 92008
Phone (760) 444-3500 Fax (760) 444-3005



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2 Document History and Certification

2.1 Document History

REVISION	DATE	COMMENTS
-	4/6/2016	Prepared By: Rodel Resolme
-	4/26/2016	Initial Release: James Morris
1	4/27/2016	Corrected power and typos Rodel Resolme

NOTE: Nemko USA, Inc. hereby makes the following statements so as to conform to the Subclause 5.10 Requirements of ISO/IEC 17025 "General Criteria for the Competence of Testing and Calibration Laboratories":

- The unit described in this report was received at Nemko USA, Inc.'s facilities on 4/14/2016.
- Testing was performed on the unit described in this report on 4/14/2016 to 4/19/2016.
- The Test Results reported herein apply only to the Unit actually tested, and to substantially identical Units.
- This report does not imply the endorsement of the Federal Communications Commission (FCC), NVLAP or any other government agency.

This Report is the property of Nemko USA, Inc., and shall not be reproduced, except in full, without prior written approval of Nemko USA, Inc. However, all ownership rights are hereby returned unconditionally to TDK-Lambda Americas Inc. and approval is hereby granted to TDK-Lambda Americas Inc. and its employees and agents to reproduce all or part of this report for any legitimate business purpose without further reference to Nemko USA, Inc.

2.2 Test Site Accreditation

Nemko USA, Inc. is accredited through National Voluntary Laboratory Accreditation Program.



NVLAP LAB CODE 200116-0

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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2.3 Certification

The compatibility testing and this report have been prepared by Nemko USA, Inc., an independent electromagnetic compatibility consulting and test laboratory.

Testing and data collection were accomplished in accordance with the test methods listed in this report.

I certify the data evaluation and equipment configuration herein to be a true and accurate representation of the sample's test characteristics, as of the test date(s), and for the design of the test sample utilized to compile this report.

A handwritten signature in cursive script that reads "James E Morris".

James Morris
EMC Division Manager, Nemko USA, Inc.

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3 Administrative Data and Test Summary

3.1 Administrative Test Data

CLIENT: TDK-Lambda Americas Inc.
401 Mile of Cars Way, Suite 325
National City, CA 91950
619-628-2890

CONTACT: Kenneth Rose
kenneth.rose@us.tdk-lambda.com

DATE(S) OF TEST: 4/14/2016 to 4/19/2016

EQUIPMENT UNDER TEST (EUT): 3 Phase Power Supply

MODEL: TPS300048

SERIAL NUMBER: IHO-639L08-0015-P086

SOFTWARE REVISION: Not Reported

HIGHEST FREQUENCY GENERATED OR USED: 132 kHz

CONDITION UPON RECEIPT: Acceptable

TEST SPECIFICATION: Radio Frequency Emissions per:
➤ EN 55022: 2010+AC: 2011

EMISSIONS CLASS: Class A

Electromagnetic Immunity tests per:
➤ EN 55024: 2010

Powerline Measurements per:
➤ EN 61000-3-2: 2006+A1:2009+A2:2009
➤ EN 61000-3-3: 2008

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3.2 Referenced Standards for Radiated Emissions

Test Type	In Accordance with Document	Document Title
Conducted and Radiated Emissions	EN 55022: 2010+AC: 2011	Information technology equipment—Radio disturbance characteristics —Limits and methods of measurement

3.3 Referenced Standards for Powerline Harmonics and Fluctuations

Test Type	Test Standard	Document Title
Power Line Harmonics	EN 61000-3-2: 2006+A1:2009+A2:2009	Electromagnetic Compatibility, Limits for Harmonic Current Emissions, Equipment Input Current < 16A
Power Line Flicker	EN 61000-3-3: 2008	Electromagnetic Compatibility, Limitation of Voltage Fluctuations and Flicker In Low-Voltage Supply Systems for Equipment with Rated Current < 16A

3.4 Referenced Standards for Immunity Tests

Test Type	In Accordance with Document	Document Title
Electrostatic Discharge	EN 61000-4-2: 2009	Electromagnetic Compatibility—Testing and measurement techniques - Electrostatic discharge immunity test
Radio Frequency	EN 61000-4-4: 2004	Electromagnetic Compatibility—Testing and measurement techniques - Radiated radio frequency electromagnetic field immunity test
Electrical Fast Transient Burst	EN 61000-4-4: 2012	Electromagnetic Compatibility—Testing and measurement techniques - Electrical fast transient / burst immunity
Power Line Surge Immunity	EN 61000-4-5: 2006	Electromagnetic Compatibility—Testing and measurement techniques - Surge immunity test
RF Common Mode	EN 61000-4-6: 2009	Electromagnetic Compatibility—Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
Power Frequency Magnetic Field	EN 61000-4-8: 2010	Electromagnetic Compatibility—Testing and measurement techniques - for Power Frequency Magnetic Field, Immunity Test
Voltage Dips and Short Interruptions	EN 61000-4-11: 2004	Electromagnetic Compatibility—Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests

3.5 Test Summary

3.5.1 Emissions Test Summary

The Compliance Status is a judgment based on the calculated highest emissions to appropriate standard limits. Measurement uncertainty values, provided on calibration certificates, were not be used in the judgment of the final status of compliance.

Test Methods	Frequency Range	Compliance Status
FCC 15B, Sec. 107, Class "A" Conducted Emissions	0.15 MHz – 30 MHz	PASS
FCC 15B, Sec. 109, Class "A" Radiated Emissions	30 MHz – 1.0GHz	PASS
EN 55022: 2010+AC: 2011, Class "A" Conducted Emissions	0.15 MHz – 30 MHz	PASS
EN 55022: 2010+AC: 2011, Class "A" Telecom Conducted Emissions	0.15 MHz – 30 MHz	No telecom ports
EN 55022: 2010+AC: 2011, Class "A" Radiated Emissions	30 MHz – 6000 MHz	PASS

3.5.2 Powerline Measurements Test Summary

Test Methods	Measurement Range	Compliance Status
EN 61000-3-2: 2006+A1:2009+A2:2009 Power Line Harmonics	up to the 40 th Harmonic	Not Evaluated
EN 61000-3-3: 2008 Power Line Flicker	Voltage Change d_{max} shall not exceed 4%; Value of $d(t)$ shall not exceed 3.3% for more than 500 ms	PASS

3.6 Device Performance Criteria for Immunity Tests

Criterion A - The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Criterion B - During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the equipment shall continue to operate as intended without operator intervention. The performance level may be replaced by a permissible loss of performance. If the manufacturer does not specify the minimal performance level (or the permissible performance loss), then either of these may be derived from the product description and documentation, or by what the user may reasonably expect from the equipment if used as intended.

Criterion C - Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

For each test method, the test standard specifies the appropriate criterion to be met.

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3.6.1 Immunity Test Summary

Test Methods	Minimum Criterion Level Required as per EN 55024	Criterion Level Tested	Compliance Status
EN 61000-4-2: 2009 ESD Immunity	Criterion B ±8 kV air discharge, ±4 kV contact discharge	Criterion B ±8 kV Air Discharge, ±4 kV Contact Discharge	PASS
EN 61000-4-3: 2006 +A1:2008 +A2:2010 Radio Frequency Immunity	Criterion A 3 V/m from 80-1000 MHz (80% AM at 1kHz)	Criterion B 3 V/m from 80-1000 MHz (80% AM at 1kHz)	*PASS
EN 61000-4-4: 2004 Electrical Fast Transient Immunity	Criterion B Power line pulses of ± 1 kV; I/O line pulses of ± 0.5 kV	Criterion B Power line pulses of ± 1 kV; I/O line pulses of ± 0.5 kV	PASS
EN 61000-4-5: 2006 Surge Immunity	Criterion B ±2kV common mode, ±1kV differential mode	Criterion B ±2kV common mode, ±1kV differential mode	Not Tested Per Client
EN 61000-4-6: 2009 RF Common Mode Immunity	Criterion A 3 Vrms, 150 kHz - 80 MHz 1 kHz 80% AM	Criterion A 3 Vrms, 150 kHz - 80 MHz 1 kHz 80% AM	PASS
EN 61000-4-8: 2010 Power Frequency Magnetic Field	Criterion A Inductive loop at 50 Hz, to 1.0 amps (rms) per meter	Criterion A Inductive loop at 50 Hz, to 30.0 amps (rms) per meter & 300.0 amps (rms) per meter	PASS
EN 61000-4-11: 2004 Voltage Dips and Short Interruptions	Criterion B and C Voltage Dips of 30% and >95%; Interruptions of >95%.	Criterion B and C Voltage Dips of 30% and >95%; Interruptions of >95%.	PASS

***Client accepts Criteria B as a Pass for 4-3 test.**

RF noise on the oscilloscope is expected on an unfiltered input. Another monitoring method may have indicated no noise on the DC output of the EUT.

Refer to the test results section for further details.

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4 SYSTEM CONFIGURATION

4.1 System Components and Power Cables

Device	Manufacturer	Length
	Model	Shield?/# of Cond/Gauge
	SN	Connector type
EUT - 3 Phase Power Supply	TDK-Lambda America Inc.	2 meters
	TDS300048	unshielded/4 wire/ 10 AWG
	IHO-639L08-0015-P086	IEC Connector
Support -Load 0.825 ohms	TDK-Lambda America Inc.	1 meter
	0.825 ohms	unshielded/2 wire/ 6 AWG
	N/A	N/A
Support - Monitor	Tektronix O scope	1.8 meters
	M5002024	unshielded/3 wire/ 18AWG
	C010904	IEC Connector
Support - Multimeter	Fluke	1.8 meters
	45 Dual Display Multimeter	unshielded/3 wire/ 18AWG
	5455010	IEC Connector

4.2 Device Interconnection and I/O Cables

FROM DEVICE	TO DEVICE	CABLE DESCRIPTION
EUT-3 phase power supply	Support-Resistive Load	2 wire twisted cable 1m 6 Gauge
EUT-3 phase power supply	Support-Multimeter	2 wire, banana jack, 16AWG
EUT-3 phase power supply	Support-Mixed Signal Oscilloscope	2 wire, voltage probe, BNC Cable

4.3 Description and Method of Exercising the EUT

The TPS300048 (EUT) is a 3 phase power supply. The function of the EUT is to provide a DC output voltage. The EUT was exercised in normal operation with an output voltage of 48 VDC at 3000 Watts. A change in state as indicated by a monitored DC output is displayed on the support oscilloscope or support Multimeter during immunity testing may indicate a failure. The EUT has no reported firmware/software program.

4.4 Design Modifications for Compliance

Device: 3 Phase Power Supply
 Model: TPS300048

The following design modifications were made to the EUT during testing.

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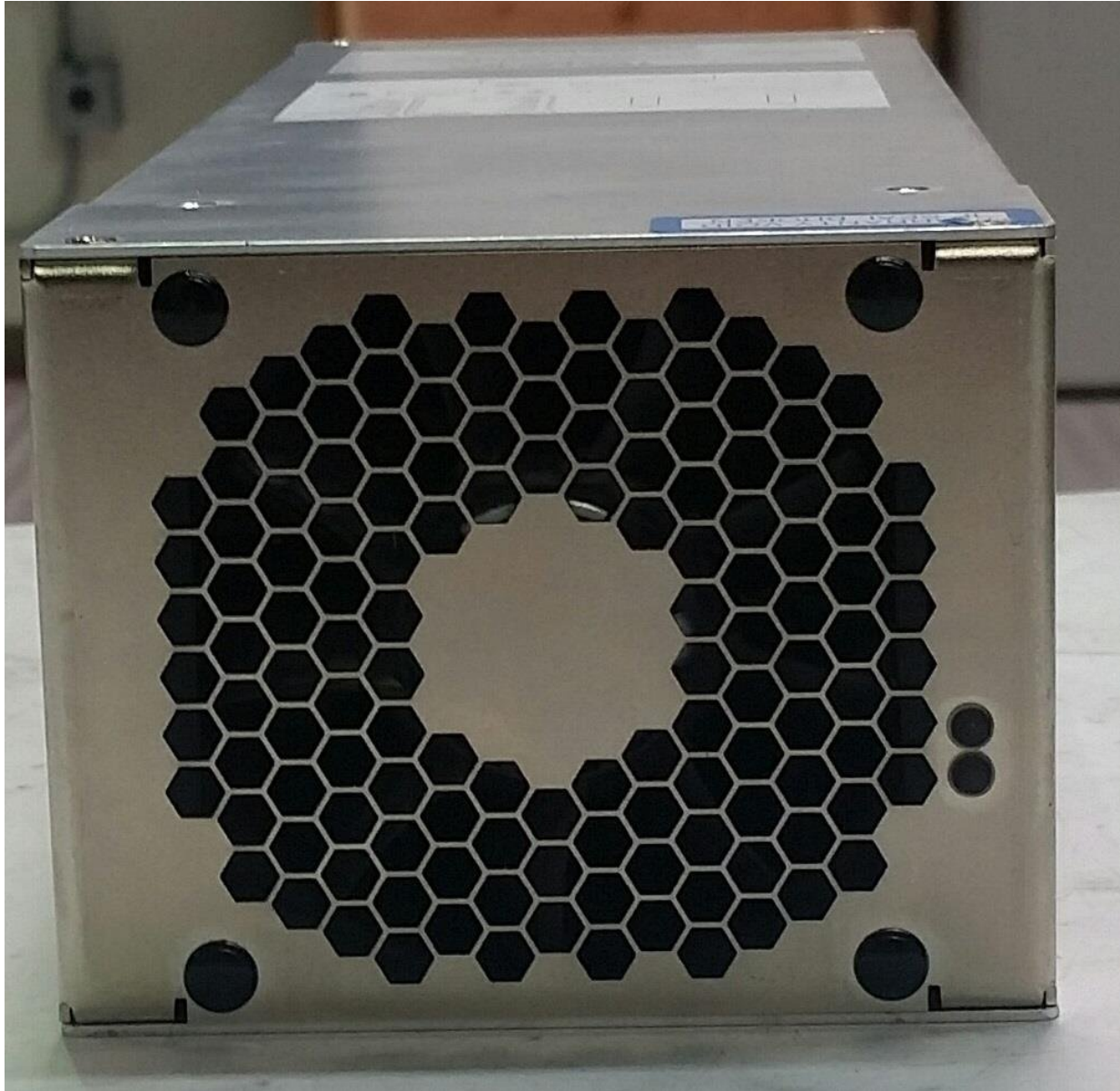
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None. No design modifications were made to the EUT during testing.

4.4.1 Front of EUT



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4.4.2 Rear of EUT



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Carlsbad, CA 92008

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4.4.3 Configuration of the EUT



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5 Description of Test Site

5.1 Description of Test Site

The test site is located at 2210 Faraday Ave., Suite 150, Carlsbad, CA 92008. Radiated emissions measurements are performed in the 10 meter Semi-Anechoic chamber, which conforms to the volumetric normalized site attenuation (VNSA) for three and ten-meter measurements. The chamber also conforms to the SVSWR compliance requirements for 1-18 GHz measurements. The VNSA and SVSWR meet the technical requirements, as set, in the CISPR 16 and ANSI C63.4 documents. Facility test areas for conducted emissions and immunity testing also meet the construction and characteristics, as required by CISPR 16 and ANSI C63.4 documents.

Emissions measurements are performed using TILE software. Version 6.0.4 for radiated and version 3.4.K.24 for conducted.

5.2 Test Site Registrations

Organization	Registration and Recognition numbers
Federal Communications Commission	392943 / US5058
Industry Canada	2040B-3
VCCI	A-0217
Korean Ministry (APEC Tel MRA)	US0088

This report does not imply the endorsement of the recognizing organizations or any other government agency.

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5.3 Equipment List

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
Conducted Emissions						
E1017	9kHz to 7GHz Spectrum Analyzer	Rohde & Schwarz	FSP7	899337/0022	5/18/2015	5/18/2016
874	LISN, V-Network	Com-Power	U-150	201917	3/2/2016	3/2/2017
873	LISN, V-Network	Com-Power	U-150	201916	3/2/2016	3/2/2017
495	LISN	Solar	9253-50-T5-50-N	962505	3/2/2016	3/2/2016
S1170	Humidity & Temperature Data Logger	Omega	RF2000A	P81985	10/10/2015	10/10/2016
Radiated Emissions						
D1767	EMI Receiver 20Hz - 26.5GHz	Rohde & Schwarz	ESIB26	837491/0002	2/3/2016	2/3/2017
D1480	Antenna, Bilog	Schaffner-Chase	CB16111C	2572	5/18/2015	5/18/2016
902	pre amp	Sonoma	310 N	185803	8/21/2015	8/21/2016
S1170	Humidity & Temperature Data Logger	Omega	RF2000A	P81985	10/10/2015	10/10/2016
Power Line Harmonics						
S1170	Humidity & Temperature Data Logger	Omega	RF2000A	P81985	10/10/2015	10/10/2016
D1851	Power Source Analyzer IX Series	California Instruments/Ametek	9003ix	99380(master)	7/2/2015	7/2/2016
Electrostatic Discharges						
818	ESD Gun	Schaffner	NSG-435	5111	3/3/2016	3/3/2017
S1170	Humidity & Temperature Data Logger	Omega	RF2000A	P81985	10/10/2015	10/10/2016
Continuous Radiated Disturbances						
572	Antenna, Dual Ridge	Electro-Metrics	RG4 25	2225	3/23/2016	3/23/2017
740	RF Amplifier	Amplifier Research	500W100M5 (80 to 1000MHz)	23680	N CR	N CR
D1818	Antenna, Biconical, high power	TDK RF Solutions	HBA-2030	130496	N CR	N CR
E1021	Audio Amp	Carvin	DCM3000L	0019252	N CR	N CR
Rental Equip 4	Signal Generator	Rohde & Schwarz	SMR 40	100446	8/10/2015	8/10/2018
Electrical Fast Transients						
E1015	Capacitive Coupling Clamp	Haefely	093 506.1	083 874 -08	N CR	N CR
416	PEFT Jr.	Haefely-Trend	PEFT Jr.	083 180-40	9/22/2015	9/22/2016
Continuous Conducted Disturbances						
948	0.1 to 1040 MHz Signal Generator	Hewlett Packard	8657A	3430U02365	4/29/2015	4/29/2016
913	RF Amplifier	EIN	3100L	108	N CR	N CR
628	CDN	FCC	FCC-801-M4-25	97-08	9/15/2015	9/15/2016
629	CDN	FCC	FCC-801-M5-25	97-01	4/27/2015	4/27/2016
Power Frequency Magnetic Fields						
E1086	Large Magnetic Coil	Nemko	N/A	N/A	N CR	N CR
811	Multimeter	Flyke	111	78130057	6/5/2015	6/5/2016
S1170	Humidity & Temperature Data Logger	Omega	RF2000A	P81985	10/10/2015	10/10/2016
962	AC Power Source	Teseq	NSG 1007-5-208	58962	7/2/2015	7/2/2016
Voltage Dips and Interruptions						
D1851	Power Source Analyzer IX Series	California Instruments/Ametek	9003ix	99380(master)	7/2/2015	7/2/2016
S1170	Humidity & Temperature Data Logger	Omega	RF2000A	P81985	10/10/2015	10/10/2016

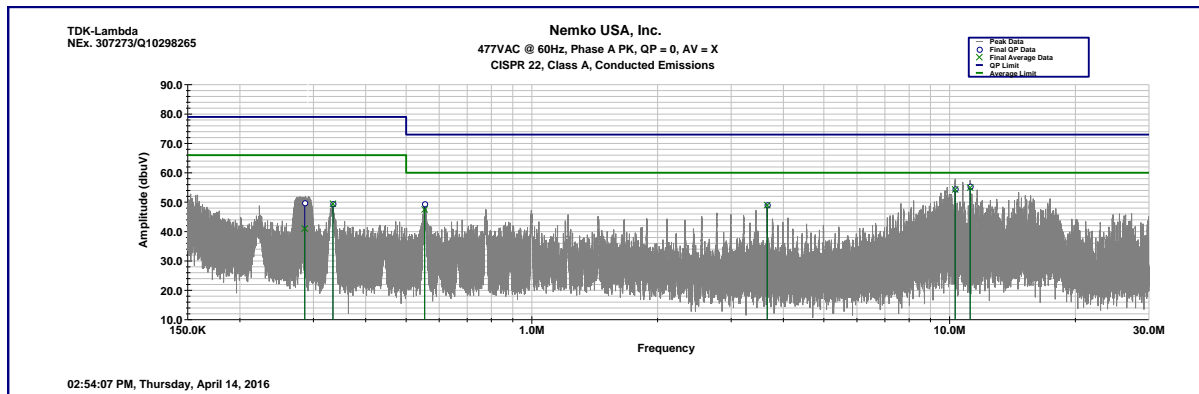
6 Test Results

6.1 Conducted Emissions

This test measures the levels emanating from the EUT into the AC Mains, evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. The description of the tests, the test methods, and the test set-ups are given in the standards referenced in the test summary section of this report. The EUT was configured based upon the requirements of the applicable test standard.

6.1.1 Conducted Emissions, Phase A

Client	TDK-Lambda		
NEx #	307273	Temperature	22 °C
EUT Name	3 Phase Power Supply	Humidity	45 %
EUT Model	TPS300048	Pressure	100.0 kPa
Governing Doc	EN 55022	Test Location	Ground Plane 3
Basic Standard	IEC/CISPR 22	Test Engineer	Rodel Resolme
Test Voltage	477V/60Hz 3 phase	Date	4/14/2016



Frequency (kHz)	Measured (dBµV)		Limit (dBµV)		Margin (dB)		Result
	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average	
285.91	49.8	41	79	66	-29.2	-25	Pass
334	49.4	49.5	79	66	-29.6	-16.5	Pass
553.83	49.4	47.5	73	60	-23.6	-12.5	Pass
3659.85	49.1	49	73	60	-23.9	-11	Pass
10312.52	54.5	54.3	73	60	-18.5	-5.7	Pass
11200.19	55.4	55	73	60	-17.6	-5	Pass

Compliance			
Compliant?	Yes	Additional Comments	N/A

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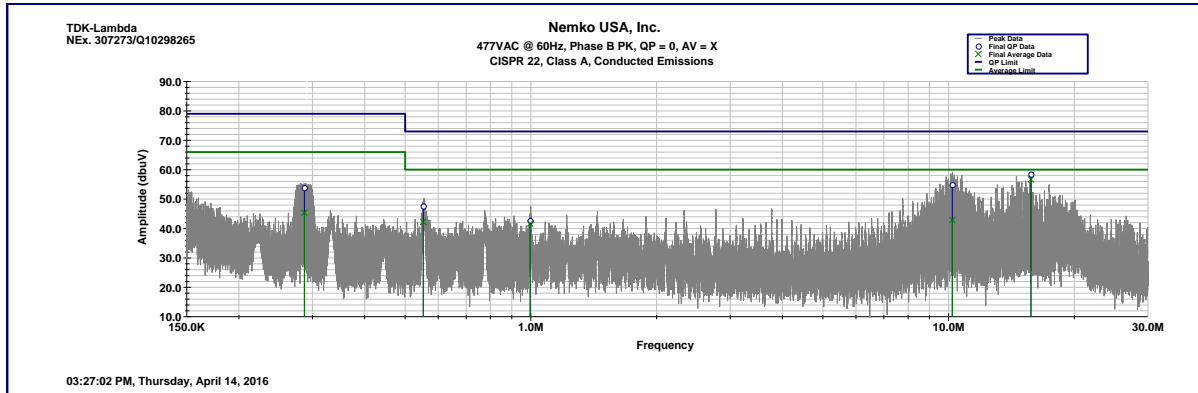
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6.1.2 Conducted Emissions, Phase B

Client	TDK-Lambda			
NEx #	307273	Temperature	23	°C
EUT Name	3 Phase Power Supply	Humidity	44	%
EUT Model	TPS300048	Pressure	100.0	kPa
Governing Doc	EN 55022	Test Location	Ground Plane 3	
Basic Standard	IEC/CISPR 22	Test Engineer	Rodel Resolme	
Test Voltage	477V/60Hz 3 phase	Date	4/14/2016	



Frequency (kHz)	Measured (dBµV)		Limit (dBµV)		Margin (dB)		Result
	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average	
286.94	53.8	45.4	79	66	-25.2	-20.6	Pass
552.67	47.6	42.2	73	60	-25.4	-17.8	Pass
996.02	42.6	41.7	73	60	-30.4	-18.3	Pass
10204.56	54.9	42.9	73	60	-18.1	-17.1	Pass
15744.64	58.5	56.7	73	60	-14.5	-3.3	Pass

Compliance			
Compliant?	Yes	Additional Comments	N/A

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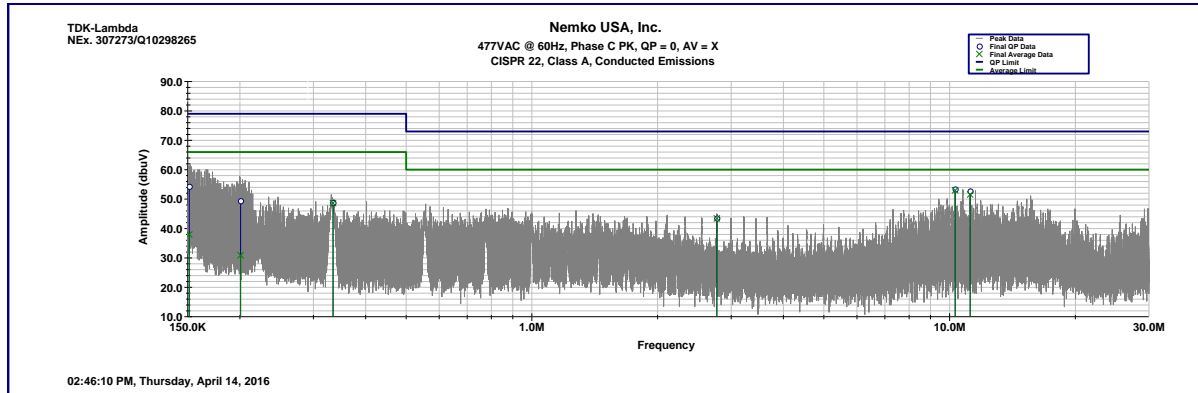
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6.1.3 Conducted Emissions, Phase C

Client	TDK-Lambda			
NEx #	307273	Temperature	23	°C
EUT Name	3 Phase Power Supply	Humidity	44	%
EUT Model	TPS300048	Pressure	100.0	kPa
Governing Doc	EN 55022	Test Location	Ground Plane 3	
Basic Standard	IEC/CISPR 22	Test Engineer	Rodel Resolme	
Test Voltage	477V/60Hz 3 phase	Date	4/14/2016	



Frequency (kHz)	Measured (dBµV)		Limit (dBµV)		Margin (dB)		Result
	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average	
151.27	54.3	38	79	66	-24.7	-28	Pass
200.74	49.4	30.9	79	66	-29.6	-35.1	Pass
334.13	48.8	48.6	79	66	-30.2	-17.4	Pass
2771.39	43.5	43.4	73	60	-29.5	-16.6	Pass
10314.02	53.4	53	73	60	-19.6	-7	Pass
11199.4	52.7	51.5	73	60	-20.3	-8.5	Pass

Compliance			
Compliant?	Yes	Additional Comments	N/A

6.1.4 List of Equipment

E1017, 9kHz to 7GHz Spectrum Analyzer; 874, LISN, V-Network; 873, LISN, V-Network; 495, LISN; S1170, Humidity & Temperature Data Logger.

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6.1.5 Reference Photos



Conducted Emissions Test Configuration Photograph

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6.2 Radiated Emissions

This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. Measurement methods were used in accordance with the test standard(s) referenced in the test summary section of this report.

The antenna is positioned at several heights while the EUT is rotated 360°. At each antenna height, the receiver scans and records the maximum peak emissions. From the recorded scans, a list of discrete frequencies is developed for that antenna polarity. The antenna is then rotated in polarity and the scan repeated. For each discrete frequency, the turntable is rotated to the determined worst angle and the receive antenna is varied in height from one to four meters for the final maximum emissions.

For EUT's with auto ranging power supplies, a prescan evaluation may be performed to determine "worst-case" radiated emissions.

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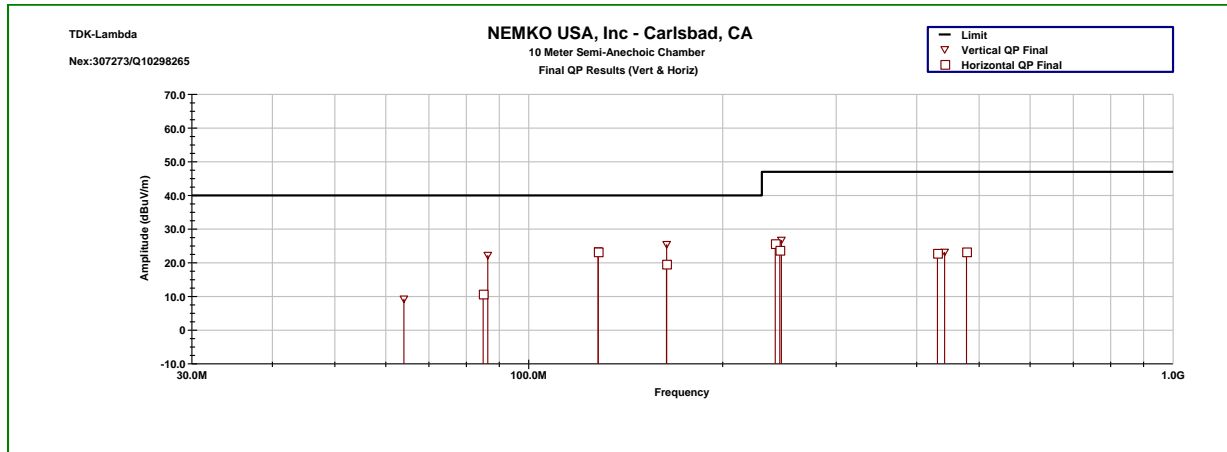
Nemko USA, Inc.

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 Carlsbad, CA 92008
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6.2.1 Radiated Emissions, <1GHz

Client	TDK-Lambda			
NEx #	307273	Temperature	22	°C
EUT Name	3 Phase Power Supply	Humidity	45	%
EUT Model	TPS300048	Pressure	100.0	kPa
Governing Doc	FCC, Part 15 B	Test Location	10 Meter Chamber	
Basic Standard	ANSI C63.4	Test Engineer	Rodel Resolme	
Test Voltage	477V/60Hz 3 phase	Date	4/15/2016	



Vertical

Frequency (MHz)	Quasi-Peak Measured	Quasi-Peak Adjustments	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading	Limit (dBμV/m)	Margin (dB)	Result
64	35	-25.7	175.5	104.17	9.3	40	-30.7	Pass
86.38	44.7	-22.4	284.5	104.17	22.3	40	-17.7	Pass
128.17	42.3	-18.6	343.5	104.17	23.6	40	-16.4	Pass
163.69	45.1	-19.6	152.75	104.17	25.5	40	-14.5	Pass
246.69	44.2	-17.5	335.25	104.17	26.8	47	-20.2	Pass
442.05	35.1	-11.9	74	104.17	23.2	47	-23.8	Pass

Horizontal

Frequency (MHz)	Quasi-Peak Measured	Quasi-Peak Adjustments	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading	Limit (dBμV/m)	Margin (dB)	Result
84.96	33.4	-22.6	61.5	99.95	10.7	40	-29.3	Pass
128.17	41.9	-18.6	278	99.95	23.2	40	-16.8	Pass
163.59	39.2	-19.6	269.25	99.95	19.6	40	-20.4	Pass
241.34	43.6	-17.9	84.5	99.95	25.7	47	-21.3	Pass
245.23	41.3	-17.6	111.75	99.95	23.7	47	-23.3	Pass
430.87	34.9	-12.1	64	99.95	22.8	47	-24.2	Pass
478.01	34.4	-11.2	62.25	99.95	23.3	47	-23.7	Pass

Compliance

Compliant?	Yes	Additional Comments	N/A
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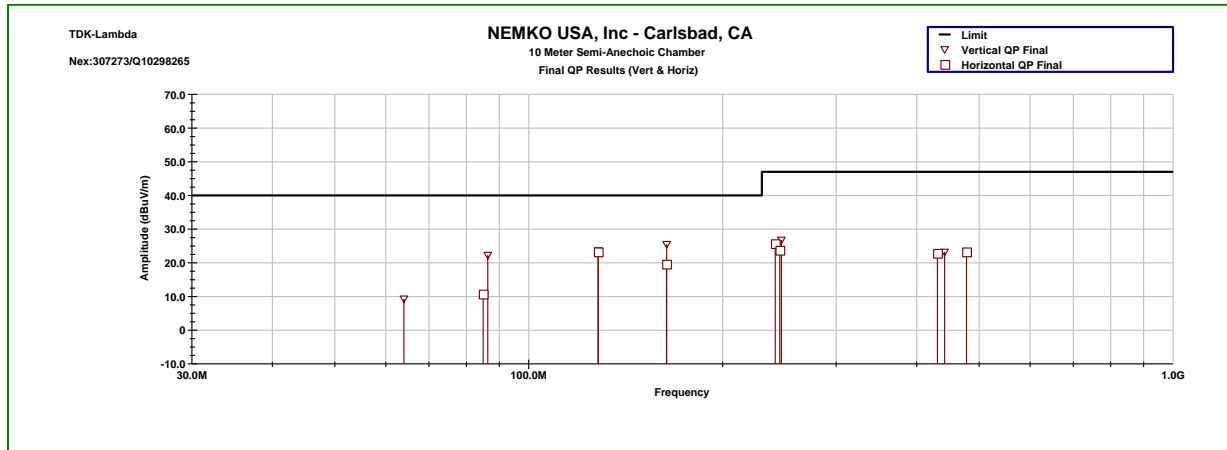
Nemko USA, Inc.

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 Carlsbad, CA 92008
 Phone (760) 444-3500 Fax (760) 444-3005



6.2.2 Radiated Emissions, <1GHz

Client	TDK-Lambda			
NEx #	307273	Temperature	22	°C
EUT Name	3 Phase Power Supply	Humidity	45	%
EUT Model	TPS300048	Pressure	100.0	kPa
Governing Doc	EN 55022	Test Location	10 Meter Chamber	
Basic Standard	CISPR 22	Test Engineer	Rodel Resolme	
Test Voltage	477V/60Hz 3 phase	Date	4/14/2016	



Vertical

Frequency (MHz)	Quasi-Peak Measured	Quasi-Peak Adjustments	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading	Limit (dBµV/m)	Margin (dB)	Result
64	35	-25.7	175.5	104.17	9.3	40	-30.7	Pass
86.38	44.7	-22.4	284.5	104.17	22.3	40	-17.7	Pass
128.17	42.3	-18.6	343.5	104.17	23.6	40	-16.4	Pass
163.69	45.1	-19.6	152.75	104.17	25.5	40	-14.5	Pass
246.69	44.2	-17.5	335.25	104.17	26.8	47	-20.2	Pass
442.05	35.1	-11.9	74	104.17	23.2	47	-23.8	Pass

Horizontal

Frequency (MHz)	Quasi-Peak Measured	Quasi-Peak Adjustments	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading	Limit (dBµV/m)	Margin (dB)	Result
84.96	33.4	-22.6	61.5	99.95	10.7	40	-29.3	Pass
128.17	41.9	-18.6	278	99.95	23.2	40	-16.8	Pass
163.59	39.2	-19.6	269.25	99.95	19.6	40	-20.4	Pass
241.34	43.6	-17.9	84.5	99.95	25.7	47	-21.3	Pass
245.23	41.3	-17.6	111.75	99.95	23.7	47	-23.3	Pass
430.87	34.9	-12.1	64	99.95	22.8	47	-24.2	Pass
478.01	34.4	-11.2	62.25	99.95	23.3	47	-23.7	Pass

Compliance

Compliant?	Yes	Additional Comments	N/A
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6.2.3 List of Equipment

D1767, EMI Receiver 20Hz - 26.5GHz; D1480, Antenna, Bilog; 902, pre amp; S1170, Humidity & Temperature Data Logger.

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6.2.4 Reference Photos



Radiated Emissions Test Configuration Photograph

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Radiated Emissions Test Configuration Photograph

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6.3 Power Line Harmonics

Power Line Harmonics – measures the return of harmonic currents from electronic equipment into the public supply system. It is applicable to equipment having an input current of up to and including 16 amps per phase, intended to be connected to public low-voltage distribution systems.

Power Line Fluctuations/Flicker - measures voltage fluctuations of electronic equipment which can induce a “flicker” on the public low-voltage system. It is applicable to equipment having an input current of up to and including 16 amps per phase, intended to be connected to public low-voltage distribution. The test methods and the test set-ups are given in the referenced standards in the test summary section of this report.

6.3.1 Test Results Power Line Flicker

Flicker Test Summary per EN/IEC61000-3-3 (Phase A-Run time)

EUT: TPS300048

Test category: All parameters (European limits)

Test date: 4/18/2016

Test duration (min): 20

Comment: Nex:307273/Q10298265

Customer: Nutanix Inc.

Start time: 8:19:37 AM

Data file name: F-000223.cts_data

Tested by: R. Resolme

Test Margin: 100

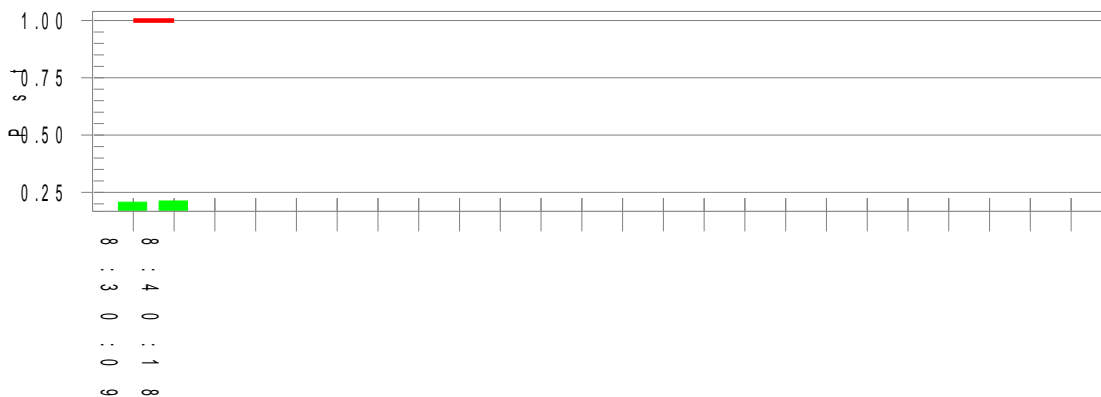
End time: 8:40:19 AM

Test Result: Pass

Status: Test Completed

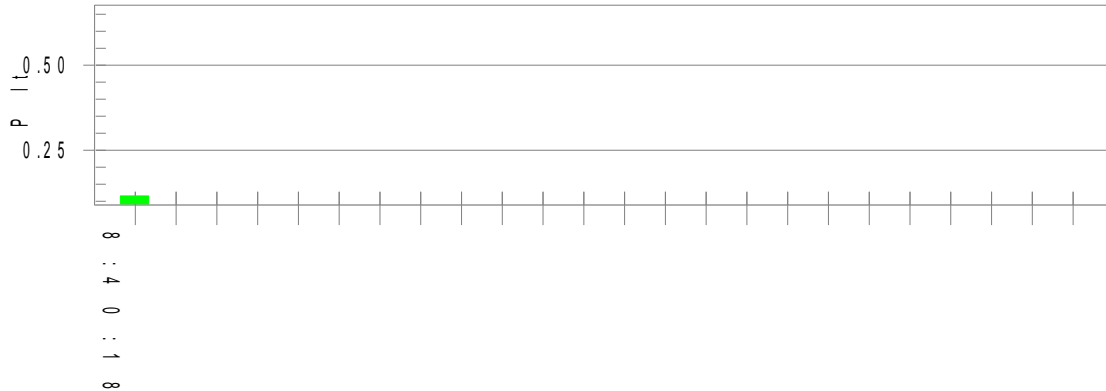
Pst_i and limit line

European Limits



Plt and limit line

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Parameter values recorded during the test:

<i>Vrms at the end of test (Volt):</i>	250.01			
<i>Highest dt (%):</i>	0.00	<i>Test limit (%):</i>	N/A	N/A
<i>T-max (mS):</i>	0	<i>Test limit (mS):</i>	500.0	Pass
<i>Highest dc (%):</i>	0.00	<i>Test limit (%):</i>	3.30	Pass
<i>Highest dmax (%):</i>	0.06	<i>Test limit (%):</i>	4.00	Pass
<i>Highest Pst (10 min. period):</i>	0.213	<i>Test limit:</i>	1.000	Pass
<i>Highest Plt (2 hr. period):</i>	0.115	<i>Test limit:</i>	0.650	Pass

Flicker Test Summary per EN/IEC61000-3-3 (Phase B-Run time)

EUT: TPS300048

Test category: All parameters (European limits)

Test date: 4/18/2016

Start time: 8:19:37 AM

Test duration (min): 20

Data file name: F-000223.cts_data

Comment: Nex:307273/Q10298265

Customer: Nutanix Inc.

Tested by: R. Resolme

Test Margin: 100

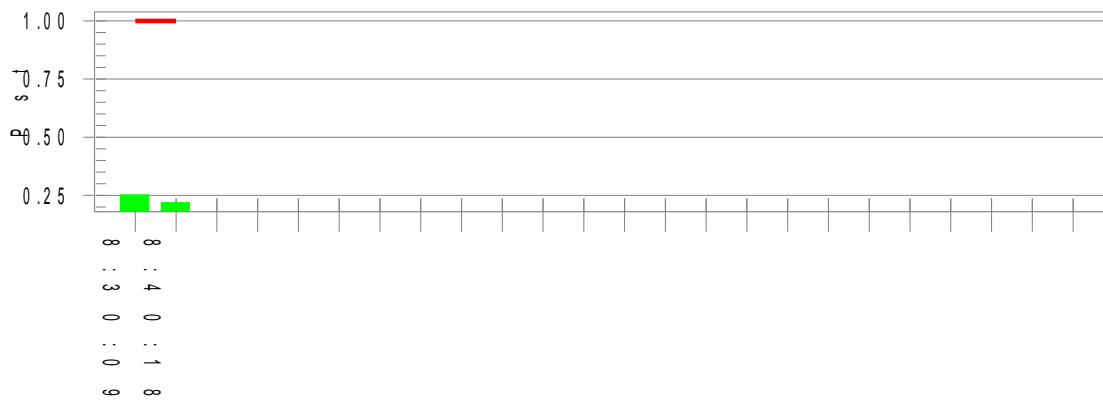
End time: 8:40:19 AM

Test Result: Pass

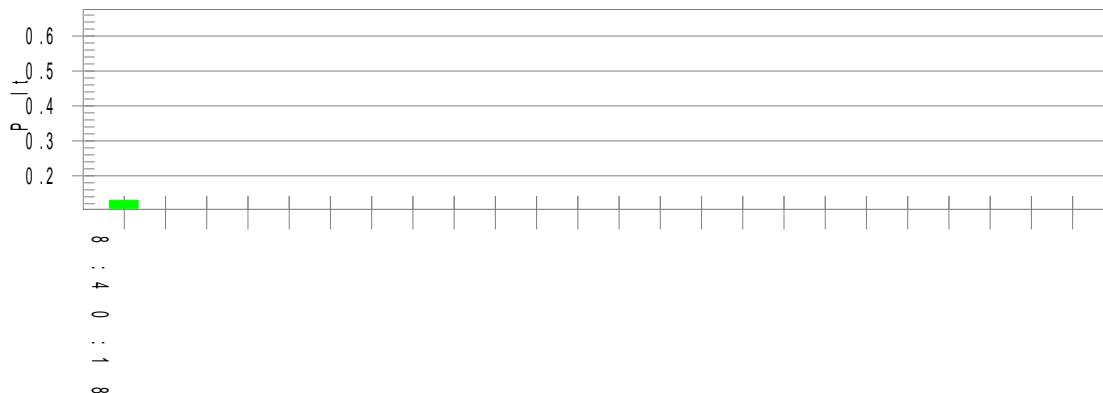
Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 250.04

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<i>Highest dt (%)</i>	0.00	<i>Test limit (%)</i>	N/A	N/A
<i>Tmax(mS) > dt:</i>	0	<i>Test limit (mS):</i>	500.0	Pass
<i>Highest dc (%)</i>	0.00	<i>Test limit (%)</i>	3.30	Pass
<i>Highest dmax (%)</i>	0.06	<i>Test limit (%)</i>	4.00	Pass
<i>Highest Pst (10 min. period):</i>	0.252	<i>Test limit:</i>	1.000	Pass
<i>Highest Plt (2 hr. period):</i>	0.130	<i>Test limit:</i>	0.650	Pass

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Flicker Test Summary per EN/IEC61000-3-3 (Phase C-Run time)

EUT: TPS300048

Test category: All parameters (European limits)

Test date: 4/18/2016

Start time: 8:19:37 AM

Test duration (min): 20

Data file name: F-000223.cts_data

Comment: Nex:307273/Q10298265

Customer: Nutanix Inc.

Tested by: R. Resolme

Test Margin: 100

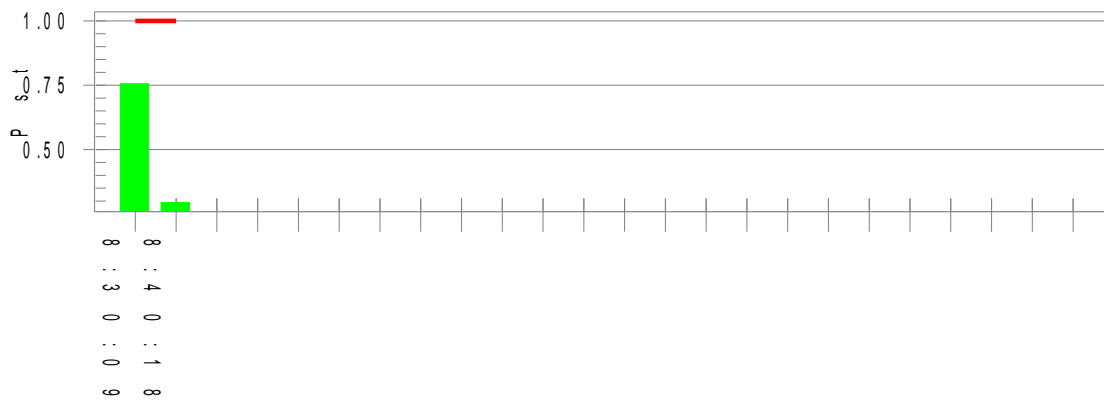
End time: 8:40:19 AM

Test Result: Pass

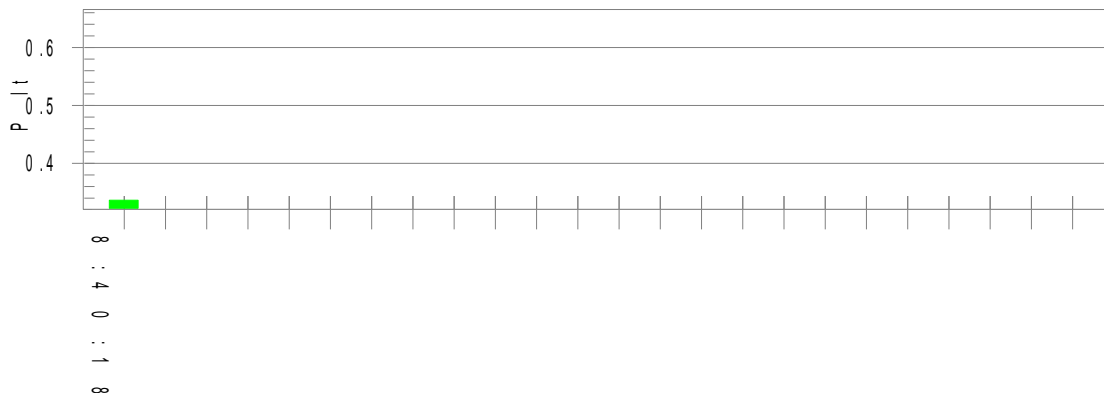
Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 250.18

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<i>Highest dt (%)</i> :	0.76	<i>Test limit (%)</i> :	N/A	N/A
<i>Tmax (mS) > dt:</i>	0	<i>Test limit (mS):</i>	500.0	Pass
<i>Highest dc (%)</i> :	0.00	<i>Test limit (%)</i> :	3.30	Pass
<i>Highest dmax (%)</i> :	0.75	<i>Test limit (%)</i> :	4.00	Pass
<i>Highest Pst (10 min. period):</i>	0.756	<i>Test limit:</i>	1.000	Pass
<i>Highest Plt (2 hr. period):</i>	0.336	<i>Test limit:</i>	0.650	Pass

Compliance			
Compliant?	Yes	Additional Comments	N/A

6.3.2 List of Equipment

S1170, Humidity & Temperature Data Logger; D1851, Power Source Analyzer IX Series.

6.3.3 Reference Photos



Power Line Test Configuration Photograph

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6.4 Electrostatic Discharges

This test simulates electrostatic events and evaluates the ability of the EUT to tolerate such events. Testing was performed in accordance with IEC/EN 61000-4-2. All accessible enclosure surfaces and ports are evaluated unless specified as a static sensitive surface. The product specific standard sets the level and the number of test strikes to apply.

6.4.1 Test Results

Client	TDK-Lambda			
NEx #	307273	Temperature	22	°C
EUT Name	3 Phase Power Supply	Humidity	30	%
EUT Model	TPS300048	Pressure	100.3	kPa
Governing Doc	EN 55024	Test Location	ESD Ground Plane	
Basic Standard	IEC 61000-4-2	Test Engineer	Rodel Resolme	
Test Voltage	477V/60Hz 3 phase	Date	4/19/2016	

Test Conditions	
Discharge Rep. Rate	1 per second
Number of Discharges	50 per location (Contact Discharge) 20 per location (Air Discharge)
Performance Criteria:	B
EUT Mode:	Normal Operation/EUT output 48VDC at 3000 Watts

Contact Discharge					
Voltage: (+/- kV)	2 <input checked="" type="checkbox"/>	4 <input checked="" type="checkbox"/>	6 <input type="checkbox"/>	8 <input type="checkbox"/>	Other <input type="checkbox"/>

Location	Comments
Vertical Coupling Plane	No susceptibility noted.
Horizontal Coupling Plane	No susceptibility noted.
Contact Locations	No susceptibility noted.

Air Discharge					
Voltage: (+/- kV)	2 <input checked="" type="checkbox"/>	4 <input checked="" type="checkbox"/>	8 <input checked="" type="checkbox"/>	15 <input type="checkbox"/>	Other <input type="checkbox"/>

Location	Comments
Air Locations	No susceptibility noted.
"Spark" event(s)	

Compliance			
Compliant?	Yes	Additional Comments	N/A

6.4.2 List of Equipment

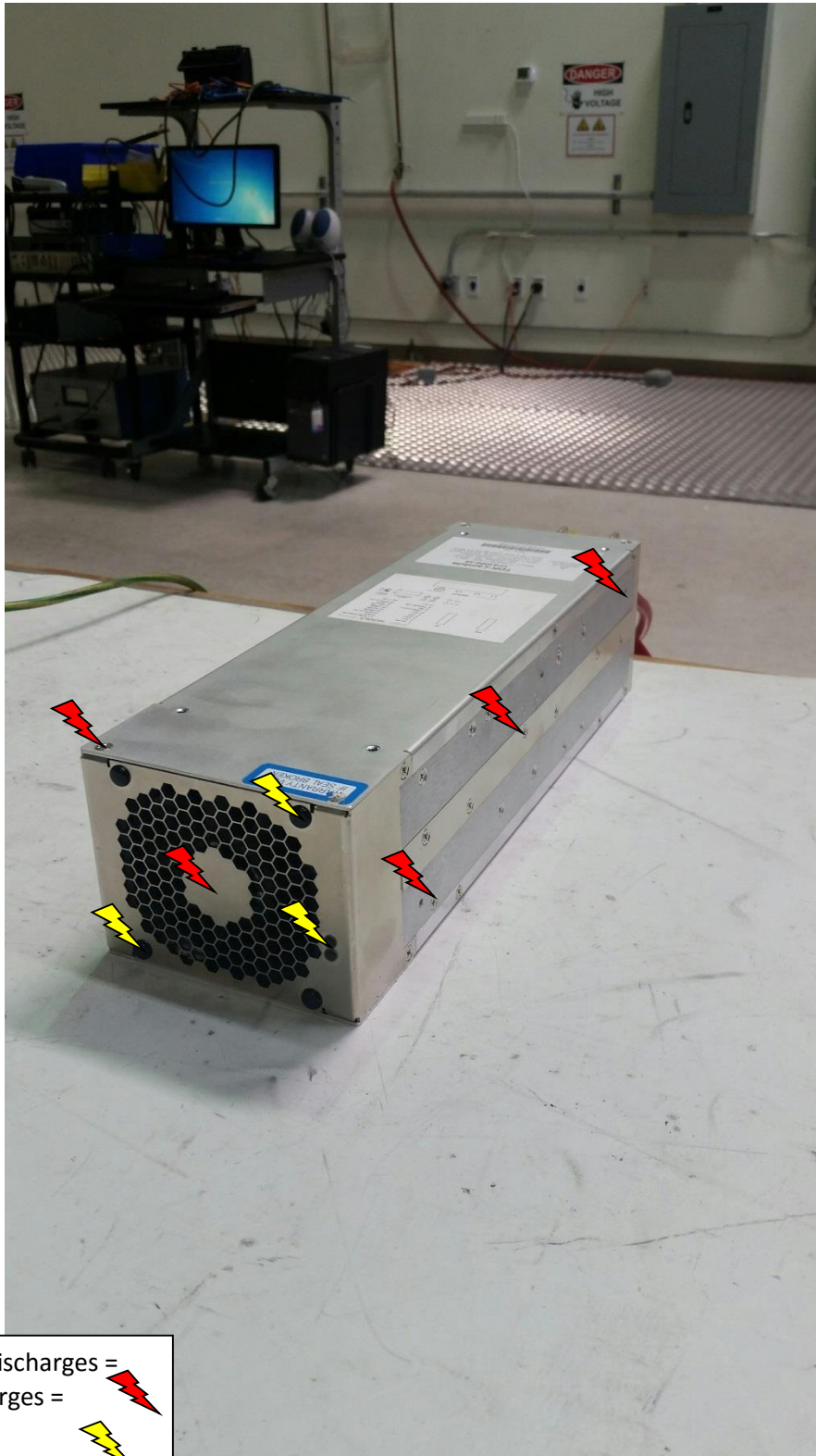
818, ESD Gun; S1170, Humidity & Temperature Data Logger.



6.4.3 Reference Photos



ESD Test Point Locations

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Contact Discharges = 
Air Discharges = 

ESD Test Point Locations

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6.5 Continuous Radiated Disturbances

The Continuous Radiated Disturbances immunity test exposes the equipment under test to a calibrated uniform field of radiated electromagnetic energy. The EUT is continuously monitored while exposed to the required frequency range and field strength. The test chamber, radiating antennas, and calibrated fields meet the requirements of referenced standards. The product specific standard sets the level, duration, and the frequency range to apply.

6.5.1 Test Results

Client	TDK-Lambda			
NEx #	307273	Temperature	24	°C
EUT Name	3 Phase Power Supply	Humidity	28	%
EUT Model	TPS300048	Pressure	100.6	kPa
Governing Doc	EN 55024	Test Location	RF Imm Chamber	
Basic Standard	IEC 61000-4-3	Test Engineer	Rodel Resolme	
Test Voltage	477V/60Hz 3 phase	Date	4/18/2016	

Test Conditions	
Test Level	3 V/m
Frequency Swept	80 MHz to 1 GHz
Selected Frequencies	N/A
Modulation	1kHz modulated at 80% AM
Frequency Step	1%
Dwell Time	3 sec
Performance Criteria	B passed per client.
EUT Mode	Normal Operation/EUT output 48VDC at 3000 Watts

Test Scans Accomplished				
Frequency (MHz)	Antenna Polarization	Compliant	Orientation	Comments
80 to 1000	Horizontal	Yes	Front	Noise on the +48 VDC output seen on O scope.
80 to 1000	Horizontal	Yes	Rear	Noise on the +48 VDC output seen on O scope.
80 to 1000	Horizontal	Yes	Side Left	Noise on the +48 VDC output seen on O scope.
80 to 1000	Horizontal	Yes	Side Right	Noise on the +48 VDC output seen on O scope.
80 to 1000	Vertical	Yes	Front	Noise on the +48 VDC output seen on O scope.
80 to 1000	Vertical	Yes	Rear	Noise on the +48 VDC output seen on O scope.
80 to 1000	Vertical	Yes	Side Left	Noise on the +48 VDC output seen on O scope.
80 to 1000	Vertical	Yes	Side Right	Noise on the +48 VDC output seen on O scope.

Compliance			
Compliant?	Yes	Additional Comments	Client accepts Criteria B

***Client accepts Criteria B as a Pass for 4-3 test.**

RF noise on the oscilloscope is expected on an unfiltered input. Another monitoring method may have indicated no noise on the DC output of the EUT.

6.5.2 List of Equipment

372, Antenna, Dual Ridge; 740, RF Amplifier; D1818, Antenna, Biconical, high power; E1021, Audio Amp; Rental Equip 4, Signal Generator.

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6.5.3 Reference Photos



Continuous Radiated Disturbances Test Configuration Photograph

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6.6 Electrical Fast Transients

This test injects a transient/burst interference onto the Mains input power supply and signal I/O lines. The EUT and peripherals were placed on a non-conductive support platform, 10cm above the test ground plane. The EUT was monitored for disturbances during required exposure time of positive and negative bursts. The product specific standard sets the level and exposure time to apply.

6.6.1 Test Results

TDK-Lambda			
307273	Temperature	22	°C
3 Phase Power Supply	Humidity	30	%
TPS300048	Pressure	100.3	kPa
EN 55024	Test Location	Ground Plane 1	
IEC 61000-4-4	Test Engineer	Rodel Resolme	
477V/60Hz 3 phase	Date	4/19/2016	

Test Conditions	
Power Port	AC Mains
Highest Power Port Test Level	+/- 1.0kV
Highest Signal Port Test Level	+/- 0.50kV
Test Duration	60 seconds
Burst	5 kHz
Performance Criteria	B
EUT Mode	Normal Operation/EUT output 48VDC at 3000 Watts

Direct Injection Output Path						
Test Level	L1	L2	PE	n/a	n/a	Comments
+/- 1.0kV					X	single phase generator in house only.

Test Level	Cable Description	Comments
+/- 1.0kV	3 Phase AC Power Cable	No susceptibility noted.
		No susceptibility noted.

Compliance			
Compliant?	Yes	Additional Comments	Tested Power Cable with Clamp. In house EFT generator single phase only.

6.6.2 List of Equipment

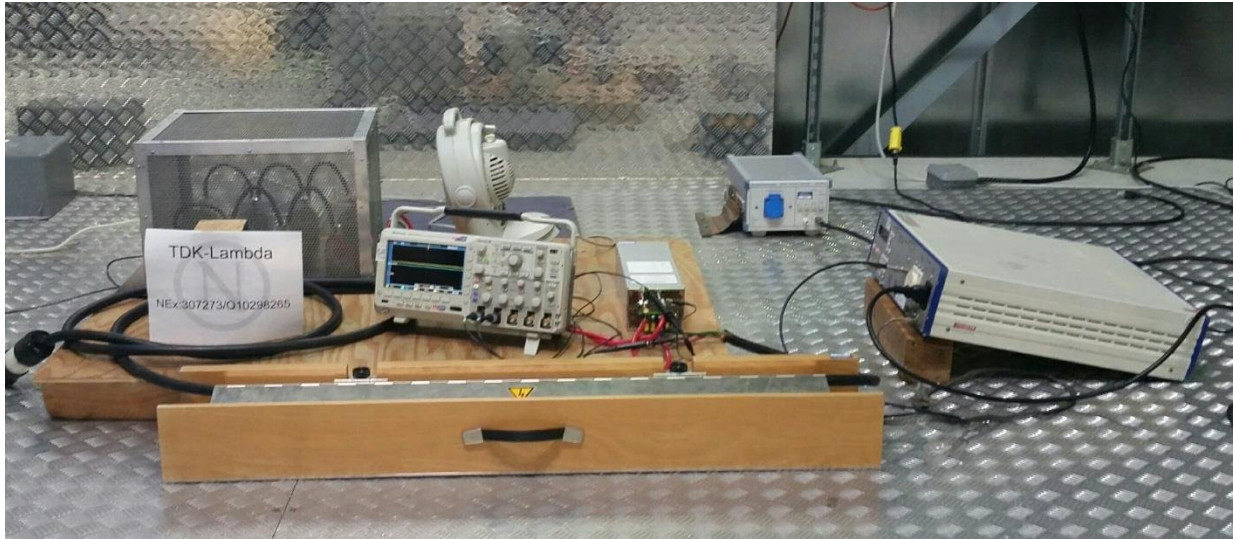
E1015, Capacitive Coupling Clamp; 416, PEFT Jr..

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6.6.3 Reference Photos



EFT Test Configuration Photograph

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6.7 Continuous Conducted Disturbances

This test injects a disturbance directly onto AC/DC power and signal I/O cables. Testing was performed in accordance with IEC/EN 61000-4-6. The product specific standard sets the level, duration, and the frequency range to apply.

6.7.1 Test Results

Client	TDK-Lambda			
NEx #	307273	Temperature	24	°C
EUT Name	3 Phase Power Supply	Humidity	28	%
EUT Model	TPS300048	Pressure	100.6	kPa
Governing Doc	EN 55024	Test Location	Ground Plane 1	
Basic Standard	IEC 61000-4-6	Test Engineer	Rodel Resolme	
Test Voltage	477V/60Hz 3 phase	Date	4/18/2016	

Test Conditions	
Test Level	3 Vrms
Modulation	80% AM at 1kHz
Frequency Range	0.15 - 80 MHz
Selected Frequencies	none
Step	1%
Dwell Time	1 second
Performance Criteria	A
EUT Mode	Normal Operation/EUT output 48VDC at 3000 Watts

No.	Injection Point	Injection Method	Comments
1	AC Mains/3 Phase	CDN	No susceptibility noted.
2	DC output Cables	Clamp	No susceptibility noted.
3			
4			
5			

Compliance			
Compliant?	Yes	Additional Comments	N/A

6.7.2 List of Equipment

948, 0.1 to 1040 MHz Signal Generator; 913, RF Amplifier; 628, CDN; 629, CDN.

6.7.3 Reference Photos



Continuous Conducted Disturbances Test Configuration Photograph

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6.8 Power Frequency Magnetic Fields

This test subjects devices to the fields produced by current carrying conductors of standard building power. Testing was performed in accordance with IEC/EN 61000-4-8. The EUT was exposed to 50 Hz and 60 Hz power frequency magnetic fields, to the level required by the product specific standard.

6.8.1 Test Results

Client	TDK-Lambda			
NEx #	307273	Temperature	22	°C
EUT Name	3 Phase Power Supply	Humidity	47	%
EUT Model	TPS300048	Pressure	99.9	kPa
Governing Doc	EN 55024	Test Location	ESD Ground Plane	
Basic Standard	IEC 61000-4-8	Test Engineer	Rodel Resolme	
Test Voltage	477V/60Hz 3 phase	Date	4/15/2016	

Test Conditions	
Test Level	30 A/m and 300 A/m
Frequency	50 and 60 Hz
Duration Per Axis	5 minutes
Performance Criteria	A
EUT Mode	Normal Operation/EUT output 48VDC at 3000 Watts

Text Axis	Compliant	Comments
X	Yes	No susceptibility noted. 50Hz Test
Y	Yes	No susceptibility noted. 50Hz Test
Z	Yes	No susceptibility noted. 50Hz Test
X	Yes	No susceptibility noted. 60Hz Test
Y	Yes	No susceptibility noted. 60Hz Test
Z	Yes	No susceptibility noted. 60Hz Test

Compliance			
Compliant?	Yes	Additional Comments	N/A

6.8.2 List of Equipment

E1036, Large Magnetic Coil; 811, Multimeter; S1170, Humidity & Temperature Data Logger; 962, AC Power Source.

6.8.3 Reference Photos



Power Frequency Magnetic Fields Test Configuration Photograph

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6.9 Voltage Dips and Interruptions

This test subjects the EUT to power network faults and “brownouts”. Testing was performed in accordance with IEC/EN 61000-4-11. The EUT is powered up to a nominal voltage, and then software-controlled voltage dips and interruptions are introduced. The product specific standard sets the level and duration of the voltage dips.

6.9.1 Test Results

Client	TDK-Lambda			
NEx #	307273	Temperature	22	°C
EUT Name	3 Phase Power Supply	Humidity	47	%
EUT Model	TPS300048	Pressure	99.9	kPa
Governing Doc	EN 55024	Test Location	Ground Plane 1	
Basic Standard	IEC 61000-4-11	Test Engineer	Rodel Resolme	
Test Voltage	477V/60Hz 3 phase	Date	4/14/2016	

Voltage Dips		
Performance Criteria	B, C	
Changes Occur At	zero crossing	
% Reduction (Dip)	Duration in cycles/periods	Compliance / Comments
>95%	0.5	No susceptibility noted.
30	25	No susceptibility noted.

Overall Compliance Voltage Dips			
Compliant?	Yes	Additional Comments	N/A

Voltage Interruptions		
Performance Criteria	C	
Changes Occur At	Zero Crossing	
% Reduction (Dip)	Duration in cycles/periods	Compliance / Comments
>95%	250	Resumes after test

Overall Compliance Voltage Interruptions			
Compliant?	Yes	Additional Comments	N/A

Nemko USA, Inc.

2210 Faraday Ave, Suite 150
 Carlsbad, CA 92008
 Phone (760) 444-3500 Fax (760) 444-3005



6.9.2 Test Results

Client	TDK-Lambda			
NEx #	307273	Temperature	22	°C
EUT Name	3 Phase Power Supply	Humidity	47	%
EUT Model	TPS300048	Pressure	99.9	kPa
Governing Doc	SEMI F47-0706	Test Location	10 Meter Chamber	
Basic Standard	IEC/EN 61000-4-11	Test Engineer	Rodel Resolme	
Test Voltage	477V/60Hz 3 Phase	Date	4/14/2016	

Voltage Dips			
Performance Criteria	B and C		
Changes Occur At	zero crossing		
% Reduction (Dip)	Duration in cycles/periods	Compliance / Comments	
50	10/200ms	No Susceptibility Noted.	
30	25/500ms	No Susceptibility Noted.	
20	50/1000ms	No Susceptibility Noted.	
100	1/20ms	No Susceptibility Noted.	
20	500/10000ms	No Susceptibility Noted.	
Overall Compliance Voltage Dips			
Compliant?	Yes	Additional Comments	N/A

6.9.3 List of Equipment

D1851, Power Source Analyzer IX Series; S1170, Humidity & Temperature Data Logger.

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6.9.4 Reference Photos



Voltage Dips and Interruptions Test Configuration Photograph

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APPENDIX A

A. Radiated Emissions Measurement Uncertainties

1. Introduction

ISO/IEC 17025:2005 and ANSI/NCSL Z540.3: 2006 require that all measurements contained in a test report be “traceable”. “Traceability” is defined in the International Vocabulary of Basic and General Terms in Metrology (ISO: 1993) as: “the property of the result of a measurement... whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons, all having stated uncertainties”.

The purposes of this Appendix are to “state the Measurement Uncertainties” of the conducted emissions and radiated emissions measurements contained in Section 5 of this Test Report, and to provide a practical explanation of the meaning of these measurement uncertainties.

2. Statement of the Worst-Case Measurement Uncertainties for the Conducted and Radiated Emissions Measurements Contained in This Test Report

Table 1: Worst-Case Expanded Uncertainty "U" of Measurement for a k=2 Coverage Factor

Conducted and Radiated Emissions Measurement Detection Systems	Applicable Frequency Range	"U" for a k=2 Coverage Factor
Spectrum Analyzer and LISN	100 kHz – 30 MHz	+/-2.8 dB
Spectrum Analyzer and Telecom ISN	100 kHz – 30 MHz	+/-1.38dB
Spectrum Analyzer, Pre-amp, and Antenna	30 MHz-200 MHz	+/-3.9 dB
Spectrum Analyzer, Pre-amp, and Antenna	200 MHz-1000 MHz	+/- 3.5 dB
Spectrum Analyzer, Pre-amp, and Antenna	1 GHz - 18 GHz	+/-2.6 dB

NOTES:

1. Applies to 3 and 10 meter measurement distances
2. Applies to all valid combinations of Transducers (i.e. LISNs, Line Voltage Probes, and Antennas, as appropriate)
3. Excludes the Repeatability of the EUT

3. Practical Explanation of the Meaning of Radiated Emissions Measurement Uncertainties

In general, a “Statement of Measurement Uncertainty” means that with a certain (specified) confidence level, the “true” value of a measurement will be between a (stated) upper bound and a (stated) lower bound.

In the specific case of EMC Measurements in this test report, the measurement uncertainties of the conducted emissions measurements and the radiated emissions measurements have been calculated in accordance with the method detailed in the following documents:

- ANSI Z540.2 (2002) Guide to the Expression of Uncertainty in Measurement
- NIS 81:1994, The Treatment of Uncertainty in EMC Measurements (NAMAS, 1994)
- NIST Technical Note 1297(1994), Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results (NIST, 1994)

The calculation method used in these documents requires that the stated uncertainty of the measurements be expressed as an “expanded uncertainty”, U , with a $k=2$ coverage factor.

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APPENDIX B

B. Nemko USA, Inc. Test Equipment & Facilities Calibration Program

Nemko USA, Inc. operates a comprehensive Periodic Calibration Program in order to ensure the validity of all test data. Nemko USA's Periodic Calibration Program is fully compliant to the requirements of NVLAP Policy Guide PG-1-1988, ANSI/NCSL Z540.3: 2006, ISO 10012:2003, ISO/IEC 17025:2005, and ISO-9000: 2000. Nemko USA, Inc.'s calibrations program therefore meets or exceeds the US national commercial and military requirements [N.B. ANSI/NCSL Z540-1-1994 replaced MIL-STD-45662A].

Specifically, all of Nemko USA's primary reference standard devices (e.g. vector voltmeters, multimeters, attenuators and terminations, RF power meters and their detector heads, oscilloscope mainframes and plug-ins, spectrum analyzers, RF preselectors, quasi-peak adapters, interference analyzers, impulse generators, signal generators and pulse/function generators, field-strength meters and their detector heads, etc.) and certain secondary standard devices (e.g. RF Preamplifiers used in CISPR 11/22 and FCC Part 15/18 tests) are periodically recalibrated by:

- A Nemko USA-approved independent (third party) metrology laboratory that uses NIST-traceable standards and that is ISO Guide 25-accredited as a calibration laboratories by NIST; or,
- A Nemko USA-approved independent (third party) metrology laboratory that uses NIST-traceable standards and that is ISO Guide 25-accredited as a calibration laboratory by another accreditation body (such as A2LA) that is mutually recognized by NIST; or,
- A manufacturer of Measurement and Test Equipment (M&TE), if the manufacturer uses NIST-traceable standards and is ISO Guide 25-accredited as calibration laboratory either by NIST or by another accreditation body (such as A2LA) that is mutually recognized by NIST; or
- A manufacturer of M&TE (or by a Nemko USA-approved independent third party metrology laboratory) that is not ISO Guide 25-accredited.(In these cases, Nemko USA conducts an annual audit of the manufacturer or metrology laboratory for the purposes of proving traceability to NIST, ensuring that adequate and repeatable calibration procedures are being applied, and verifying conformity with the other requirements of ISO Guide 25).

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2210 Faraday Ave, Suite 150
Carlsbad, CA 92008
Phone (760) 444-3500 Fax (760) 444-3005



In all cases, the entity performing the Calibration is required to furnish Nemko USA with a calibration test report and/or certificate of calibration, and a “calibration sticker” on each item of M&TE that is successfully calibrated.

Calibration intervals are normally one year, except when the manufacture advises a shorter interval or if US Government directives or client requirements demand a shorter interval. Items of instrumentation/related equipment which fail during routine use, or which suffer visible mechanical damage (during use or while in transit), are sidelined pending repair and recalibration. (Repairs are carried out either in-house [if minor] or by a Nemko USA-approved independent [third party] metrology laboratory, or by the manufacturer of the item of M&TE).

Each antenna used for CISPR 11, CISPR 14, CISPR 22, and FCC Part 15 and Part 18 radiated emissions testing (and for testing to the equivalent European Norms) is calibrated annually by either a NIST (or A2LA) ISO Standard 17025-Accredited third-party Antenna Calibration Laboratory or by the antenna’s OEM if the OEM is NIST or A2LA ISO Standard 17025-accredited as an antenna calibration laboratory. The antenna calibrations are performed using the methods specified in CISPR 16-1-4 or ANSI C63.5-2006, including the “Three-Antenna Method”. Certain other kinds of antennas (e.g. magnetic-shielded loop antennas) are calibrated annually by either a NIST (or A2LA) ISO Standard 17025-accredited third-party antenna calibration laboratory, or by the antenna’s OEM if the OEM is NIST or A2LA ISO Standard 17025-accredited as an antenna calibration laboratory using the procedures specified in the latest version of SAE ARP-958.

In accordance with FCC and other regulations, Nemko USA recalibrates its suite of antennas used for radiated emissions tests on an annual basis. These calibrations are performed as a precursor to the FCC-required annual revalidation of the Normalized Site Attenuation properties of Nemko USA’s 10-meter Semi-Anechoic chamber. Nemko USA, Inc. uses the procedures given in CISPR 16-1-4 and, ANSI C63.4-2009 when performing the normalized site attenuation measurements.

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