



Turkiye

2014

TÜV SÜD TÜRKİYE

REPORT NO: TGK-14-P-10236-1

JOB NO: 14-P-10236

12.10.2014

LANDE DYNAcener Server Cabinet W600 X D1000 MECHANICAL TESTS REPORT





Product Service

INSPECTION REPORT

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Inspection Report No: 14-P-10236-1

Büyükdere Cad. No:103/A Şarlı İş Merkezi A Blok Kat:5
Mecidiyeköy / İstanbul Türkiye



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Manufacturer Name/ Adress : LANDE ENDÜSTRİYEL METAL
ÜRÜNLER SAN. VE TİC. A.Ş.
20. Cadde No: 14 Odunpazarı
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TUV SUD Türkiye Job No : 14-P-10236

**Scope of Service : Conformity Assessment according to EN 61587-1 : 2012
Static Mechanic Load Test (with 1.500 kg)
Load Carrying Capacity Test (with 1.500 kg)**

**Test Object: LANDE DYN Acenter Server Cabinet
Models : SRV – DC**

Inspection Dates : 27.10.2014 / 11.11.2014

No. of pages : 24

No. of copies : 2

**1 Original for LANDE
1 Copy for TÜV SÜD Türkiye**



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INTRODUCTION

Lande Cabinet Center has ordered TÜV SÜD TÜRKİYE to conformity assessment according to EN 61587-1:2012 for mechanical tests.

1 PCS 19” DYNAMIC Free standing Cabinet (W 600 X D 1000) was inspected by TÜV SÜD Türkiye inspector. Our inspector attended at premises of Lande cabinet center at Eskişehir .Free standing cabinet were subject to dimensions check according to EN 61587-1 2012.

The static and dynamic mechanical load tests were carried out according to the EN 61587-1, which were indicated by reference substances are as follows,

- 7.2.1 static mechanical load test for subracks
- 7.3.1 lifting test for cabinet
- 7.3.2 stiffness test for cabinet

Description of the test object :

Function : The product is used as data center cabinet.
Technical Data : *Type* :FreeStanding 19”
Dimensions : (width x depthoptions)
600-800 mm X 1000-1100-1200mm
Heightoptions : 42U – 47U
IP class : IP20



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Equipments' details which are used in the tests :

Equipment : Lift Scale - 500kg
Manufacturer : CAS
Type : IE-1700
Calibration : 25.09.2014 – LNDTC02

Equipment : Lift Scale – 3000kg
Manufacturer : DENSI
Type : TMT-Plus
Calibration : 24.09.2014 – LNDTC03

Equipment : CE Multitester
Manufacturer : SONEL
Type : PAT-805
Calibration : 26.10.2014 – LNTC01

Equipment : DigitalComparator – Dial Test Indicator
Manufacturer : ASIMETO
Type : AI50G02
Calibration : 05.11.2014 – LNDSG01

2 MECHANICAL TESTS

2.1 Static mechanical load test for subracks (EN 61587 7.2.1)

The purpose of the test is to evaluate the load bearing capability of the structural parts of subracks or the subrack as part of the chassis. The deflection of the horizontal members are used as an indirect measure of the load bearing capability of the subracks and the results shall be less than the defined value. This will prevent disengagement of the plug-in units from the guide rails. The test was done considering the requirements by the related standard.

Load distribution for classification SL1, SL2 and SL3 according to IEC 60917. Static load value 150 kg for each subrack. Please check the static load test form (LANDE FR.115.00/07.11.2014)



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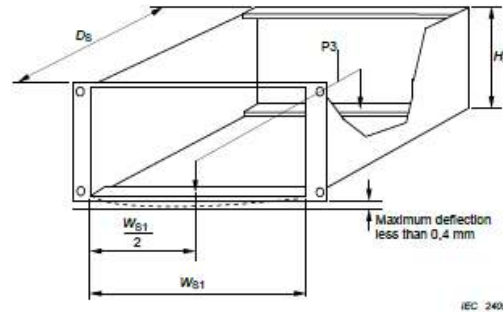
Dimensions of the chassis (600 x 1000 x 1955)

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the static load calculated according to **150 kg** for each subrack and applied load value **P = 367.5 N** this value is a higher than SL3 ,

Table 4 – Static mechanical load classifications for subracks of the IEC 60917 series

Performance level	Single point load P3 (see Note of Figure 3) N
SL 1	46
SL 2	69
SL 3	92



NOTE: Single point load tests shall be applied equally to all lower horizontal members along the centre line of the subrack as detailed in Figure 3 and Table 4.

Figure 3 – Static load test, single force for subracks IEC 60917 series

Performance level	P _S (N)	D _S mm	W _{S1} mm	H _S mm	Deflection (mm)
Subrack 1	367.5	735	430	85	0,37
Subrack 2	367.5	735	430	84,9	0,33
Subrack 3	367.5	735	430	85	0,36
Subrack 4	367.5	735	430	85	0,36
Subrack 5	367.5	735	430	84,9	0,36
Subrack 6	367.5	735	430	85	0,34
Subrack 7	367.5	735	430	85	0,28
Subrack 8	367.5	735	430	85	0,32
Subrack 9	367.5	735	430	85	0,33
Subrack 10	367.5	735	430	85	0,31

Table -1 Static load test result

Conformity assessment following the tests;

The acceptance criteria is that the maximum deflection shall be less than 0,4 mm.

Remarks: Static load for each subracks were checked and within tolerances.

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Photo 1- Subrack 1 deflection



Photo 2- Subrack 2 deflection

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Photo 3 - Subrack 3 deflection



Photo 4 - Subrack 4 deflection

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Photo 5 - Subrack 5 deflection



Photo 6 - Subrack 6 deflection

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Photo 7 - Subrack 7 deflection



Photo 8 - Subrack 8 deflection

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Photo 9 - Subrack 9 deflection



Photo 10 - Subrack 10 deflection

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2.2 Lifting test for cabinet (EN 61587 - 7.3.1)

The test cabinet bolted to the floor and no internal load used for this test. Applied force at P by steady force and maintain load for a period of 1 minute. Please check lifting test form (LANDE FR.115.00/07.11.2014)

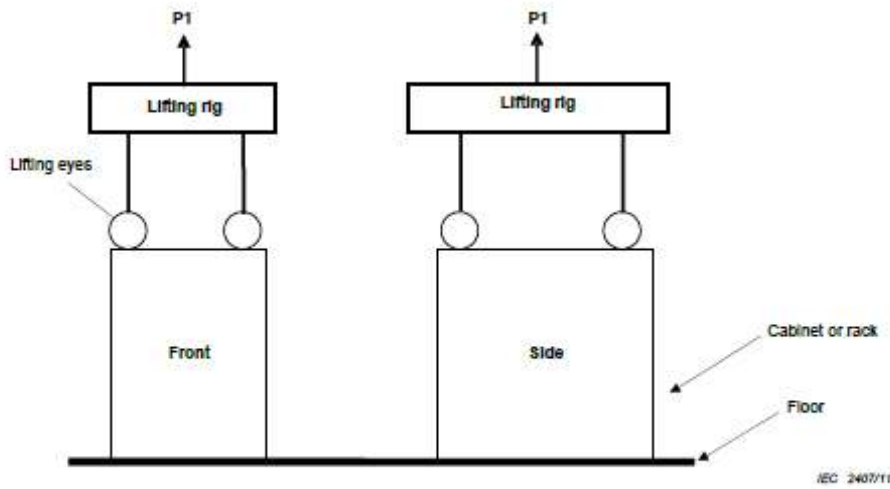


Figure 5 – Lifting test for cabinets and racks

Conformity assessment following the test;

The acceptance criteria is no deformation or damage of parts that affect form, fit or function shall be allowed after the test. Earth bond continuity check to be carried out in accordance with 8.2

Remarks: At the end of the test no deformation or damage of the parts were observed. Earth bond continuity checked and the results are positive.

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Earth bond continuity (Ω) (Before)	Applied Force (kg)	Earth bond continuity (Ω) (After)	Test period (min.)
0,041 Ω	1500	0,044 Ω	1

Table-2 Earth bond continuity test results



Photo 11 - The test cabinet bolted to the floor

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Photo 12 - The test cabinet applied the force

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Photo 13 - The test cabinet lifting points

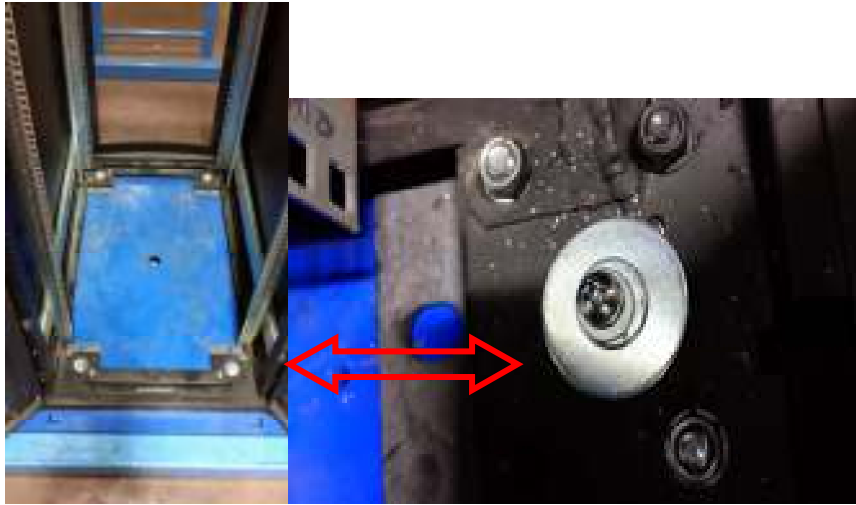


Photo 14 - The test cabinet connection bolts

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Photo 15 - The test cabinet earth bond continuity test

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2.3 Stiffness test for cabinet (EN 61587 - 7.3.2)

The purpose of this test is to evaluate the structural stiffness of a cabinet or rack as a minimum measure of durability against handling and transportation forces. The test severities are stipulated in static load values with associated lifting and stiffness forces as shown in Table 8.

Table 8 – Classifications levels for lifting and stiffness

Classification	Nominal load L1 cabinet kg	Lifting test Force P1 N	Stiffness test Force P2 N
SL4	200	3 000	500
SL5	400	6 000	1 000
SL6	800	12 000	2 000

NOTE The nominal load is the stated load carrying capacity of the cabinet or rack.

The test cabinet bolted to the floor no internal static load used for this test. Applied a steady force (P), evenly distributed over shaded area of figure 6.

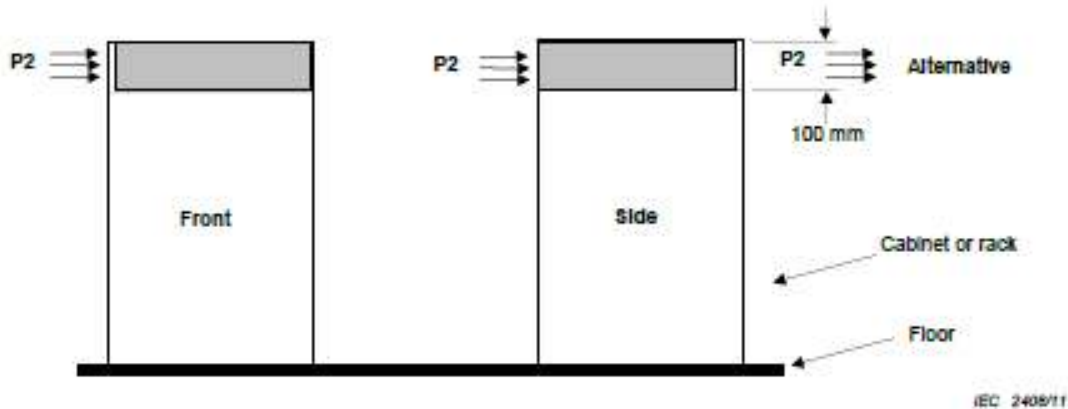


Figure 6 – Stiffness test for cabinets and racks

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Conformity assessment following the test;

The acceptance criteria is no deformation of parts that affect form, fit or function with regard to the relevant detail specification shall be allowed after the tests on each side as shown in figure 6. Earth bond continuity check to be carried out in accordance with 8.2

Remarks: At the end of the test no deformation or damage of the parts were observed. Earth bond continuity checked and the results are positive.

Earth bond continuity (Ω) (Before)	Applied Force (kg)	Earth bond continuity (Ω) (After)	Test period (min.)
0,041 Ω	200	0,046 Ω	1

Table-3 Earth bond continuity test results



Photo 16 - The test cabinet bolted to the floor

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Photo 17 - The test cabinet applied the force

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Photo 15 - The test cabinet earth bond continuity test



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REMARKS & RESULT

The acceptance criteria of the Static Mechanical Load Test is that the maximum deflection shall be less than 0,4mm. Static load for each subracks (150kg per each subrack / total 10 subracks) were checked and observed within the tolerance.

At the end of the Load Carrying capacity Test, no deformation or the damage of the parts were observed. Earth bond continuity checked and the results are positive.

No peeling, crack or permanent deformation has been observed on welded joints, fixings or painting. No loss in the functionality of the doors or side panels.



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