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KARANDIKAR LABORATORIES PVT. LTD. BOISAR

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TYPE TEST REPORT

IS/IEC 60529:2001

Degrees of Protection Provided by Enclosures (IP Code)

TC-6311

Report No. ..... : **KLPL/BTG/19/11-52**

ULR No. .....: TC631119000000656F

Discipline .....: Electrical Discipline

Group/Category .....: Environmental Test Facility

Sub-category .....: Ingress protection test

Date of issue ..... : **20.11.2019**

No. of pages ..... : 06 PAGES + Annexure

Compiled by (+ signature)..... : Vikrant Raut

Designation: Sr.Testing Engineer

Approved by (+ signature)..... : Javed Shaikh

Designation: Dy. Laboratory Manager

Item Received On ..... : 19.11.2019 in Good Condition

Test Completion Date ..... : 20.11.2019

Client

Name .....: **M/s. Alfa Enterprise**
: Plot No.32, Road No.5/A, G.I.D.C,
Kathwada, Odhav Ring Road,
Ahmeddabad - 382430.

Test Specification

Standard ..... : IS/IEC 60529:2001

Specified IP-Code ..... : IP-65

Equipment Under Test

Type of Test Object ..... :Computer Networking Rack

Model No.....:EROD Series

Serial No.. ..... :------

Annexure :-

Drawing No. .....:------

NOTE : 1) This refers only to the particular item(s) submitted for testing.
2) If necessary, this report shall be reproduced ONLY in full.

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IS/IEC 60529:2001					
Clause	**Requirement - Test**			**Result- Remark**	**Verdict**
10	**Marking.**				N
11	**General requirement for tests.**				
11.1	Tests should be carried out under the standard atmospheric conditions described in IEC 60068-1				P
11.2	Test samples shall be in a clean and new condition.				P
	The relevant product standard shall specify details such as: The number of samples to be tested;				N
	-conditions for mounting, assembling and positioning of the samples;				P
	-the pre-conditioning, if any, which is to be used;				N
	-whether to be tested energized or not;				N
	-whether to be tested with its parts in motion or not;				N
11.5	**Empty enclosures**				
	If the enclosure is tested without equipment inside, the manufacturer shall ensure that after the electrical equipment is enclosed the enclosure meets the declared degree of Protection of the final product.			Empty Enclosure	N
12	**Tests for protection against access to hazardous parts indicated by the first characteristic numeral.**				
First, characteristic Numeral.	Test means (Access probes)	Test force	Test Conditions Refer IS/IEC 60529:2001		N
0	No test required	-	-		N
1	The access probe, sphere of 50 mm Ø shall not fully penetrate and adequate clearance shall be kept.	50N ±10%	Cls.12.2		N
2	The jointed test finger may penetrate up to 80 mm length but adequate clearance shall be kept.	30N ±10%	Cls.12.2		N
3	The access probe, sphere of 2.5 mm Ø shall not penetrate and adequate clearance shall be kept.	3N± 10%	Cls.12.2		N
4	The access probe of 1,0 mm Ø shall not penetrate and adequate clearance shall be kept.	1N± 10%	Cls.12.2		N
5	Test conditions for IP 5X: Same As Above	1N± 10%	Cls.12.2		N
6	Test conditions for IP 6X: Same As Above	1N± 10%	Cls.12.2	Test wire does not penetrate inside the UUT.	P

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IS/IEC 60529:2001					
Clause	**Requirement – Test**			**Result-Remark**	**Verdict**
13	**Tests for protection against solid foreign objects indicated by the First characteristic numeral.**				
First, characteristic Numeral.	Test means (object probes and dust chamber)	Test force	Test Conditions Refer IS/IEC 60529:2001		N
0	No test required	-	-		N
1	Rigid sphere without handle or guard 50 mm diameter.	50N ±10%	Cls.13.2		N
2	Rigid sphere without or guard 12, 5 mm diameter.	30N ±10%	Cls.13.2		N
3	Rigid steel rod 2,5mm diameter with edges free from burrs	3N± 10%	Cls.13.2		N
4	Rigid steel wire 1, mm diameter with edges free from burrs.	1N± 10%	Cls.13.2		N
5	Dust chamber, Enclosure with under pressure	NA	Cls.13.4+13.5		P
6	Dust chamber, The enclosure is maintained below the Surrounding atmospheric pressure by a vacuum pump.	NA	Cls.13.4+13.6	For 8 Hrs, As extraction rate is less than 40 volumes per hour and max depression of 20 mbar.	
13.6.2	**Acceptance conditions for the first characteristic numeral 6X.** The protection is satisfactory if no hazardous deposit of dust is observable inside the UUT at the end of test.			No ingress of powder found inside the UUT.	P

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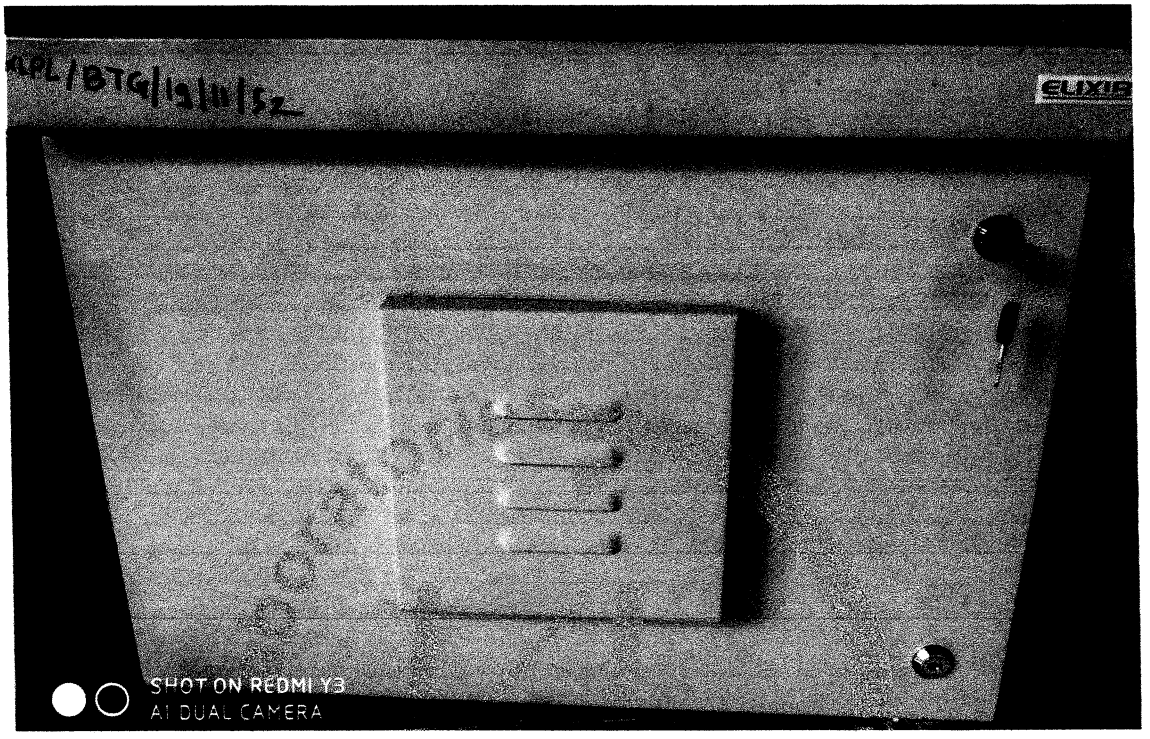
IS/IEC 60529:2001

Clause	Requirement – Test		Result-Remark	Verdict
4	**Tests for protection against water indicated by the second characteristic numeral.**			
Second, characteristic Numeral.	Test means	Test Conditions Refer IS/IEC 60529:2001		N
0	No test required	Cls.14.2.0		N
1	Drip box, Enclosure on turntable	Cls.14.2.1		N
2	Drip box, Enclosure in 4 fixed positions of 15 ° tilt	Cls.14.2.2		N
3	oscillating tube or spray nozzle, 60° from vertical	Cls.14.2.3		N
4	oscillating tube or spray nozzle, 180° from vertical	Cls.14.2.4		N
5	6.3-mm nozzle, tested with a spraying nozzle, distance 2.5 m to 3 m, water flow rate 12.5 l/min ±5%	Cls.14.2.5	6.3 mm nozzle, Flow rate 12 lit/min, 2.5 – 3 m distance, 3 min duration.	P
6	12.5-mm nozzle, tested with a spraying nozzle, distance 2.5 m to 3 m, water flow rate 100 l/min	Cls.14.2.6		N
7	Immersion tank, Temporary immersion	Cls.14.2.7		N
8	Immersion tank, Continuous immersion subject to agreement. Water temperature does not differ from that of equipment by more than 5K.	Cls.14.2.8		N
-	**Acceptance conditions for IPX5:** The protection is satisfactory if no water has accumulated near the insulation, cable end or entered cables or interferes with the correct operation of the equipment.	Cls.14.3	No Ingress of water observed inside the UUT.	P

SUMMARY OF INGRESS PROTECTION TESTS ACCORDING TO IS/IEC 60529:2001
Conclusion of the IP65 test: PASS.
The results of the tests were in compliance with the requirements in the standard IS/IEC 60529:2001
UUT=Unit Under Test



Picture1: Enclosure

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END OF REPORT