CPRI

TEST REPORT

Central Power Research Institute

(A Govt. of India Society)
P.B.No. 8066, Sadashivanagar Post Office,
Sir C.V. Raman Road,
Bangalore - 560 080 (INDIA)

CENTRAL POWER RESEARCH INSTITUTE
(Member of STL)

CPRI

TEST REPORT

Test Report Number	SC170130	**Dated**: 17th February, 2017
Name & Address of the Customer	M/s. Indus Power Systems, 5-55, Plot No. 376, Dullapally Road, IDA, Jeedimetla, Phase – V (Extn.), Hyderabad – 500 055, Telangana, India.	
Name & Address of the Manufacturer	M/s. Indus Power Systems, 5-55, Plot No. 376, Dullapally Road, IDA, Jeedimetla, Phase – V (Extn.), Hyderabad – 500 055, Telangana, India.	
Particulars of sample tested	Low-voltage switchgear and controlgear assembly – LT Panel	
Condition of the sample on Receipt	New	
Type	Indoor, cubicle	
Description of test sample	415 V 4000 A LT Panel	
Serial Number (s)	IPS/001	
Number of samples tested	One	
Date (s) of test (s)	09th February, 2017	
CPRI sample code no(s).	SC17S0042	
Particulars of tests conducted	Verification of the short-circuit withstand strength	
Test in accordance with Standard / specification	Sub-clause 8.2.3 of IS 8623 (Part 1):1993 / IEC Pub 439-1 (1985) (Reaffirmed 2013)	
Sampling plan	Not applicable	
Customer's requirement	50 kA rms for 1.0 s & 105 kA peak on phase bus-bars	
Deviations if any	Nil	
Name of the witnessing persons		
Customer's representative	Mr. Y. Naresh Reddy, Supervisor	
Other than customer's representatives	None	
Test subcontracted with Address of the laboratory	None	
Documents constituting this report (In words)		
Number of sheets	Five	
Number of oscillograms	Two	
Number of graphs	Nil	
Number of photos	Two	
Number of test circuit diagrams	Two	
Number of drawings	Two	

(Sakthivel. P)
Test Engineer

(Swaraj Kumar Das)
Joint Director

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Test Report Number: SC170130 **Dated**: 17th February, 2017

Description of sample tested (ratings as assigned by the manufacturer)

Test sample	Low-voltage switchgear and controlgear assembly – LT Panel
Type	Indoor, cubicle
Serial number	IPS/001
Rated voltage	415V
Rated insulation voltage	660V
Rated current	4000A
Rated frequency	50 Hz
Number of phases	Three & neutral
Rated short-time withstand current & peak withstand current	50 kA rms for 1.0 s & 105 kA peak on phase bus-bars & 30 kA rms for 1.0 s & 63 kA peak on neutral bus-bar

Documents attached to this report

Oscillogram number(s)	SC170130.S02 & SC170130.S03
Photo number(s)	SC170130.PB1 & SC170130.PA1
Test circuit diagram number(s)	CRTL/SC/STC-04A & CRTL/SC/STC-02A
Drawing number(s)	IPS/16-08-2016 SHEET NO 1 OF 2 & IPS/16-08-2016 SHEET NO 2 OF 2

Test Engineer

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SCHEDULE OF TESTS

VERIFICATION OF THE SHORT-CIRCUIT WITHSTAND STRENGTH (SUB-CLAUSE 8.2.3)

TEST CONDITIONS

Source	Short-circuit generator
Phase	
Test on phase bus-bars	Three
Test on neutral bus-bar	Single
Frequency	50 Hz
Test sample	
Condition before test	In clean & new condition; end of horizontal bus-bars connected to source.
Body/Enclosure	2.0 mm thick CRCA sheet; isolated from earth and connected to the source neutral through a fine-wire fuse (FWF) of diameter 0.1mm and length of 50 mm in series with a 2.0 ohms resistor
Test details	
Test circuit drawing number	
Test on phase bus-bars	CRTL/SC/STC-04A
Test on neutral bus-bar	CRTL/SC/STC-02A
Short-circuit applied	On the end of the vertical bus-bars
Short-circuit point	Grounded

Test results

Test on: Horizontal and vertical phase bus-bars of the panel

Oscillogram Number	Current (kA)		Duration (s)	Observations
	Peak	RMS		
SC170130.S02	110.7 (R-phase)	R – 49.97 Y – 49.12 B – 49.13 Average: 49.41*	1.10	**During test:** No abnormality **After test:** Fine-wire fuse intact

* Equivalent to 51.82 kA rms for 1.0 s

Test on: Neutral bus-bar of the panel with nearest phase bus-bar as return conductor

Oscillogram Number	Current (kA)		Duration (s)	Observations
	Peak	RMS		
SC170130.S03	66.00	30.25	1.10	**During test:** No abnormality **After test:** Fine wire fuse intact

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Test Report Number: SC170130 **Dated**: 17th February, 2017

VERIFICATION OF THE DIELECTRIC PROPERTIES

Condition of the sample: As after the verification of the short-circuit withstand strength test

Test procedure	Observations
A power frequency voltage of 2.5 kV rms for 60 s was applied between	
1. All live parts connected together and enclosure	Withstood
2. Each pole and all the other poles connected to enclosure	Withstood

Physical Inspection

Bus-bars : No visible external damage or deformation
Supports : Intact

Remarks: The sample tested complies with the sub-clause of the standard referred to.

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CENTRAL POWER RESEARCH INSTITUTE

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TEST REPORT

Test Report Number: 008EATDIP17S0008 **Dated: 11.01.2017**

Name & Address of the Customer	:	M/s. Indus Power Systems, 5-55, Plot No. 376, I.D.A Jeedimetla, Dullapally road, Phase-5 (extn.), Hyderabad-500055, Telangana State.
Name & Address of the Manufacturer	:	M/s. Indus Power Systems, 5-55, Plot No. 376, I.D.A Jeedimetla, Dullapally road, Phase-5 (extn.), Hyderabad-500055, Telangana State.

Particulars of sample tested

Condition of the sample on Receipt	:	New
Type	:	Indoor/Outdoor
Description of test sample	:	LT Power Distribution Panel
Serial Number	:	IP65–IPS/003
Number of samples tested	:	One only.
Date (s) of Test (s)	:	10.01.2017 & 11.01.2017
CPRI sample code no(s)	:	EATDIP17S0008

Particulars of tests conducted

Test in accordance with Standard / specification	:	IP 65 Category 2 Test, as per IS/IEC 60529 : 2001 Standard. Clause 11.5, 13.4 and 14.2.5.
Sampling Plan	:	Not applicable
Customer's requirement	:	1. IP 65 Category 2 Test, as per IS/IEC 60529 : 2001 Standard. Clause 11.5, 13.4 and 14.2.5. 2. Visual observation for entry of dust IP6X Category 2 Test and water IPX5.
Deviations if any	:	-Nil-

Name of the witnessing persons

Customer's representative	:	Mr. Y. Naresh Reddy, Supervisor.
Other than customer's representatives	:	None
Test subcontracted with address of the laboratory	:	None

Documents constituting this report (In words)

Number of sheets	:	Three only
Number of oscillograms	:	-Nil-
Number of graphs	:	-Nil-
Number of photos	:	-Nil-
Number of test circuit diagrams	:	-Nil-
Number of drawings	:	Three only, Drawing No.: IPS/GA/IP65/2016, Sheet 1 of 3 to Sheet 3 of 3.

(GUJJALA B.BALARAJU)
Test Engineer

(A.R RAVIKUMAR)
Head of Division

CENTRAL POWER RESEARCH INSTITUTE

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Test Report Number: 008EATDIP17S0008 **Dated: 11.01.2017**

TEST RESULTS:

Sl. No.	PARTICULARS		OBSERVATIONS
	TESTS CONDUCTED	REFERENCE CLAUSE	
1.0	IP 6X Category 2 Test, IS/IEC 60529 : 2001 Standard.	**Clause No.11.5 and 13.4** Protection against Ingress of solid foreign objects – Dust Protection Test.	No entry of dust found observed inside the "LT Power Distribution Panel" Enclosure.
2.0	IP X5 Test as per IS/IEC 60529 : 2001 Standard.	**Clause No.11.5 and 14.2.5** Protection against harmful ingress of water – Hose jet of water using nozzle of dia. 6.30 mm, water flow rate 12.5 Ltrs/min ± 5% and at 3 m distance.	No entry of water found observed inside the "LT Power Distribution Panel" Enclosure.

Test Engineer

ELECTRICAL APPLIANCES TECHNOLOGY DIVISION
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CENTRAL POWER RESEARCH INSTITUTE

CPRI

TEST REPORT

Test Report Number: 009EATDIP17S0009 **Dated: 11.01.2017**

Name & Address of the Customer	:	M/s. Indus Power Systems, 5-55, Plot No. 376, I.D.A Jeedimetla, Dullapally road, Phase-5 (extn.), Hyderabad-500055, Telangana State.
Name & Address of the Manufacturer	:	M/s. Indus Power Systems, 5-55, Plot No. 376, I.D.A Jeedimetla, Dullapally road, Phase-5 (extn.), Hyderabad-500055, Telangana State.

Particulars of sample tested

Condition of the sample on Receipt	:	New
Type	:	Indoor/Outdoor
Description of test sample	:	LT Power Distribution Panel.
Serial Number	:	IP54–IPS/002
Number of samples tested	:	One only.
Date (s) of Test (s)	:	10.01.2017 & 11.01.2017
CPRI sample code no(s)	:	EATDIP17S0009

Particulars of tests conducted

Test in accordance with Standard / specification	:	IP 54 Category 2 Test, as per IS/IEC 60529 : 2001 Standard. Clause 11.5, 13.4 and 14.2.4(b)
Sampling Plan	:	Not applicable
Customer's requirement	:	1. IP 54 Category 2 Test, as per IS/IEC 60529 : 2001 Standard. Clause 11.5, 13.4 and 14.2.4(b). 2. Visual observation for entry of dust IP5X Category 2 Test and water IPX4
Deviations if any	:	-Nil-

Name of the witnessing persons

Customer's representative	:	Mr. Y. Naresh Reddy, Supervisor.
Other than customer's representatives	:	None
Test subcontracted with address of the laboratory	:	None

Documents constituting this report (In words)

Number of sheets	:	Three only
Number of oscillograms	:	-Nil-
Number of graphs	:	-Nil-
Number of photos	:	-Nil-
Number of test circuit diagrams	:	-Nil-
Number of drawings	:	Three Only, Drawing No. IPS/GA/IP54/2016, Sheet 1 of 3 to Sheet 3 of 3.

(GUJJALA B.BALARAJU)
Test Engineer

(A.R RAVIKUMAR)
Head of Division

CENTRAL POWER RESEARCH INSTITUTE

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Test Report Number: 009EATDIP17S0009 **Dated: 11.01.2017**

TEST RESULTS:

Sl. No.	PARTICULARS		OBSERVATIONS
	TESTS CONDUCTED	REFERENCE CLAUSE	
1.0	IP 5X Category 2 Test, IS/IEC 60529 : 2001 Standard.	**Clause No.11.5 and 13.4** Protection against Ingress of solid foreign objects – Dust Protection Test.	No entry of dust found observed inside the "LT Power Distribution Panel" Enclosure.
2.0	IP X4 Test as per IS/IEC 60529 : 2001 Standard.	**Clause No.11.5 and14.2.4(b)** Protection against ingress of water – Spray nozzle, water flow rate 10 Ltrs/min ± 5% and at a distance of 0.5 m.	No entry of water found observed inside the "LT Power Distribution Panel" Enclosure.

Test Engineer

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