CENTRAL POWER RESEARCH INSTITUTE

TEST REPORT

Test Report Number : CPRIBPLSTNBMISC25T0252 **Date: 28 July 2025**

CPRI

Name and Address of the Customer	:	Brothers Engineering S.No. 37/2, Near Pari Company, Sinhagad Road, Narhe, Pune, Maharashtra, 411041
Name and Address of the Manufacturer	:	Brothers Engineering S.No. 37/2, Near Pari Company, Sinhagad Road, Narhe, Pune, Maharashtra, 411041
Particulars of Sample Tested	:	415 Vac, 4000A, LT Panel
Condition of sample(s) on receipt	:	New
Type	:	PCC/MCC/ACDB/DCDB/AMF
Description of test sample	:	Refer sheet 2 of 6
Serial Number	:	BE/CPRI/STC/25-26/65
Number of Samples Tested	:	One
Date(s) of Test(s)	:	04 July 2025
CPRI Sample code Number(s)	:	STNBMISC25S0392
Particulars of test(s) conducted	:	Verification of the short circuit withstand strength test.
Test(s) in accordance with Standard/Specification	:	As per customer's requirement and procedure generally followed as per Cl.10.11.5.3.3 & 10.11.5.3.5 of IEC:61439-1, 2020 & IEC:61439-2, 2020
Sampling Plan	:	Nil
Customer's Requirement	:	SCWS test to be conducted on LT panel consists of main busbar only.
Deviations, if any	:	SCWS test was conducted on LT panel consists of main busbar only.
Name of the witnessing persons Customer's representative	:	Mr. Pravin P Remani
Other than Customer's representatives	:	Nil
Test subcontracted with and address of the laboratory	:	Nil

Documents constituting this report (in words)

Number of Sheets	:	Six
Number of Oscillogram(s)	:	Two
Number of Graph(s)	:	Nil
Number of Photograph(s)	:	Two
Number of Test Circuit Diagram(s)	:	Two
Number of Drawing(s)	:	Three

(Prabakaran T)
Test Engineer

(Himangshu Roy)
Head of Division
Reviewed and Authorized by

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DESCRIPTION OF SAMPLE TESTED
(As assigned by the manufacturer)

Test Sample	:	415 Vac, 4000A, LT Panel
Type	:	PCC/MCC/ACDB/DCDB/AMF
Designation	:	Main LT Panel
Serial number	:	BE/CPRI/STC/25-26/65
Voltages		
Rated Voltage (U_n) in V	:	415
Rated Insulation Voltage (U_i) in V	:	660
Rated impulse withstand voltage (U_{imp}) in kV	:	10
Currents		
Rated Current (I_{nA}) in A	:	4000
Rated current of a main outgoing circuit (I_{nc}) in A	:	NA
Rated conditional short-circuit current (I_{cc}) in kA	:	NA
Rated short-time withstand current (I_{cw}) in kA	:	65 kArms for 1.0 second with initial peak of 143 kApk
Rated frequency (f_n) in hz	:	50
Degree of protection	:	IP 43
Material group	:	II
Form of separation	:	3B
Pollution Degree	:	Three
Number of Phases	:	Three Phase + Neutral
Extendable	:	No

NA : Not Applicable

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Test Engineer

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SUMMARY OF TESTS CONDUCTED

1. **Tests conducted** : Verification of short circuit withstand strength
2. **Rating for which tested** : 65 kArms for 1.0 second with initial peak of 143 kApk
3. **Schedule of tests**

Test conducted	Clause Numbers	Sheet
Verification of short circuit withstand strength test (Incoming circuit and main busbars & Neutral conductor)	As per customer's requirement	5 of 6

4. **Oscillogram Numbers** : CPRIBPLSTNBMISC25T0252S002
   CPRIBPLSTNBMISC25T0252S004
5. **Graph Numbers** : Nil
6. **Photograph Numbers** : CPRIBPLSTNBMISC25T0252P01
   CPRIBPLSTNBMISC25T0252P02
7. **Test Circuit Diagram Numbers** : OLTS/TCD-STC-01
   OLTS/TCD-STC-02
8. **Drawing Numbers** : Refer sheet 4 of 6

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LIST OF DRAWINGS

Drawing Numbers

The manufacturer has guaranteed that the sample submitted for the test(s) has been manufactured in accordance with the following drawings

Sl. No.	Drawing Number	Sheet Number	Revision Number
1.	BE/CPRI/BPL/65	01 of 03	00
2.	BE/CPRI/BPL/65	02 of 03	01
3.	BE/CPRI/BPL/65	03 of 03	01

It is verified that these drawings adequately represent the sample tested. Verification of this drawing by CPRI is limited to dimensional check only wherever possible.

(Prabakaran T)
Test Engineer

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VERIFICATION OF THE SHORT CIRCUIT WITHSTAND STRENGTH

Test conducted	:	Verification of the short circuit withstand strength
Test Source	:	Station Transformers
Number of phases	:	Three & Neutral
Frequency	:	50 Hz
Condition Test Sample before test	:	New
Test connections	:	Connected to source
Safety parameter	:	Test sample was insulated from earth and connected to the neutral of the supply via a fusible element consisting of a copper wire 0.8 mm in diameter and at least 50 mm long for detection of fault.
Transformer neutral & short circuit point	:	Refer Test Circuit Diagram No. OLTS/TCD-STC-01 for three phase test and OLTS/TCD-STC-02 for single phase test.

Test results:

Oscillogram Number	Peak kApk	RMS in kA			Duration (second)	Equivalent current in kArms for said duration
		Ir	Iy	Ib		
CPRIBPLSTNBMISC25T0252S002	143.59 (R-phase)	65.73	65.99	65.34	1.0	65.99
(Three phase Short circuit withstand strength test conducted on main circuit busbars consisting of HBB+VBB)						
CPRIBPLSTNBMISC25T0252S004	82.56	39.62			1.0	39.62
(Single phase short circuit withstand strength test conducted on neutral & nearest phase of main circuit busbars consisting of HBB+VBB)						

Observations

During test : No abnormality observed.

After test : No abnormality observed in visual inspection. Fine wire fuse was found intact. All busbars & supports were found intact.

Remarks : After test, the sample withstood HV test at 1.0kVrms for sixty second.

Conclusion : The sample tested complies with the requirement of the customer for the test conducted.

(Prabakaran T)
Test Engineer

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NOTE

a) The Test results relate only to the sample(s) tested.

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(Prabakaran T)
Test Engineer

----------End of Test Report----------