केन्द्रीय विद्युत अनुसंधान संस्थान

(भारत सरकार की सोसाइटी, विद्युत मंत्रालय)

प्रो.सर.सी. वी. रामन रोड, सदाशिवनगर डाक घर, पो. बा. सं. 8066, बेंगलूरू – 560 080.

CENTRAL POWER RESEARCH INSTITUTE

(A Govt. of India Society under Min. of Power)

Prof. Sir.C.V. Raman Road, Sadashivanagar P.O., P.B. No. 8066. Bengaluru - 560 080. India

वेब साइट/website : http://www.cpri.in

CABLES & DIAGNOSTIC DIVISION

CABLES LAB

No. 2/1/CABLES/17-18

Date: 03.01.2018

M/s. GALA SHRINK FIT
Plot No. 5 to 9, Palghar Manor Road,
Sajjan Pada, Chahade Village,
Dist-Palghar 401 404. Maharashtra.

Dear Sir,

Sub: - Test on 1.1 kV Cable Accessories.

- - -

With reference to the above, Test on 1.1 kV Cable Accessories has been completed and our Test Report No. CDD –0570 dated 29.12.2017 is enclosed.

In order to prevent tampering of test report, CPRI has introduced hologram on the first page of the test report with effect from 01.10.2007.

Any discrepancy in these test reports may be brought to notice with in forty five days from the date of issue of test reports. Please acknowledge the receipt of the test report.

Thanking you.

Yours faithfully,

(K.P Meena),
Joint Director.

CPRI

TEST REPORT

Central Power Research Institute

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

CENTRAL POWER RESEARCH INSTITUTE

CPRI

TEST REPORT

Test Report Number : CDD- 0570 **Dated** : 29.12..2017

Name & Address of the Customer : M/s. Gala Shrink Fit.,
Plot No. 5 to 9, Palghar Manor Road, Sajjan Pada,
Chahade Village, Dist- palghar 401404. Maharashtra.

Name & Address of the Manufacturer : M/s. Gala Shrink Fit.,
Plot No. 5 to 9, Palghar Manor Road, Sajjan Pada,
Chahade Village, Dist- palghar 401404. Maharashtra.

Particulars of sample tested : GALA Heat Shrinkable straight through joint & Terminations mounted on 3.5 X300 mm^2 1.1 kV(E) XLPE Cable

Condition of the sample on receipt : New

Type : Heat Shrinkable straight through joint & terminations

Description of test sample : (CABLE)
Conductor material: Aluminium
Size:300 mm^2
Number of cores:Three & a Half
Insulation: XLPE
Armour: Galvanised Steel Round Wire
Outer sheath: PVC
Voltage rating: 1.1 kV
CABLE ACCESSORIES:
Terminations: Two Indoor/ Outdoor (Type II)
Type: Heat shrinkable
Joint : One Straight through (Type II)
Type :Heat Shrinkable

Serial Number : NIL
Number of Samples tested : One
Date(s) of Test(s) : 24.10.2017 to 26.12.2017
CPRI Sample Code no(s) : CDDCAB17S0186

Particulars of test conducted : Type Test
Test in accordance with Standard /Specification : As per IS 13573 Part I- 2011
Sampling plan : Not Applicable
Customer's requirement : INil
Deviation if any : Nil

(Thirumurthy)
Test Engineer

(K.P.Meena)
Joint Director
Approved By

CENTRAL POWER RESEARCH INSTITUTE

CPRI

TEST REPORT

Test Report No.:CDD-0570 **Date:29.12.2017**

Name of the witnessing persons

Customer's representatives	: None
Other than customer's representatives	: None
Test subcontracted with address of the laboratory	: Nil

Documents constituting this report (in words)

Number of sheets	: Seven
Number of oscillogram/s	: Nil
Number of graphs	: Nil
Number of photos	: Nil
Number of test circuit diagrams	: Nil
Number of drawings	: Two. Drg.No:GALA/GXLT/01 Drg No.: GALA/GLT/01

(Thirumurthy)
Test Engineer

(K.P.Meena)
Joint Director
Approved By

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TEST REPORT

Test Report No.:CDD-0570 **Date:29.12.2017**

TEST RESULTS

1. IMPULSE WITHSTAND TEST:

a) No. of Impulses :10 Positive & 10 Negative
b) Test Connection : High voltage connected to test core and other cores shorted to grounded armour
c) Ambient Conditions: Dry : 26 Deg.C Wet: 24.0 Deg.C

Sl. No.	Test Core	Impulse Voltage (kV)	Result
1.	Red (Positive & Negative)	20.0	Withstood
2.	Yellow (Positive & Negative)	20.0	Withstood
3.	Blue (Positive & Negative)	20.0	Withstood
4.	Black (Positive & Negative)	20.0	Withstood

(Oscllograms enclosed)

2. Heating Cycle Test In Air (With Joints And Terminations):

a) Temperature of Conductor during heating cycle : 95 to 100 Deg.C
b) Duration of heating after steady state Temperature : Two hours
c) Total duration of cycle : 8 hours
d) Duration of Cooling : 3 Hours
e) No. of Heating cycles : 63 only

3. Heating Cycle Test In Water (For Joint and terminations):

An annulus of over sheath together with bedding of 50 mm length was removed, at a point 50 mm and 150 mm from the exterior of joint. Then the joint was immersed in a water bath with a water height of 1000 mm above the Cable axis. The terminations were immersed in such a way that water height of 300 mm was maintained over the crutch of the terminations. Then the following conditions were maintained during the heating cycle test.

a) Temperature of Conductor during heating cycle : 95 to 100 Deg.C
b) Duration of heating after steady state Temperature : Two hours
c) Total duration of cycle : 8 hours
d) Duration of Cooling : 3 Hours
e) No. of Heating cycles : 63 only

4. INSULATION RESISTANCE TEST: (Immersed)

a) Test Voltage : 500 V dc
b) Electrification time : One minute
c) Specified Insulation Resistance : 50 MΩ (min)
d) Ambient Temperature : 26 ^{0}C
e) Length of sample : 10.0 metres

(Thirumurthy)
TEST ENGINEER

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TEST REPORT

Test Report No.:CDD-0570 **Date:29.12.2017**

TEST RESULTS

f) Observed Values(in MΩ) :

Sl. No.	Test connection	Insulation resistance in MΩ
1.	Red core Vs other cores	1.34×10^6
2.	Yellow core Vs other cores	1.14×10^6
3.	Blue core Vs other cores	1.09×10^6
4.	Black core Vs other cores	1.69×10^6
5.	All cores Vs armour	3.02×10^5

5) **INSULATION RESISTANCE TEST: (In air)**

a) Test Voltage : 500 V dc
b) Electrification time : One minute
c) Specified Insulation Resistance : 50 MΩ (min)
d) Ambient Temperature : $26\ ^0$C
e) Length of sample : 10 metres
f) Observed Values(in MΩ) :

Sl. No.	Test connection	Insulation resistance in MΩ
1.	Red core Vs other cores	1.11×10^6
2.	Yellow core Vs other cores	1.13×10^6
3.	Blue core Vs other cores	1.05×10^6
4.	Black core Vs other cores	1.29×10^6
5.	All cores Vs armour	2.95×10^5

6) **INSULATION RESISTANCE TEST: (Immersed)**

a) Test Voltage : 500 V dc
b) Electrification time : One minute
c) Specified Insulation Resistance : 50 MΩ (min)
d) Ambient Temperature : $26\ ^0$C
e) Length of sample : 10 metres
f) Observed Values(in MΩ) :

Sl. No.	Test connection	Insulation resistance in MΩ
1.	Red core Vs other cores	1.15×10^6
2.	Yellow core Vs other cores	1.11×10^6
3.	Blue core Vs other cores	9.98×10^5
4.	Black core Vs other cores	1.52×10^6
5.	All cores Vs armour	2.24×10^5

(Thirumurthy)
TEST ENGINEER

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TEST REPORT

Test Report No.:CDD-0570 **Date:29.12.2017**

TEST RESULTS

7. IMPACT TEST FOR JOINT

The joint was placed inside a box filled with sand placed on a hard surface..A wedge shaped mass of 4 Kg having a right angle with a 2mm radius impacting edge was dropped freely from a height of one metre on the specimen such that the impacting edge is horizontal and at right angle to the axis of the joint.

No. of Impacts: Three (One in the middle of the joint, and one at the mid point of the moisture seal at each cable entry)

After the impact test, the joints were immersed in a water bath keeping a water head of one metre above the cable for 12 hours and subjected to the following tests.

8. AC VOLTAGE WITHSTAND TEST: (Immersed)

a) Test Voltage : 4.0 kV AC
b) Duration of test : 1 Minute
c) Ambient Temperature : 27 ^{0}C
d) Length of sample : 10.0 metres
e) Result :

Sl.No.	Test Connection	Result
1.	Red core Vs other cores Shorted with armour and grounded	Withstood
2.	Yellow core Vs other cores Shorted with armour and grounded	Withstood
3.	Blue core Vs other cores Shorted with armour and grounded	Withstood
4.	Black core Vs other cores Shorted with armour and grounded	Withstood
5.	All cores Vs grounded metallic armour	Withstood

9.. AC VOLTAGE WITHSTAND TEST: (In air)

a) Test Voltage : 4.0 kV AC
b) Duration of test : 1 Minute
c) Ambient Temperature : 27 ^{0}C
d) Length of sample : 10 metres
e) Result :

Sl.No.	Test Connection	Result
1.	Red core Vs other cores Shorted with armour and grounded	Withstood
2.	Yellow core Vs other cores Shorted with armour and grounded	Withstood
3.	Blue core Vs other cores Shorted with armour and grounded	Withstood
4.	Black core Vs other cores Shorted with armour and grounded	Withstood
5.	All cores Vs grounded metallic armour	Withstood

(Thirumurthy)
TEST ENGINEER

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TEST REPORT

Test Report No.:CDD-0570 **Date:29.12.2017**

TEST RESULTS

10. AC VOLTAGE WITHSTAND TEST: (Immersed)

a) Test Voltage : 4.0 kV AC
b) Duration of test : 1 Minute
c) Ambient Temperature : 26 ^{o}C
d) Length of sample : 9.70 metres
e) Result :

Sl.No.	Test Connection	Result
1.	Red core Vs other cores Shorted with armour and grounded	Withstood
2.	Yellow core Vs other cores Shorted with armour and grounded	Withstood
3.	Blue core Vs other cores Shorted with armour and grounded	Withstood
4.	Black core Vs other cores Shorted with armour and grounded	Withstood
5.	All cores Vs grounded metallic armour	Withstood

11. VISUAL EXAMINATION:

After all tests, the joint and terminations were sectioned and examined for any abnormalities.
Remarks: No abnormalities were observed to affect the performance of joint and terminations.

(Thirumurthy)
TEST ENGINEER

CENTRAL POWER RESEARCH INSTITUTE

CPRI

TEST REPORT

Test Report No.:CDD-0570 **Date:29.12.2017**

NOTE

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

b) Publication or reproduction of this report in any form other than by complete set of the whole report and in the language written, is not permitted without the written consent of CPRI.

c) Any Corrections/erasure invalidates this test report.

d) NABL has Accredited this laboratory as per ISO 17025-2005 standard, vide certificate no. TC-5452 for the tests carried out

e) Any anomaly/discrepancy in this test report should be brought to our notice within 45 days from the date of issue.

(Thirumurthy)
TEST ENGINEER

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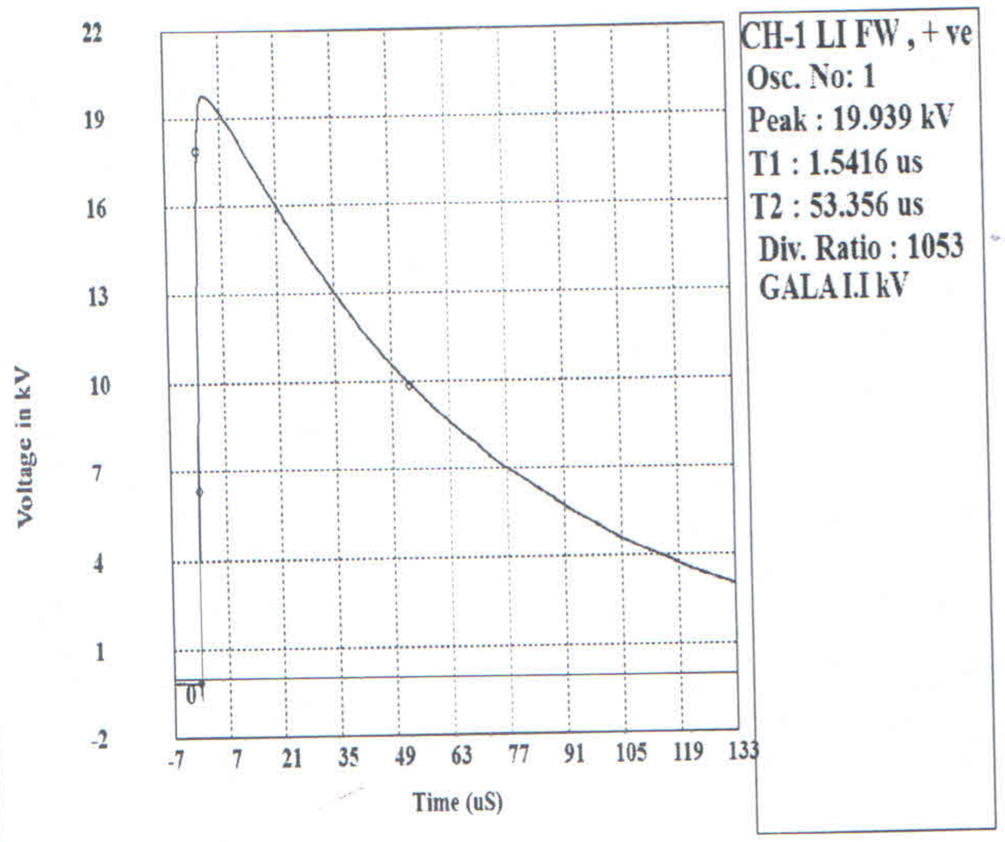
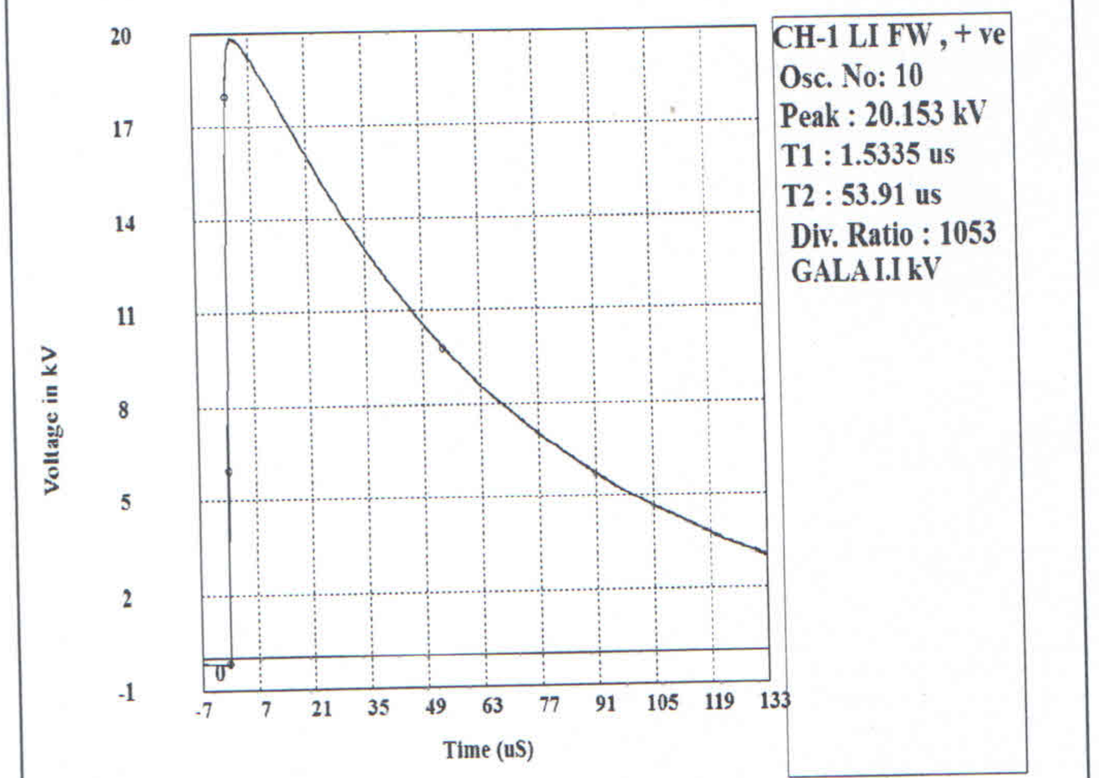
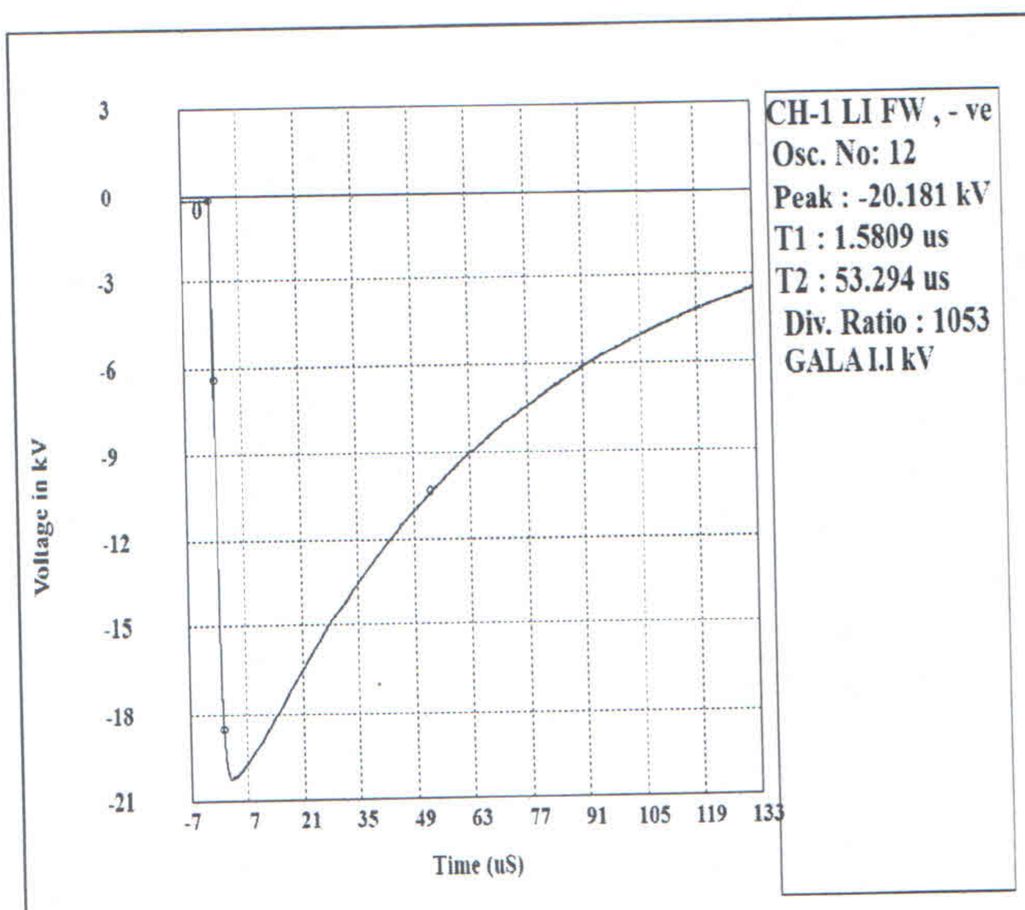
CENTRAL POWER RESEARCH INSTITUTE

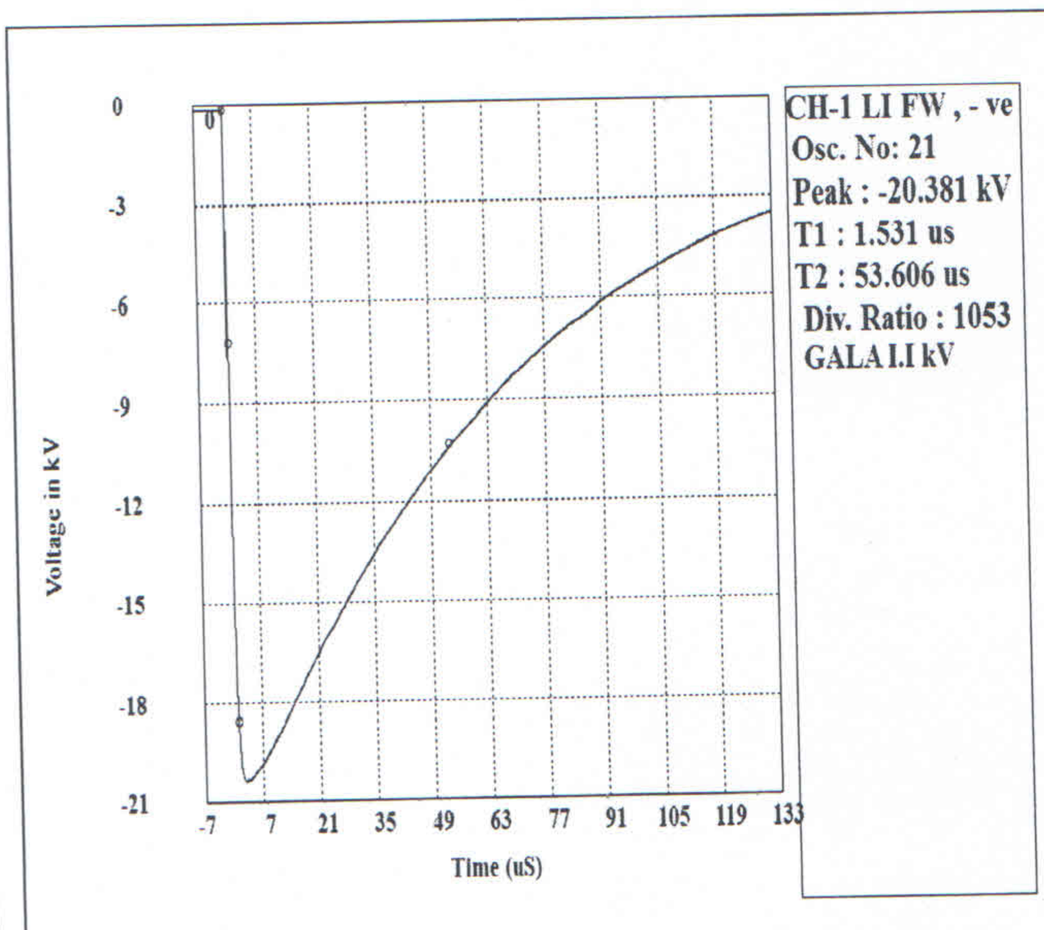
CPRI

Customer : M/s. GALA SHRINK FIT, PALGHAR
Test Report No. & Date : CDD – 0570 Dt.29.12.2017
Sample Code : CDDCAB17S0186
Core : Red









(Thirumurthy)
Test Engineer

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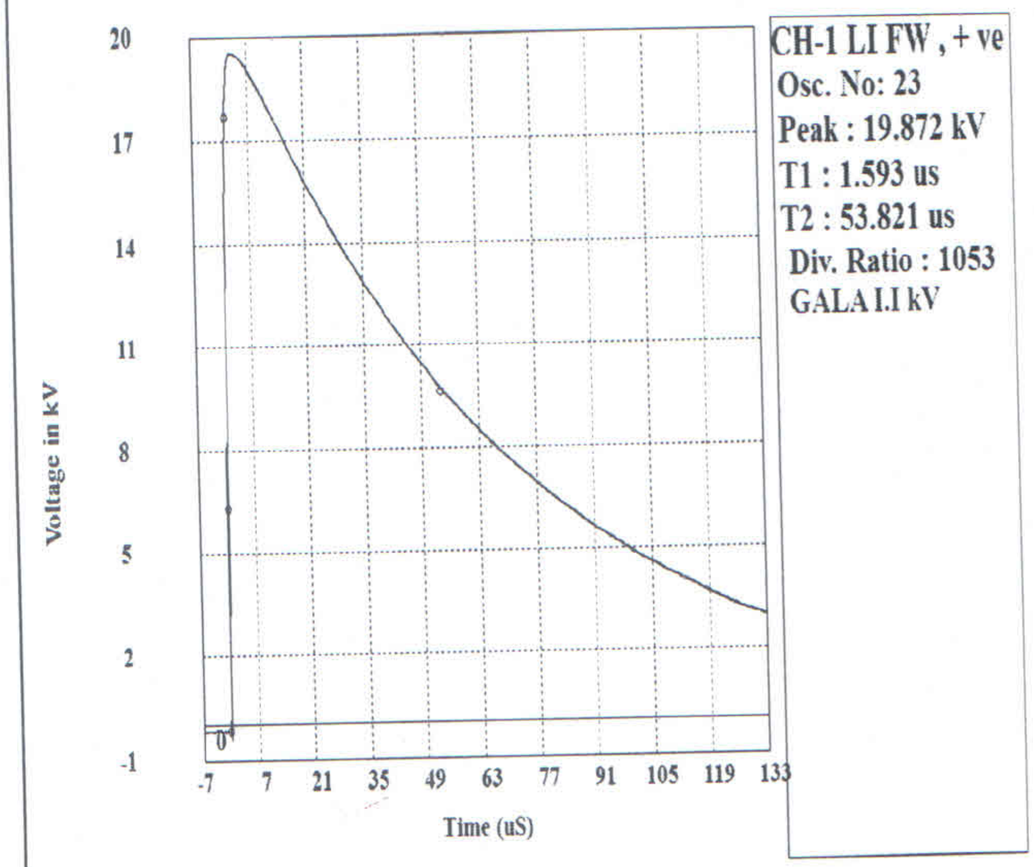
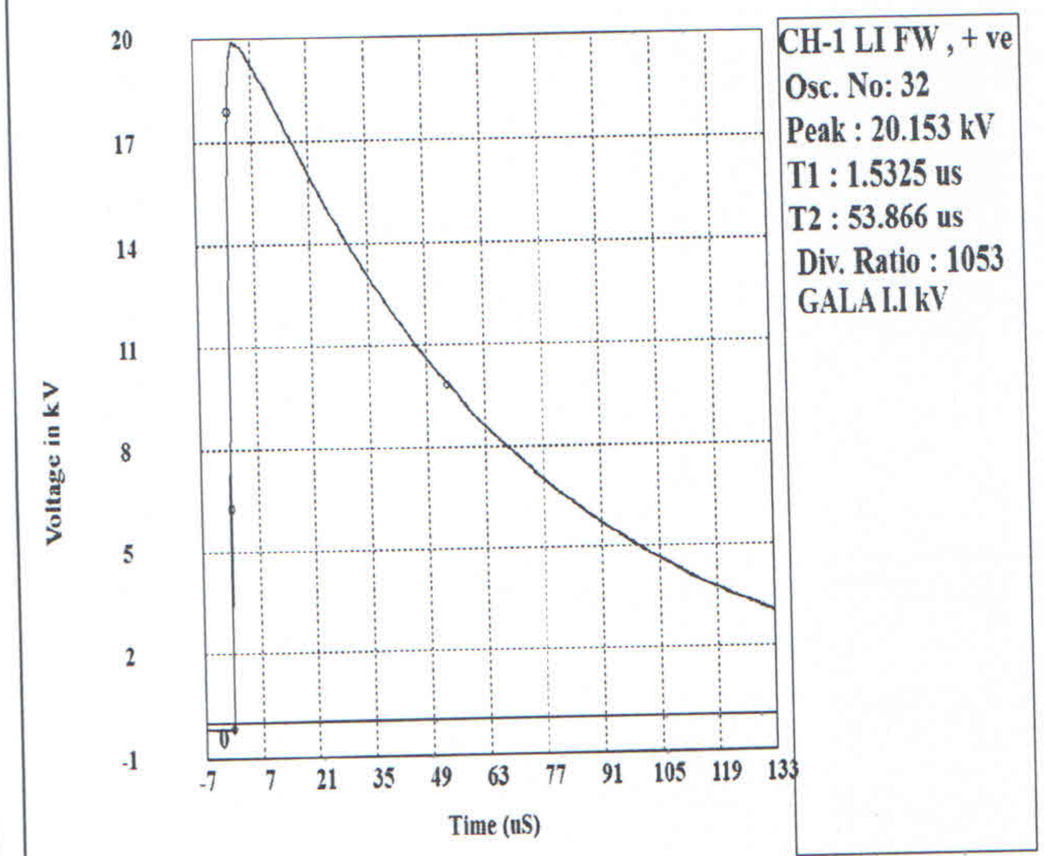
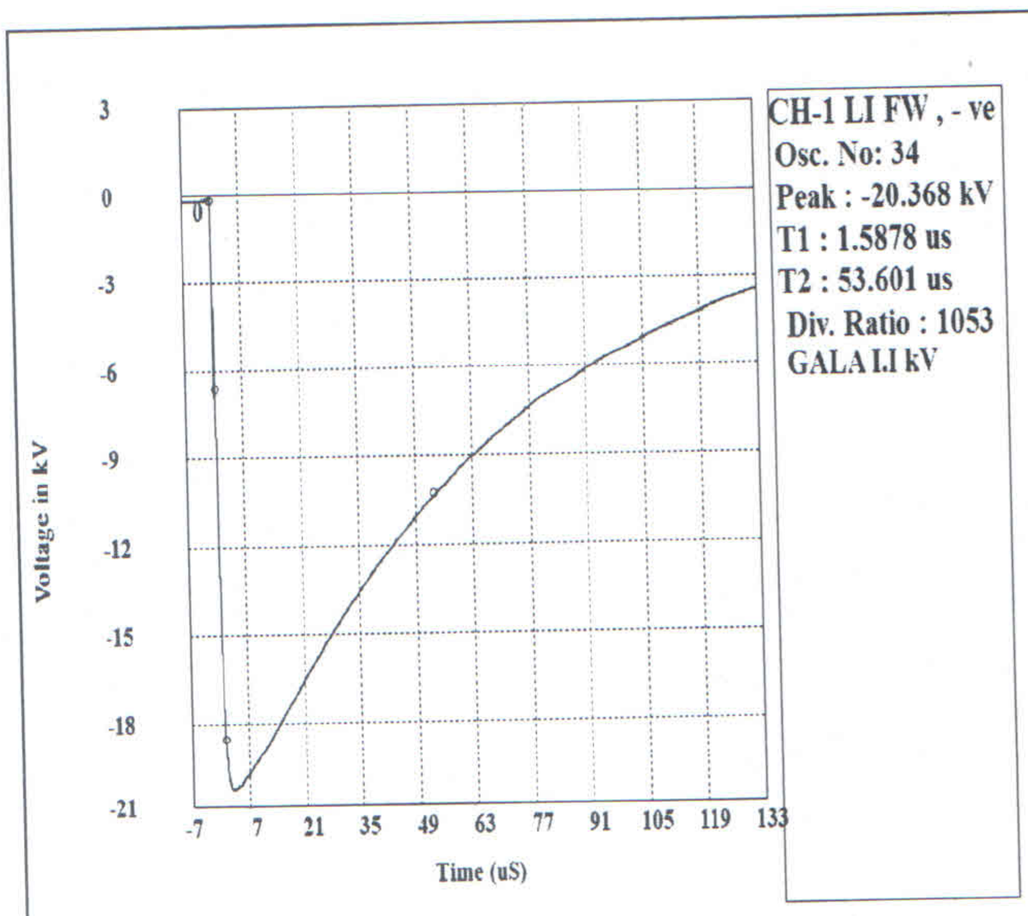
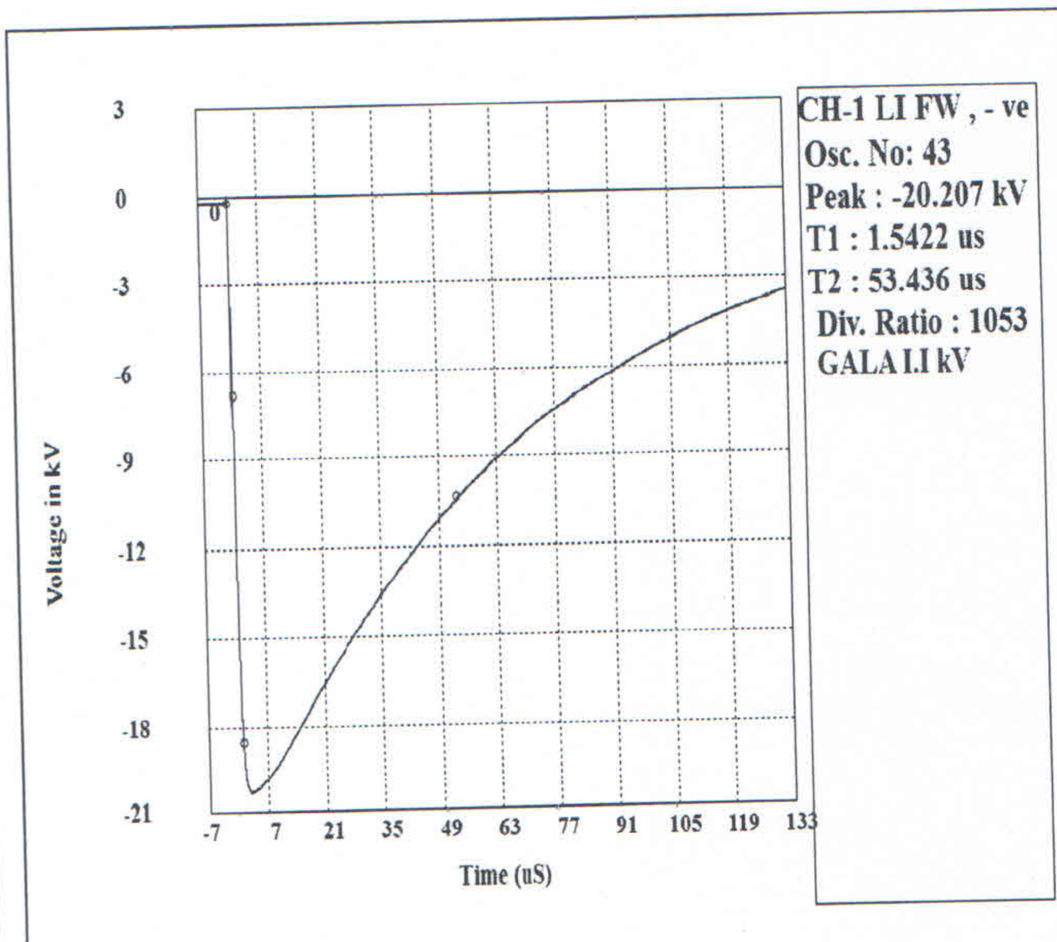
CPRI

Customer : M/s. GALA SHRINK FIT, PALGHAR
Test Report No. & Date : CDD – 0570 Dt.29.12.2017
Sample Code : CDDCAB17S0186
Core : Yellow









(Thirumurthy)
Test Engineer

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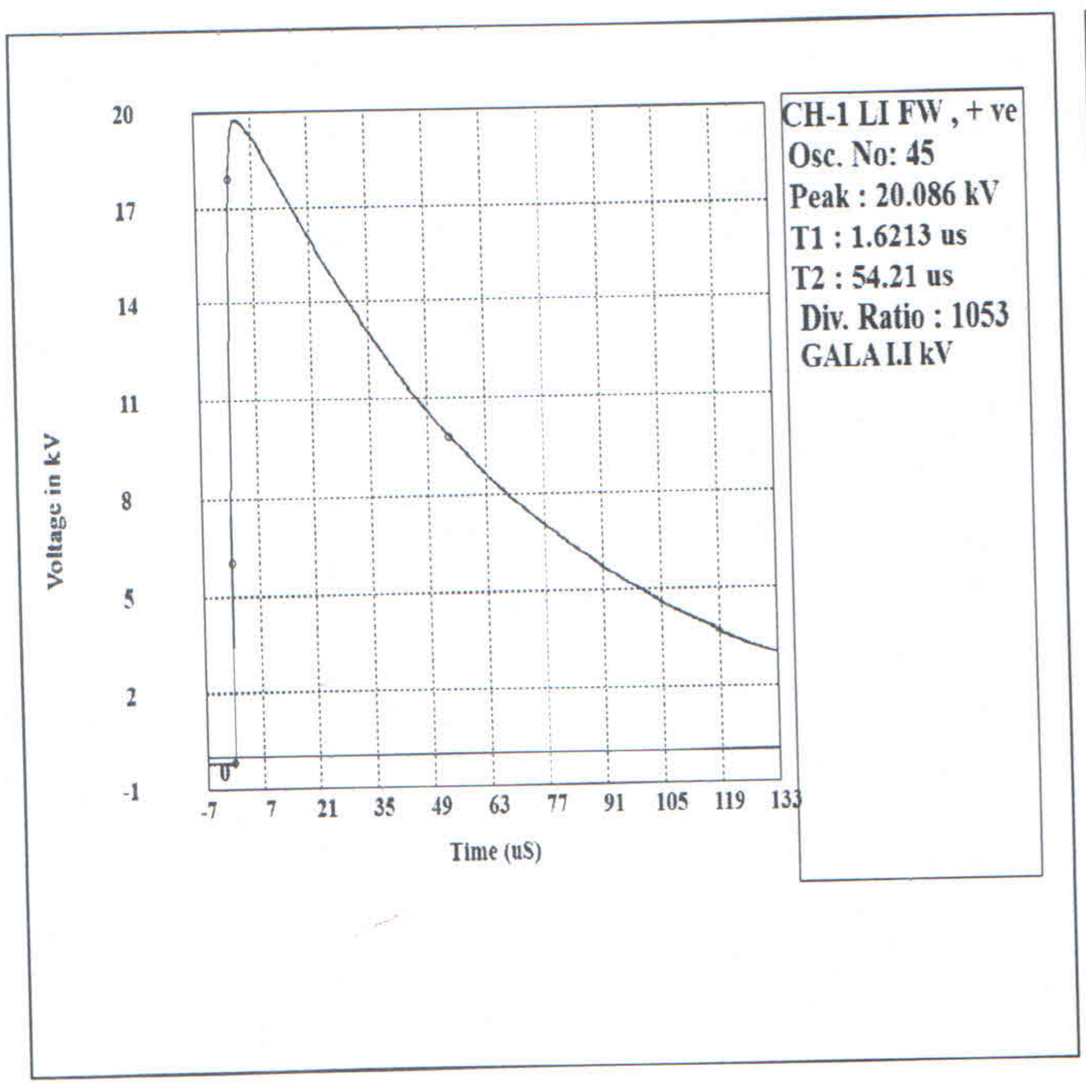
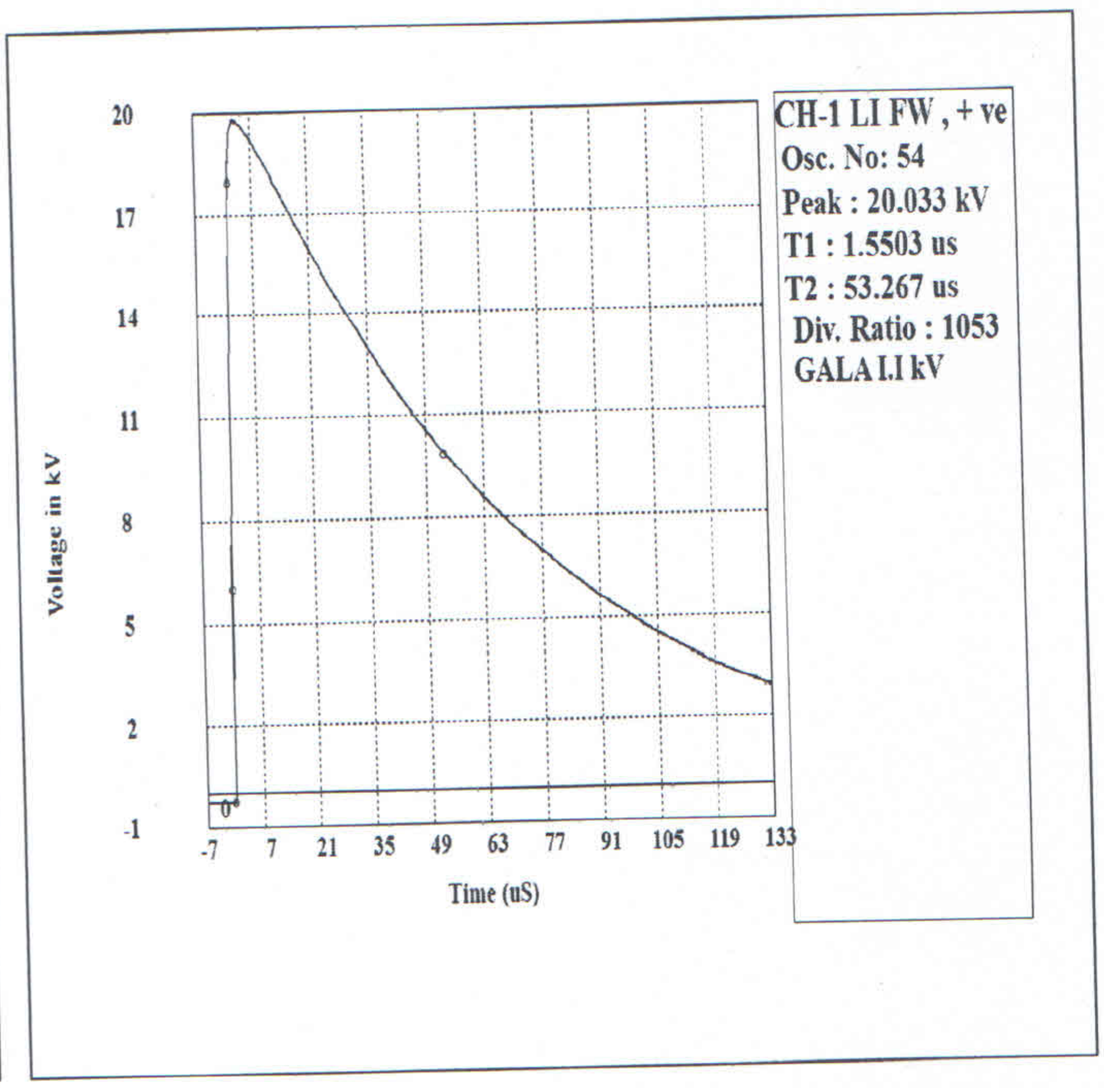
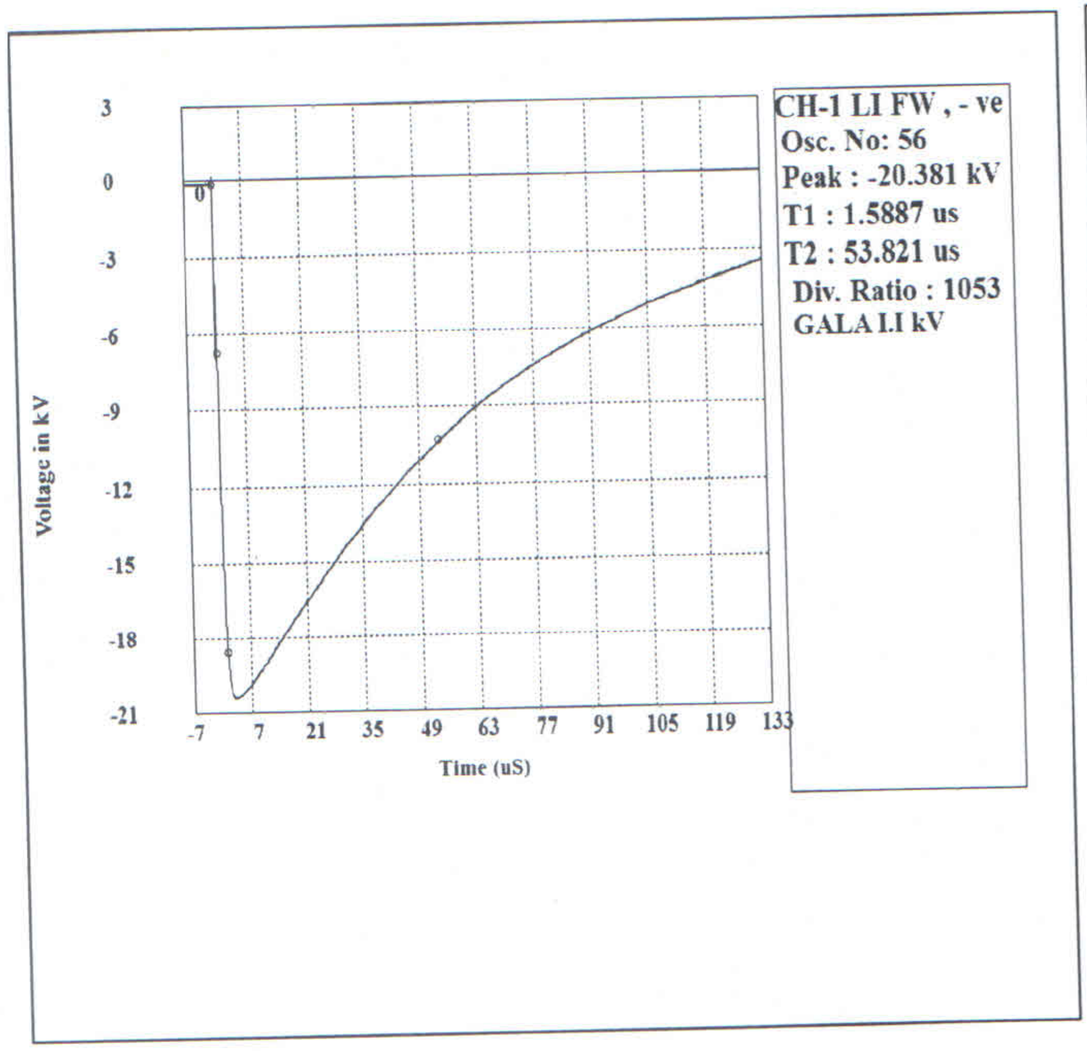
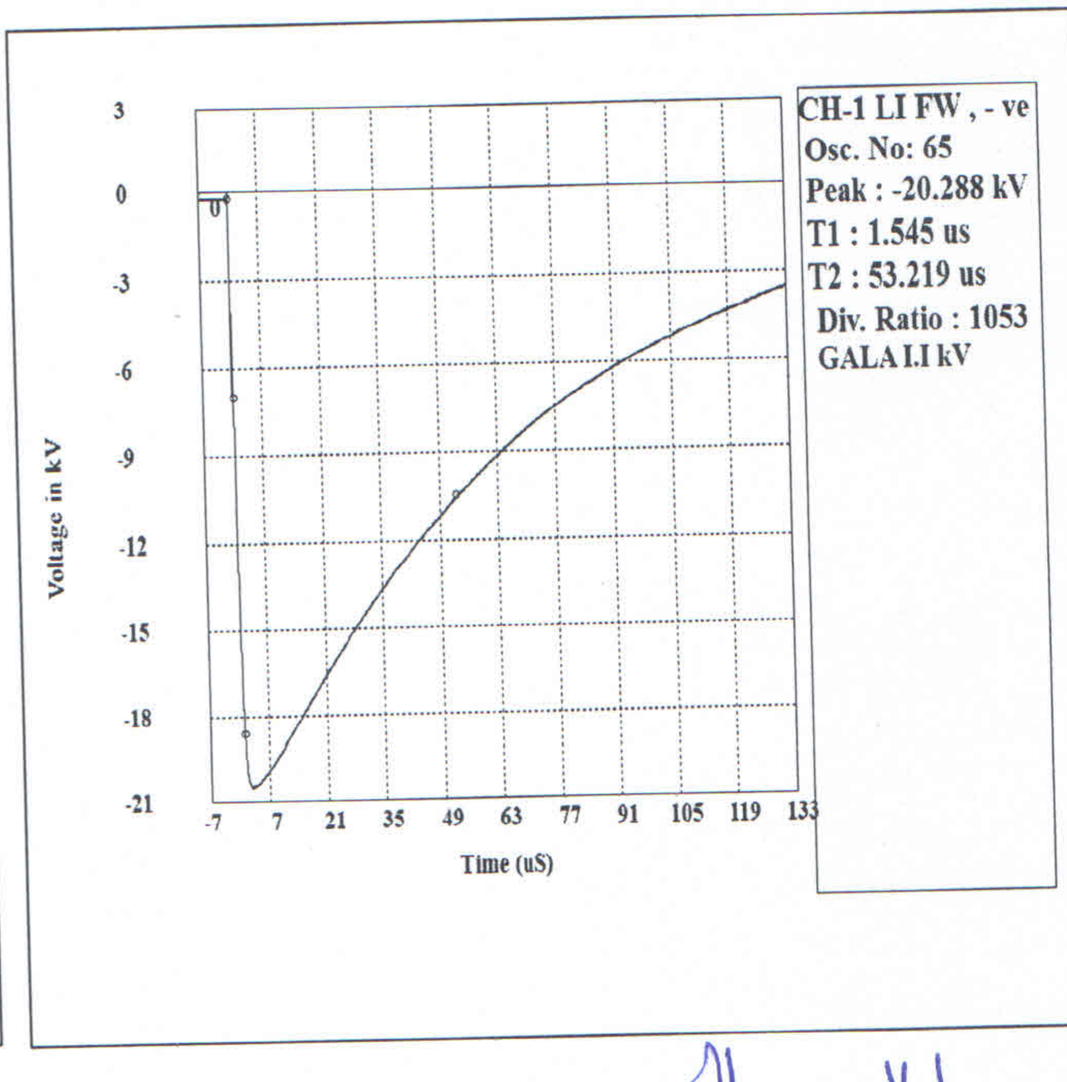
CPRI

Customer : M/s. GALA SHRINK FIT, PALGHAR
Test Report No. & Date : CDD – 0570 Dt. 29.12.2017
Sample Code : CDDCAB17S0186
Core : Blue









(Thirumurthy)
Test Engineer

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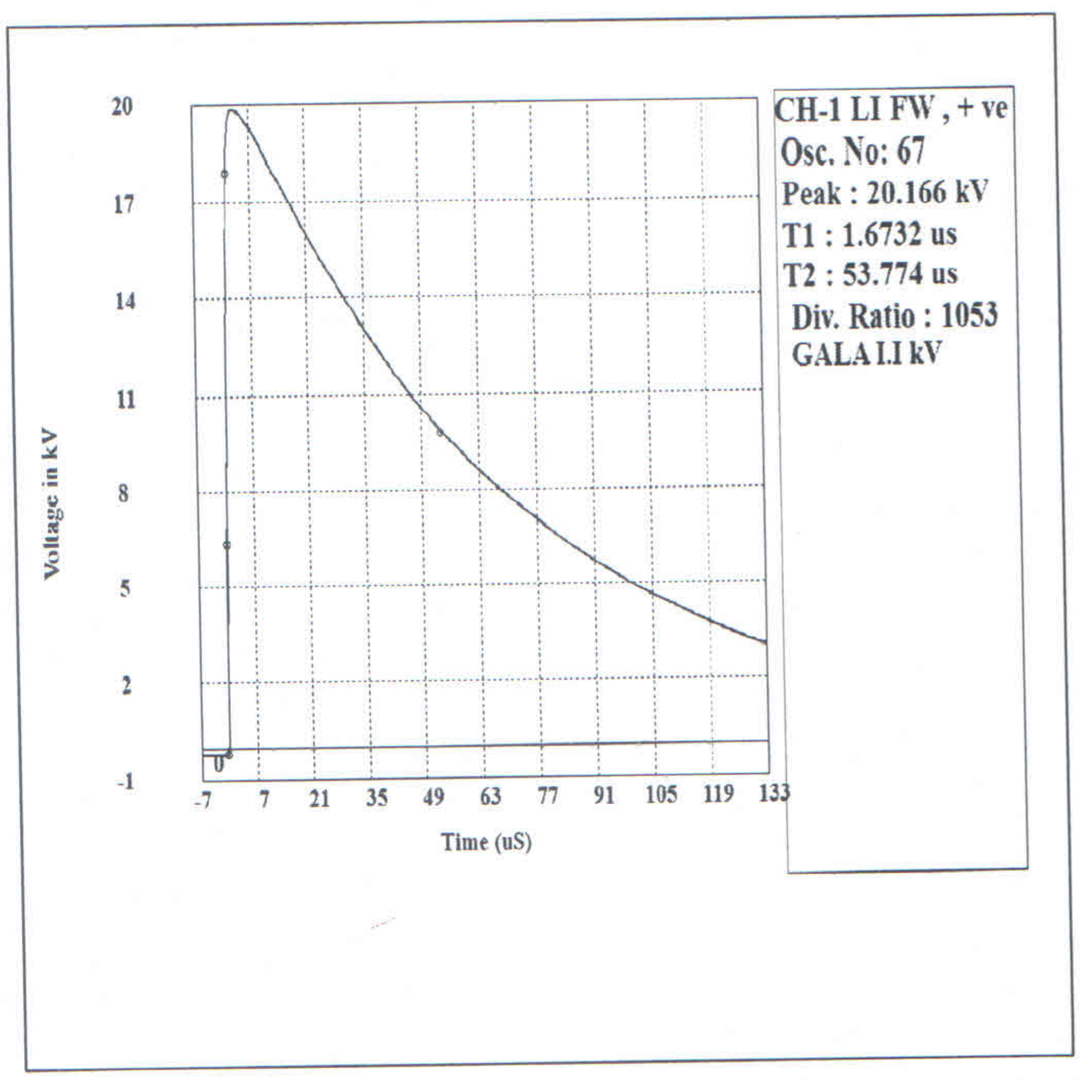
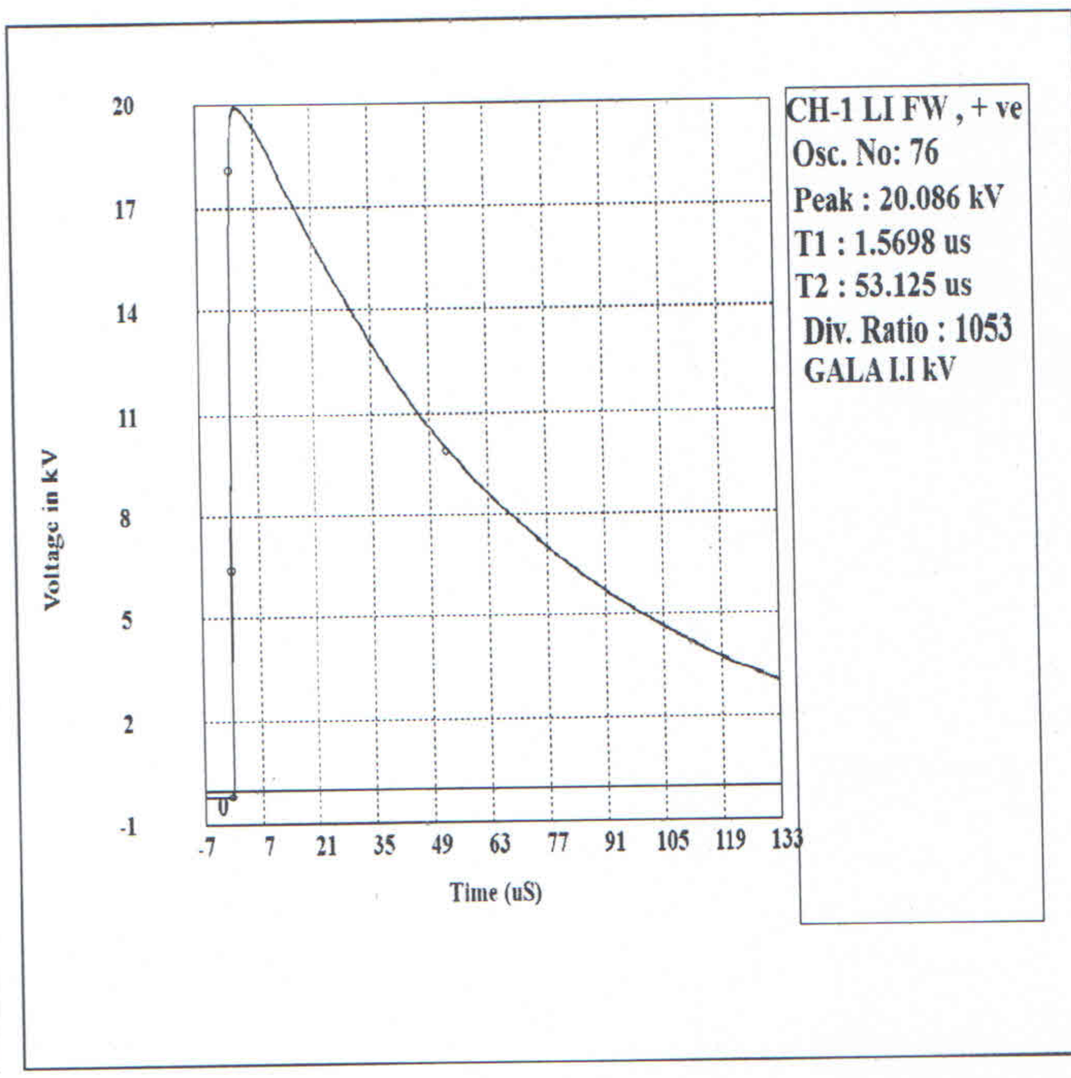
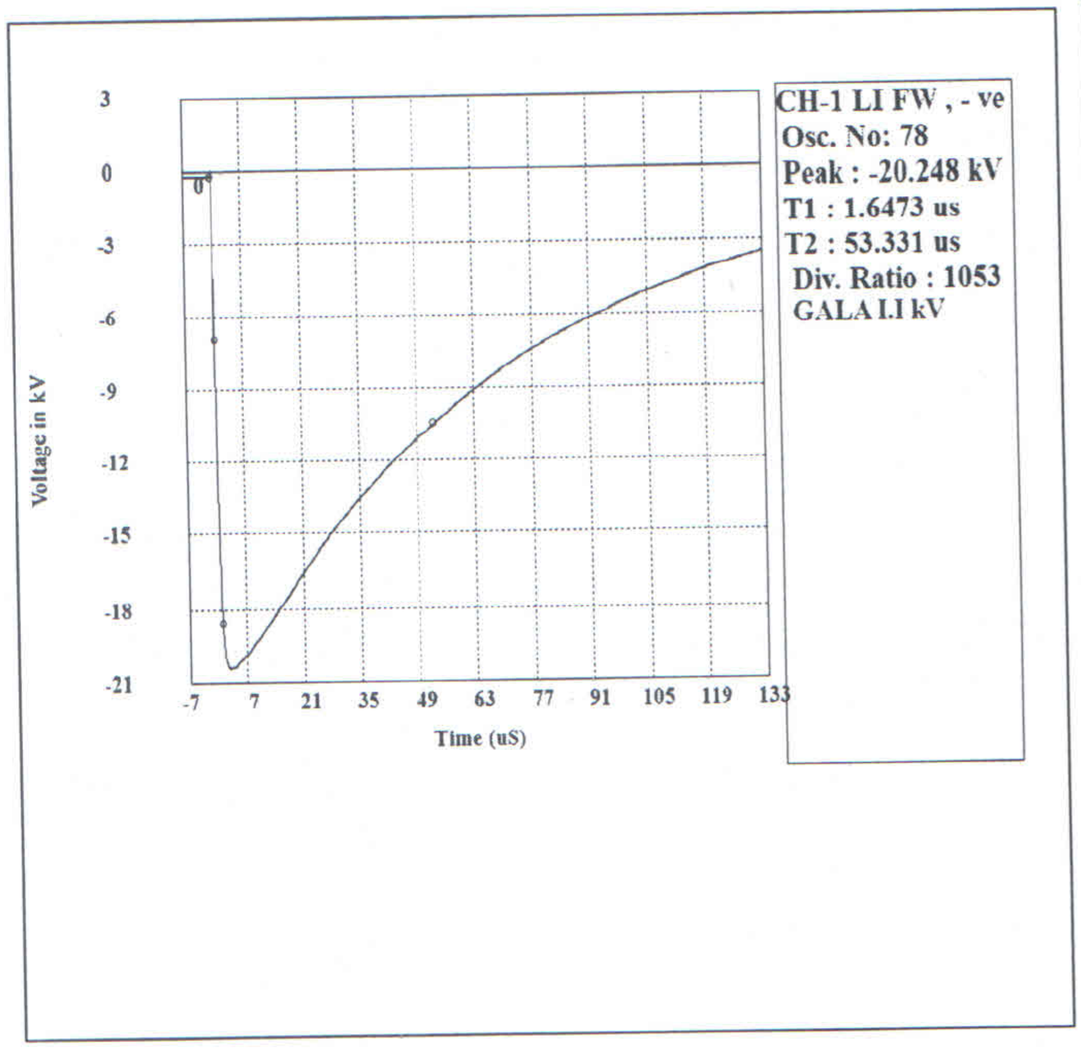
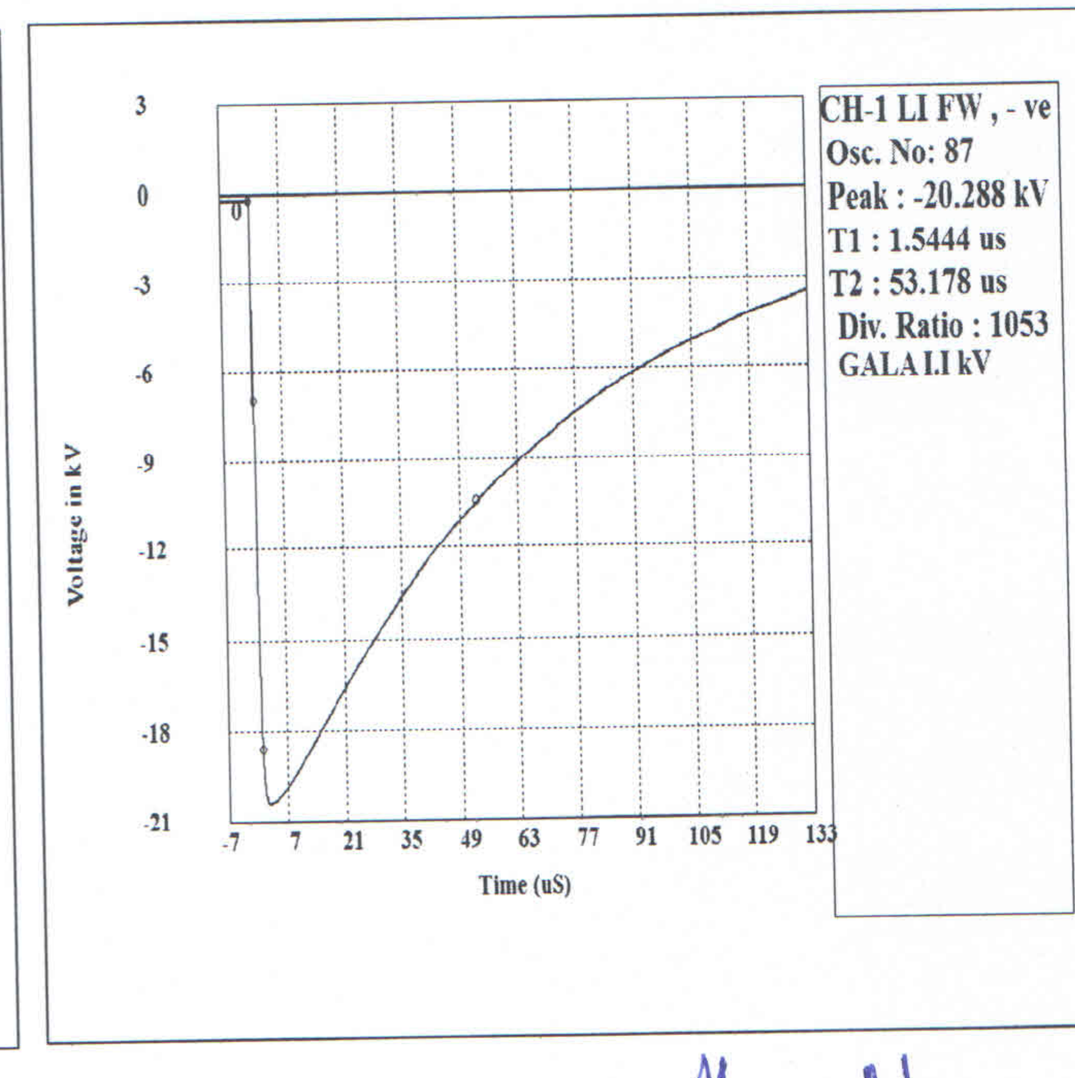
CPRI

Customer : M/s. GALA SHRINK FIT, PALGHAR
Test Report No. & Date : CDD – 0570 Dt. 29.12.2017
Sample Code : CDDCAB17S0186
Core : Black









(Thirumurthy)
Test Engineer

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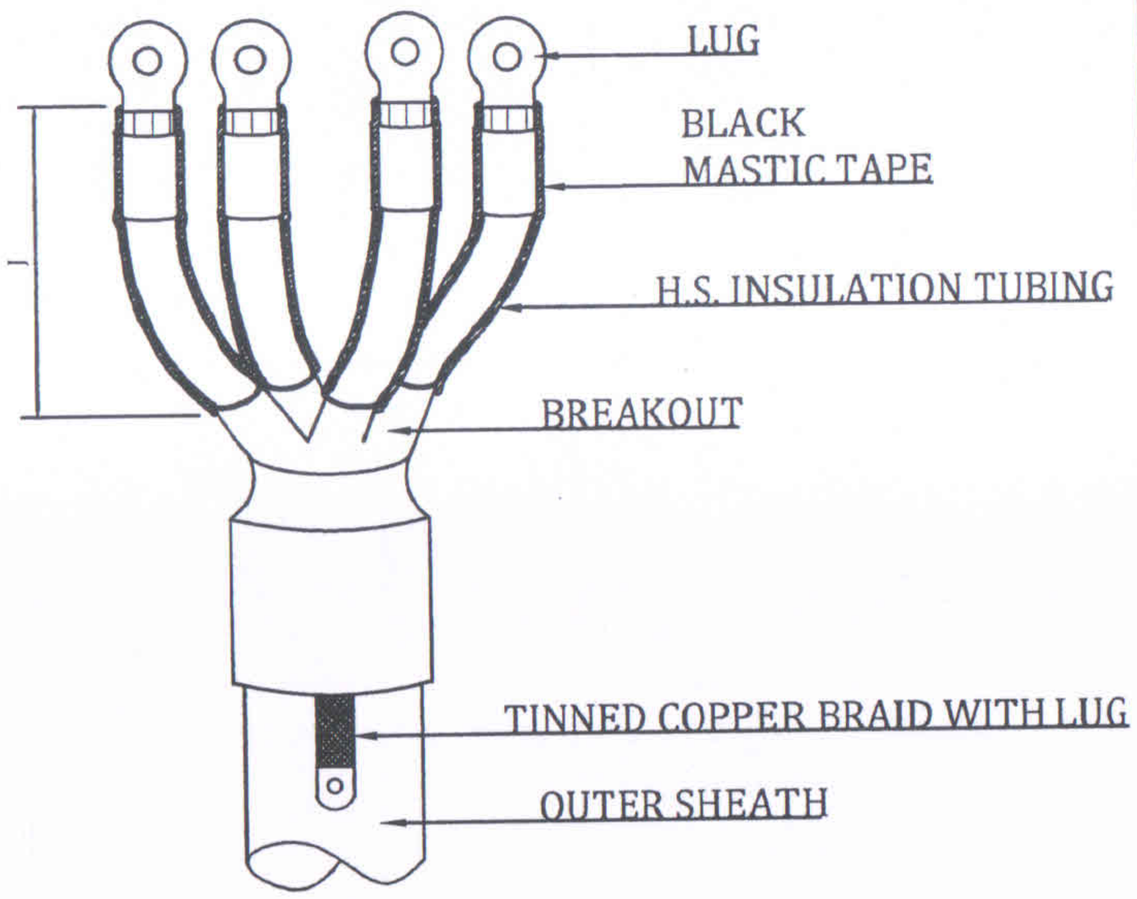
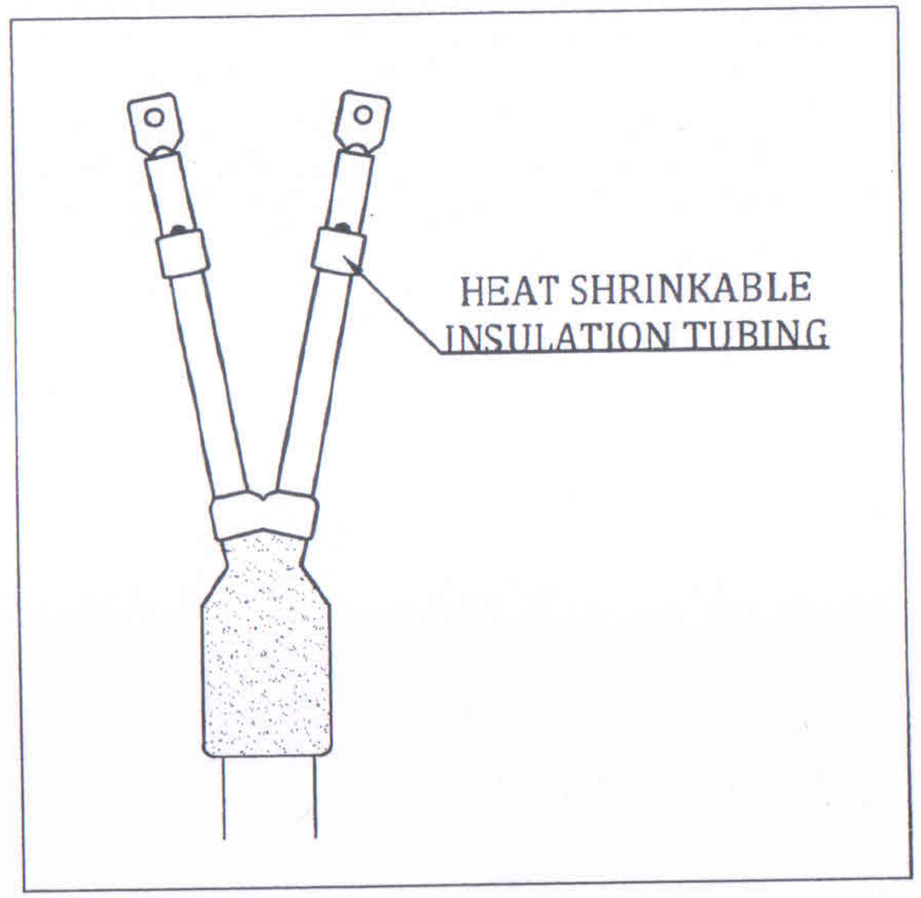


J = As per site requirement (Min 450mm)



यह ड्राइंग सीपीआरई की परीक्षण रिपोर्ट से संबंधित है।
THIS DRAWING PERTAINS TO CPRI TEST REPORT
सं. सीडीडी / No. CDD. 0570
दिनांक / Dated : 29.12.2017.

परीक्षण इंजीनियर/Test Engineer

NOTES :-
PLEASE REFER TO INSTRUCTION MANUAL FOR INSTRUCTION PROCEDURE

REV.	DATE	DETAILS OF REVISION

REVISION DETAILS

GALA Innovative Insulating Solutions

GALA SHRINK FIT (Palghar)

GALA CODE :	GLT
MANUAL CODE	IIS-14XT-0315
MATERIAL.:	HEAT SHRINKABLE

	NAME	DATE
DRWN.	Rakesh	10.01.2017
CHD.	Arun S.	10.01.2017
APP.	Jayraman	10.01.2017

PART NAME :-
HEAT SHRINKABLE TERMINATION SUITABLE FOR LOW VOLTAGE

DRAWING NO.
GALA/GLT/01

DWG. SIZE : A4 REV. NO. 00
SCALE : 1:4.5 ALL DIM. ARE IN mm.
SHEET NO. 1OF1

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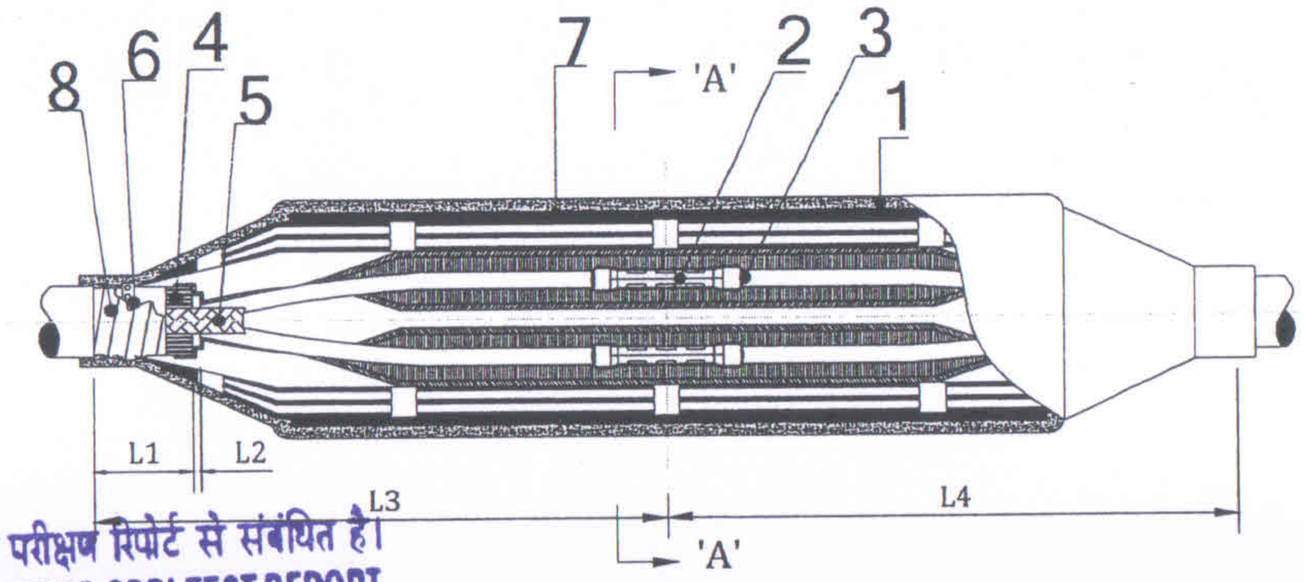

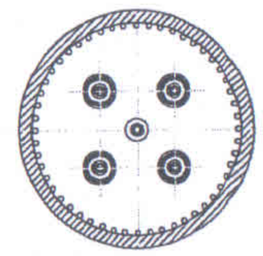

SECTION - 'A-A'

यह ड्राइंग सीपीआरई की परीक्षण रिपोर्ट से संबंधित है।
THIS DRAWING PERTAINS TO CPRI TEST REPORT
सं. सीडीडी / No. CDD..... 0570 .....
दिनांक / Dated : 29.12.2017 .....

परीक्षण इंजीनियर/Test Engineer

Sr. No.	CABLE SIZE SQ. MM.	L1	L2	L3	L4
1	3.5/4 x 1.5-6	60	10	200	150
2	3.5/4 x 10-16	60	10	200	150
3	3.5/4 x 25-50	60	10	250	200
4	3.5/4 x 70-150	60	10	350	250
5	3.5/4 x 185-400	60	10	450	350

SR.NO	DESCRIPTION OF KIT CONTENTS
1	HEAT SHRINKABLE OUTER JACKETING SLEEVE
2	HEAT SHRINKABLE INSULATING TUBING FOR FERRULE
3	BLACK MASTIC TAPE OVER CONNECTOR
4	BACK UP RING
5	TINNED COPPER BRAID
6	JUBILEE CLIP
7	G.I.WIRE MESH
8	BLACK MASTIC TAPE

NOTES :-
PLEASE REFER TO INSTRUCTION MANUAL FOR INSTRUCTION PROCEDURE
IIS-14XJ-0315

REV.	DATE	DETAILS OF REVISION

REVISION DETAILS

GALA
Innovative Insulating Solutions
GALA SHRINK FIT (Palghar)

	NAME	DATE
DRWN.	Rakesh	10.01.2017
CHD.	Arun S.	10.01.2017
APP.	Jayraman	10.01.2017

GALA CODE :	GXLT	PART NAME :- HEAT SHRINKABLE STRAIGHT THROUGH JOINT SUITABLE FOR LOW VOLTAGE		DRAWING NO.	
MANUAL CODE	IIS-14XJ-0315			GALA/GXLT/01	
MATERIAL:	HEAT SHRINKABLE	DWG. SIZE : A4	REV. NO. 00		
		SCALE : 1:4.5	ALL DIM. ARE IN mm.	SHEET NO.	1OF1