



TEST REPORT # Simulated Surge Arrester-20170412-LMA

**Test Object:** T&B 38kV Recloser with Beckwith M7-7679 Recloser Controller.

**Manufacturer:** (T&B) Elastimold 1Esna Dr. Hackettstown, NJ 07840  
Beckwith Electric Co. Inc., 6190 118<sup>th</sup> Ave North, Lago, FL 33773

**Ratings:**

Maximum voltage	38 kV
Frequency	50/60 Hz
Continuous current	800 A
Interruption and short-time current	12.5 kA
Lightning impulse (BIL)	170 kV
Power frequency withstand voltage (Dry)	70 kV

**Test performed:** Control electronic elements surge withstand capability (SWC) test.


**Test specification:** The above tests have been carried out in accordance with the procedures in IEC 62271-111:2012/C37.60 – 2012 section 6.111.3.2 & section 6.111.3.3


**Test date/location:** 2017/04/12 ABB Inc., 655 Century Point, Lake Mary, FL, 32746, USA


**Test required by:** Beckwith Electric Co., Inc. 6190 118<sup>th</sup> Ave North, Lago, FL 33773

**Test Results:** Passed Simulated Surge Test, Recloser was operated before every set up.

**Date of issue:** 2017/05/08

**Prepared:** E. Avis 

**Checked:** B. Behl 

**Approved:** R. Goodin 

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## Electrification Products Medium Voltage

Lake Mary, FL

### TEST REPORT # Simulated Surge Arrester-20170412-LMA

#### Description of tested objects:

##### Recloser:

. Type	T&B 38kV
. Version	MVR3-38-12-N2
. Serial Number	MVR125616B

##### Controller:

. Type	Beckwith
. Catalog number	M7679-V6L1ML6ELT2C0000
. Serial Number	1090
. Type	Beckwith M-7679
. Firmware	03.11.22

CUSTOMER: Thomas & Betts	
MFG DATE OCT 18, 2016      ORDER T&B-DEM02	
<b>M7679-V6L1ML6ELT2C0000</b>	
FIRMWARE: 03.11.22	
SN: 1090	
MOUNTING	V Vertical
OPERATING FREQUENCY	60 Hz
ED POWER SUPPLY	L 18-60 Vdc
PHASE CURRENT INDUCT	1 1 Amp
GROUND CURRENT	M 20 mA DEF
VOLTAGE MOVTS	L6 10.720k Vdc
RECLOSER TYPE	EL 120-50 Vdc N 1720 A CU
OPERATION SPECIAL	T Automatic Independent P
PORT 1 SERIAL	Y A-232
PORT 2 PORT 3	CU RJ-45 10/100 Mbps None
PORT 4 SERIAL	0 None
FACT DOOLS	0 DCP 100/100/15
ED CSR	0 None
<b>M-2979-A32B01DW109SUTY0</b>	
CABINET MATERIAL	A Aluminum
CABINET INTERFACE TYPE	328 32 Pin I&M Recloser I&M
V SENSING INTERFACE	0 None
POWER INPUT TO	1 120 Vac
POWER INPUT INTERFACE	0/11 0/20/110/120/240V
BATTERY OPTIONS	CU 250Vdc 30hr Reserve
RADIO READY OPTIONS	0 Universal Radio Shelf
CONVEYOR CHUTE	U 1/2 Tray Chute
CABINET HEATER	T 50W Heater
INSTALLED ACCESSORIES	Y Accessory Code 102
CABINET CSR	0 None
CUSTOMER PIN:	
BECKWITH ELECTRIC CO. INC.      SCAN FOR SUPPORT	
Made in U.S.A. 727-544-2326 www.beckwithelectric.com	



**TEST REPORT # Simulated Surge Arrester-20170412-LMA**

**Tests performed:**

Date	Description
04/10-12/2017	Simulated Surge Arrester Test

**List of test participants:**

Test operators & witnesses

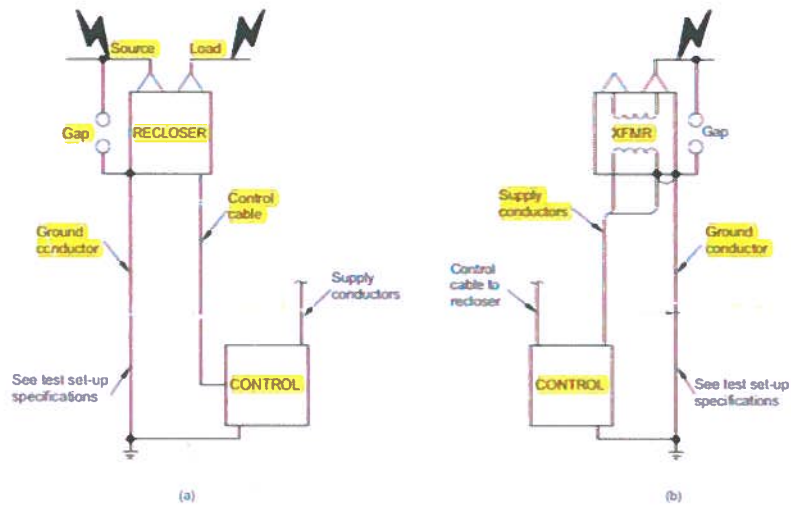
- Eddy Avis                      ABB Test Laboratory, Lake Mary, FL, USA
- Joel Bryant                     Beckwith Electric, Lago, FL, USA
- Mitchell Shutterfield       Beckwith Electric, Lago, FL, USA

**List of Equipment:**

<b>Equipment used</b>
High current Phenix HC-2
Voltmeter Fluke 177
H.V. Probe Fluke 80K-40
BIL Machine Haugao 610-H
Transformer
PPI Power T&D
PP12A261985

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Test Arrangements:



Surge test circuit

Test condition	15 positive surges applied to	15 negative surges applied to	Recloser Status	Surge test circuit
1	Source Terminal	Source Terminal	Open	a
2	Source Terminal	Source Terminal	Closed	a
3	Load Terminal	Load Terminal	Closed	a
4	Transformer	Transformer	Open	b
5	Transformer	Transformer	Closed	b



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**Surge test on main circuits:**

**Test Results**

**Condition of control after the surge tests:**

The recloser and control were capable of performing normal functions without impairment after the surge tests, and the following verifications were made:

Communications with an external computer.

Open and close the Recloser before every set up.

Voltage sensing and Current injection, was done before and after Sim surge test.

**Note:** All the above tests were performed successfully.

These are the test parameters and results. The graphs are on pages 7 & 8.

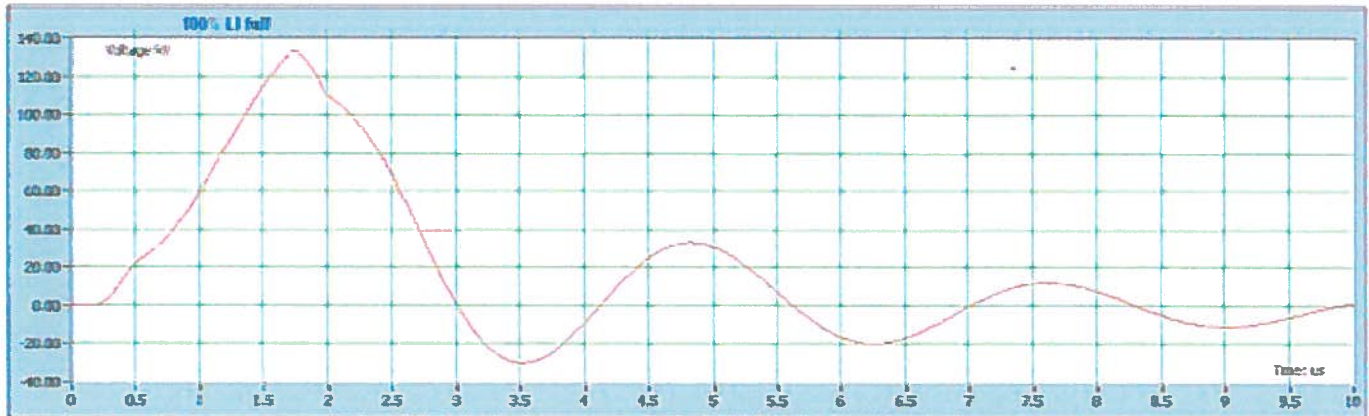
<b>U<sub>peak</sub></b> (119kV-153kV)	<b>T<sub>1</sub></b> (.7-1.7)	<b>I<sub>peak</sub></b> (5.4-6.6)	<b>t<sub>Rise 2kA</sub></b> (.20-.40)	<b>Rate of rise</b> (kA/us) (5-10)
-132.5kV	1.33μs	-5.96kA	0.31μs	6.45
133.5kV	1.26μs	5.96kA	0.23μs	8.70



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Oscillograms:

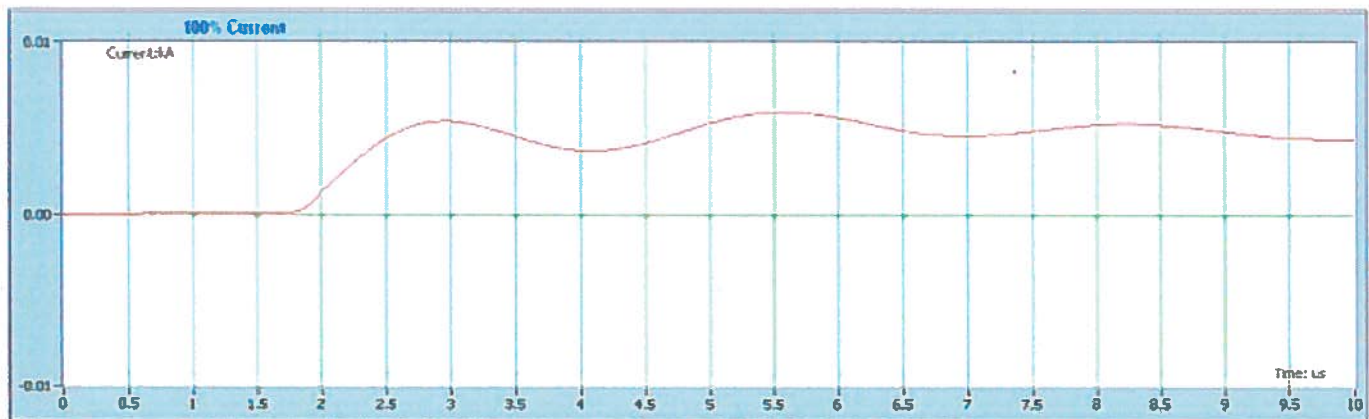
Typical voltage wave form for positive impulse for the Simulated Surge test.



LI full Voltage: kV

$U_p = 133.45 \text{ kV}$   $T_1 = 1.26 \text{ us}$   $T_2 = 2.47 \text{ us}$

Typical current wave form for positive impulse for the Simulated Surge test.



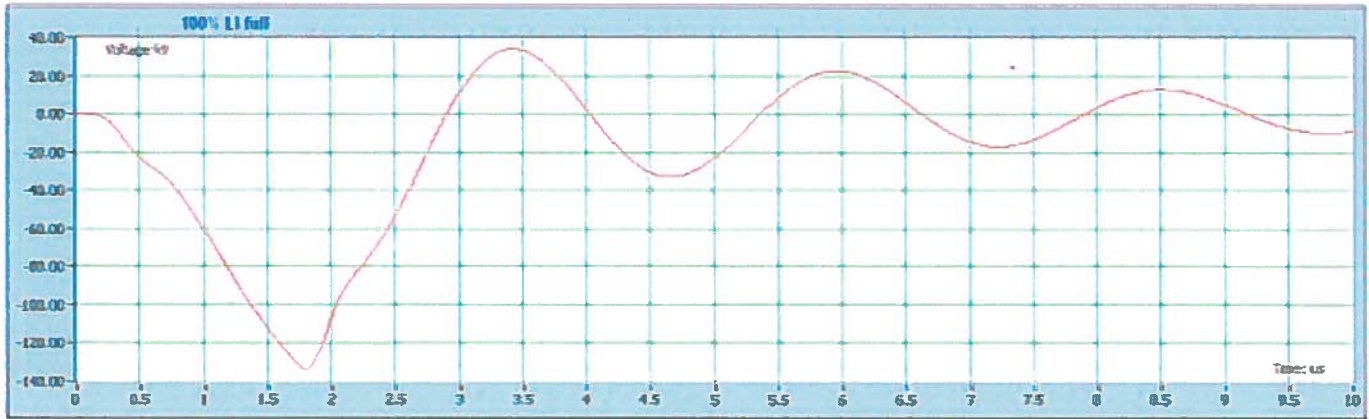
Current: kA

$I_p = 5.96 \text{ A}$



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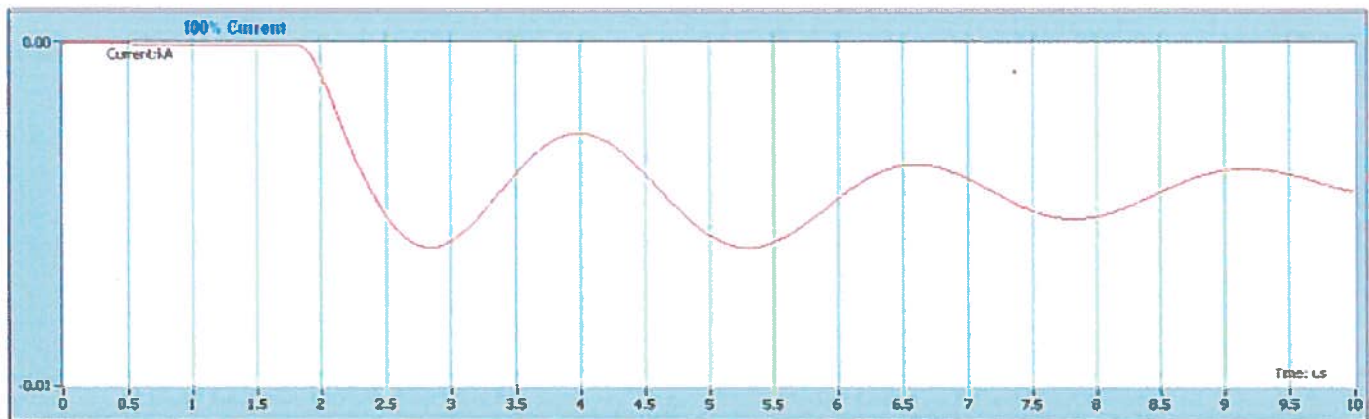
Typical voltage wave form for negative impulse of the Simulated Surge test.



LI full Voltage: kV

$U_p = -132.52 \text{ kV}$   $T_1 = 1.33 \text{ us}$   $T_2 = 2.81 \text{ us}$

Typical current wave form for negative impulse of the Simulated Surge test.



Current: kA

$I_p = -5.96 \text{ A}$



Photos of test objects:

LV Cabinet



HV Cabinet

