

## **APPENDIX A CONNECTION ASSESSMENT**

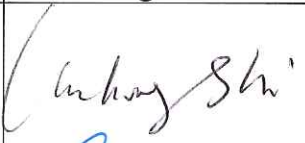
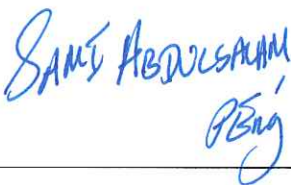
# Maxim Power Deerland Peaking Station

## Project number: RP-1289

The attached engineering study report has been prepared by a third party as part of the AESOs connection process. The AESO has reviewed the report and the conclusions that it contains, and finds it acceptable for the purpose of assessing potential impacts of the proposed connection on the transmission system.

Information regarding the AESO's connection process can be found at: <http://www.aeso.ca/8602.html>

Date: September 18, 2014

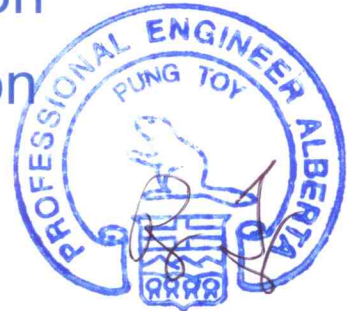
Function	Name	Company	Signature	Date
Senior Engineer	Liuzhong Shi	Alberta Electric System Operator		Sept 18, 2014
Manager, Projects & System Access Studies	 SAMI ABDULSAMAM PEng	Alberta Electric System Operator		Sept 18 <sup>th</sup> 2014

Public



# Connection Engineering Study Report for AUC Application

Maxim Power Corporation  
Deerland Peaking Station



File No. 1289

Revision: 4

Revision Date: August 12, 2014

18 - AUG - 2014

	Name	Date	Signature
Prepared by:	Aaron Krush, P. Eng.	2014-08-12	
Prepared by:	Eric Yee, P. Eng.	12-AUG-2014	
Reviewed by:	Pung Toy, P. Eng.	18-Aug-2014	

Permit to Practice P10933

## **NOTICE**

Unless expressly stated otherwise, assumptions, data and information supplied by, or gathered from other sources (including the AESO, the customer, their or other consultants and associated equipment suppliers, etc.) and used to perform the studies upon which PGSC's opinion as set out herein is based, has not been verified by PGSC; PGSC makes no representation as to the accuracy of said assumptions, data and information and disclaims all liability with respect thereto.

The information contained within this report is produced for the AESO connection process including subsequent submissions to regulatory agencies. PGSC disclaims any liability for the use of this report beyond its intended purpose.

This document is meant to be read as a whole. Sections or parts thereof should not be read or relied upon out of context.



## Executive Summary

### Project Overview

Maxim's Deerland Generation Peaking Project ("the Project") is a new natural gas fired simple cycle power plant to be located in proximity of LSD 22-56-20-W4M within the Regional Municipality of Lamont County northeast of the city of Fort Saskatchewan.

The Project will consist of four (4) simple cycle gas fired generators with a Maximum Authorized Real Power (MARP) capacity of approximately 4 x 47.4 MWs or a total of 189.6 MW (211 MVA @ 0.9 p.f.).

The Project establishes a proposed AIES connection at the Deerland 13S station using a single 138 kV radial transmission line approximately 0.5 km in length to a customer owned 138/13.8 kV substation to be designated as Skaro 109S.

Maxim has requested and is prepared to sign an agreement for 185.8 MW of Supply Transmission Service (STS). The Project's load requirements will consist of approximately 3.8 MW of station service and auxiliary load. Maxim has also requested 2.0 MW of Demand Transmission Service (DTS). The Project is currently scheduled to commence operation in March 1, 2016.

### Existing System

The Project is located in the AESO's Fort Saskatchewan planning Area 33. The Fort Saskatchewan planning area (Area 33) includes 138 kV and 240 kV transmission elements with 240 kV source stations located at Lamoureux 71S, Josephburg 410S and Deerland 13S. The area contains many industrial and chemical processing facilities with substantial load components and thermal generation resources. Significant changes to the transmission system in this area are brought in by the Heartland system project (AESO project 629) which will be adding a 500kV/240kV Heartland substation with a double circuit 500kV connection to Ellerslie. The in service date for the project 629 is 2014, prior to the Project.

### Selected Connection Arrangement

Three (3) connection alternatives were considered for connecting the Maxim Deerland Peaking Project to the AIES.

- A 138 kV tap connection to the 138 kV 815L
- A radial 138 kV connection to the Deerland 13S station
- A radial 240 kV connection to the Deerland 13S station

Alternative 2 – the radial 138 kV connection to the Deerland 13S station was selected to be the preferred alternative for implementation.

## Study Summary

The initial in-service-date for the Project was December 2014 and later was changed to March 2016. 2014 winter peak (WP), 2015 summer peak (SP) and 2015 summer light (SL) scenarios were studied using the 2012 LTOU load forecast. During the time period from the initial December 2014 to the later March 2016, there have been no additional system upgrades in Area 33 identified. The AESO 2014 LTO load and generation forecast has been posted on the AESO website. The Area 33 2015WP, 2016SP and 2016 SL 2014 LTO load forecast is higher than 2014WP, 2015SP and 2015SL 2012 LTOU load forecast respectively. Therefore the power flow, transient stability analysis performed for the 2014 winter peak, 2015 summer peak and 2015 summer light conditions remain valid to evaluate the impact of the Project connection on the AIES.

Steady state power flow studies simulating Category A, Category B and selected Category C5 conditions were performed for 2014 winter peak and 2015 summer light and summer peak study scenarios.

No POD bus voltage deviation or transmission bus voltage range violations were observed for the Category B (N-1) and Category C5 (N-2) events studied.

Power flow study results indicate that the preferred connection would mitigate the Category B (N-1) thermal overload violations observed prior to Maxim Deerland Peaking Project connection at times when the peaking station is running. Power flow study results indicate that for the Category C5 (N-2) event involving 240 kV circuits 1054L (Deerland13S – Heartland12S) and 943L (Deerland13S – Amelia 108S), the preferred connection exhibited several thermal overloading issues during the 2015 summer light conditions. The AESO will develop appropriate mitigation measures to alleviate the Category C5 constraint, if required. Transient stability analysis was performed for 2014 winter peak and 2015 summer light load conditions for the preferred connection. Stable performance was exhibited by Maxim Deerland Peaking Project and other area generating facilities.

Short-circuit studies were performed to identify estimated short-circuit current levels prior to and following Maxim Deerland Peaking Project connection.

## Recommendation

It is recommended to proceed with Alternative 2 - a radial 138 kV connection to the Deerland 13S station for this project.

# Contents

<b>Executive Summary .....</b>	<b>iii</b>
<b>1. Introduction .....</b>	<b>1</b>
1.1. Project .....	1
1.1.1. Project Overview.....	1
1.1.2. Load Component .....	1
1.1.3. Generation Component .....	1
1.2. Study Scope .....	1
1.2.1. Study Objectives.....	1
1.2.2. Study Area .....	2
1.2.3. Studies Performed .....	4
<b>2. Criteria, System Data, and Study Assumptions.....</b>	<b>4</b>
2.1. Criteria, Standards and Related Requirements .....	4
2.1.1. AESO Transmission Reliability Criteria and Guidelines .....	4
2.1.2. AESO Standards and Rules .....	5
2.2. Load and Generation Assumptions .....	6
2.2.1. Load Assumptions .....	6
2.2.2. Generation Assumptions .....	6
2.2.3. Alberta Intertie Flow Assumptions .....	7
2.3. System Projects.....	7
2.4. Customer Connection Projects.....	7
2.5. Facility Ratings and Shunt Elements.....	7
2.6. Dynamic Data and Assumptions .....	9
2.7. Protection Fault Clearing Times .....	9
2.8. Voltage Profile Assumptions .....	11
<b>3. Study Methodology .....</b>	<b>11</b>
3.1. Study Objectives.....	11
3.2. Study Scenarios .....	11
3.3. Connection Studies Performed .....	12
3.4. Power Flow Analysis .....	12
3.4.1. Contingencies Studied.....	12
3.5. Short-Circuit Analysis .....	13
3.6. Transient Stability Analysis .....	13
<b>4. Existing System Assessment .....</b>	<b>15</b>
4.1. Existing System Power Flow Analysis.....	15
4.1.1. 2014 WP Condition, Scenario 1 .....	15
4.1.2. 2015 SP Condition, Scenario 2 .....	15
4.1.3. 2015 SL Condition, Scenario 3.....	16
<b>5. Connection Alternatives .....</b>	<b>16</b>
5.1. Overview.....	16
5.1.1. Alternative 1: 138 kV Tap Connection From Circuit 815L .....	17
5.1.2. Alternative 2: 138 kV Radial Connection to Deerland 13S.....	17
5.1.3. Alternative 3: 240 kV Radial Connection to Deerland 13S.....	17
5.2. Connection Alternatives Selected for Further Study .....	18
<b>6. Technical Evaluation of the Conceptual Alternatives .....</b>	<b>18</b>
6.1. Alternative 2 (Preferred) .....	18
6.1.1. Power Flow Analysis.....	18
6.1.2. Transient Stability Analysis.....	20
6.2. Mitigation Measures for Identified Issues .....	22

7. Short Circuit Analysis..... 24  
 8. Project Interdependencies ..... 25  
 9. Summary and Conclusion ..... 25

## Attachments

Attachment A Transient Study Dynamic Model Representations  
 Attachment B Scenario 1, 2 & 3 Pre-Connection Power Flow Diagrams  
 Attachment C Connection Alternative Single-Line Diagrams  
 Attachment D Preferred Connection Power Flow Diagrams  
 Attachment E Scenario 4 Transient Stability Analysis Results  
 Attachment F Scenario 6 Transient Stability Analysis Results

## Figures

Figure 1: Ft. Saskatchewan Area Transmission Network..... 2  
 Figure 2: Ft. Saskatchewan Area Transmission Single Line Diagram..... 3

## Tables

Table 1: Acceptable Range of Steady State Voltage (kV)..... 5  
 Table 2: Acceptable Post Contingency POD Low-Voltage Bus Voltages..... 5  
 Table 3: AESO Voltage Control ID# 2010-007RS Desired Voltage Range ..... 5  
 Table 4: Coincident Forecasted Load ..... 6  
 Table 5: Study Area Generator Dispatch ..... 6  
 Table 6: Summary of System Projects Included in the Respective Study Cases ..... 7  
 Table 7: AESO summary of Customer Projects that have passed Gate 2 ..... 7  
 Table 8: Study Area Transmission Line Ratings ..... 8  
 Table 9: Study Area Transformers ..... 8  
 Table 10: Study Area Switched Capacitor Banks..... 8  
 Table 11: Category B Event Fault Clearing Times ..... 10  
 Table 12: 2014 Winter Peak and 2015 Summer Light Category C5 Contingency & Clearing Times ..... 11  
 Table 13: Study Region Key Node Station Bus Voltage (kV) ..... 11  
 Table 14: Study Scenarios ..... 12  
 Table 15: Transient Stability Analysis Monitored Generators..... 13  
 Table 16: Transient Stability Analysis Monitored Bus Voltages ..... 14  
 Table 17: Transient Stability Analysis Load Representation ..... 14  
 Table 18: Summary of 2014 WP (Scenario 1) Performance (Element Loading) ..... 15  
 Table 19: Summary of 2015 SP (Scenario 2) Performance (Element Loading) ..... 16  
 Table 20: Alternative 2 2015 SL (Scenario 6) Performance-Element Loading ..... 20  
 Table 21: Category B Transient Stability Analysis Results..... 21  
 Table 22: Category B Transient Study Response Plot Appendices ..... 22  
 Table 23: Estimated 2015 Pre-Connection Short-Circuit Current Levels ..... 24  
 Table 24: Estimated 2015 Post-Connection Short-Circuit Current Levels..... 24  
 Table 25: Estimated 2023 Post-Connection Short-Circuit Current Levels..... 25

# 1. Introduction

This Engineering Study Report presents the results of the studies conducted to analyze the preferred Maxim Deerland Peaking Project connection to the AIES.

## 1.1. Project

### 1.1.1. Project Overview

Maxim Power Corp. (Maxim) has applied to the Alberta Electric System Operator (AESO) for connection of their Deerland Peaking Project in the AESO Fort Saskatchewan Planning Area. The Project will consist of four (4) simple cycle gas fired generators with a Maximum Authorized Real Power (MARP) capacity of approximately 4x47.4 MWs for a total of 189.6 MW (211 MVA @ 0.9 p.f.). Maxim has requested and is prepared to sign an agreement for 185.8 MW of STS. Maxim has also requested 2.0 MW of DTS. The Project is scheduled to commence operation in March 1, 2016.

### 1.1.2. Load Component

The project's load requirements will consist of approximately 3.8 MW of station service and auxiliary load. No further load expansion plans are anticipated at this facility.

### 1.1.3. Generation Component

The Maxim Deerland Peaking Project will consist of four (4) gas turbine driven generators with a combined Maximum Authorized Real Power (MARP) capacity of 189.6 MW. When generating at MARP each unit will have a maximum continuous reactive power capability of at least 23 MVAR and a minimum continuous reactive power capability of at least -15.75 MVAR. The combined plant will have a maximum continuous reactive power capability of at least 92 MVAR and a minimum continuous reactive power capability of at least -63 MVAR.

No further generation expansion plans are anticipated at this facility.

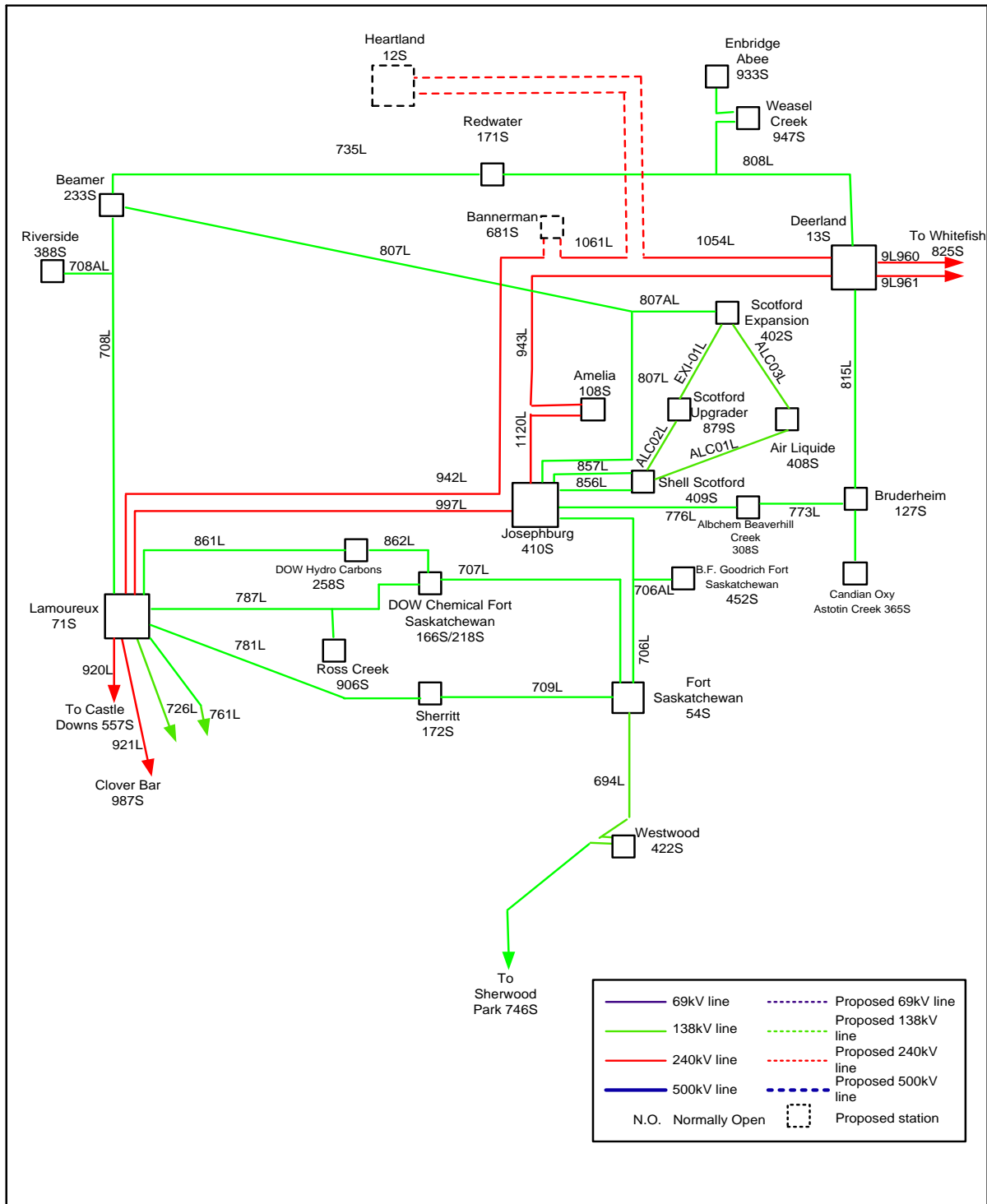
## 1.2. Study Scope

### 1.2.1. Study Objectives

The purpose of this connection study is to assess the ability of the existing area transmission system to accommodate the preferred Maxim Deerland Peaking Project connection and to identify any system performance concerns and mitigation measures to address those concerns.



Figure 2: Ft. Saskatchewan Area Transmission Single Line Diagram



Note: This diagram contains a simplified version of the system configuration. Technical detail has been simplified for illustration purposes. It does not indicate geographical location of facilities.



The existing Study Area transmission system is comprised of 138 kV and 240 kV transmission elements with 240 kV source stations located at Lamoureux 71S, Josephsburg 410S and Deerland 13S. The Study Area contains a number of industrial facilities with some local electric power generating resources.

The Study Area connects with the Edmonton planning area (60) through three (3) 138 kV transmission lines and two (2) 240 kV transmission lines. Circuit 726L (138 kV) connects the Lamoureux 71S and North Calder 37S substations. Circuit 761L (138 kV) connects the Lamoureux 71S, East Edmonton 38S and Celanese E189S substations. Circuit 694L (138 kV) connects the Fort Saskatchewan 13S and Westwood 422S substations. Circuit 920L (240 kV) connect the Lamoureux 71S and Castle Downs E557S substations. Circuit 921L (240 kV) connect the Lamoureux 71S and Clover Bar E987S substations. The Study Area also connects to the AESO Cold Lake Planning Area (Area 28) via double-circuit 240 kV connections between the Deerland 13S and Whitefish Lake 825S stations.

The approved Heartland Critical Transmission Infrastructure (CTI) development (Project 629) involves establishing a 500 kV source station and connecting transmission in the area. The development is presently scheduled to be in service in 2014.

### **1.2.3. Studies Performed**

Power flow and short circuit studies were performed prior to and following the Maxim Deerland Peaking Project connection. Transient stability studies were performed following project connection.

Power flow studies and transient studies simulating Category A, B, and selected C5 events were performed to assess Study Area transmission system performance.

## **2. Criteria, System Data, and Study Assumptions**

### **2.1. Criteria, Standards and Related Requirements**

#### **2.1.1. AESO Transmission Reliability Criteria and Guidelines**

The current Alberta Reliability Standards and requirements for system planning studies were followed throughout the analysis as specified in the Study Scope.

More specifically, the current AESO Transmission Reliability Criteria<sup>1</sup> were applied in the study to test the interconnection for acceptable performance following Category A (i.e. all elements in service), Category B (i.e. a single element out of service) and selected Category C (more than one transmission element out of service) contingencies. As per the criteria, all equipment must operate within acceptable

---

<sup>1</sup> The AESO's Transmission Planning Reliability Criteria document was removed from the AESO website for revision. Table 1 and Table 2 of this engineering study report summarize the acceptable range of steady state voltage and the acceptable post contingency POD low-voltage bus voltages.

thermal and voltage limits and the system must be stable with no cascading outages. Voltage deviation criteria were applied to verify that acceptable voltage levels exist following contingencies.

The extreme minimum and maximum voltage limits specified by AESO Transmission Reliability Criteria were used to assess system voltage performance following Category B events. Table 1 provides acceptable steady state voltages for different transmission voltage classes applicable to the Study Area.

**Table 1: Acceptable Range of Steady State Voltage (kV)**

Nominal	Extreme Minimum	Normal Minimum	Normal Maximum	Extreme Maximum
500	475	500	525	550
240	216	234	252	264
138	124	135	145	152

Table 2 provides AESO Transmission Reliability Criteria for POD low voltage bus deviation criteria that apply to Category B events.

**Table 2: Acceptable Post Contingency POD Low-Voltage Bus Voltages**

Parameter and Reference Point	Time Period		
	Post Transient (Up to 30s)	Post Auto Control (30 sec to 5 min)	Post Manual Control (Steady State)
Voltage Deviation from Steady State at POD Low Voltage Bus	± 10%	± 7%	± 5%

### 2.1.2. AESO Standards and Rules

The desired minimum and maximum voltage limits specified by the AESO Voltage Control ID# 2010-007RS are used as a guide to establish Category A (N-0) area bus operating system voltages prior to proceeding with Category B (N-1) contingency analysis. Table 3 summarizes the desired voltage range for the Study Area substations appearing in the AESO Voltage Control ID# 2010-007RS.

**Table 3: AESO Voltage Control ID# 2010-007RS Desired Voltage Range**

Substation Name and Number	Nominal Voltage (kV)	Min Limit (kV)	Desired Range (kV)	Max Limit (kV)
Deerland 13S	240	245	245 - 256	260
	138	140	140 - 144	145
Lamoureux 71S	240	240	240 - 254	255
	138	140	140 - 144	145

## 2.2. Load and Generation Assumptions

### 2.2.1. Load Assumptions

The study area load forecast used for this connection study is reflected in Table 4 and is from the AESO 2012 Long-Term-Outlook-Update (LTOU).

**Table 4: Coincident Forecasted Load**

Area Name and Number	Season	Year	Area 33 Load (MW)	AIL (MW)
33 Fort Saskatchewan	Summer Light	2015	433.4	7,475
	Summer Peak	2015	646.7	10,504
	Winter Peak	2014	651.7	11,423

As part of its planning responsibilities, the AESO updates its corporate forecasts routinely to ensure they reflect the latest economic projects, factors and timing. While the AESO has updated its regional forecasts since the connection studies were performed, the use of the current AESO load forecasts (2014 Long-term Outlook) for the region would not materially alter the connection study results or affect its conclusions.

### 2.2.2. Generation Assumptions

Table 5 provides the study area generation assumptions used in this connection study.

**Table 5: Study Area Generator Dispatch**

Location	Max Capacity (MW)	Study Area Gen. Dispatch (MW)		
		2014 Winter Peak	2015 Summer Light	2015 Summer Peak
Air Liquide	96	96	86	96
Dow GEN1	99.5	45	34	37
Dow GEN2	99.5	48	36	40
Dow STG9	45.5	38	29	32
Dow GTG9	95	80	60	67
Redwater	64.1	45	41	45
Scotford GT	99.4	65	59	65
Scotford ST	95.7	65	59	65
Sherritt	8.6	0	0	0
<b>Total</b>	<b>703.3</b>	<b>482</b>	<b>404</b>	<b>447</b>

### 2.2.3. Alberta Intertie Flow Assumptions

The study area is considered far from the BC, Montana and Saskatchewan interties with the AIES. The intertie flows will not have a significant impact on the study area.

## 2.3. System Projects

Table 6 displays planned or proposed AIES system reinforcement affecting transmission capability within the Study Area relating to the periods selected for study.

**Table 6: Summary of System Projects Included in the Respective Study Cases**

Project Number	Project Name	Projected In-Service Date
629	Heartland CTI Project	2014

## 2.4. Customer Connection Projects

Table 7 summarizes the relevant customer connection facilities presently identified to be in-service in the Study Area prior to or immediately following connection of the Project that were included in the respective 2014 and 2015 seasonal AIES model representations used to perform the studies.

**Table 7: AESO summary of Customer Projects that have passed Gate 2**

Project Number	Description	Type of Project	In-Service Date (ISD)
P559	Bannerman 681S	Customer	Q2,2015
P1318	FortisAlberta Redwater 171S Two Breaker Addition	Customer	Q3, 2014
P1333	Redwater ISD Expansion BTF	Behind-the Fence	Q1, 2015

## 2.5. Facility Ratings and Shunt Elements

Table 8, Table 9 and Table 10 respectively provide ratings of Study Area transmission elements, transformers and switched capacitor banks provided in the posted AIES model representations.

**Table 8: Study Area Transmission Line Ratings**

Line Number	Rating (MVA)	
	Summer	Winter
943AL/943L	457	457
943L	499	499
942L	457	457
815L	141	163
773L	121	127
846L	167	191
808L	98	114
776L	140	140

**Table 9: Study Area Transformers**

Substation Name and Number	ID	Transformer Voltages (kV)	MVA Rating <sup>2</sup>
Bruderheim 127S	T1	138-25kV OCTC	15/20/25
	VR1	24.94kV	18.8/25//28
	T2	138-25kV LTC	25/33/42
Redwater 171S	T1	138-25kV LTC	25/33/42
	T2	138-25kV LTC	25/33/42//47
Albchem Beaverhill Creek 308S	T1	138-13.8kV LTC	30/40/50
Deerland 13S	T2	240/138kV	180/240/300
Josephburg 410S	T1	240/138kV	180/240/300//336
	T2	240/138kV	180/240/300//336

**Table 10: Study Area Switched Capacitor Banks**

Substation Location Name and Number	Nominal Bus Voltage (kV)	Capacitors	
		# of Blocks	(MVA) <sup>3</sup>
Bruderheim 127S	138	1	45
Fort Saskatchewan 54S	138	1	48.91
Lamoureux 71S	138	2	97.82

<sup>2</sup> ONAN/ONAF/ONAF55//ONAF with 65°C top-oil temperature rise.

<sup>3</sup> At Nominal System Voltage

## 2.6. Dynamic Data and Assumptions

Dynamics data file 2013\_AESO\_Dynamic\_V32\_R5.dyr posted on the AESO's website was used to perform transient studies. Attachment A contains the PSS/E V32 control model representations applied for each of the gas-turbine powered generating units comprising the Maxim Deerland Peaking Project generating facility used to perform transient studies.

## 2.7. Protection Fault Clearing Times

Table 11 displays fault-clearing times used for transient analysis of Study Area transmission element Category B events studied. Three-phase bolted faults were simulated for local and remote terminal locations for each transmission element.

**Table 11: Category B Event Fault Clearing Times**

Type	Voltage (kV)	Element	Substation Terminals			Fault Location	Clearing Time (Cycles)		
			Terminal 1	Terminal 2	Terminal 3		Term 1	Term 2	Term 3
B-2	138	807L	Josephburg 410S	AOSP1 402S	Beamer 233S	Josephburg 410S	5.00	5.00	5.00
						AOSP1 402S	5.00	5.00	5.00
						Beamer 233S	5.00	5.00	5.00
B-2	240	9L961	Deerland 13S	Whitefish Lake 825S	n/a	Deerland 13S	5.00	7.00	n/a
						Whitefish Lake 825S	5.00	7.00	n/a
B-2	138	735L	Beamer 238S	Redwater 171S	n/a	Beamer 238S	6.00	7.00	n/a
						Redwater 171S	6.00	7.00	n/a
B-2	240	943L	Deerland 13s	Amelia 108S	n/a	Amelia 108S	5.00	5.00	n/a
						Deerland 13s	5.00	5.00	n/a
B-2	138	706L	Josephburg 410S	BF Goodrich 452S	Ft. Sask 54S	Josephburg 410S	5.00	5.00	5.00
						BF Goodrich 452S	5.00	5.00	5.00
						Ft. Sask 54S	5.00	5.00	5.00
B-3	Auto	T2	Deerland 240 kV	Deerland 138 kV	n/a	Deerland 240 kV	5.50	5.50	n/a
						Deerland 138 kV	5.50	5.50	n/a
B-2	138	776L	Josephburg 410S	Beaverhill Ck 308S	n/a	Josephburg 410S	6.00	6.75	n/a
						Beaverhill Ck 308S	6.00	6.75	n/a
B-2	138	773L	Bruderheim 127S	Beaverhill Ck 308S	n/a	Bruderheim 127S	5.50	6.75	n/a
						Beaverhill Ck 308S	5.50	6.75	n/a
B-2	240	920L	Lamoureux 71S	Castle Downs 557S	n/a	Lamoureux 71S	6.25	7.25	n/a
						Castle Downs 557S	4.00	5.00	n/a
B-2	138	815L	Deerland 13S	Bruderheim 127S	n/a	Deerland 13S	5.50	6.75	n/a
						Bruderheim 127S	5.50	6.75	n/a
B-2	138	808L	Deerland 13S	Redwater 171S	n/a	Deerland 13S	6.0	7.25	n/a
						Redwater 171S	6.00	7.25	n/a
B-2	240	1054L	Deerland 13S	Heartland 12S	n/a	Deerland 13S	5.0	7.0	n/a
						Heartland 12S	5.0	7.0	n/a
B-2	-	109S T1	Skaro 109s transformer				5.0	5.0	n/a
B-2	138	480L	Deerland 13S	Skaro 109S	n/a	Deerland 13S	5.0	5.0	n/a
						Skaro 109S	5.0	5.0	n/a

Table 12 shows fault-clearing times applied for transient analysis of the selected Category C5 condition for the 2014 winter peak and 2015 summer light scenario with the Project connected to the AIES. A three-phase bolted fault for local and remote terminal locations was again simulated.



**Table 12: 2014 Winter Peak and 2015 Summer Light Category C5 Contingency & Clearing Times**

Category	Voltage (kV)	Affected Elements	Element Terminals		Fault Located near/at	Clearing Time (Cycles)	
			Terminal 1	Terminal 2		Term 1	Term 2
C5	240	1054L	Deerland 13S	Heartland 12S	Deerland 13S	5.00	7.00
					Heartland 12S	5.00	7.00
		943L	Deerland 13S	Amelia 108S	Deerland 13S	5.00	5.00
					Amelia 108S	5.00	5.00

## 2.8. Voltage Profile Assumptions

Table 13 displays voltage levels established at the AESO Voltage Control ID# 2010-007RS key node substations within the respective study cases.

**Table 13: Study Region Key Node Station Bus Voltage (kV)**

Station	Nominal Bus	Desired Range	Before Connection			Following Connection		
			2014 WP	2015 SP	2015 SL	2014 WP	2015 SP	2015 SL
Deerland 13S	240	245-256	253.0	253.0	252.3	253.4	252.7	252.8
	138	140-144	143.2	143.2	142.2	142.9	142.5	142.9
Lamoureux 71S	240	240-254	250.2	250.2	251.0	250.4	249.9	251.2
	138	140-144	143.4	143.4	142.9	143.2	143.1	142.9

## 3. Study Methodology

### 3.1. Study Objectives

The objectives of the study discussed in this report were to identify any reliability concerns associated with the Maxim Deerland Peaking Project connection and to identify possible mitigation measures to address those concerns.

### 3.2. Study Scenarios

Table 14 summarizes the respective study case scenarios developed to assess the Maxim Deerland Peaking Project connection including presently planned area transmission facility modifications or augmentation.

**Table 14: Study Scenarios**

Scenario	Year	Load Condition	Deerland Peaking Project Status	
			Load (MW)	Gen. (MW)
1	2014	WP	0	0
2	2015	SP	0	0
3	2015	SL	0	0
4	2014	WP	3.8	189.6 <sup>4</sup>
5	2015	SP	3.8	172.0 <sup>5</sup>
6	2015	SL	3.8	172.0 <sup>5</sup>

### 3.3. Connection Studies Performed

### 3.4. Power Flow Analysis

Power flow studies were performed for all study scenarios simulating Category A and Category B events on all Area 33 transmission elements and interties rated at or above 69 kV.

Power flow studies were performed for all study scenarios simulating applicable Category C5 events on Area 33 transmission elements and interties rated at or above 240 kV.

Transmission circuit loading using 100% seasonal line ratings, POD voltage deviation and Ft. Saskatchewan Area 33 transmission voltages were monitored. Industrial System transmission elements and AIES POD transformer loading were excluded.

The studies were performed using PSSE version 32.

#### 3.4.1. Contingencies Studied

Contingencies simulating Category B events were applied on all planning area 33 transmission elements and interties rated at or above 69 kV.

Where applicable, contingencies simulating Category C5 events were applied on Area 33 transmission elements and interties rated at or above 240 kV.

<sup>4</sup> -20°C T inlet air temp, 60 % RH, 94 kpa, 620 masl

<sup>5</sup> 15°C T inlet air temp, 60 % RH, 94 kpa, 620 masl

### 3.5. Short-Circuit Analysis

Short circuit studies were performed prior to and following the Maxim Deerland Peaking Project connection for the 2014 winter peak scenario.

Short circuit studies including Maxim Deerland Peaking Project connection were also performed for the 2023 winter peak scenario.

All local generators were dispatched on for all studies.

Three phase short circuit faults and single phase line-to-ground short circuit faults were applied.

### 3.6. Transient Stability Analysis

Transient studies were performed following Maxim Deerland Peaking Project connection using the 2014 winter peak and 2015 summer light scenarios simulating both near and remote-end three-phase bolted faults using the clearing times for the selected Study Area 138 kV and 240 kV transmission circuit Category B and Category C5 events identified in Table 11 and Table 12 of Section 2.7.

Table 15 identifies Study Area generator response monitored.

**Table 15: Transient Stability Analysis Monitored Generators**

Bus #	Unit	Id
4185	SCOTF GT	GT
627	AIR LIQC	G1
7185	SCOTF ST	ST
2031	DOWGTG 9	GT
54	DOW GEN1	G1
454	DOW GEN2	G2
3050	REDW GT	1
2030	DOWSTG 9	ST
1732	SKARO_G1	G1
3732	SKARO_G3	G3

Table 16 identifies Study Area transmission bus voltage response monitored.

**Table 16: Transient Stability Analysis Monitored Bus Voltages**

Substation Name	Bus Number
Deerland 13S	109, 106
Abee 933S	954
Weasel Creek 947S	1420
Redwater 171S	59
Scotford 409S	185
Air Liquide 408S	628
Amelia 108S	771
Beamer 233S	60
Dow Chemical 166S	61
Bannerman 681S	443
Bruderheim 127S	67
Lamoureux 71S	57, 63
Fort Saskatachwan 54S	58

Table 17 displays planning area load representations used for the transient studies.

**Table 17: Transient Stability Analysis Load Representation**

Planning Areas	Large Motors	Small Motors	Active Power	Reactive Power
			Constant Current	Constant Impedance
17 to 23, 25, 27, and 28	40%	30%	30%	30%
All remaining	10%	10%	80%	80%

Maxim Deerland Peaking Project load was modeled as 90% static load and remaining 10% as small motor load.

Response plots for respective monitored generator rotor angle and active and reactive power output and monitored Study Area transmission bus voltage response are prepared. Genesee unit 3 was used as the reference machine for reporting relative rotor angle response.

## 4. Existing System Assessment

### 4.1. Existing System Power Flow Analysis

The pre-connection system assessment was performed without the Maxim Deerland Peaking Project connected to the AIES. The steady-state performance of the existing system was assessed for the 2014 winter peak, 2015 summer peak and 2015 summer light load scenarios of section 3.2.

#### 4.1.1. 2014 WP Condition, Scenario 1

Category A - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the Category A (N-0) condition.

Category B - No POD bus voltage deviation or transmission bus voltage range violations were observed for the Category B (N-1) events studied. Circuit 807L loading of 102% was observed following outage of 708L 138kV circuit. This 807L loading is less than the “10 minutes” rating therefore can be managed by real-time AESO system operations practice. There is an existing AESO operating procedure to manage the area system operation within TFO equipment ratings until a permanent solution is in place.

Category C - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the selected Category C contingencies.

Table 18 summarizes thermal overloads observed for Scenario 1 studies, including reference power flow diagrams provided in Attachment B.

**Table 18: Summary of 2014 WP (Scenario 1) Performance (Element Loading)**

Power Flow Diagram*	Contingency	Affected Branch	Power Flow (MVA)	% Loading
B-1	No Contingency (N-0)	None	N/A	N/A
B-2	708L 138 kV Line (N-1) Beamer to Riverside to Lamoureux	807L 138 kV Line Beamer to Shell Tap	93.7	102.0

\*Referenced diagram is provided in Attachment B.

#### 4.1.2. 2015 SP Condition, Scenario 2

Category A - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the Category A (N-0) condition.

Category B - No POD bus voltage deviation or transmission bus voltage range violations were observed for the Category B (N-1) events studied. Circuit 807L loading of 108.4% was observed following outage of 708L 138kV circuit. This 807L loading is

less than the “10 minutes” rating therefore can be managed by real-time AESO system operations practice. There is an existing AESO operating procedure to manage the area system operation within TFO equipment ratings until a permanent solution is in place.

Category C - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the selected Category C contingencies.

Table 19 summarizes thermal overloads observed for Scenario 2 studies, including reference power flow diagrams provided in Attachment B.

**Table 19: Summary of 2015 SP (Scenario 2) Performance (Element Loading)**

PFlow Diagram*	Contingency	Affected Branch	Power Flow (MVA)	% Loading
B-3	No Contingency (N-0)	None	N/A	N/A
B-4	708L 138 kV Line (N-1) Beamer to Riverside to Lamoureux	807L 138 kV Line Beamer to Shell Tap	94.1	108.4

\*Referenced diagram is provided in Attachment B.

#### 4.1.3. 2015 SL Condition, Scenario 3

Category A - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the Category A (N-0) condition.

Category B - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the Category B contingencies.

Category C - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the selected Category C contingencies.

The power flow single line diagrams for the 2015 summer light scenario are provided in Attachment B.

## 5. Connection Alternatives

### 5.1. Overview

The Maxim Deerland Peaking Project is located approximately 350 m south of the existing Deerland 13S 240/144 kV station. A number of connection alternatives were considered for the Maxim Deerland Peaking Project based on existing local 138 kV and 240 kV area transmission infrastructures. Both radial substation and tap connections to existing area transmission lines were considered. Figure C-1 Attachment C shows the location of the proposed Maxim Deerland Peaking Project in relation to area transmission facilities.

### 5.1.1. Alternative 1: 138 kV Tap Connection From Circuit 815L

Consideration was given to tapping existing 138 kV transmission line 815L located near the eastern boundary of Maxim's property as shown in Figure C-2 in Attachment C. This alternative would require approximately 500 m of new line construction to physically connect the Maxim Deerland Peaking Project to the AIES via a tapped connection to circuit 815L. Modifications to and augmentation of circuit 815L would be required at the tap point to incorporate new switching capability which will enhance connection availability while accommodating sustained forced or planned maintenance outages to circuit 815L.

The tapped connection would require terminal protection replacements at Deerland 13S and Bruderheim 127S substations including appropriate communications to support operation of the resulting three-terminal network configuration.

### 5.1.2. Alternative 2: 138 kV Radial Connection to Deerland 13S

This connection alternative estimates approximately 500 M of new line construction being required to connect the Maxim Deerland Peaking Project to the AIES at Deerland 13S. Including modification and augmentation of transmission line and Deerland 13S facilities to re-terminate circuit 815L at Deerland 13S as depicted in Figures C-3 and C-4 in Attachment C.

### 5.1.3. Alternative 3: 240 kV Radial Connection to Deerland 13S

The east entrance for a 240 kV radial connection to Deerland 13S to achieve a single 240 kV 13S connection is shown in Figure C-5 of Attachment C.

Installation and/or modifications of 240kV transmission facilities to enable re-location of circuit 9L960 and 9L961 terminations at Deerland 13S to accommodate a Maxim Deerland Peaking Project connection in the present circuit 9L961 termination location.

- Construction of approximately 300 m of single circuit 240 kV transmission line from the Maxim Deerland Peaking Project substation (Skaro 109S) to the second 240 kV double-circuit transmission structure beyond the 13S fence and re-use of existing line conductors from this connection point to complete the 240 kV radial connection to Deerland 13S as shown in Figure C-5.
- Modifications and augmentation to circuit 815L as required addressing the new 240 kV connecting circuit crossing.

The following Deerland 13S station 240 kV section modifications and augmentation as shown in Figure C-6 have been assumed to accommodate the Maxim Deerland Peaking Project 240 kV radial connection alternative.

- An extension of the west 240 kV main bus to accommodate completion of the third diameter of the Deerland 13S 240 kV switchyard and installation of at least one additional 240 kV breaker to accept the new termination location for circuit 9L960.



## 5.2. Connection Alternatives Selected for Further Study

Alternative 1 would require modifications to the existing 138 kV transmission line 815L to accomplish the tap connection and to provide sectionalizing to accommodate circuit 815L planned outages and maintenance. This configuration between the Deerland 13S, Bruderheim 127S and Maxim Deerland Peaking Station (Skaro 109S) will require the installation of appropriate tele-communication and protection changes to accommodate the three terminal connection. Furthermore, 815L is rated at 141 MVA in summer and 163 MVA in winter. The thermal capacity of 815L would need to be upgraded to accommodate Maxim's Deerland generator rating of 172 MW in summer and 189 MW in winter or a RAS would be required to mitigate the constraint.

Alternative 1 is therefore technically ruled out due to the RAS requirement and protection complexity.

Alternative 3, the 240 kV radial connection, is ruled out due to inherent higher cost than the 138 kV connection of Alternate 2.

The 138 kV radial connection, Alternative 2, was therefore selected as the preferred connection alternative for further studies.

## 6. Technical Evaluation of the Conceptual Alternatives

### 6.1. Alternative 2 (Preferred)

#### 6.1.1. Power Flow Analysis

Power flow analysis was performed to assess transmission system performance following connection of the Maxim Deerland Peaking Project based on the preferred connection alternative (Alternative 2) for 2014 winter peak (Scenario 4), 2015 summer peak (Scenario 5) and 2015 summer light (Scenario 6) load conditions of section 3.2.

##### 6.1.1.1. 2014 WP (Scenario 4) & 2015 SP (Scenario 5) Conditions

Category A - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the Category A (N-0) condition.

Category B - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the Category B contingencies.

Category C - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the selected Category C contingencies.

The N-0 power flow single line diagrams for these scenarios are provided in Attachment D

No other plots have been included for these scenarios since no thermal loading, POD low-voltage bus voltage deviation or transmission bus operating voltage range reliability

criteria violations were identified for Scenarios 4 or 5 for the Category B (N-1) and Category C5 (N-2) events studied.

#### **6.1.1.2. 2015 SL Condition, Scenario 6**

Category A - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the Category A (N-0) condition.

Category B - No thermal loading, POD bus voltage deviation or transmission bus voltage range violations were observed for the Category B contingencies.

Category C - No POD bus voltage deviation or transmission bus voltage range violations were observed for the the selected Category C contingencies.

Thermal overloading was observed on circuits 808L, 773L, 815L, and 776L following the Category C5 (N-2) contingency involving circuits 1054L and 943L. The AESO will develop appropriate mitigation measures to alleviate the Category C5 constraint, if required.

Table 20 summarizes the thermal overloads observed for studies performed for Scenario 6 including reference power flow diagrams provided in Attachment D. No other plots have been included for this scenario since no POD low-voltage bus voltage deviation or transmission bus operating voltage range reliability criteria violations were identified for Category B (N-1) and Category C5 (N-2) events studied.

**Table 20: Alternative 2 2015 SL (Scenario 6) Performance-Element Loading**

<b>PFlow Diagram*</b>	<b>Contingency</b>	<b>Branch</b>	<b>Power Flow (MVA)</b>	<b>% Loading</b>
D-3	No Contingency (N-0)	None	N/A	N/A
D-4	Category C5 (N-2) 240 kV Lines 1054L (Deerland to Heartland) & 943L (Deerland to Amelia)	808L 138 kV Line Deerland to 808AL Tap	130.1	126.2
		773L 138 kV Line Bruderheim to Albchem	145.8	116.0
		815L 138 kV Line Bruderheim to Deerland	167.4	114.0
		776L 138 kV Line Josephburg to Albchem	145.7	100.2

\*Referenced diagram is provided in Attachment D.

### 6.1.2. Transient Stability Analysis

Transient analysis was conducted for Alternative 2. Table 21 summarizes the results of the transient analysis for the respective element outages simulated for the preferred connection.

**Table 21: Category B Transient Stability Analysis Results**

Category	Element	Substation Terminals			Faulted End	Performance
A	n/a	n/a			n/a	All monitored generators – Stable All monitored bus voltages – Acceptable
B-2	9L961	Deerland 13S	Whitefish Lake 825S	n/a	13S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
					825S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
B-2	735L	Redwater 171S	Beamer 238S	n/a	171S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
					238S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
B-2	T2	Deerland 240kV	Deerland 138kV	n/a	T2	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
B-2	776L	Josephburg 410S	Beaverhill Ck 308S	n/a	410S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
					308S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
B-2	773L	Bruderheim 127S	Beaverhill Ck 308S	n/a	127S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
					308S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
B-2	920L	Lamoureux 71S	Castle Downs 557S	n/a	71S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
					557S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
B-2	815L	Bruderheim 127S	Deerland 13S	n/a	127S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
					13S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
B-2	808L	Redwater 171S	Deerland 13S	n/a	171S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
					13S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
B-2	1054L	Deerland 13S	Heartland 12S	n/a	13S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
					12S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
B-2	706L	Ft. Sask 54S	Josephburg 410S	n/a	54S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
					410S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
B-2	943L	Deerland 13S	Amelia 108S	n/a	410S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable
					108S	All monitored generators – Stable All monitored buses voltage recovery - Acceptable

Table 21 continued.

Category	Element	Substation Terminals			Faulted End	Performance
B-2	807L	Beamer 233S	Josephburg 410S	AOSP1 402S	233S	All monitored generators – Stable All monitored buses voltage recovery – Acceptable
					410S	All monitored generators – Stable All monitored buses voltage recovery – Acceptable
					402S	All monitored generators – Stable All monitored buses voltage recovery – Acceptable
B-2	109S T1	Skaro 109s transformer		n/a	109S T1	All monitored generators – Stable All monitored buses voltage recovery – Acceptable
B-2	480L	Deerland 13S	Skaro 109S	n/a	Skaro 109S	All monitored generators – Stable All monitored buses voltage recovery – Acceptable
C-5	1054L / 943L	Deerland 13S	Heartland 12S	n/a	13S	All monitored generators – Stable All monitored buses voltage recovery – Acceptable
		Deerland 13S	Amelia 108S	n/a		All monitored generators – Stable All monitored buses voltage recovery – Acceptable

Rotor angle, real power and reactive power response plots are provided in the respective attachment displayed in Table 22.

**Table 22: Category B Transient Study Response Plot Appendices**

Response Plots	2014 Winter Peak (Scenario 4)	2015 Summer Light (Scenario 6)
Rotor Angle	E-1	F-1
Real Power	E-2	F-2
Reactive Power	E-3	F-3
Bus Voltage	E-4	F-4

A response plot key is provided at the beginning of each attachment to assist in reviewing the respective plots for the studied contingencies.

## 6.2. Mitigation Measures for Identified Issues

Study results indicated that circuit 807L loading of 102% was observed following outage of 708L 138kV circuit. This 807L loading is less than the “10 minutes” rating therefore can be managed by real-time AESO system operations practice. There is an existing AESO operating procedure to manage the area system operation within TFO

equipment ratings until a permanent solution is in place. Study results further indicated that the preferred connection (Alternative 2) would mitigate the existing 807L Category B (N-1) thermal overload violations during peak load conditions when the Deerland Peaking station is running. The AESO is developing a plan to alleviate the existing 807L Category B (N-1) thermal overload violations during non-peak load conditions and will file the related needs identification document with the Alberta Utilities Commission.

Alternative 2 studies exhibited Category C5 contingency thermal overloading during the 2015 summer light loading conditions. The AESO Long Term Planning group will take this into the AESO long term planning studies and develop appropriate mitigation measures.

## 7. Short Circuit Analysis

Table 23 summarizes estimated 2015 winter peak short-circuit current levels at a number of area transmission substation locations prior to the Maxim Deerland Peaking Project being connected to the AIES.

**Table 23: Estimated 2015 Pre-Connection Short-Circuit Current Levels**

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (pu)	Positive Sequence Source Impedance (pu) (R1+jX1)	3-Φ Fault (kA)	Zero Sequence Source Impedance (pu) (R0+jX0)	1-Φ Fault (kA)
Redwater	138	1.0206	0.01349+j0.03836	10.6	0.02512+j0.08595	7.6
Bruderheim	138	1.0415	0.00864+j0.03832	11.2	0.01624+j0.08166	8.2
Deerland	138	1.0385	0.00652+j0.03367	12.8	0.00786+j0.05383	10.8
Deerland	240	1.0670	0.00287+j0.01813	14.2	0.00655+j0.03651	10.6
Heartland	500	1.0787	0.00155+j0.01359	9.3	0.00154+j0.02037	8.0
Heartland	240	1.0579	0.00211+j0.01736	14.8	0.00247+j0.02705	12.5
Amelia	240	1.0524	0.00282+j0.01777	14.3	0.00551+j0.03252	11.2
Whitefish	240	1.1190	0.00583+j0.02886	9.2	0.01691+j0.07347	6.1
Weasel	138	1.0247	0.04319+j0.08662	4.5	0.02337+j0.15925	3.7

Table 24 and Table 25 respectively summarize estimated 2015 and 2023 winter peak short-circuit current levels at a number of area transmission substation locations with the Maxim Deerland Peaking Project connected to the AIES.

**Table 24: Estimated 2015 Post-Connection Short-Circuit Current Levels**

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (pu)	Positive Sequence Source Impedance (pu) (R1+jX1)	3-Φ Fault (kA)	Zero Sequence Source Impedance (pu) (R0+jX0)	1-Φ Fault (kA)
Redwater	138	1.0162	0.01272+j0.03612	11.2	0.02512+j0.08593	7.8
Bruderheim	138	1.0378	0.00702+j0.03374	12.7	0.01623+j0.08163	8.7
Deerland	138	1.0354	0.00428+j0.02716	15.9	0.00785+j0.05379	12.0
Deerland	240	1.0582	0.00239+j0.01705	15.0	0.00653+j0.03643	10.8
Heartland	500	1.0753	0.00145+j0.01338	9.4	0.00154+j0.02037	8.1
Heartland	240	1.0524	0.00189+j0.01685	15.2	0.00247+j0.02704	12.7
Skaro	138	1.0359	0.00440+j0.02791	15.5	0.00878+j0.05811	11.4
Amelia	240	1.0459	0.00248+j0.01696	14.9	0.00551+j0.03250	11.4
Whitefish	240	1.0865	0.00538+j0.02778	9.3	0.01469+j0.06874	6.2
Weasel	138	1.0209	0.04171+j0.08230	4.7	0.02337+j0.15924	3.8



**Table 25: Estimated 2023 Post-Connection Short-Circuit Current Levels**

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (pu)	Positive Sequence Source Impedance (pu) (R1+jX1)	3-Φ Fault (kA)	Zero Sequence Source Impedance (pu) (R0+jX0)	1-Φ Fault (kA)
Redwater	138	1.0060	0.01265+j0.03527	11.4	0.02510+j0.08461	7.8
Bruderheim	138	1.0317	0.00696+j0.03296	13.0	0.01620+j0.07963	8.8
Deerland	138	1.0329	0.00427+j0.02659	16.2	0.00814+j0.05261	12.3
Deerland	240	1.0191	0.00220+j0.01527	16.1	0.00638+j0.03255	11.7
Heartland	500	1.0297	0.00088+j0.00899	13.5	0.00244+j0.01489	11.0
Heartland	240	1.0324	0.00154+j0.01485	17.0	0.00325+j0.02298	14.3
Skaro	138	1.0334	0.00439+j0.02734	15.8	0.00907+j0.05694	11.6
Amelia	240	1.0096	0.00216+j0.01474	16.5	0.00497+j0.02632	13.1
Whitefish	240	1.0221	0.00545+j0.02350	10.3	0.01247+j0.05257	7.3
Weasel	138	1.0169	0.04159+j0.08210	4.7	0.02351+j0.15888	3.8

## 8. Project Interdependencies

Studies and the assumptions made regarding the proposed transmission developments described herein are consistent with the AESO's long-term transmission system plans for the region, more specifically, the Heartland Transmission System development. The project studies assume the proposed transmission development in-service for the date specified.

## 9. Summary and Conclusion

Maxim's Deerland Generation Peaking Project is a new natural gas fired simple cycle power plant with a MARP capacity of approximately 4x47.4 MWs for a total of 189.6 MW to be located in proximity of LSD 22-56-20-W4M within the Regional Municipality of Lamont County northeast of the city of Fort Saskatchewan.

Maxim has requested and is prepared to sign an agreement for 185.8 MW of STS. Maxim has also requested 2.0 MW of DTS. The Project is currently scheduled to commence operation on March 1, 2016.

Three (3) connection alternatives were considered for connecting the Maxim Deerland Peaking Project to the AIES.

- A 138 kV tap connection to the 138 kV 815L
- A radial 138 kV connection to the Deerland 13S station
- A radial 240 kV connection to the Deerland 13S station

Alternative 2 – the radial 138 kV connection to the Deerland 13S station was selected to be the preferred alternative for implementation.

Steady state power flow studies simulating Category A, Category B and selected Category C5 conditions were performed for 2014 winter peak and 2015 summer light and summer peak study scenarios.

No POD bus voltage deviation or transmission bus voltage range violations were observed for the Category B (N-1) and Category C5 (N-2) events studied.

Power flow study results indicate that the preferred connection would mitigate the Category B (N-1) thermal overload violations observed prior to Maxim Deerland Peaking Project connection at times when the peaking station is running. Power flow study results indicate that for the Category C5 (N-2) event involving 240 kV circuits 1054L (Deerland13S – Heartland12S) and 943L (Deerland13S – Amelia 108S), the preferred connection exhibited several thermal overloading issues during the 2015 summer light conditions. The AESO will investigate and implement the needed mitigation measures as part of its long term planning assessment for the area. The AESO will develop appropriate mitigation measures to alleviate the Category C5 constraint, if required.

Transient stability analysis was performed for 2014 winter peak and 2015 summer light load conditions for the preferred connection. Stable performance was exhibited by Maxim Deerland Peaking Project and other area generating facilities.

Short circuit studies were performed to identify estimated short-circuit current levels prior to and following Maxim Deerland Peaking Project connection.

It is recommended to proceed with Alternative 2 - a radial 138 kV connection to the Deerland 13S station for this project.

## **Attachment A**

### **Transient Study Dynamic Model Representations**

The following tables summarize the respective generator, excitation, power-system stabilizer and turbine-governor models used to represent each of the Maxim Deerland Peaking Project generating units in transient stability studies.

**Table A-1: Generator**

Generator dynamic data (GENROU model)													
T'do	T*do	T'qo	T*qo	H	D	Xd	Xq	X'd	X'q	X*d	Xl	S(1.0)	S(1.2)
9.67	0.05	2.95	0.05	1.201	0	2.35	1.68	0.245	0.24	0.181	0.13	0.094	0.458

**Table A-2: Excitation**

Exciter dynamic data (EX2000 model)													
KPR	KIR	VRMAX	VRMIN	KPA	KIA	VAMAX	VAMIN	KP	KL	TE	VFEMAX	KE	KC
40	40	11.52	0	1.3909	1.15913	1	-1	27.28	10	1.2	20	1	0.3
KD	KF1	KF2	E1	S(E1)	E2	S(E2)	KVHZ	KRCC	TR	IFDREF1	IFDFEF2	IFDREF3	IFDREF4
3.31	0	0.8635	7.1	0.41	9.4	4.01	1.09	0	0	1.4	1.02	1	1.25
I1	T1	I2	T2	I3	T3	I4	T4	TLEAD	TLAG	KPIFD	KIIFD	IFDLIMP	IFDLIMN
1.9	11	1.36	30	1.2	60	1.1	120	1	1	1	1	1	-1
IFDADVLIM	VEMIN	REFLIMP											
1	0	1.2											

**Table A-3: Power-system Stabilizer**

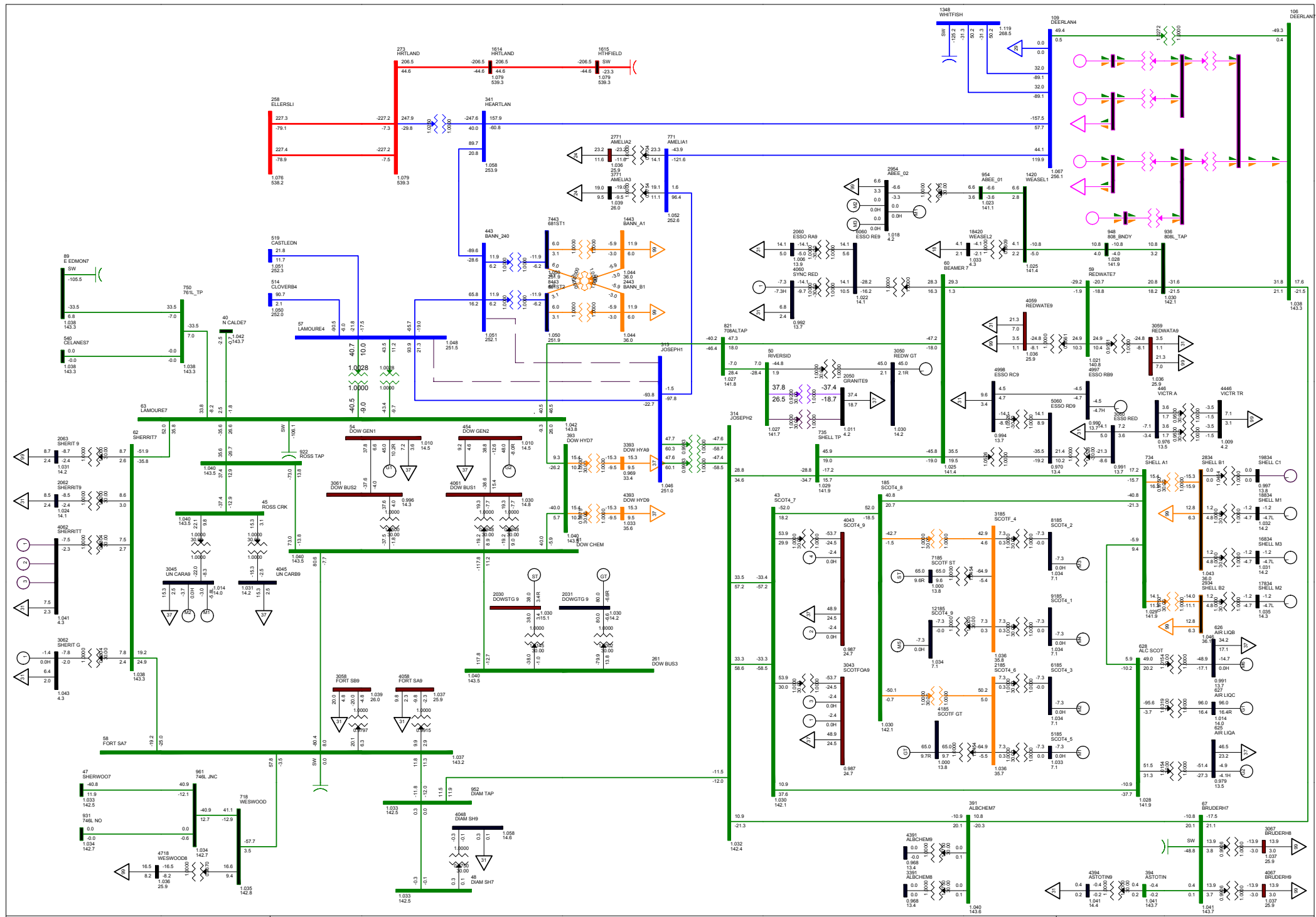
Power-System Stabilizer (PSS2B model)													
Tw1	Tw2	T6	Tw3	Tw4	T7	KS2	KS3	T8	T9	KS1	T1	T2	T3
3	3	0	3	3	2	0.83264	1	0.5	0.1	15	0.15	0.03	0.15
T4	T10	T11	VS1MAX	VS1MIN	VS2MAX	VS2MIN	VSTMAX	VSTMIN					
0.03	0.07	0.01	0.08	-0.08	1.25	-1.25	0.1	-0.1					

**Table A-4: Turbine - Governor**

Turbine Governor (GGOV1 model)													
R	Tpelec	Maxerr	Minerr	Kpgov	Kigov	Kdgvov	Tdgvov	Vmax	Vmin	Tact	Kturb	Wfnl	Tb
0.05	1	0.023	-0.023	3	1.2	0	1	1.2	0.17	0.3	1.3	0.22	0.1
Tc	Teng	Tfload	Kpload	Kiload	Ldref	Dm	Ropen	Rclose	Kimw	Aset	Ka	Ta	Trate
0	0	0.3	1	3.3	0.918	0	99	-99	0	99	10	0.1	
db	Tsa	Tsb	Rup	Rdown									
0	1	1	99	-99									

## **Attachment B**

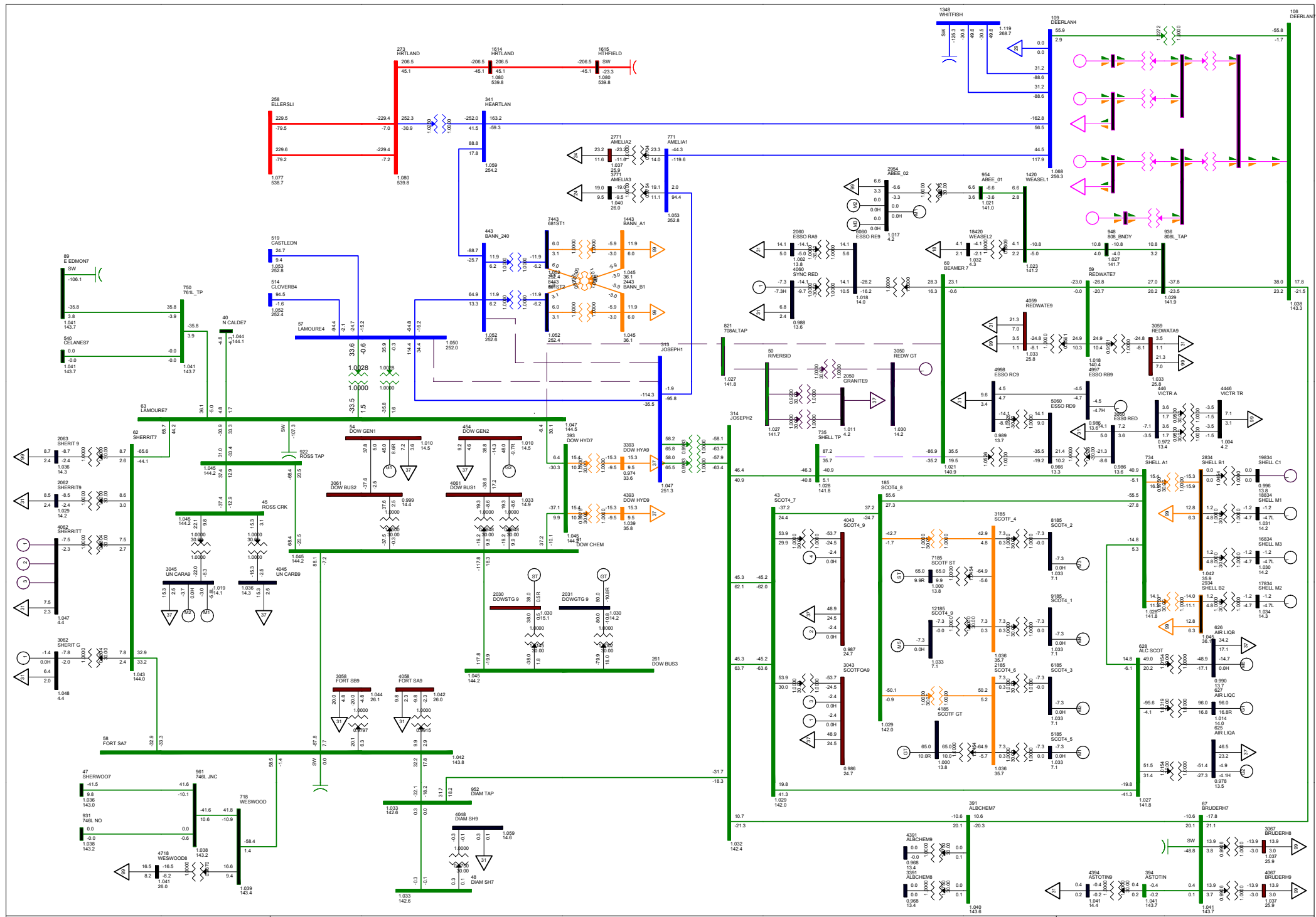
### **Scenario 1, 2 & 3 Pre-Connection Power Flow Diagrams**



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SCENARIO 1, N.O. SYSTEM NORMAL  
 WED, JUN 12 2013 11:42

Figure B-1

Bus - VOLTAGE (kV/PU)  
 Branch - MW/Mvar  
 Equipment - MW/Mvar  
 100.0%RATEB  
 kv. <=25.000 <<=69.000=138.000 <<=240.000<=500.000<=500.000



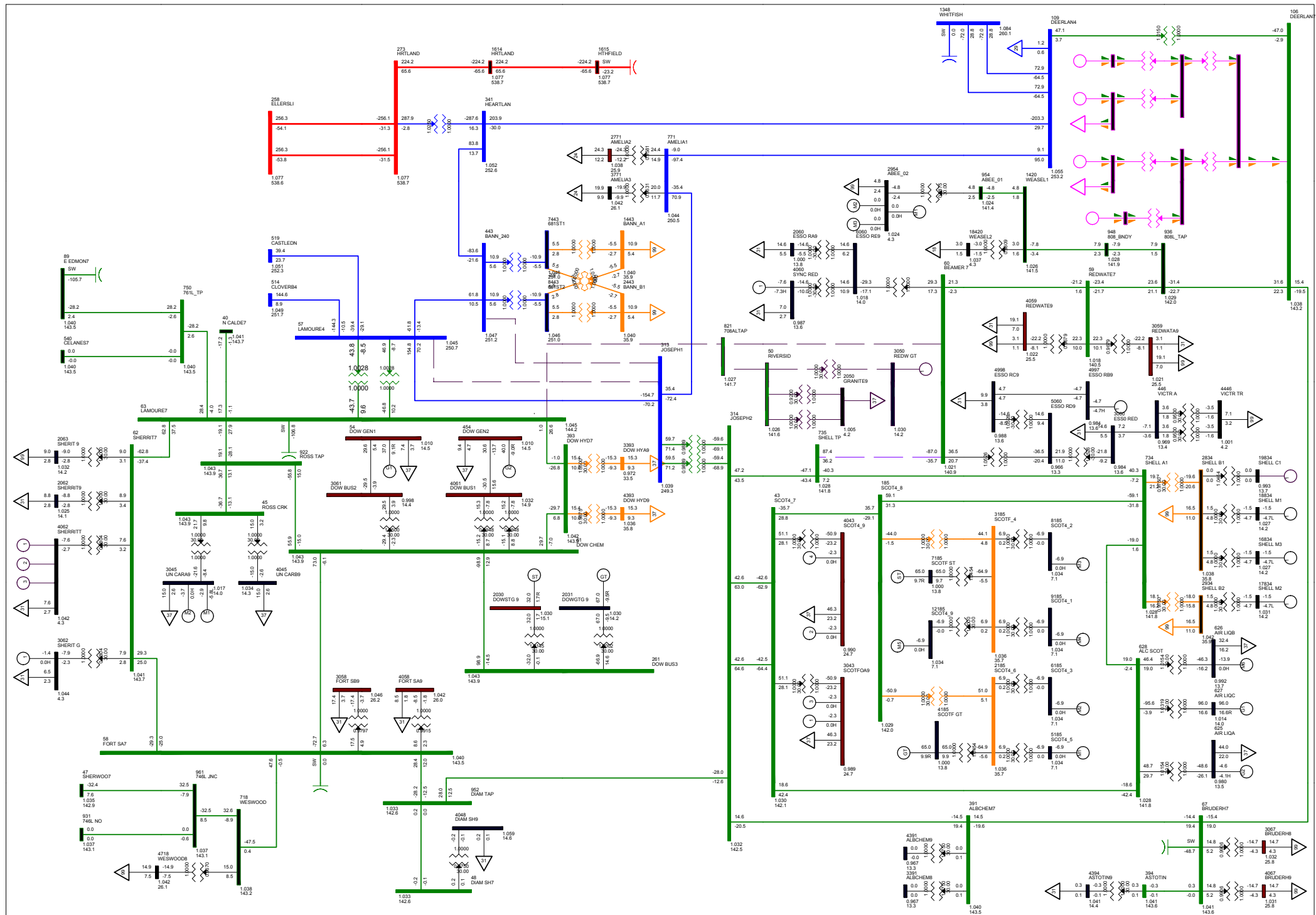
TASMO MODEL; OUTPUT GENERATED 2012-11-20 09:26:26  
 SCENARIO 1, N-1, BEAMER TO RIVERSIDE TO LAMOUREUX 138 KV OUT  
 WED, JUN 12 2013 11:42

Figure B-2

Bus - VOLTAGE (kV/PU)  
 Branch - MW/Mvar  
 Equipment - MW/Mvar  
 100.0%RATEB  
 kv. <=25.000 <<=69.000=138.000 <<=240.000<=500.000<=500.000



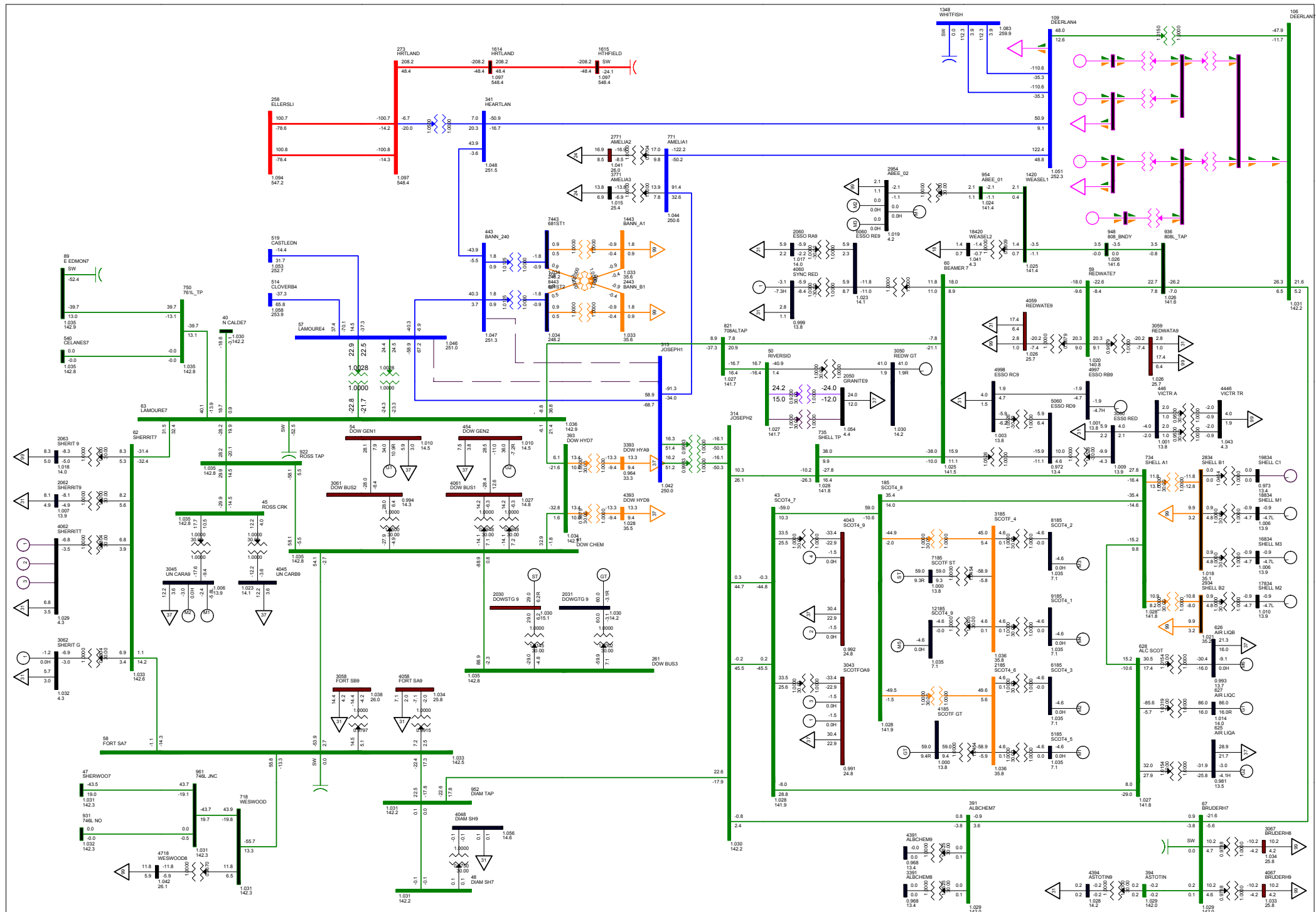




TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:24:15  
 SCENARIO 2, N-1, BEAMER TO RIVERSIDE TO LAMOUREUX 138 KV OUT  
 WED, JUN 12 2013 11:42

Figure B-4

Bus - VOLTAGE (kV/PU)  
 Branch - MW/Mvar  
 Equipment - MW/Mvar  
 100.0%RATEA  
 kv: <=25.000 <=69.000=138.000 <=240.000=500.000=500.000



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SCENARIO 3, N-O, SYSTEM NORMAL  
 WED, JUN 12 2013 11:42

Figure B-5

Bus - VOLTAGE (kV/PU)  
 Branch - MW/Mvar  
 Equipment - MW/Mvar  
 100.0%RATEA  
 kv. <=25.000 <=69.000<=138.000 <=240.000<=500.000<=500.000

## **Attachment C**

### **Connection Alternative Single-Line Diagrams**

Figure C-1: Area Transmission Facilities & Proposed Power Plant Location

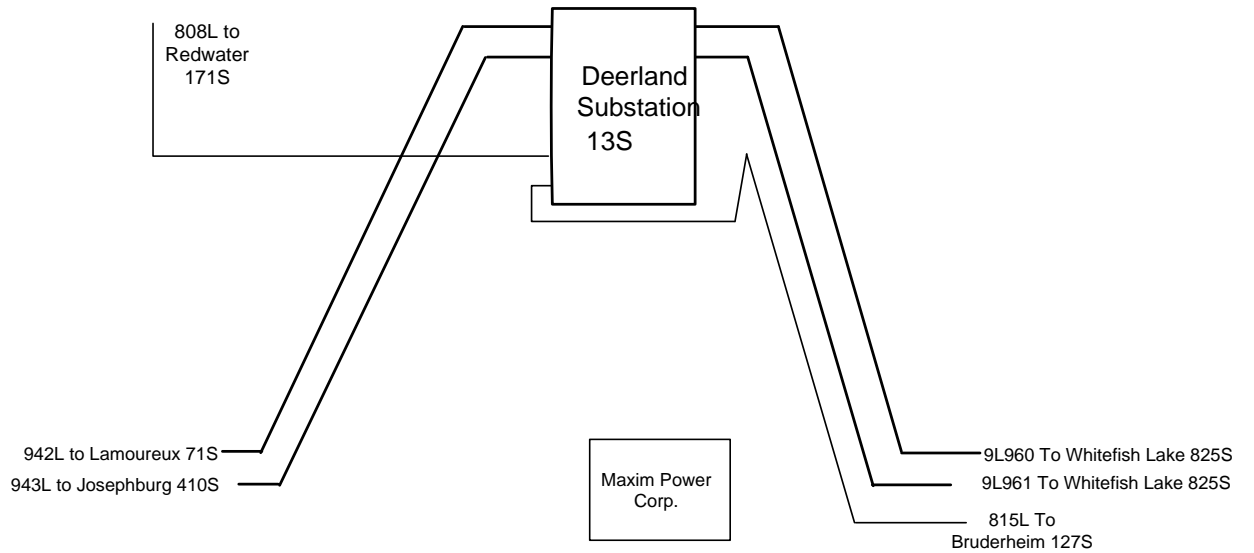
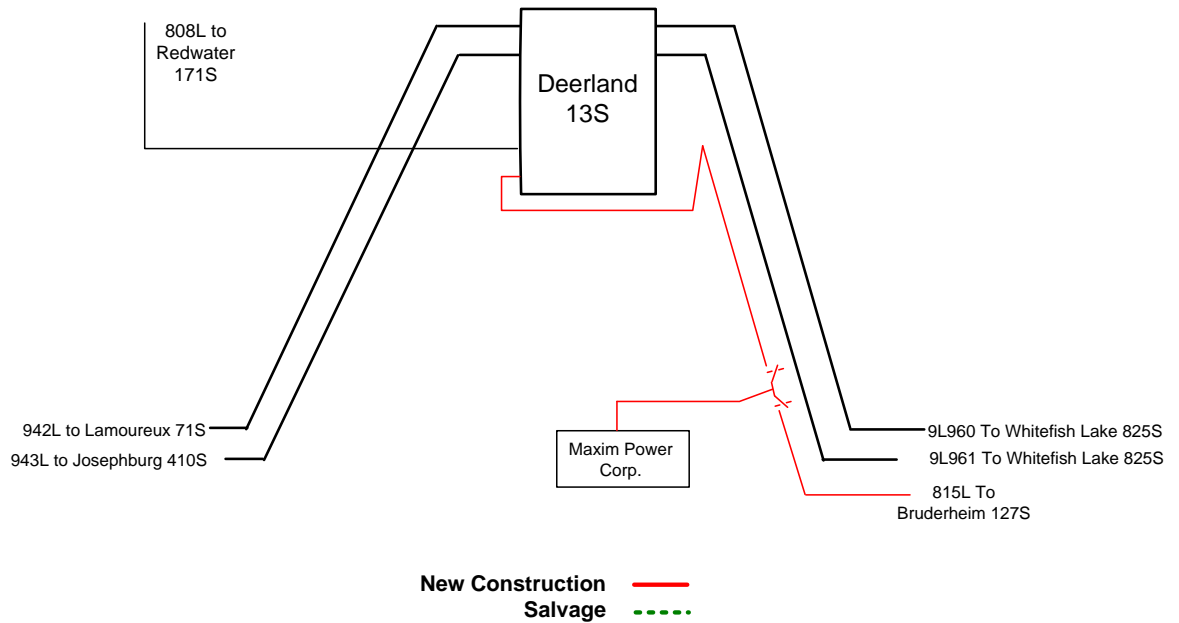
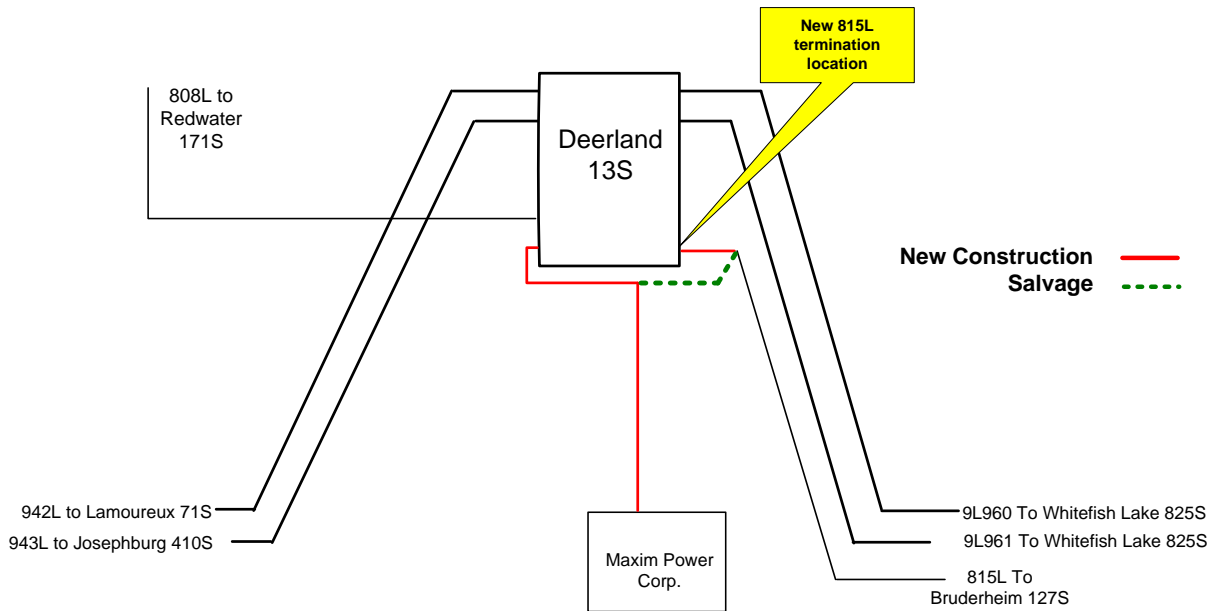


Figure C-2: 815 L Tap Connection - Connection Alternative 1



**Figure C-3: Deerland 13S 138 kV Radial Connection – Connection Alternative 2 (Preferred Connection)**



**Figure C-4: Connection Alternative 2 Deerland 13S Modifications & Augmentation**

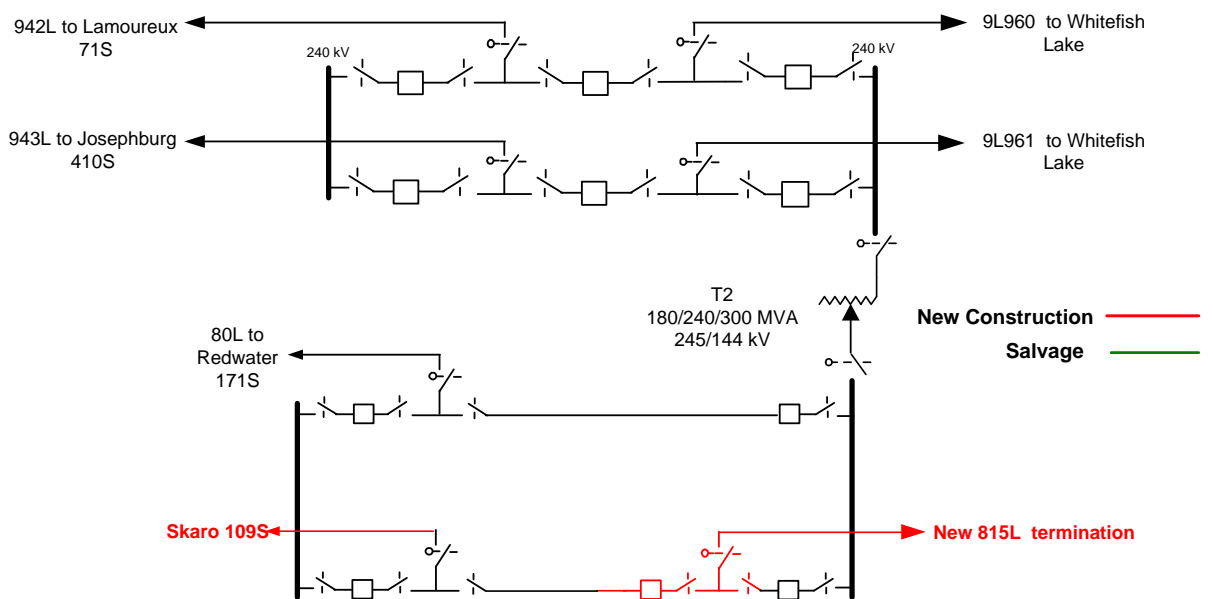


Figure C-5: Deerland 13S Radial 240 kV Connection – Connection Alternative 3

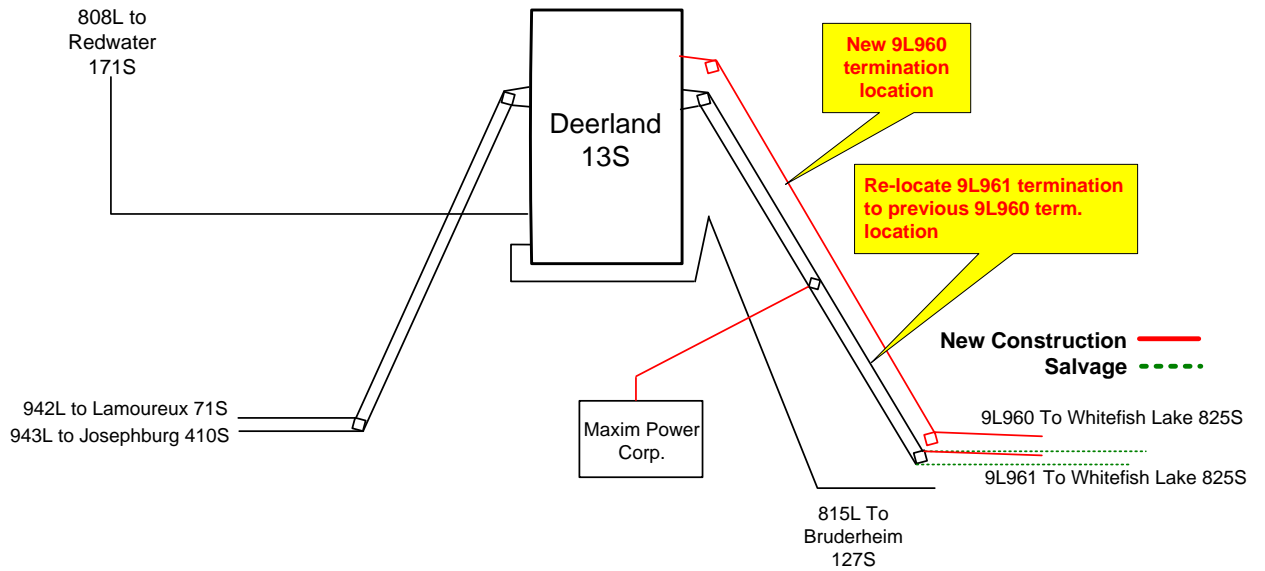
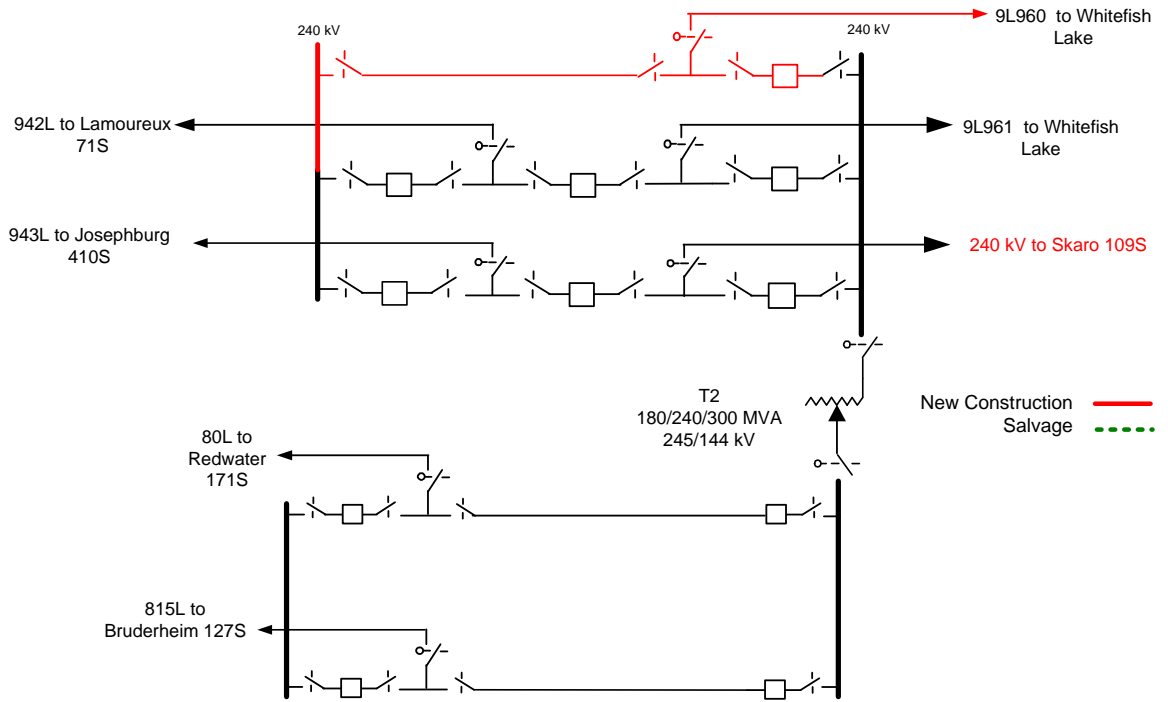


Figure C-6: Connection Alternative 3 Deerland 13S Modifications & Augmentation

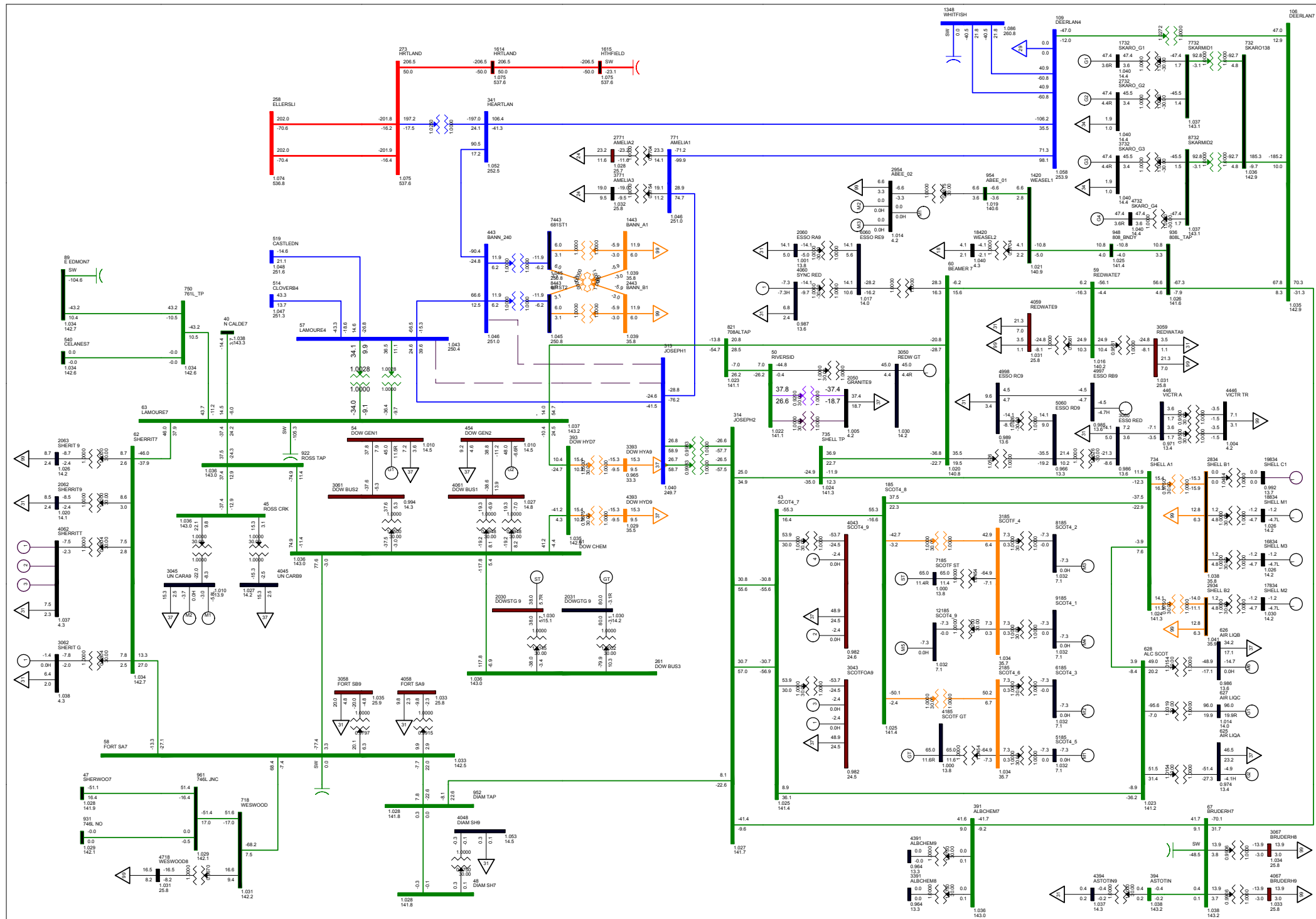
# Connection Engineering Study Report: Maxim Deerland Peaking Project



## **Attachment D**

### **Preferred Connection Power Flow Diagrams**

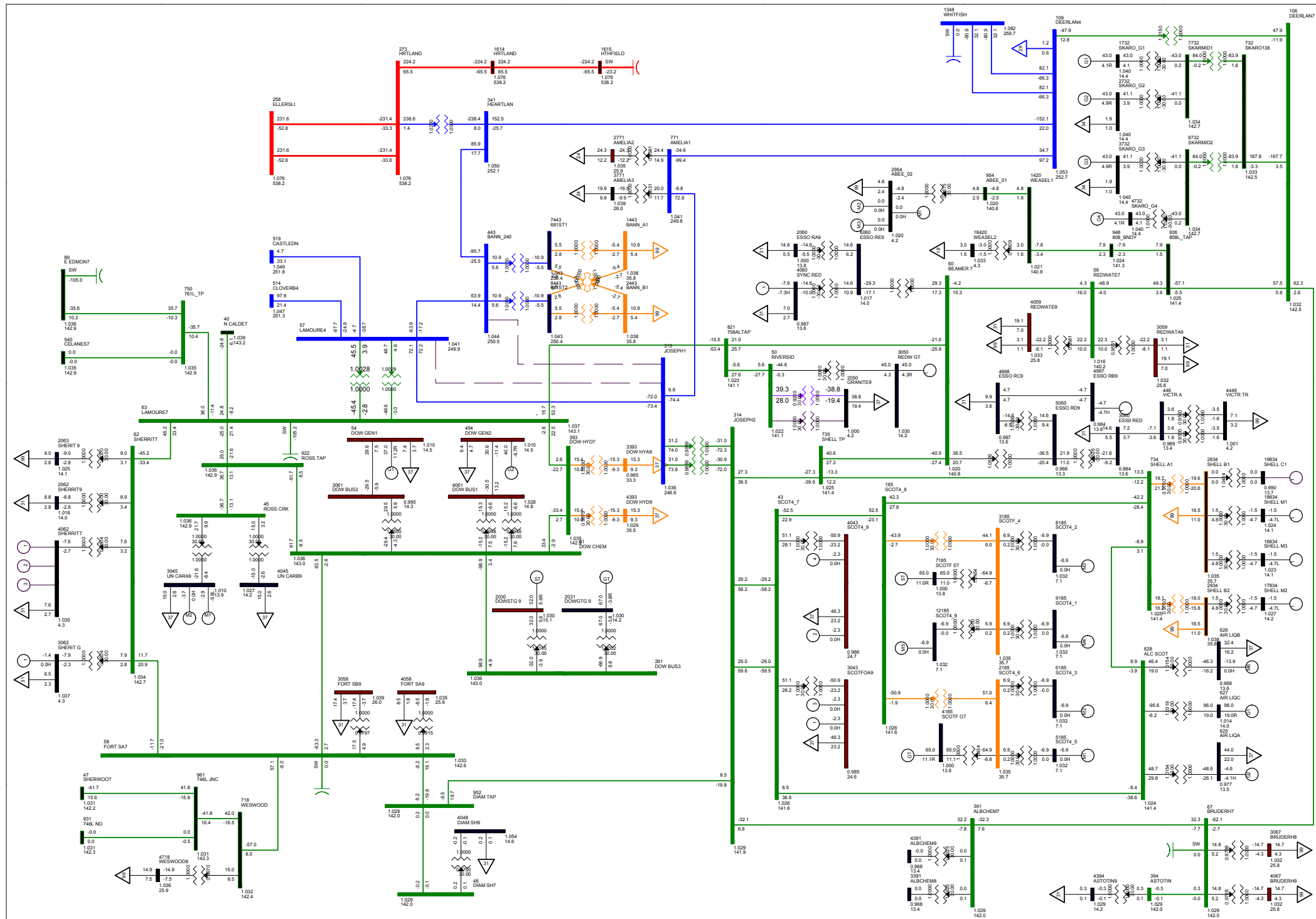




TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:28:26  
 SCENARIO 4\_N\_0\_SYSTEM NORMAL  
 WED, JUN 12 2013 11:42

Figure D-1

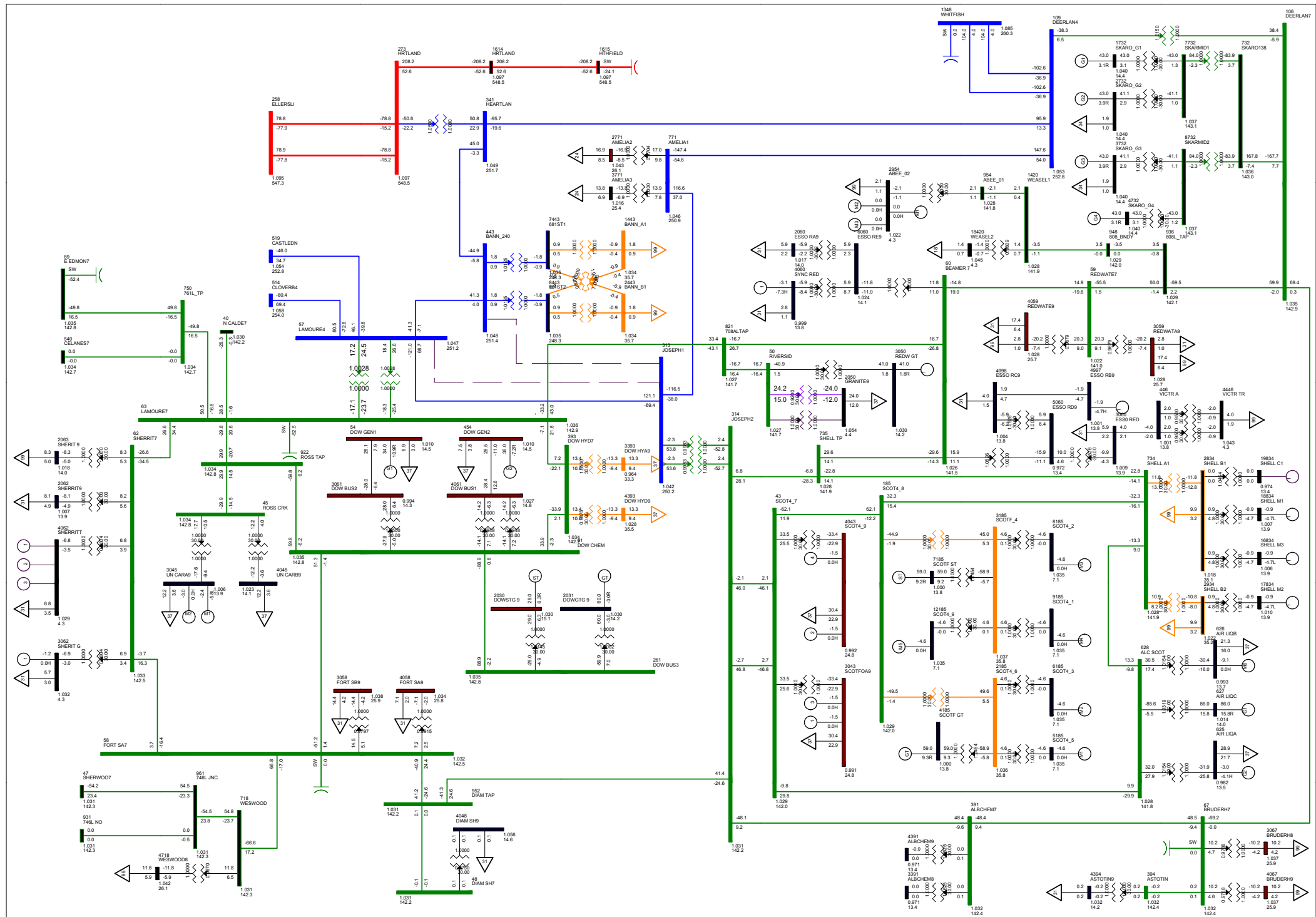
Bus - VOLTAGE (kV/PU)  
 Branch - MW/Mvar  
 Equipment - MW/Mvar  
 100.0%RATEB  
 kV: <=25.000 <=69.008 <=138.000 <=240.000 <=500.000 <=500.000



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:24:15  
 SCENARIO 5, N=0, SYSTEM NORMAL  
 WED, JUN 12 2013 11:42

Figure D-2

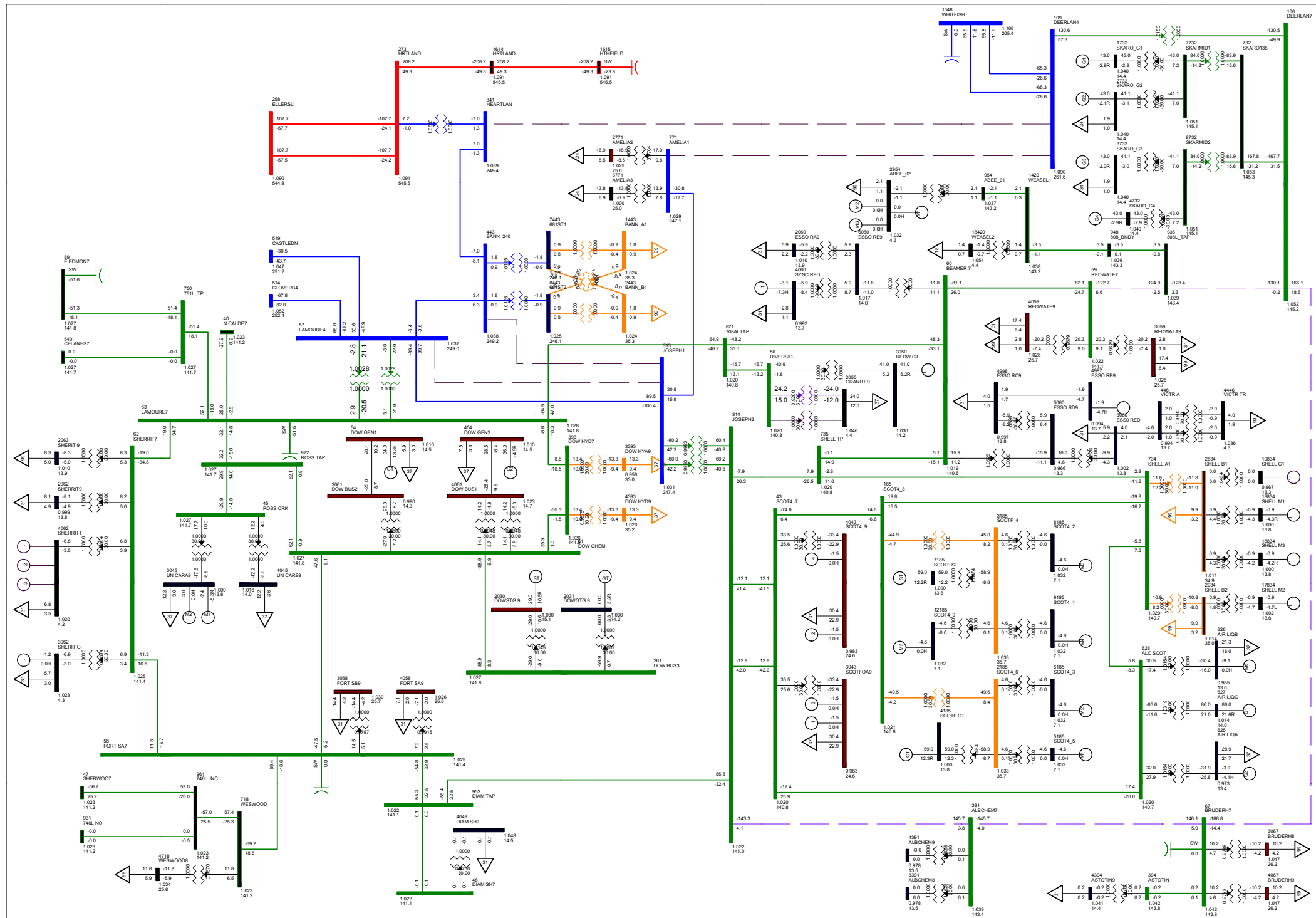
Bus - VOLTAGE (kV/PU)  
 Branch - MW/Mvar  
 Equipment - MW/Mvar  
 100.0%RATEA  
 kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 <=500.000



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SCENARIO 6\_N\_0\_SYSTEM NORMAL  
 WED, JUN 12 2013 11:42

Figure D-3

Bus - VOLTAGE (kV/PU)  
 Branch - MW/Mvar  
 Equipment - MW/Mvar  
 100.0%RATEA  
 kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 <=500.000



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SCENARIO 6, N-2, DEERLAND TO AMELIA AND HEARTLAND 240 KV OUT  
 WED, JUN 12 2013 11:43

Figure D-4

Bus - VOLTAGE (kV/PU)  
 Branch - MW/Mvar  
 Equipment - MW/Mvar  
 100.0%RATEA  
 kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 <=500.000

## **Attachment E**

### **Scenario 4 Transient Stability Analysis Results**

Attachment E-1: Machine Rotor Angle

Attachment E-2: Machine Real Power

Attachment E-3: Machine Reactive Power

Attachment E-4: Monitored Area Bus Voltages

### Scenario 4 (2013 WP) Transient Response Plot Key

Category	Line Element	Substation Terminals			Faulted End	FIGURE NO.			
						ANGLES	POWER	VAR	VOLTAGE
A	n/a	Flat Start			n/a	E1-1 E1-1a	E2-1 E2-1a	E3-1 E3-1a	E4-1 E4-1a E4-1b
B-2	9L961	Deerland 13S	Whitefish Lake 825S	n/a	13S	E1-2 E1-2a	E2-2 E2-2a	E3-2 E3-2a	E4-2 E4-2a E4-2b
					825S	E1-3 E1-3a	E2-3 E2-3a	E3-3 E3-3a	E4-3 E4-3a E4-3b
B-2	735L	Redwater 171S	Beamer 238S	n/a	171S	E1-4 E1-4a	E2-4 E2-4a	E3-4 E3-4a	E4-4 E4-4a E4-4b
					238S	E1-5 E1-5a	E2-5 E2-5a	E3-5 E3-5a	E4-5 E4-5a E4-5b
B-2	T2	Deerland 240kV	Deerland 138kV	n/a	T2	E1-6 E1-6a	E2-6 E2-6a	E3-6 E3-6a	E4-6 E4-6a E4-6b
B-2	776L	Josephburg 410S	Beaverhill Ck 308S	n/a	410S	E1-7 E1-7a	E2-7 E2-7a	E3-7 E3-7a	E4-7 E4-7a E4-7b
					308S	E1-8 E1-8a	E2-8 E2-8a	E3-8 E3-8a	E4-8 E4-8a E4-8b
B-2	773L	Bruderheim 127S	Beaverhill Ck 308S	n/a	127S	E1-9 E1-9a	E2-9 E2-9a	E3-9 E3-9a	E4-9 E4-9a E4-9b
					308S	E1-10 E1-10a	E2-10 E2-10a	E3-10 E3-10a	E4-10 E4-10a E4-10b

### Scenario 4 (2013 WP) Transient Response Plot Key (continued)

Category	Line Element	Substation Terminals			Faulted End	FIGURE NO.			
B-2	920L	Lamoureux 71S	Castle Downs 557S	n/a	71S	E1-11 E1-11a	E2-11 E2-11a	E3-11 E3-11a	E4-11 E4-11a E4-11b
					557S	E1-12 E1-12a	E2-12 E2-12a	E3-12 E3-12a	E4-12 E4-12a E4-12b
B-2	815L	Bruderheim 127S	Deerland 13S	n/a	127S	E1-13 E1-13a	E2-13 E2-13a	E3-13 E3-13a	E4-13 E4-13a E4-13b
					13S	E1-14 E1-14a	E2-14 E2-14a	E3-14 E3-14a	E4-14 E4-14a E4-14b
B-2	808L	Redwater 171S	Deerland 13S	n/a	171S	E1-15 E1-15a	E2-15 E2-15a	E3-15 E3-15a	E4-15 E4-15a E4-15b
					13S	E1-16 E1-16a	E2-16 E2-16a	E3-16 E3-16a	E4-16 E4-16a E4-16b
B-2	1054L	Deerland 13S	Heartland 12S	n/a	13S	E1-17 E1-17a	E2-17 E2-17a	E3-17 E3-17a	E4-17 E4-17a E4-17b
					12S	E1-18 E1-18a	E2-18 E2-18a	E3-18 E3-18a	E4-18 E4-18a E4-18b
B-2	706L	Ft. Sask 54S	Josephburg 410S	n/a	54S	E1-19 E1-19a	E2-19 E2-19a	E3-19 E3-19a	E4-19 E4-19a E4-19b
					410S	E1-20 E1-20a	E2-20 E2-20a	E3-20 E3-20a	E4-20 E4-20a E4-20b

### Scenario 4 (2013 WP) Transient Response Plot Key (continued)

Category	Line Element	Substation Terminals			Faulted End	FIGURE NO.			
B-2	943L	Deerland 13S	Amelia 108S	n/a	410S	E1-21 E1-21a	E2-21 E2-21a	E3-21 E3-21a	E4-21 E4-21a E4-21b
					108S	E1-22 E1-22a	E2-22 E2-22a	E3-22 E3-22a	E4-22 E4-22a E4-22b
B-2	807L	Beamer 233S	Josephburg 410S	AOSP1 402S	233S	E1-23 E1-23a	E2-23 E2-23a	E3-23 E3-23a	E4-23 E4-23a E4-23b
					410S	E1-24 E1-24a	E2-24 E2-24a	E3-24 E3-24a	E4-24 E4-24a E4-24b
					402S	E1-25 E1-25a	E2-25 E2-25a	E3-25 E3-25a	E4-25 E4-25a E4-25b
B-2	109S T1	Skaro 109s transformer		n/a	109S T1	E1-26 E1-26a	E2-26 E2-26a	E3-26 E3-26a	E4-26 E4-26a E4-26b
B-2	480L	Deerland 13S	Skaro 109S	n/a	Skaro 109S	E1-27 E1-27a	E2-27 E2-27a	E3-27 E3-27a	E4-27 E4-27a E4-27b
C-5	1054L / 943L	Deerland 13S	Heartland 12S	n/a	13S	E1-28 E1-28a	E2-28 E2-28a	E3-28 E3-28a	E4-28 E4-28a E4-28b
		Deerland 13S	Amelia 108S	n/a					



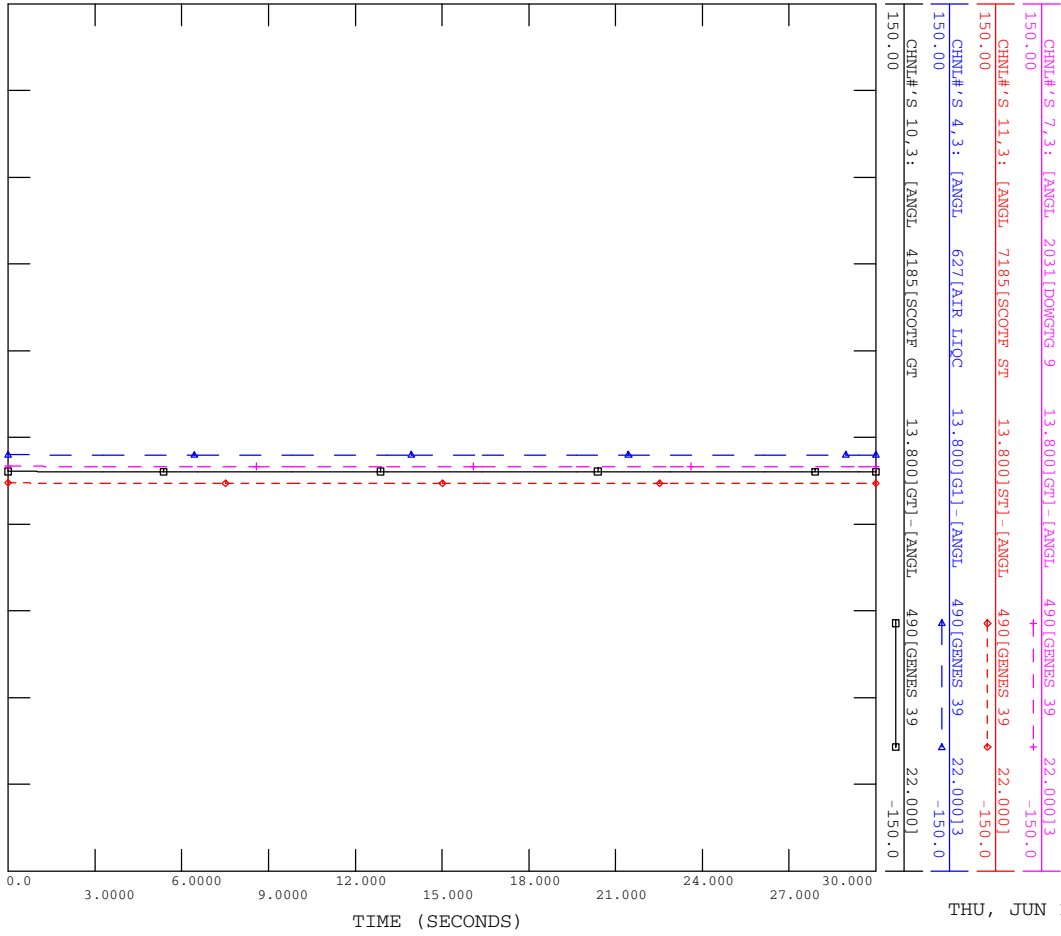
## **Attachment E-1**

### **Scenario 4 Transient Stability Plots Machine Rotor Angle**



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP A - FLAT START

FILE: CON0.OUT

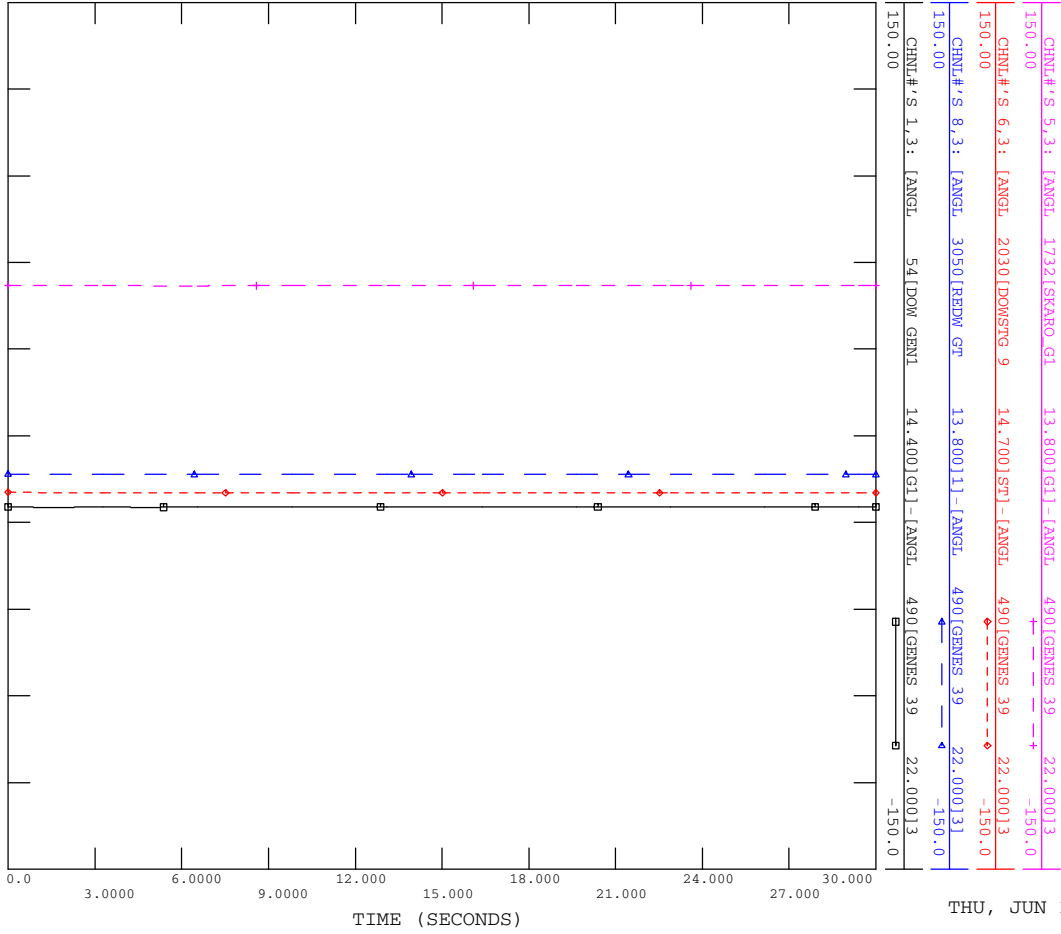


THU, JUN 19 2014 14:40  
 FIG E1-1



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP A - FLAT START

FILE: CON0.OUT

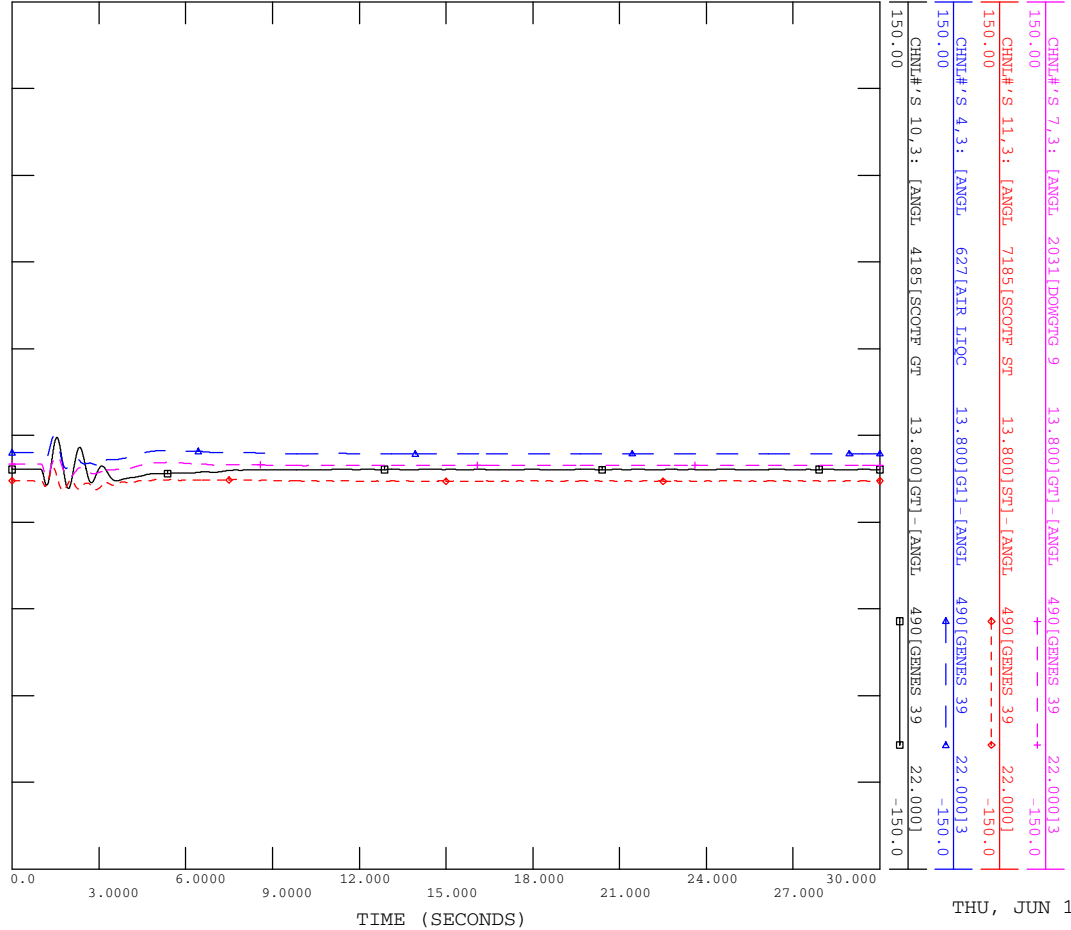


THU, JUN 19 2014 14:41  
 FIG E1-1A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

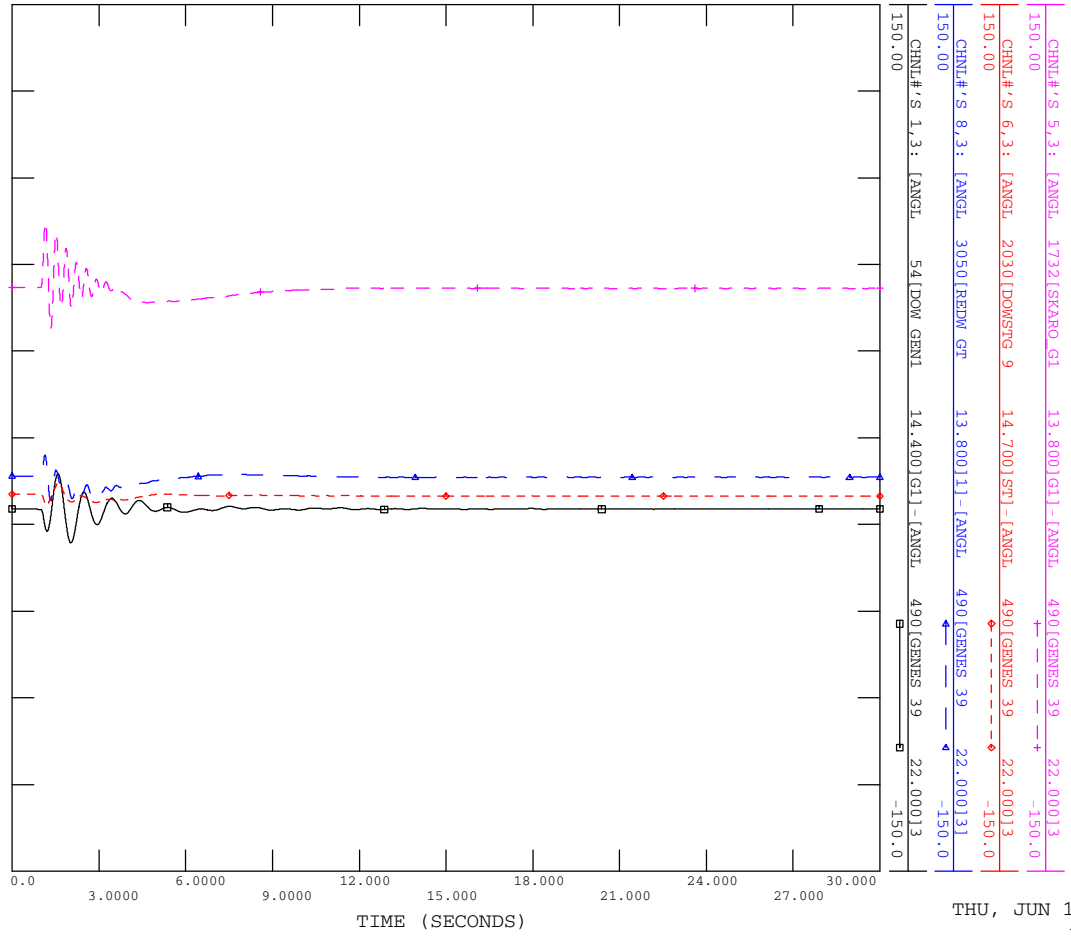


THU, JUN 19 2014 14:41  
FIG E1-2



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

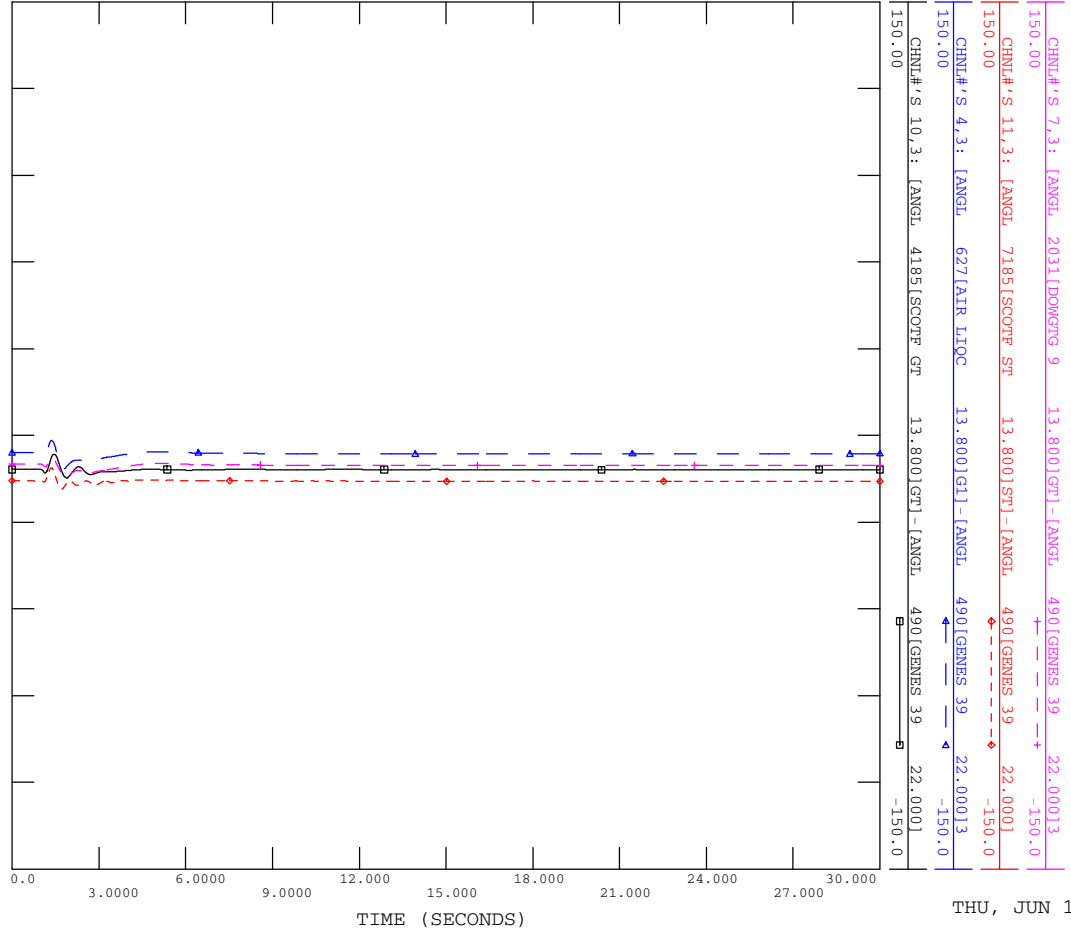


THU, JUN 19 2014 14:41  
FIG E1-2A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

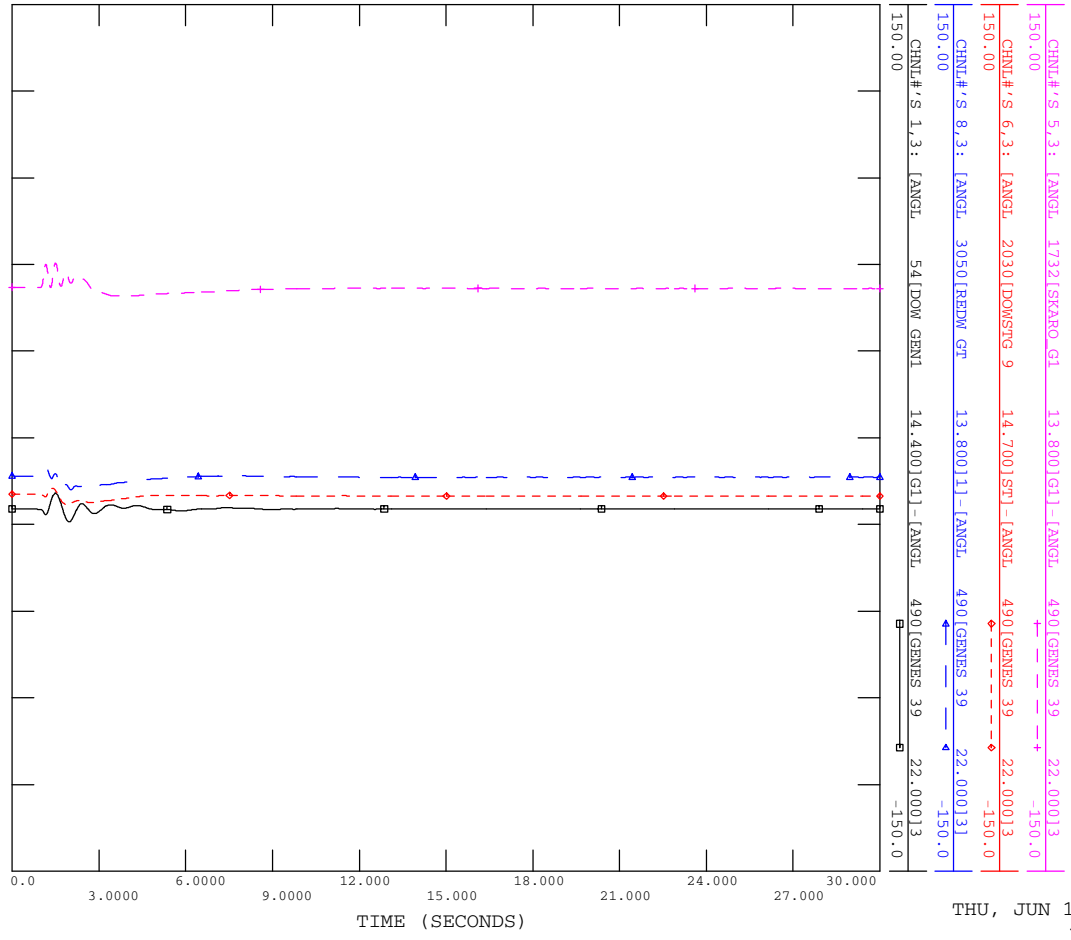


THU, JUN 19 2014 14:42  
FIG E1-3



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

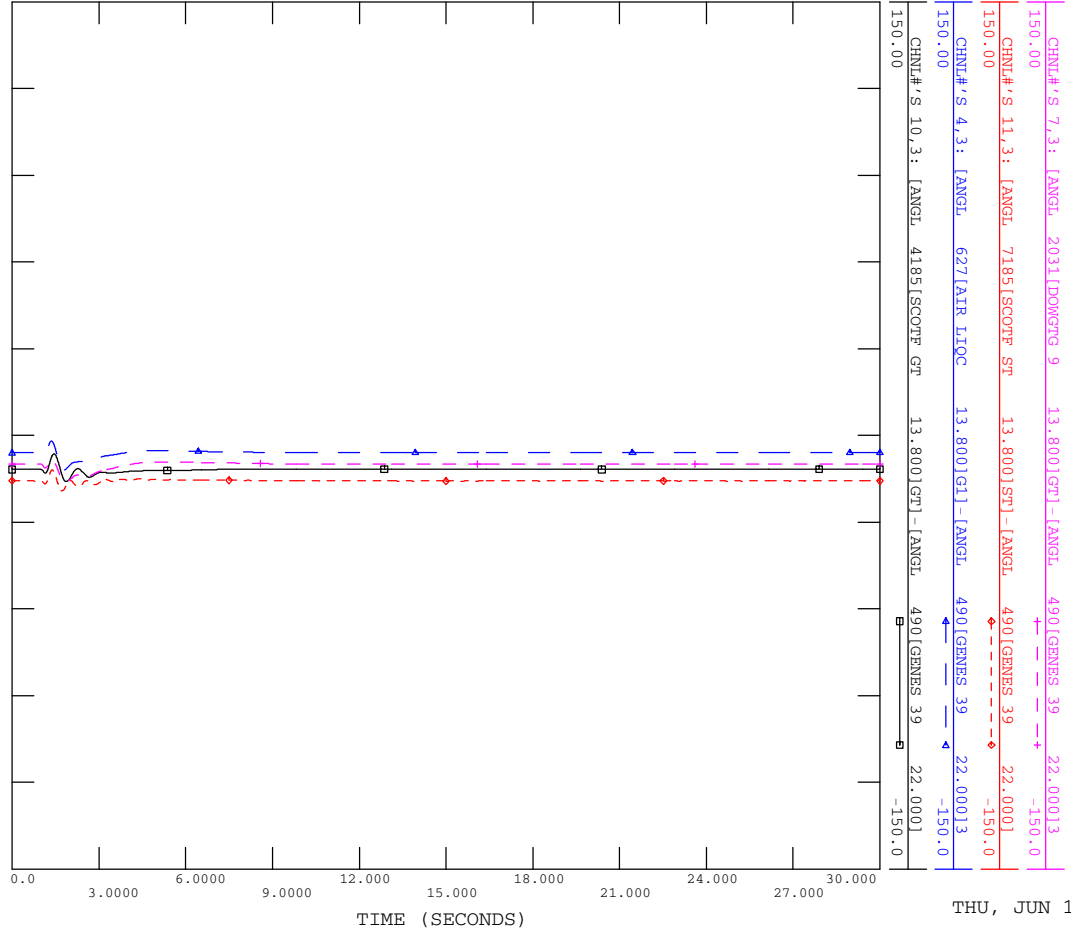


THU, JUN 19 2014 14:42  
FIG E1-3A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

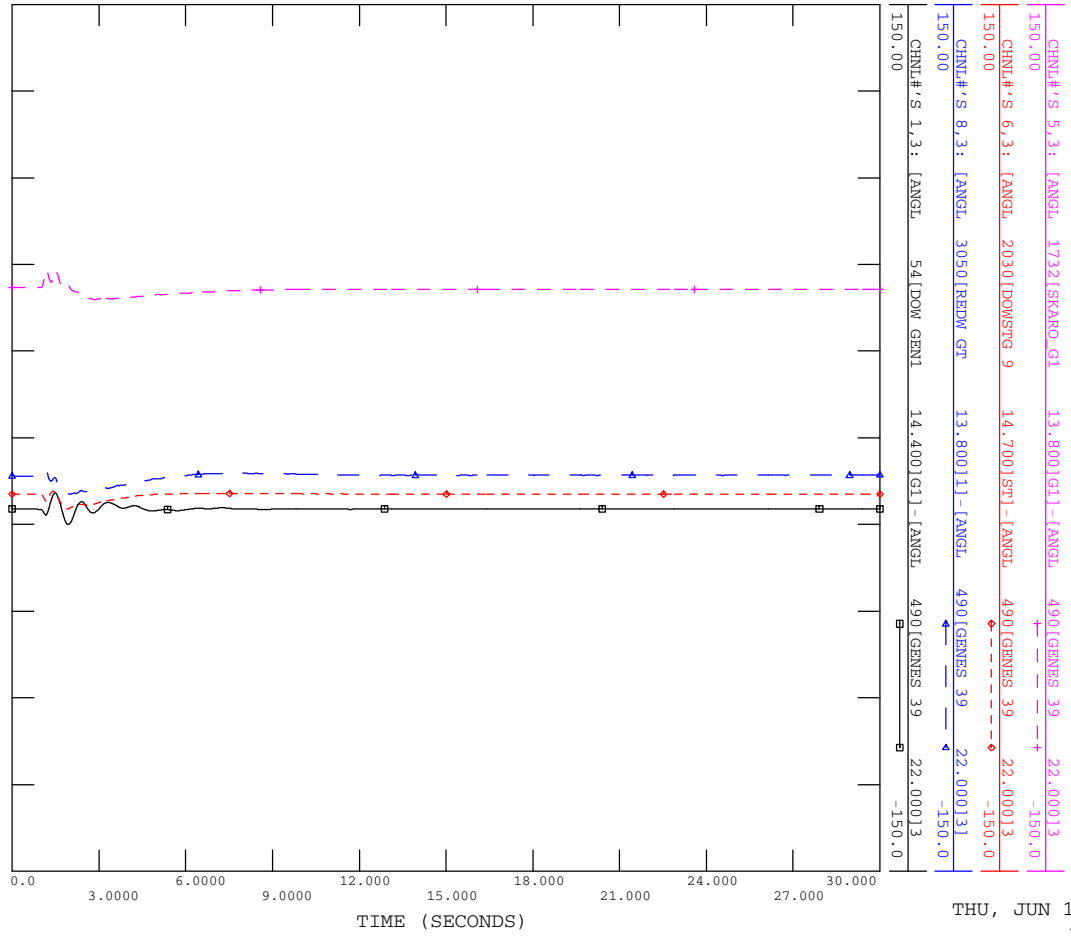


THU, JUN 19 2014 14:43  
 FIG E1-4



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

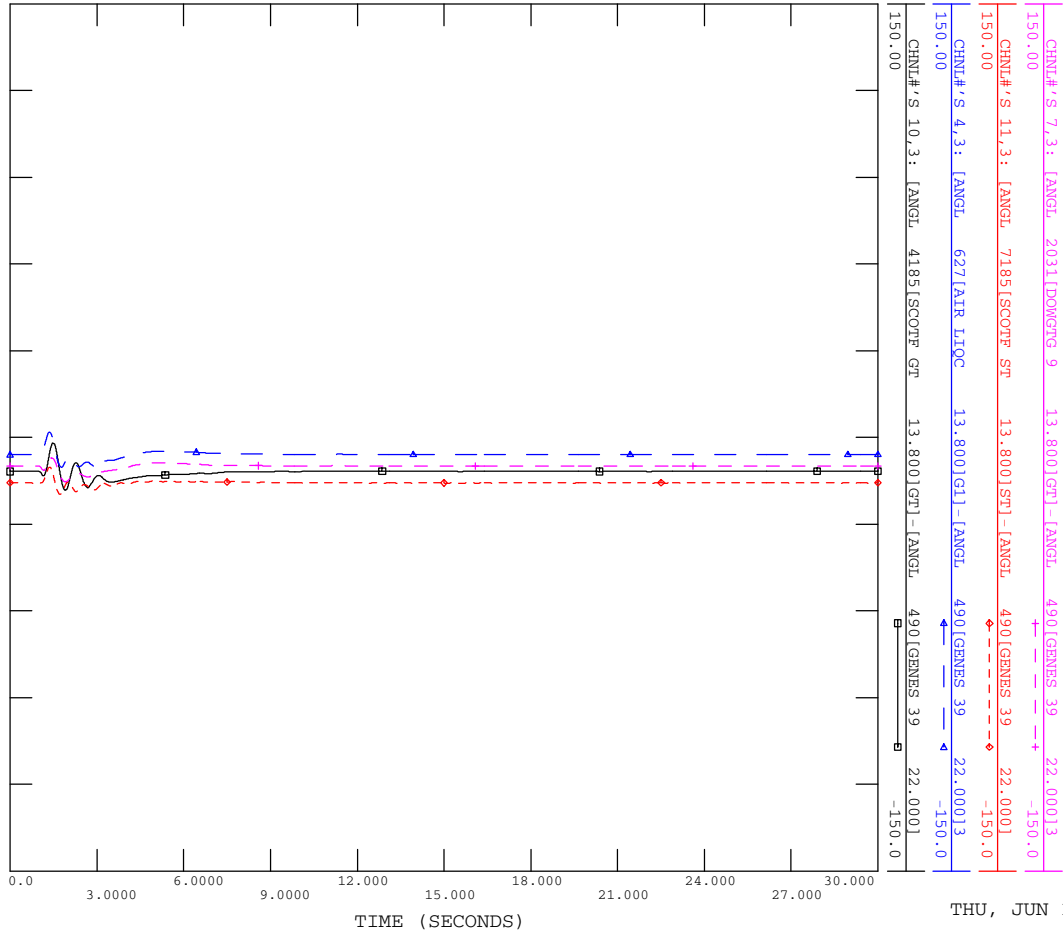


THU, JUN 19 2014 14:43  
 FIG E1-4A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

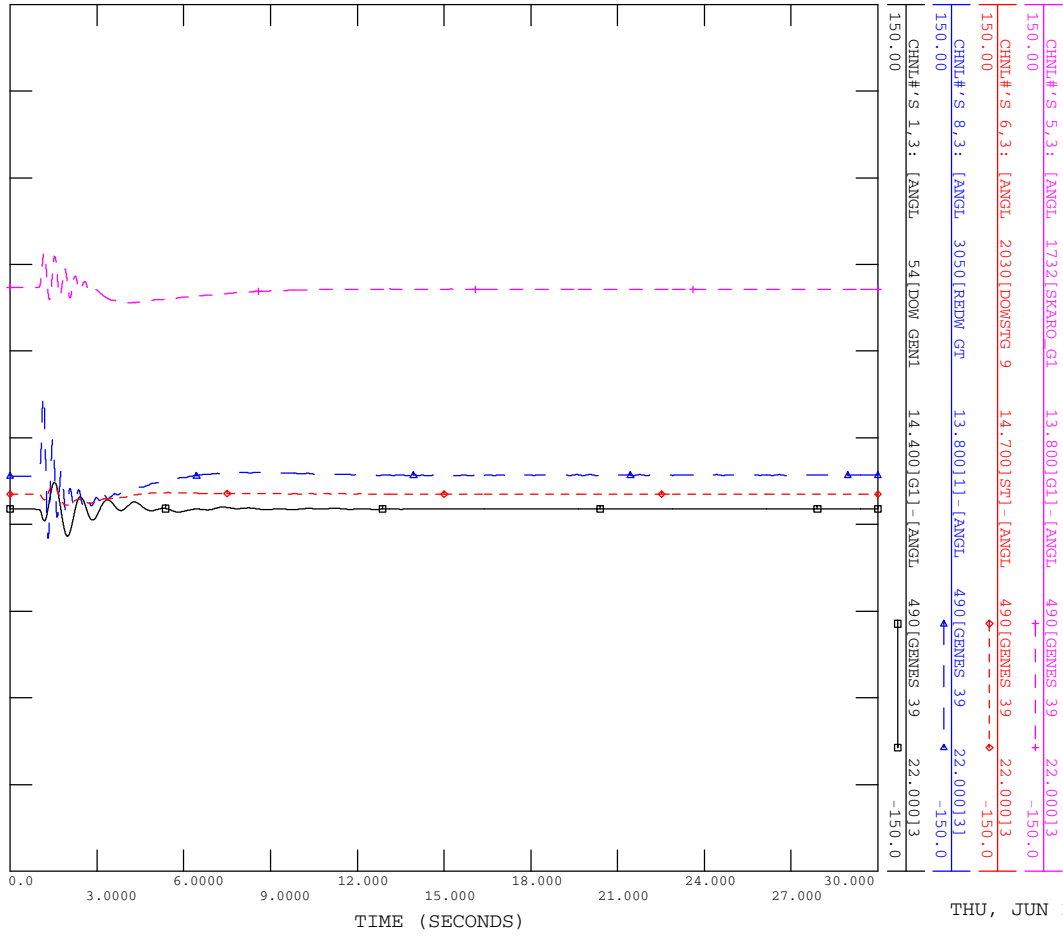


THU, JUN 19 2014 14:44  
 FIG E1-5



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

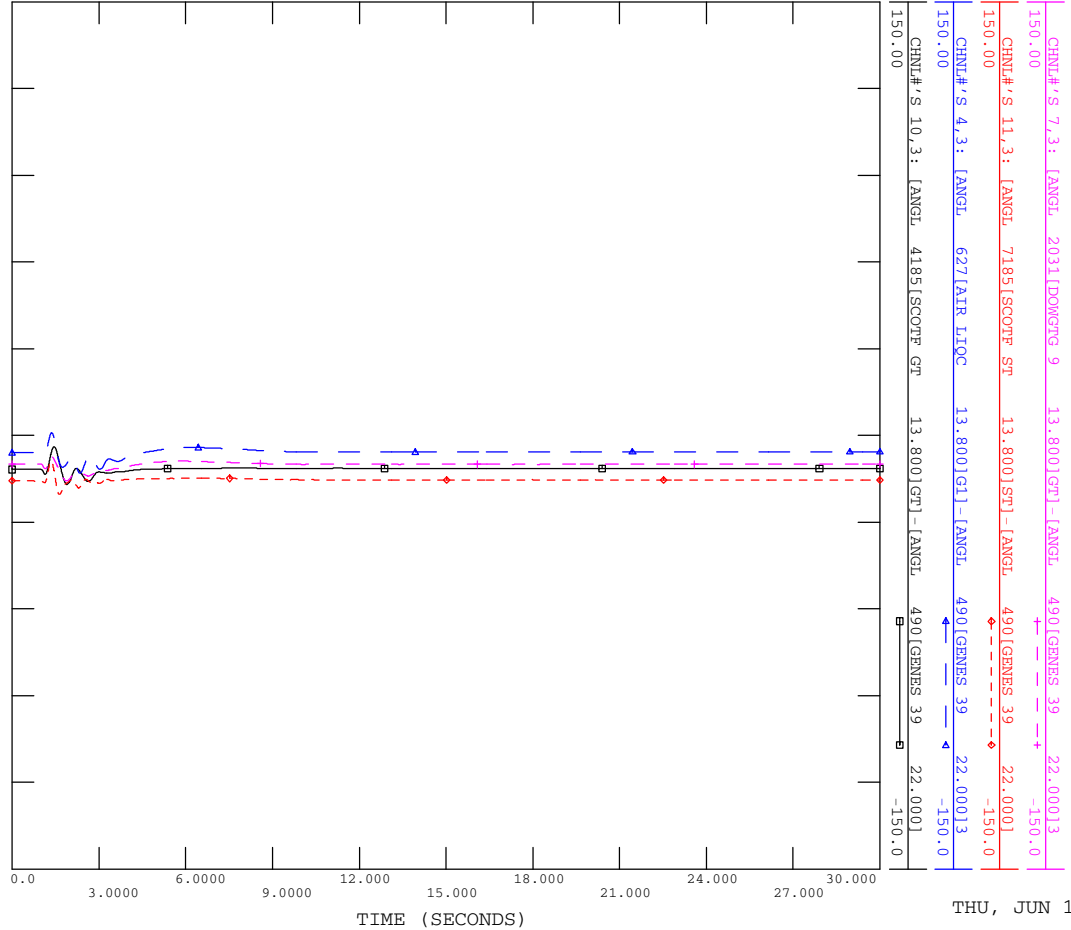


THU, JUN 19 2014 14:44  
 FIG E1-5A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

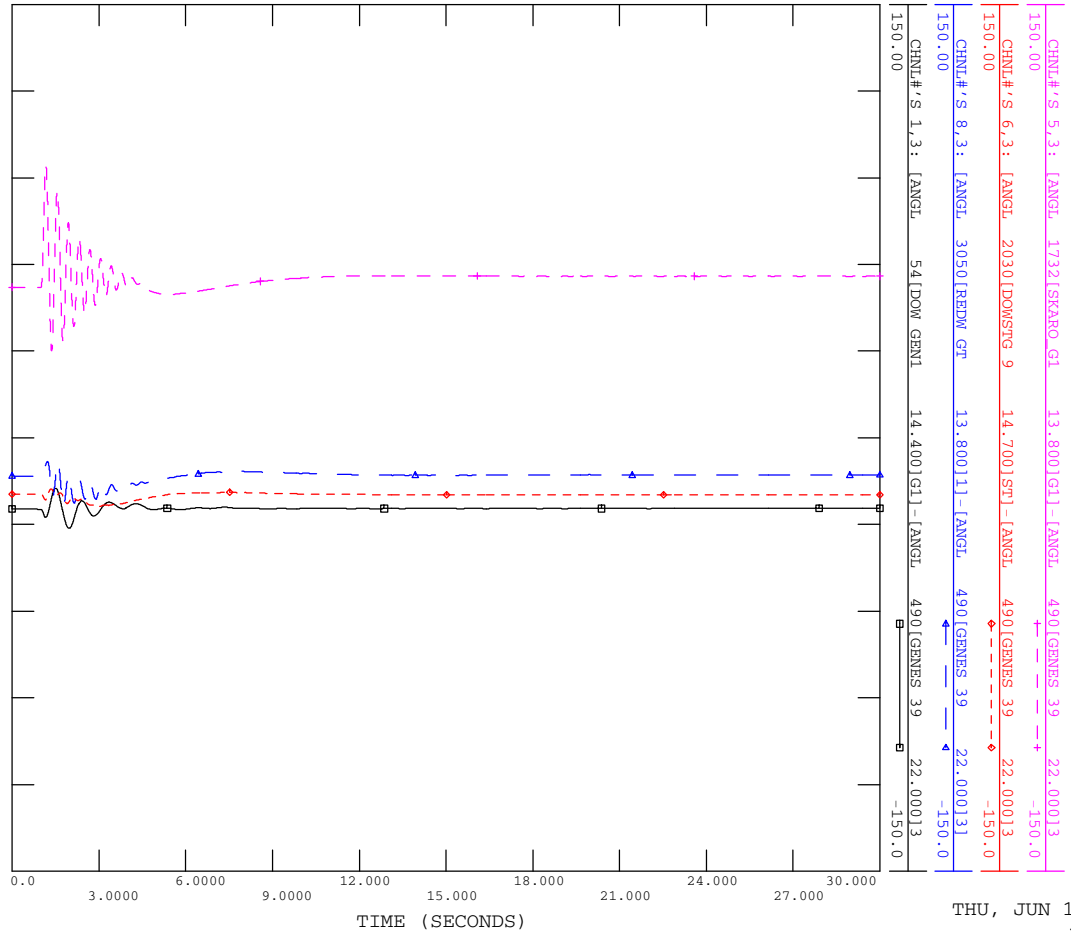


THU, JUN 19 2014 14:45  
 FIG E1-6



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT



THU, JUN 19 2014 14:45  
 FIG E1-6A

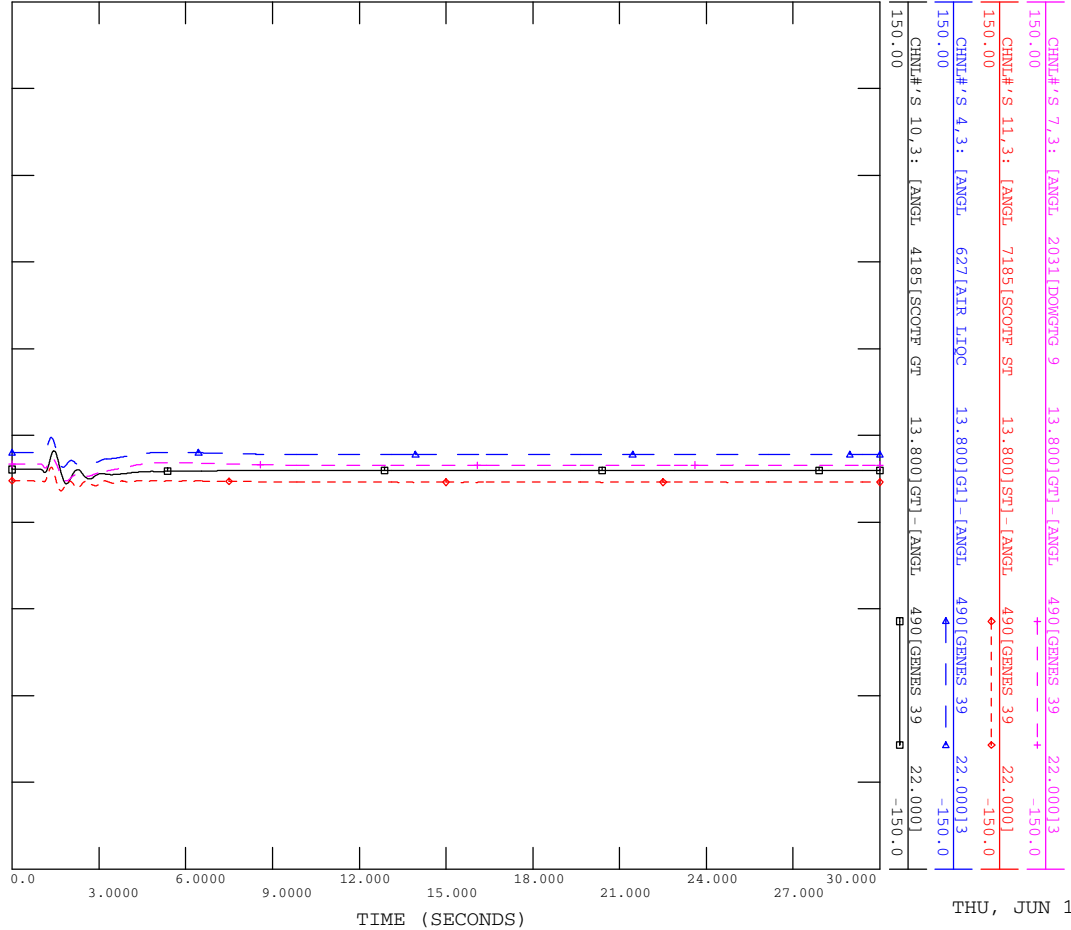






TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

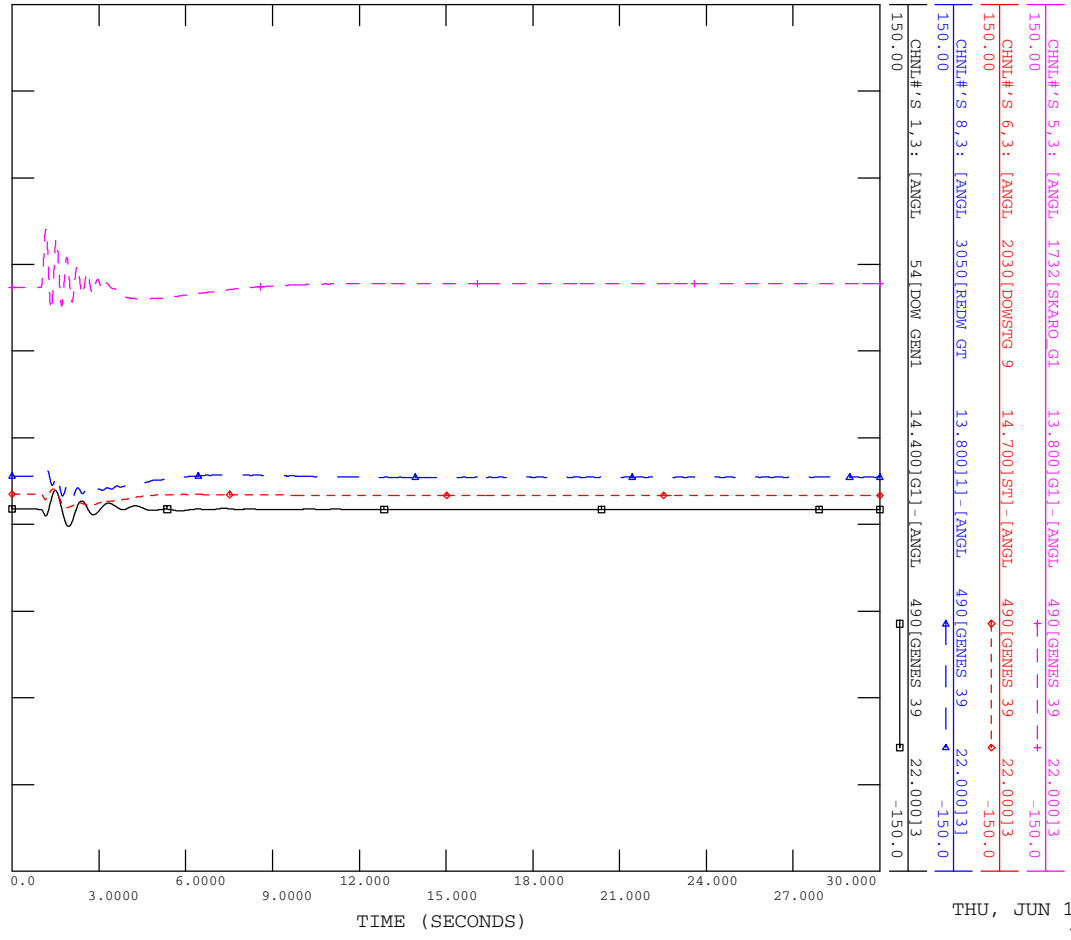


THU, JUN 19 2014 14:46  
 FIG E1-8



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

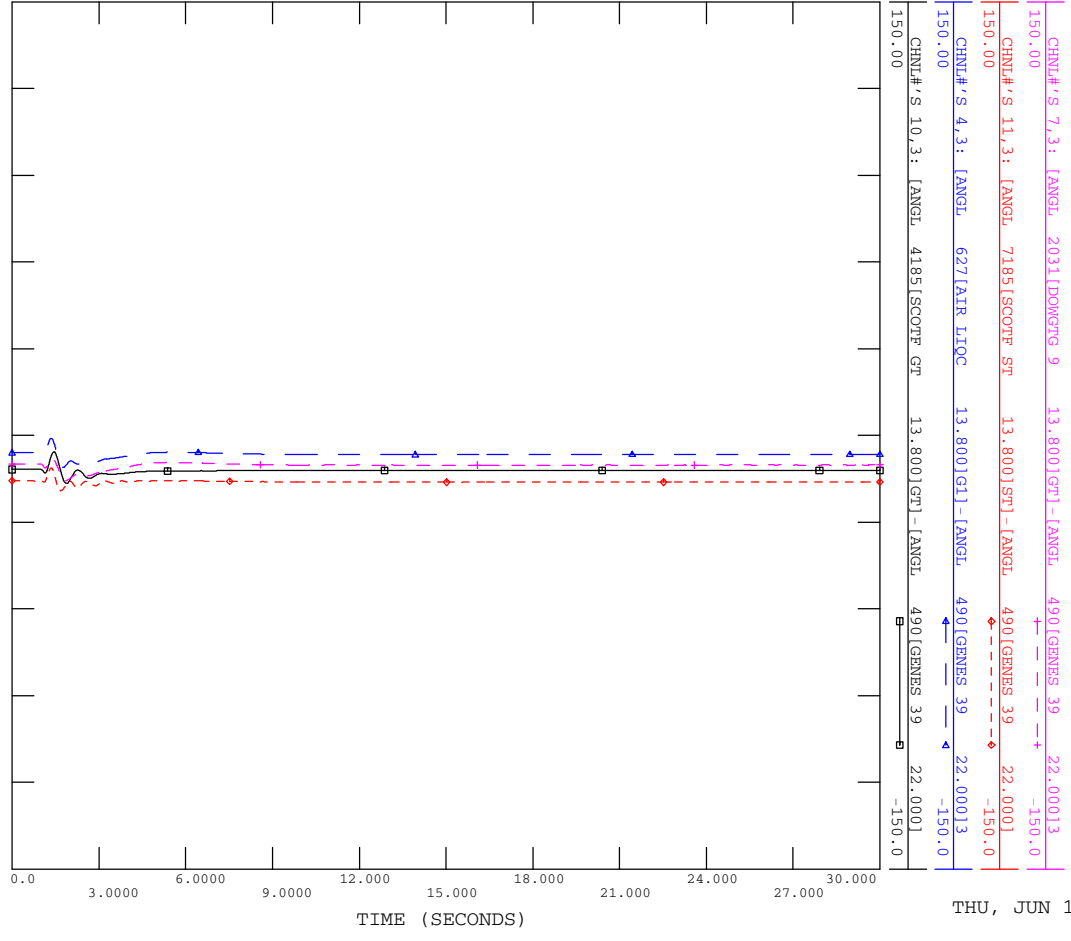


THU, JUN 19 2014 14:47  
 FIG E1-8A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

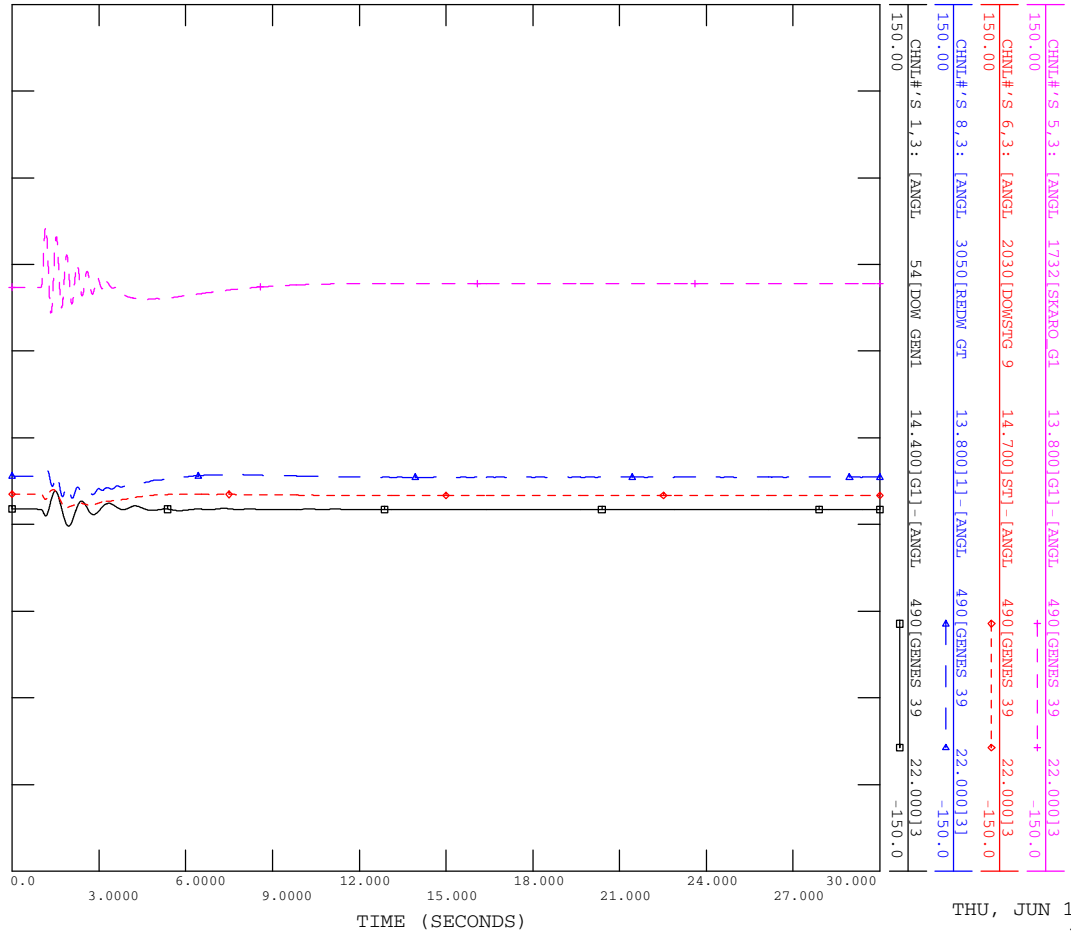


THU, JUN 19 2014 14:47  
 FIG E1-9



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

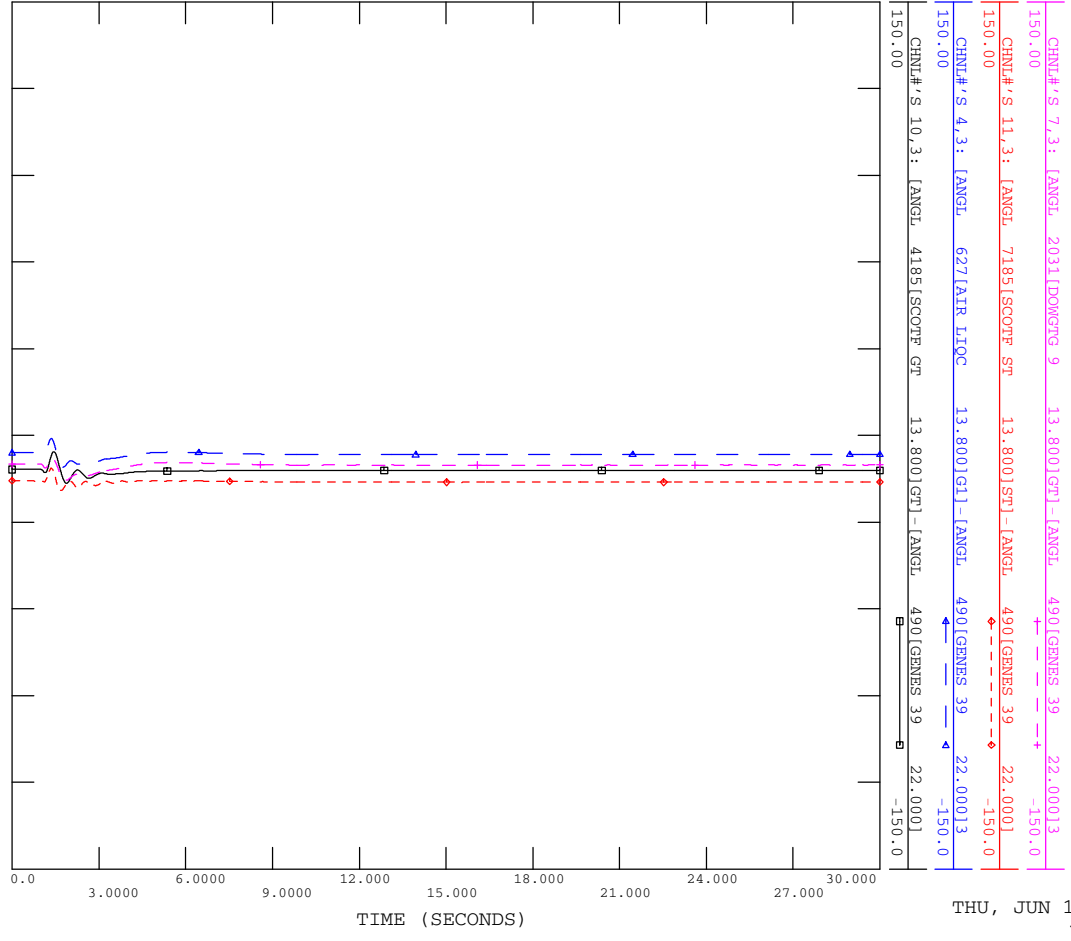


THU, JUN 19 2014 14:48  
 FIG E1-9A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.0UT

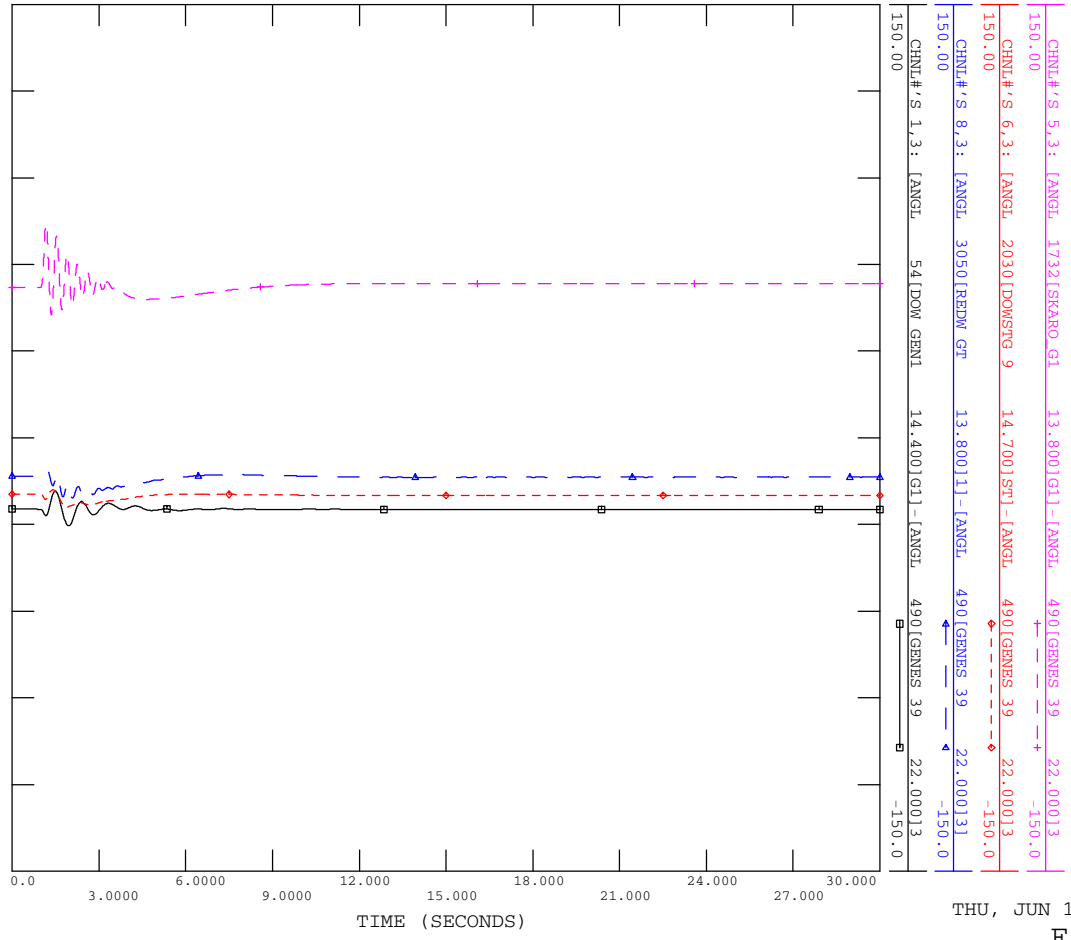


THU, JUN 19 2014 14:48  
 FIG E1-10



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.0UT

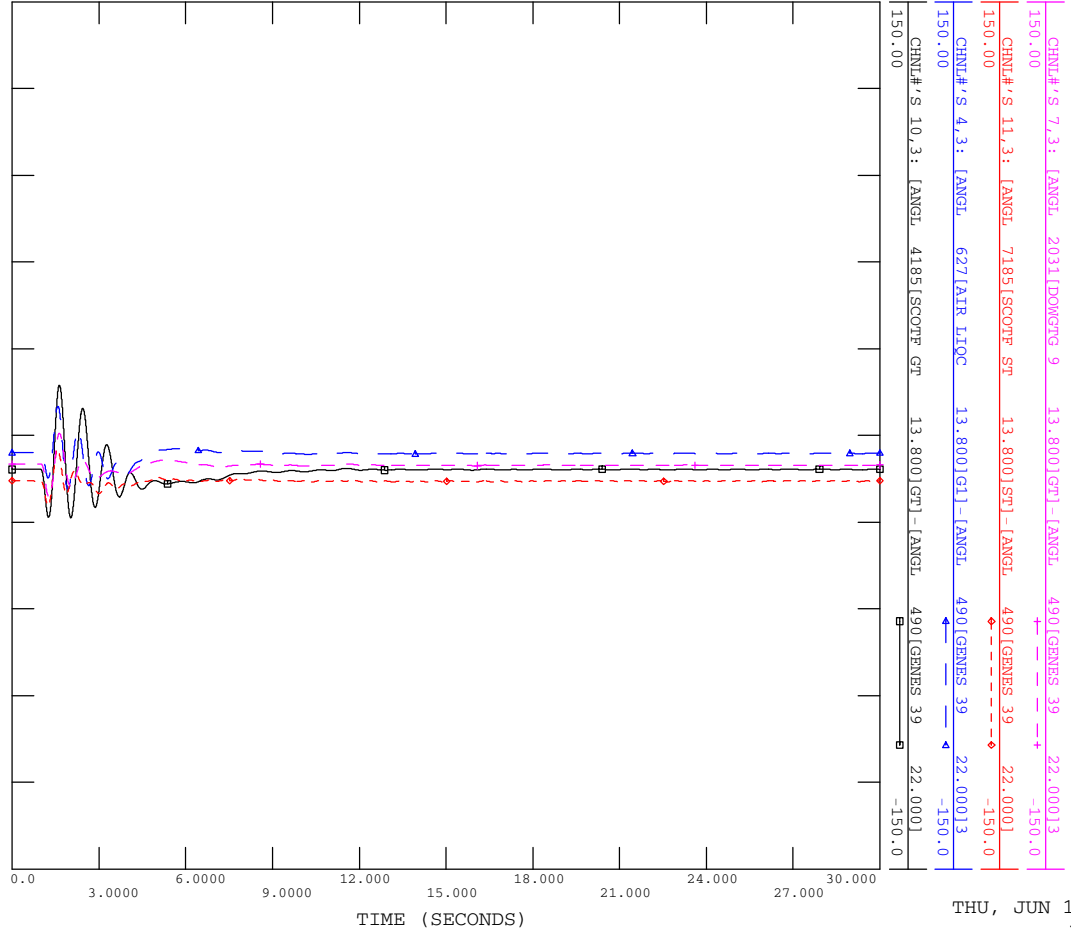


THU, JUN 19 2014 14:49  
 FIG E1-10A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.0UT

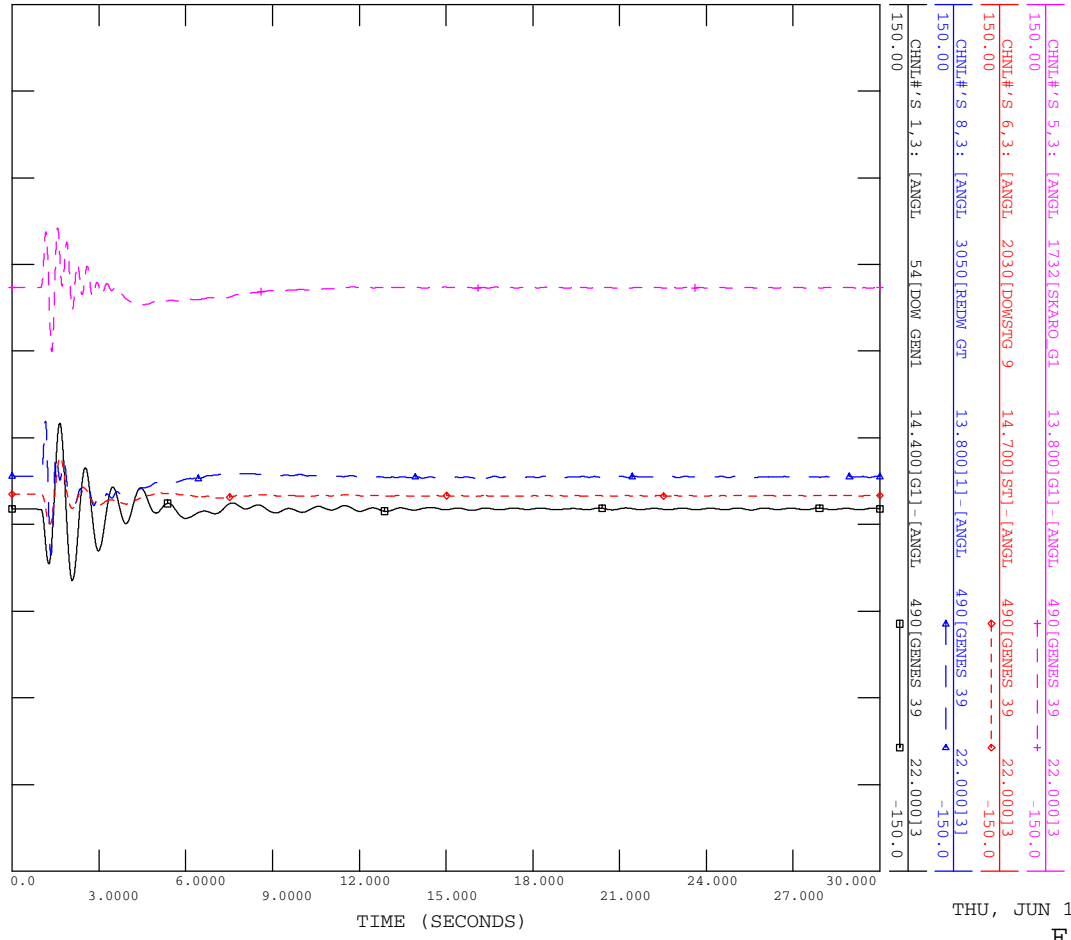


THU, JUN 19 2014 14:49  
 FIG E1-11



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.0UT

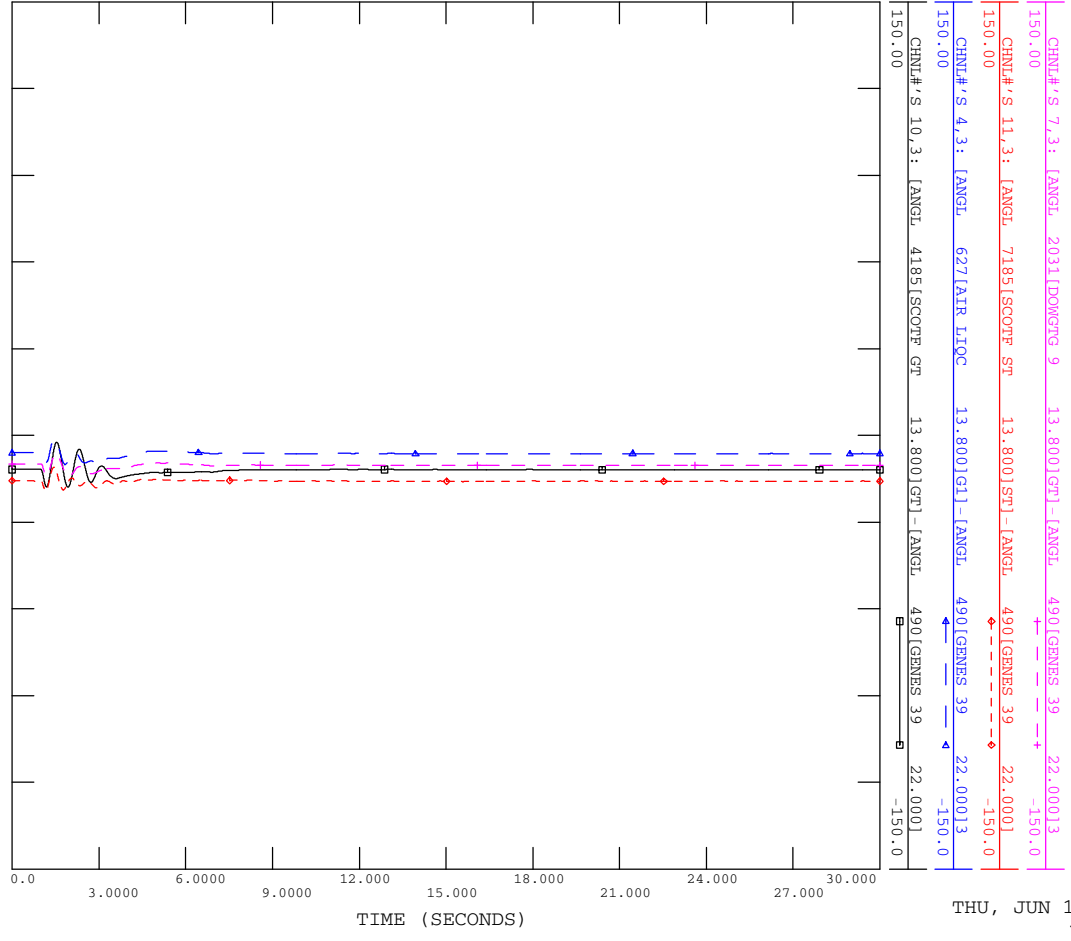


THU, JUN 19 2014 14:50  
 FIG E1-11A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT

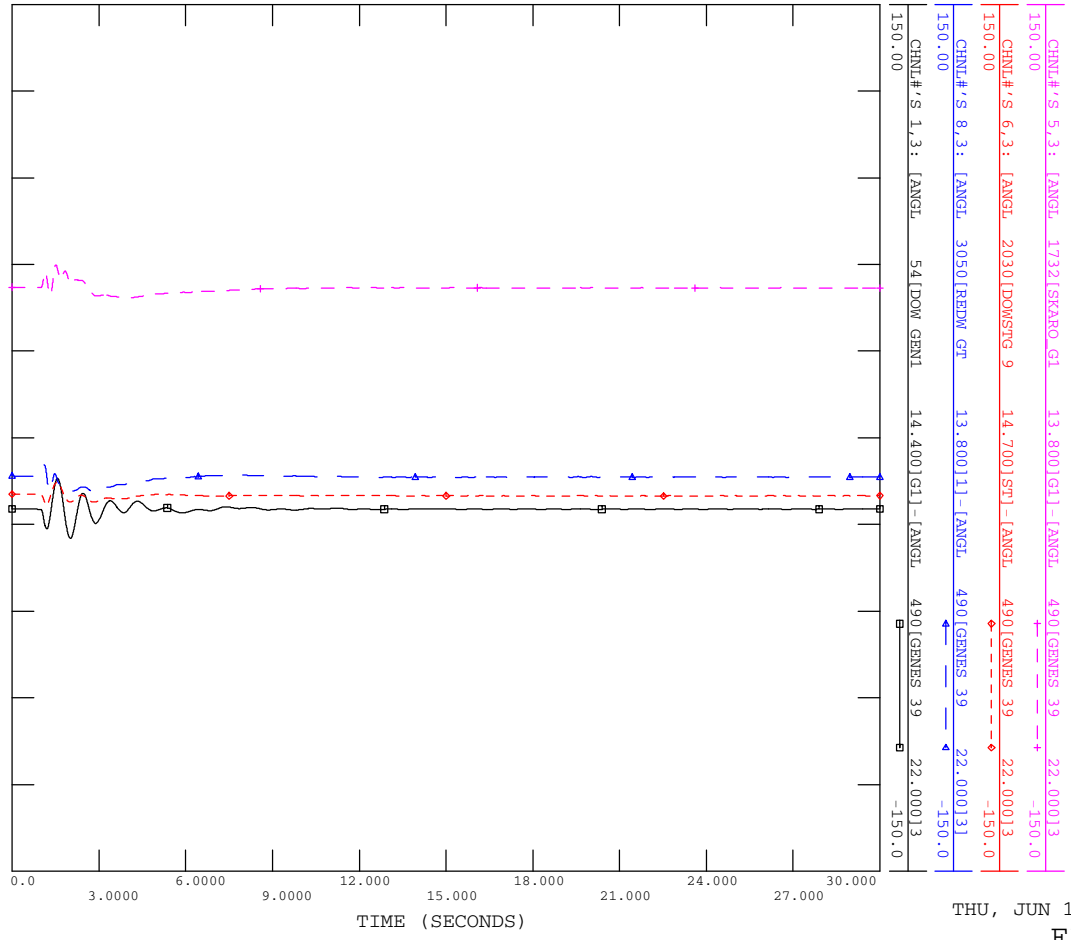


THU, JUN 19 2014 14:50  
 FIG E1-12



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT

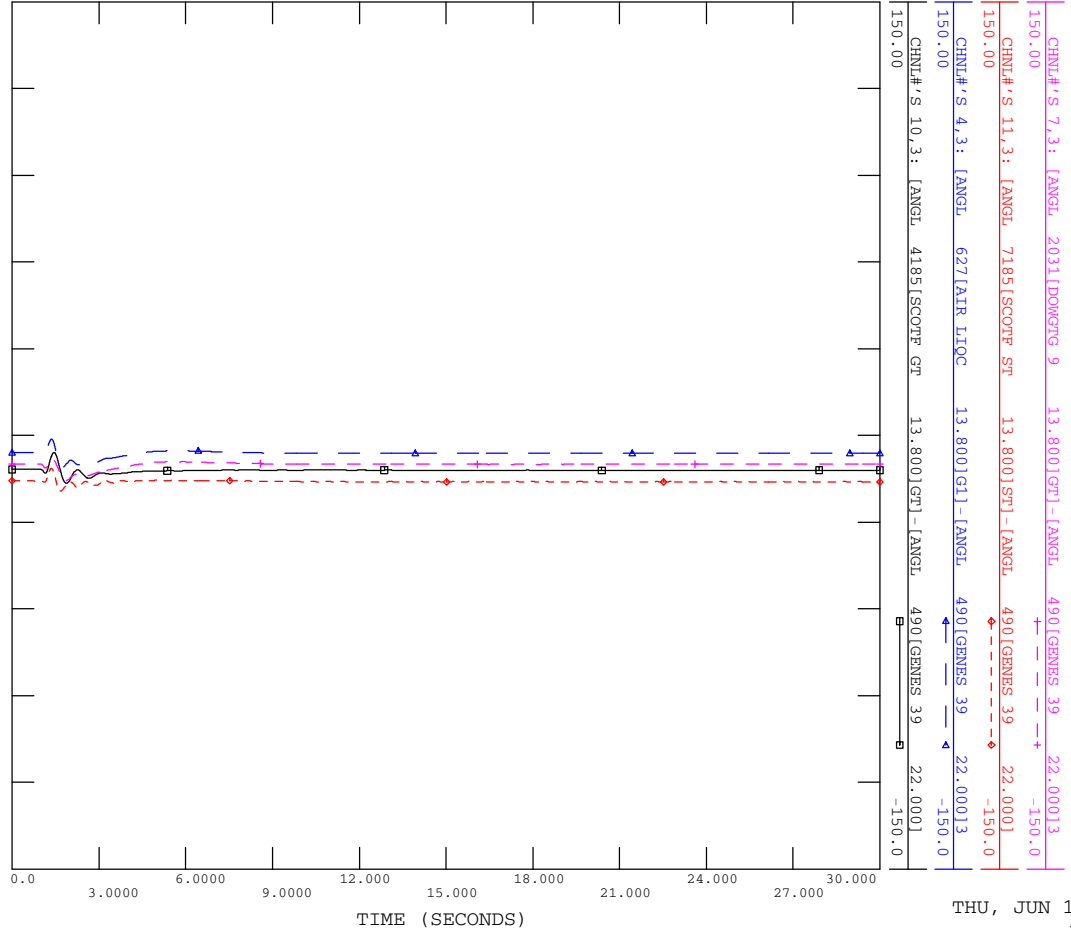


THU, JUN 19 2014 14:51  
 FIG E1-12A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

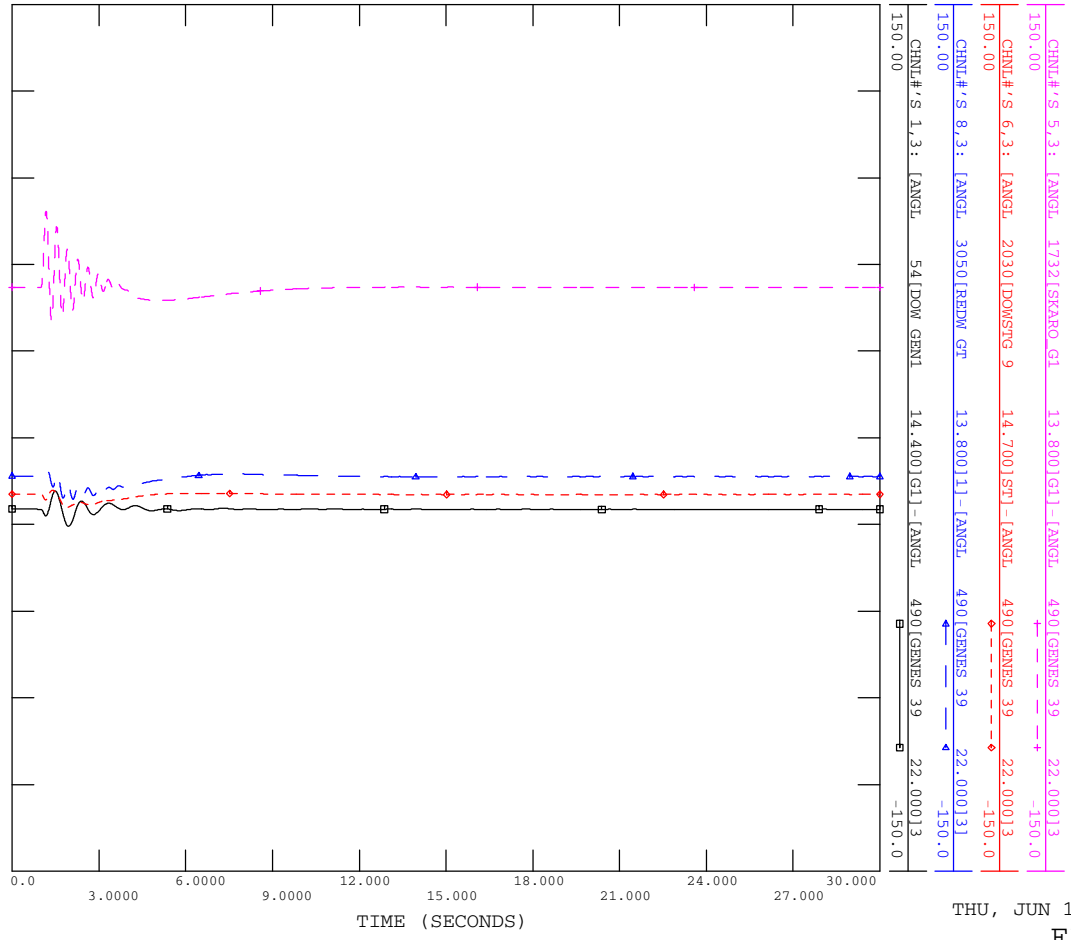


THU, JUN 19 2014 14:51  
 FIG E1-13



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

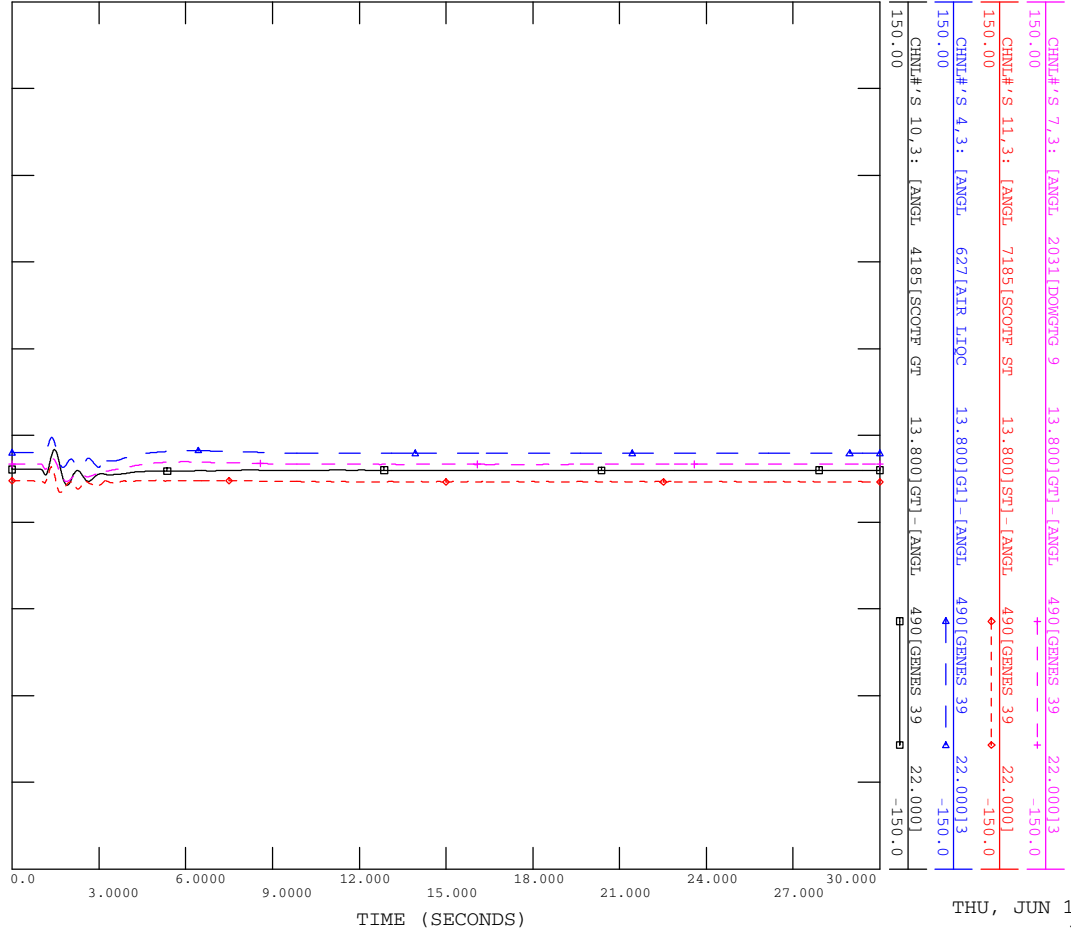


THU, JUN 19 2014 14:51  
 FIG E1-13A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

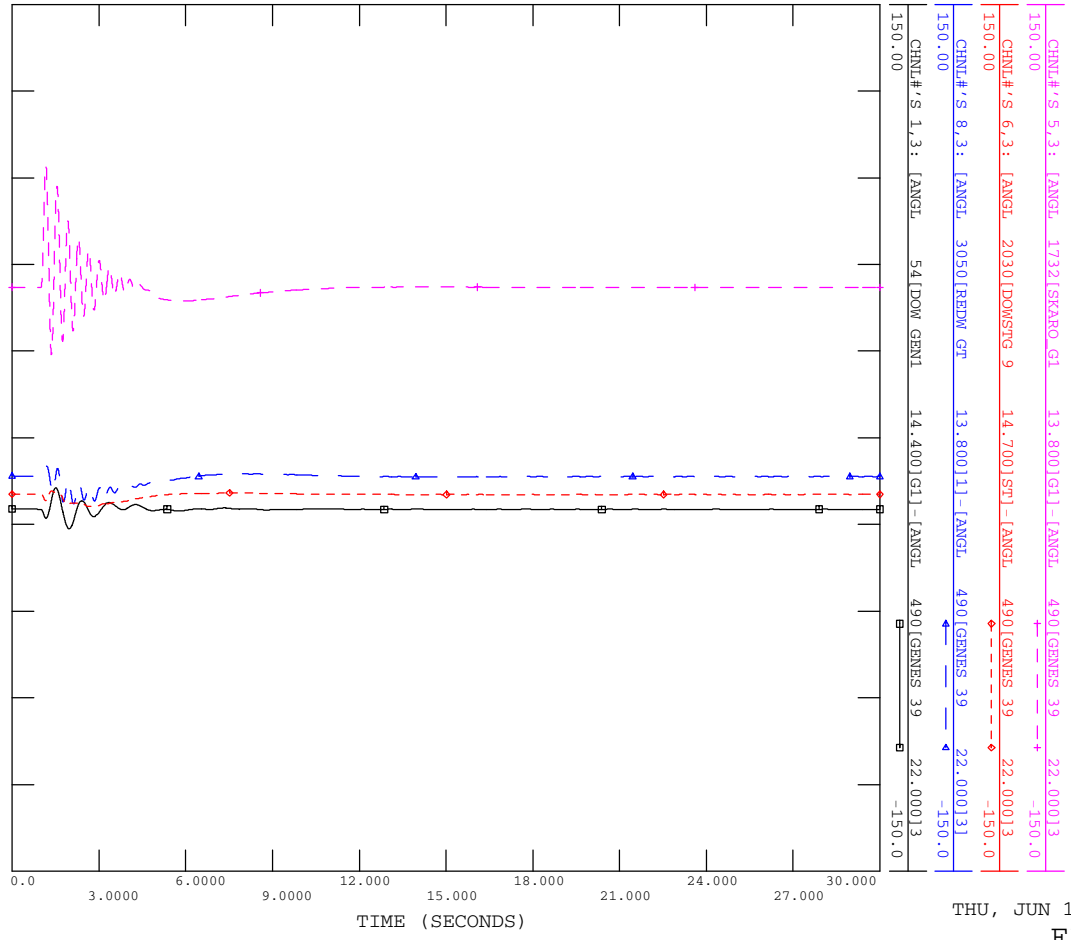


THU, JUN 19 2014 14:52  
 FIG E1-14



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT



THU, JUN 19 2014 14:52  
 FIG E1-14A

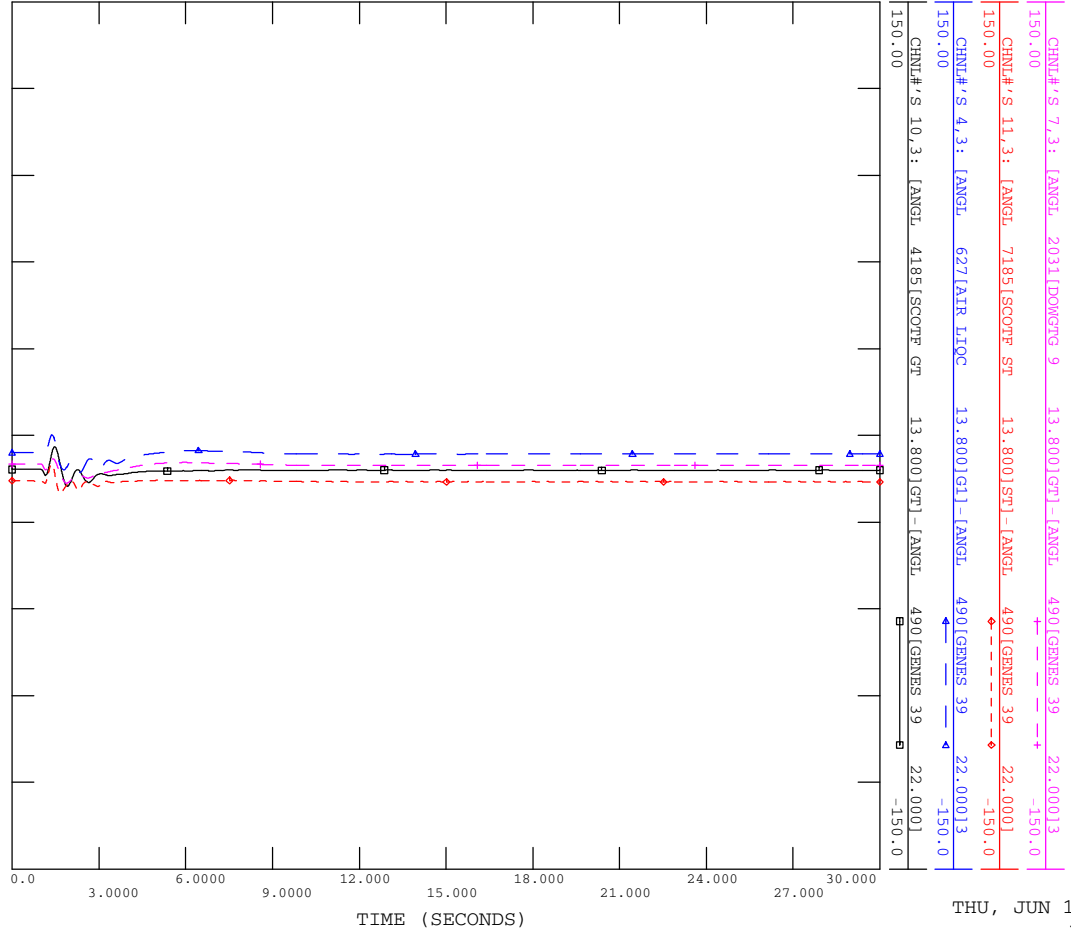






TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

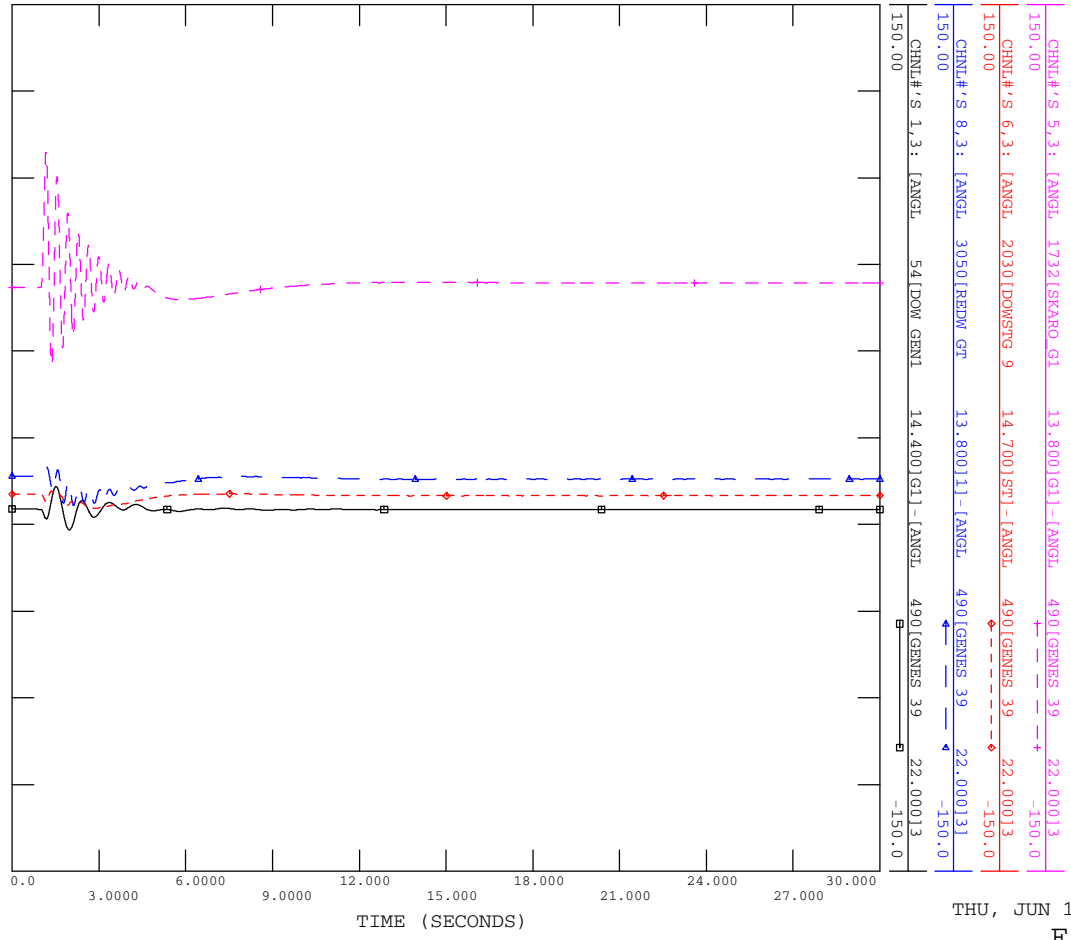


THU, JUN 19 2014 14:54  
 FIG E1-16



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

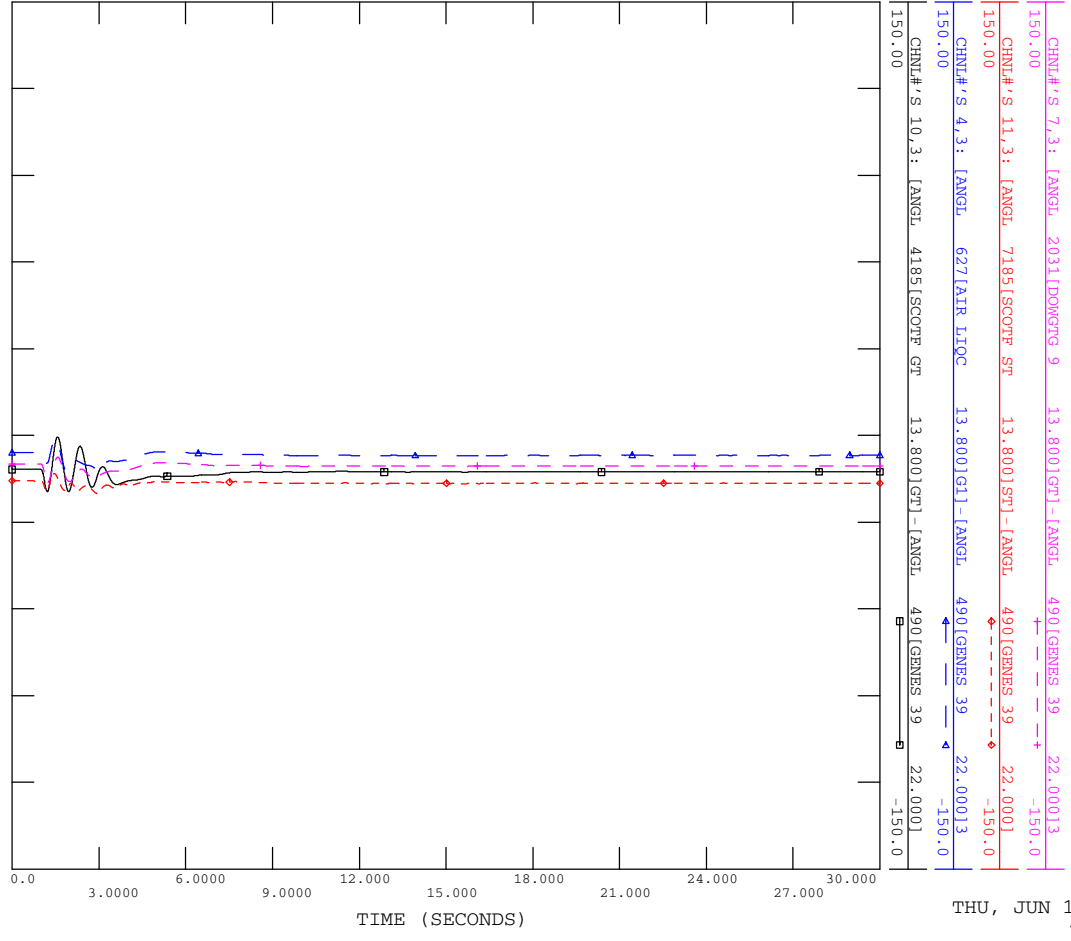


THU, JUN 19 2014 14:54  
 FIG E1-16A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

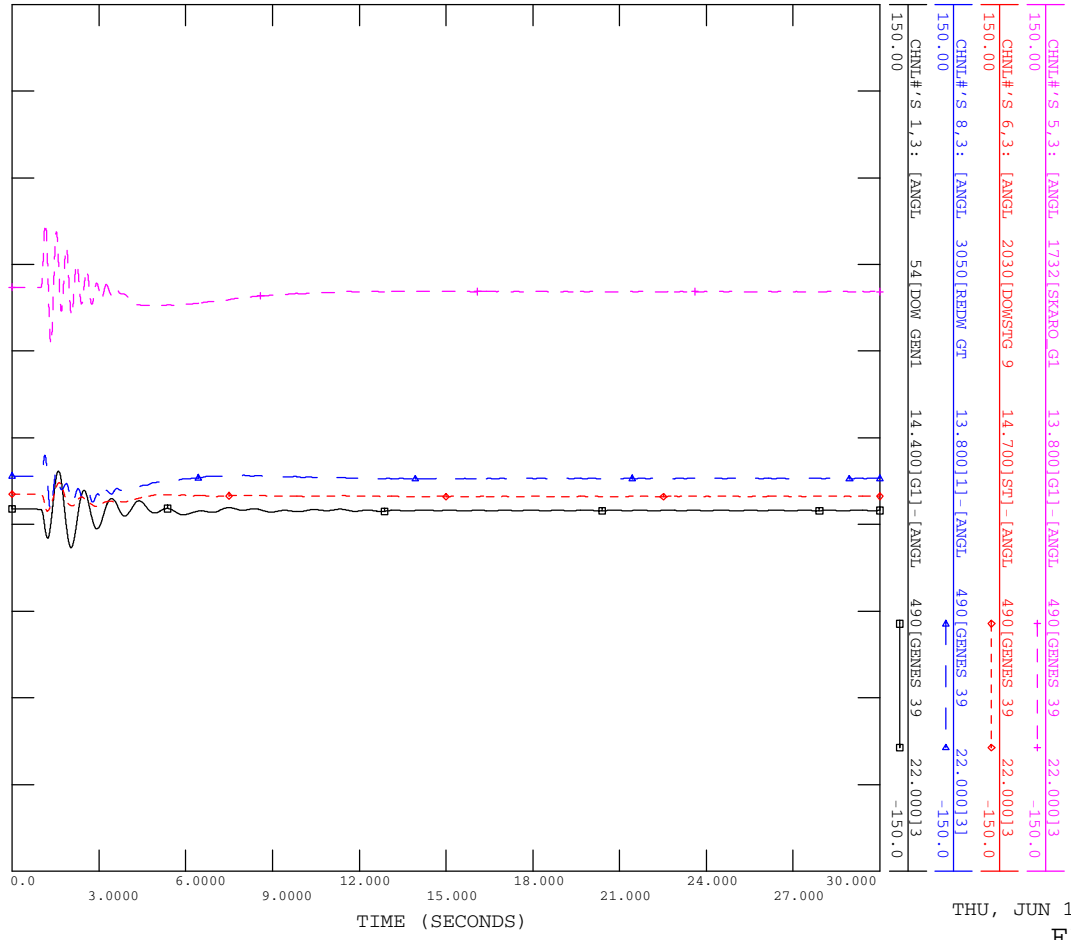


THU, JUN 19 2014 14:55  
 FIG E1-17



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

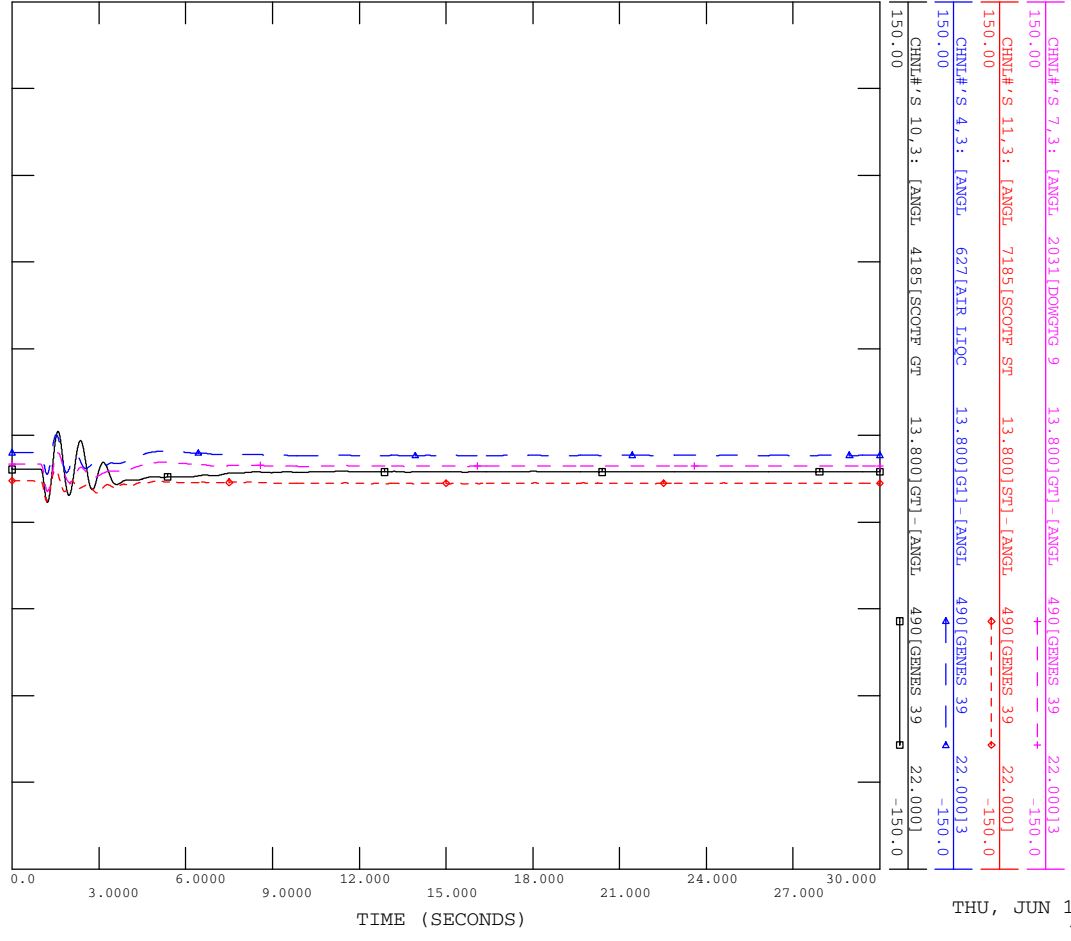


THU, JUN 19 2014 14:55  
 FIG E1-17A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

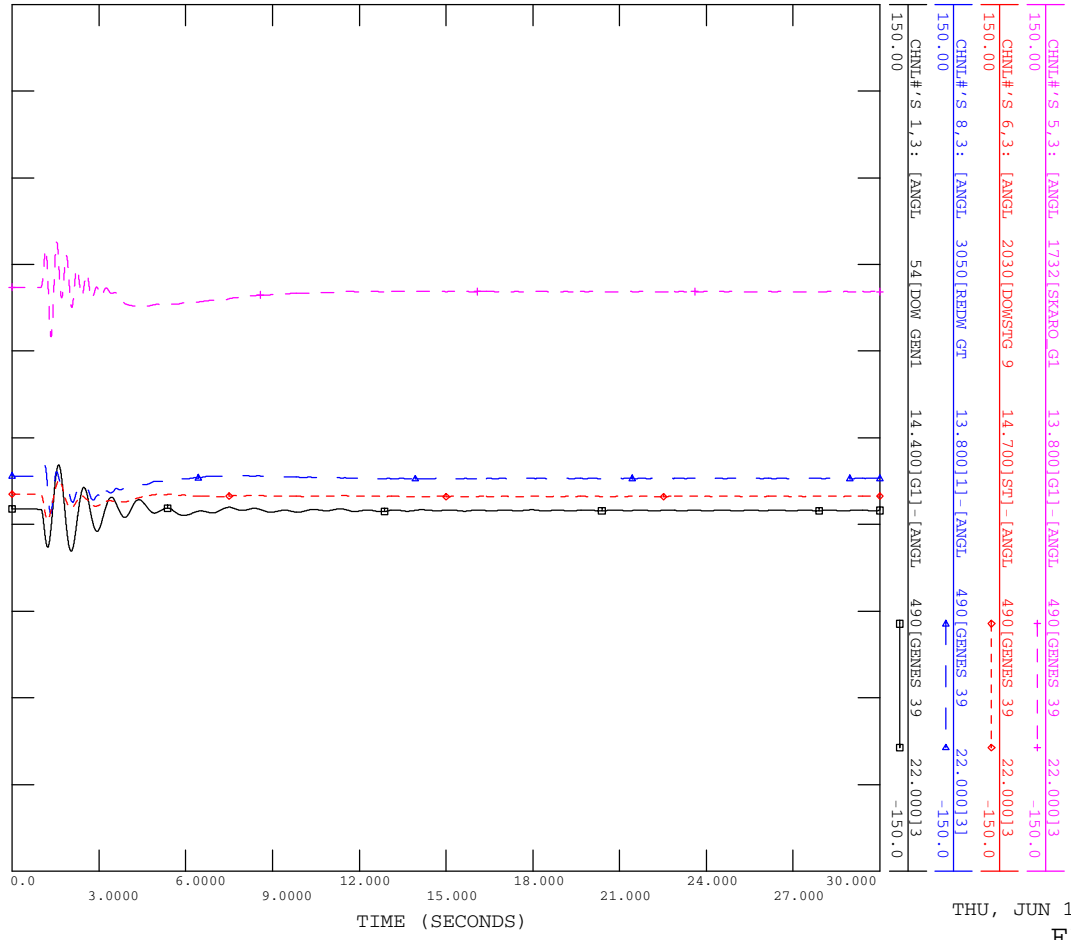


THU, JUN 19 2014 14:56  
 FIG E1-18



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

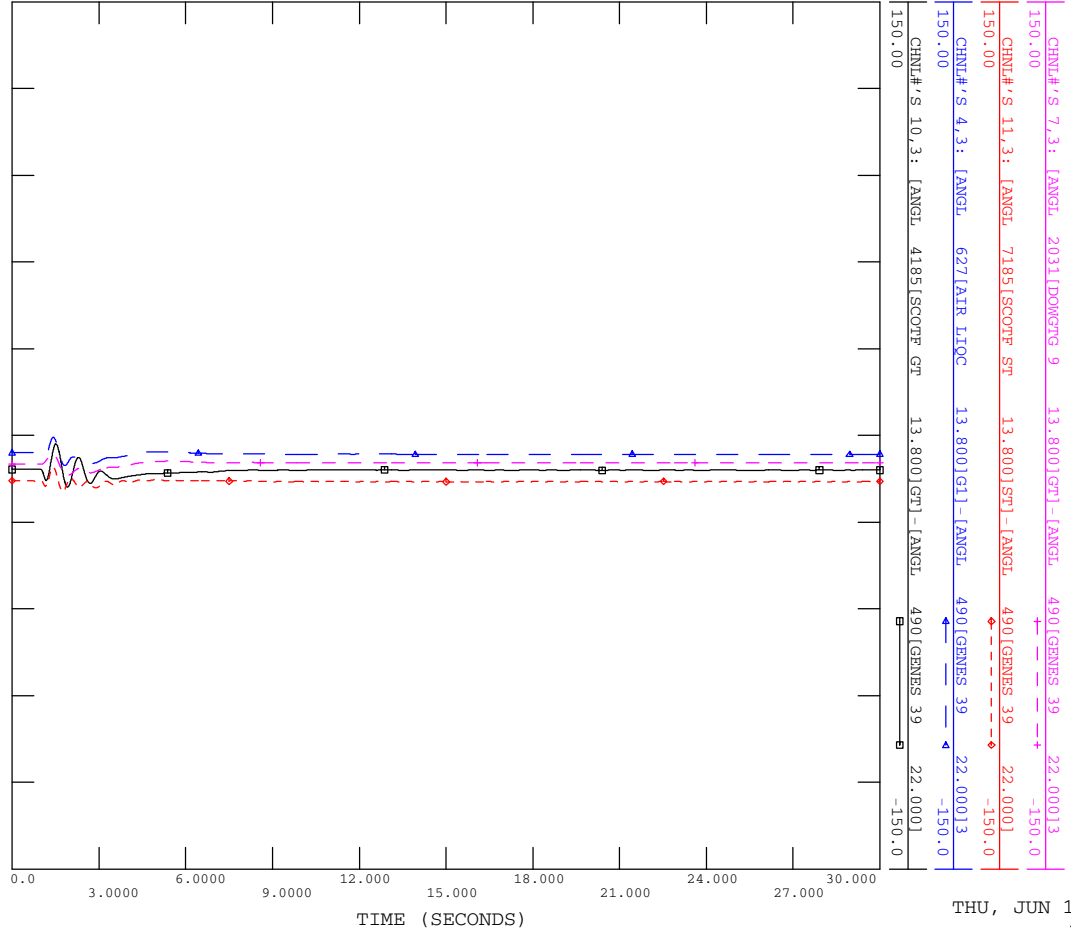


THU, JUN 19 2014 14:56  
 FIG E1-18A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

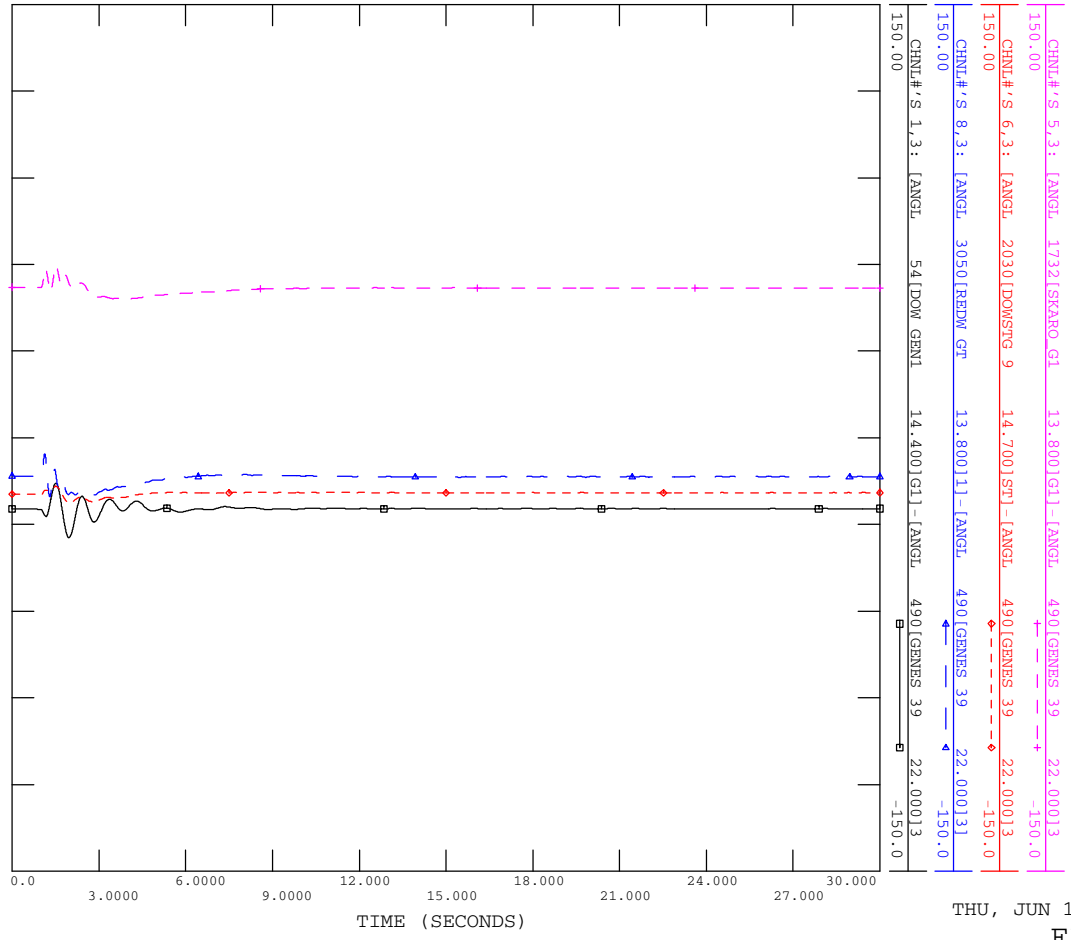


THU, JUN 19 2014 14:56  
 FIG E1-19



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

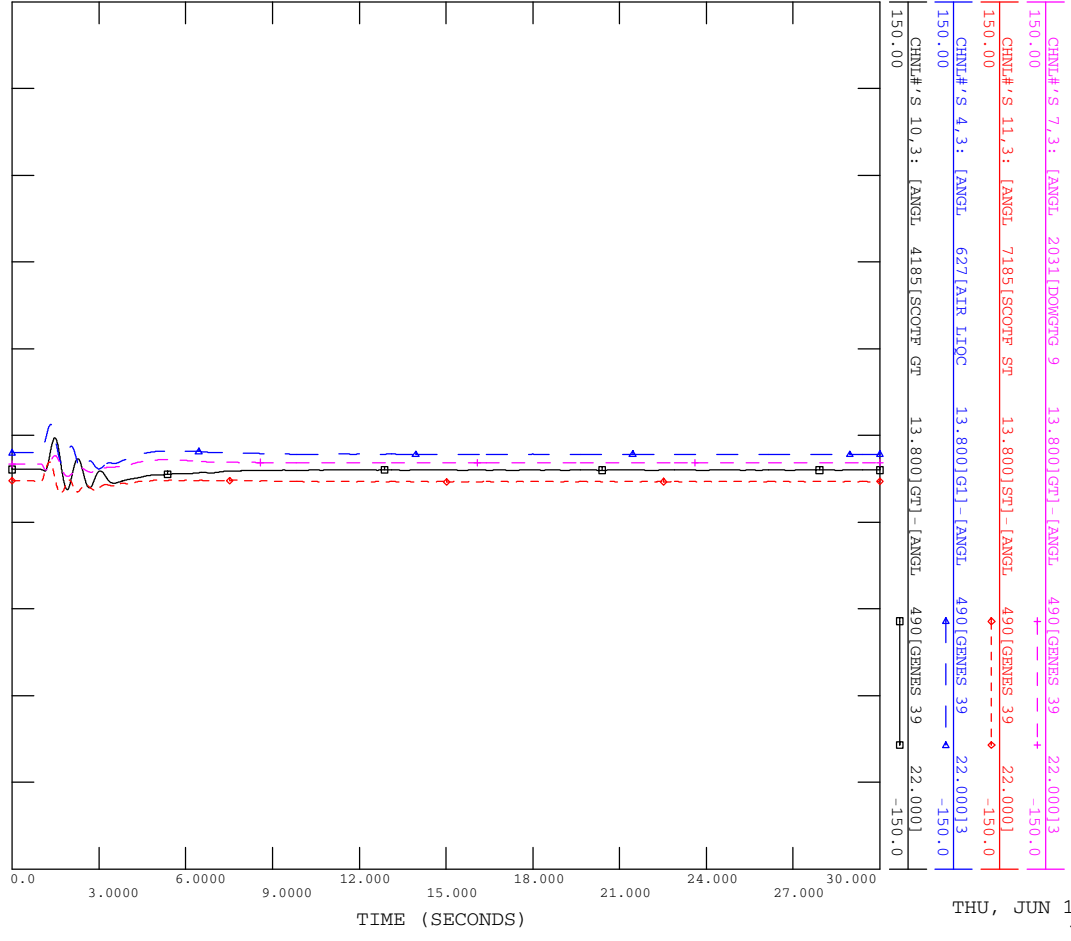


THU, JUN 19 2014 14:57  
 FIG E1-19A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

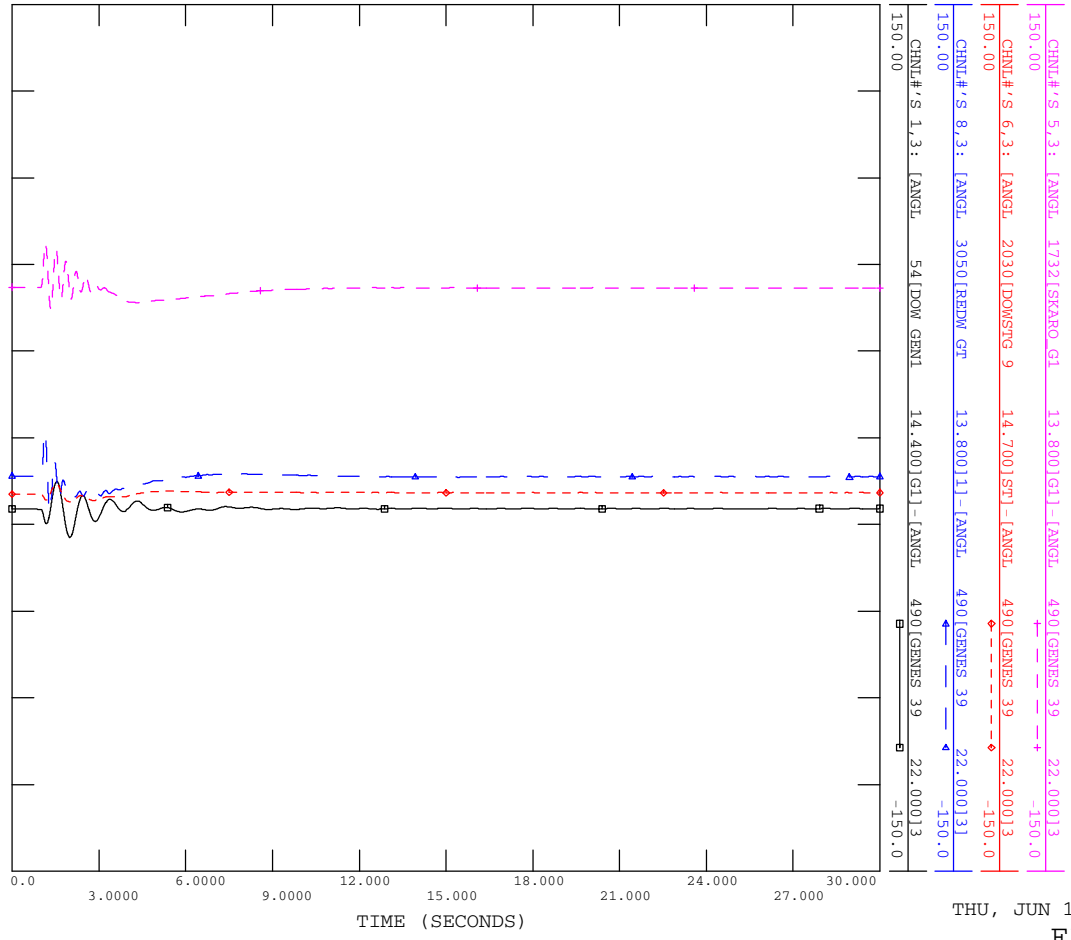


THU, JUN 19 2014 14:57  
 FIG E1-20



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

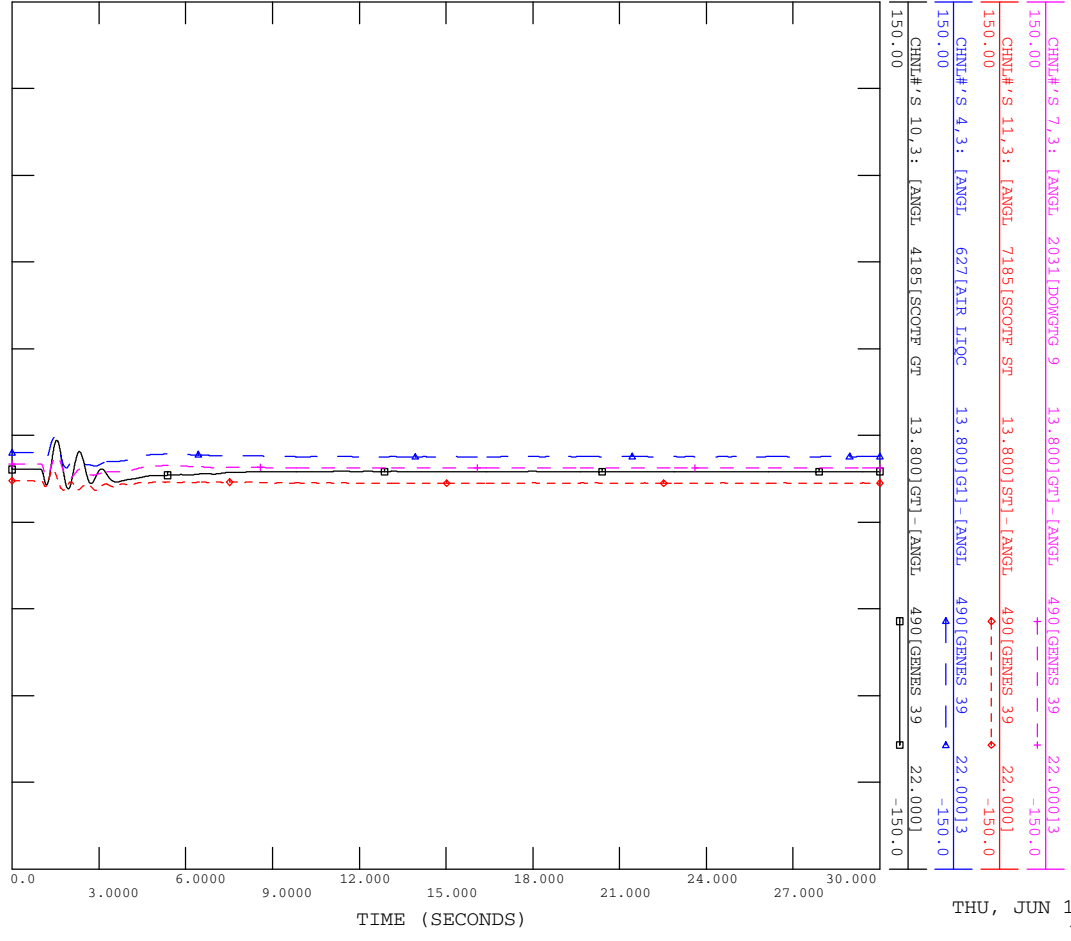


THU, JUN 19 2014 14:58  
 FIG E1-20A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

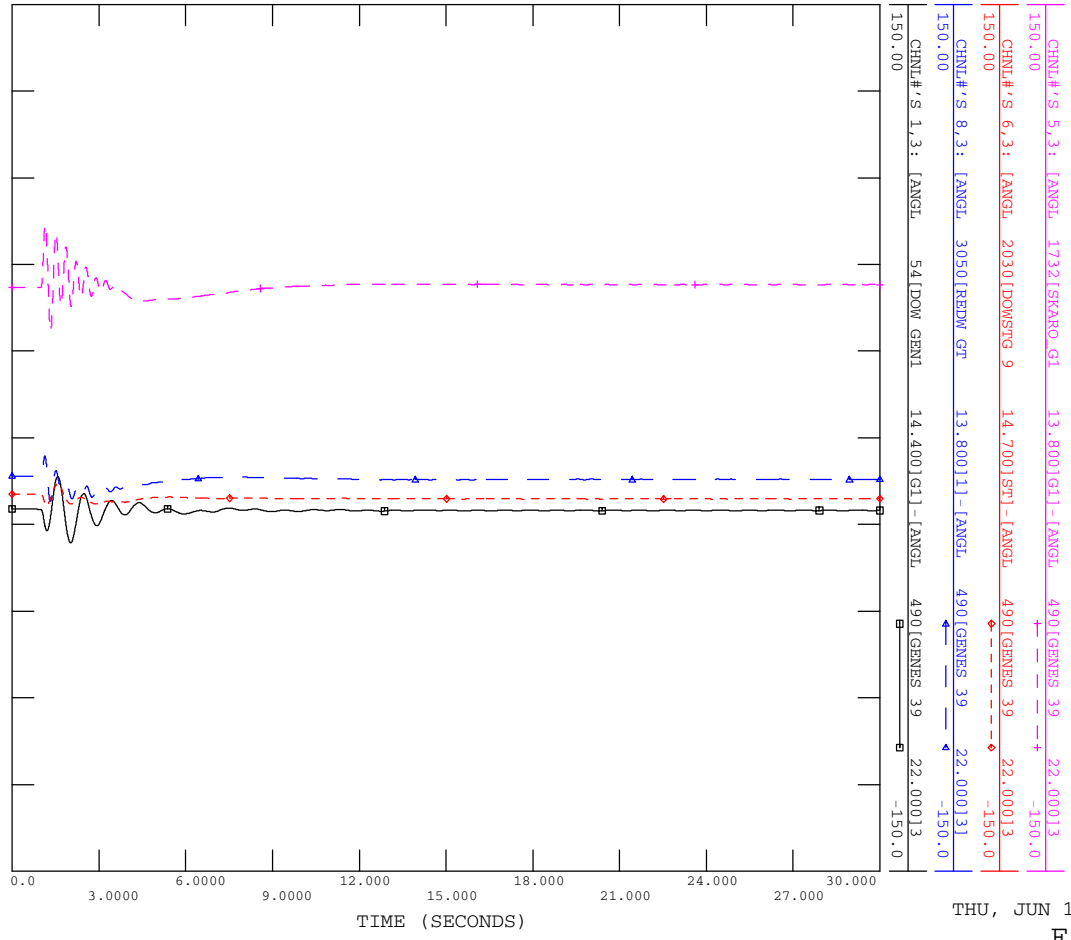


THU, JUN 19 2014 14:58  
 FIG E1-21



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

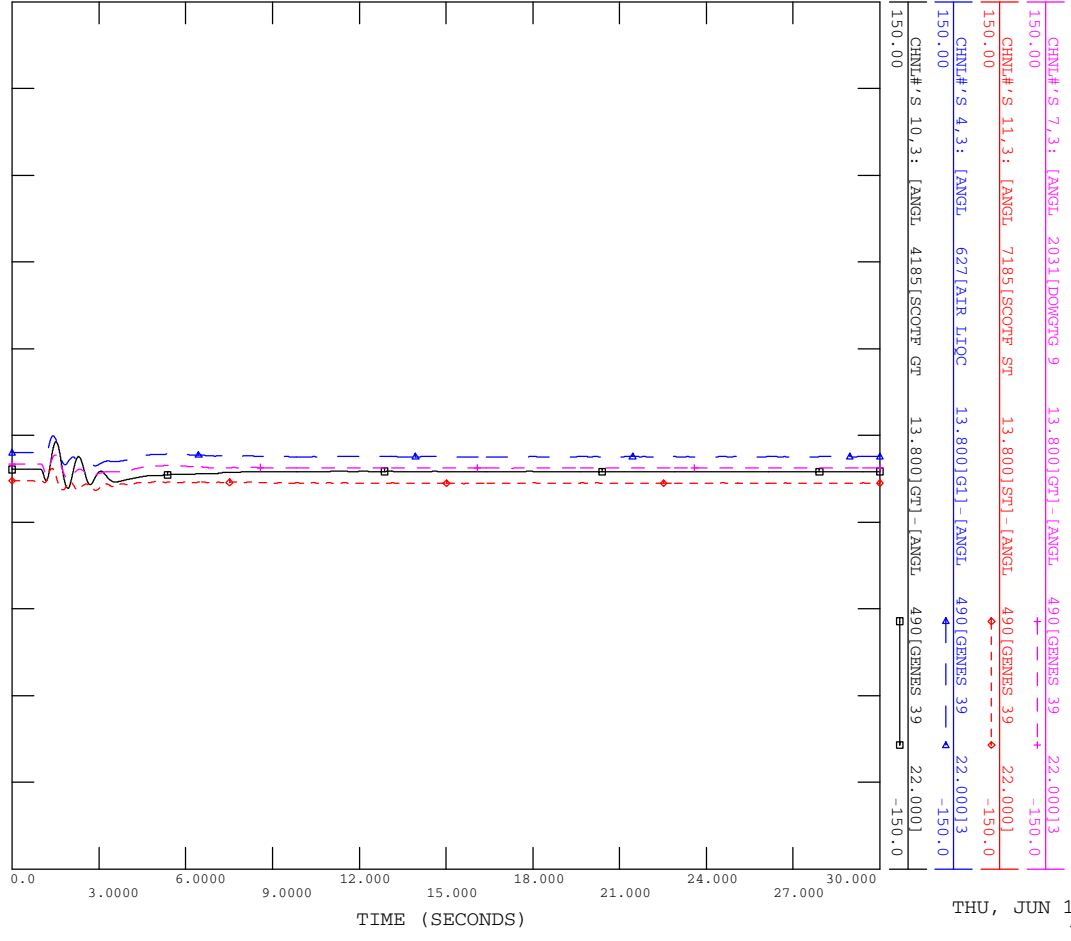


THU, JUN 19 2014 14:59  
 FIG E1-21A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

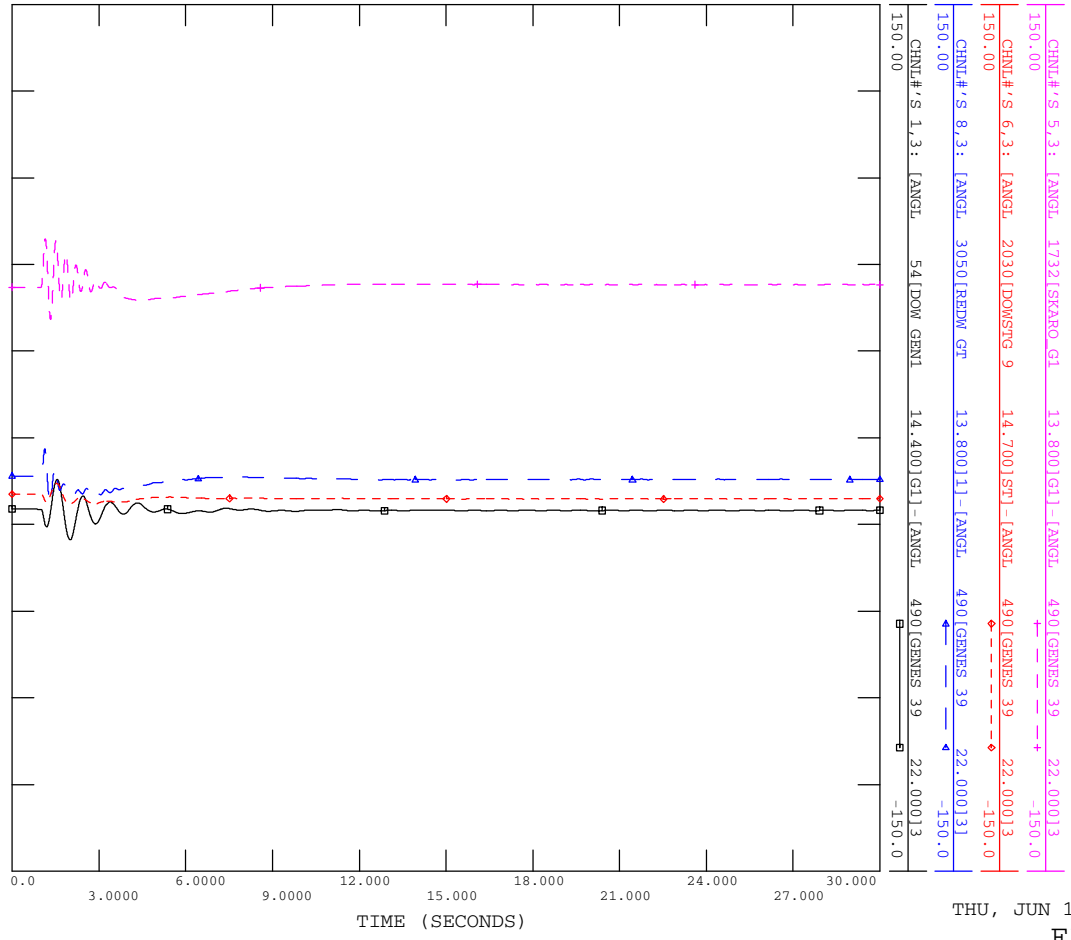


THU, JUN 19 2014 14:59  
 FIG E1-22



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

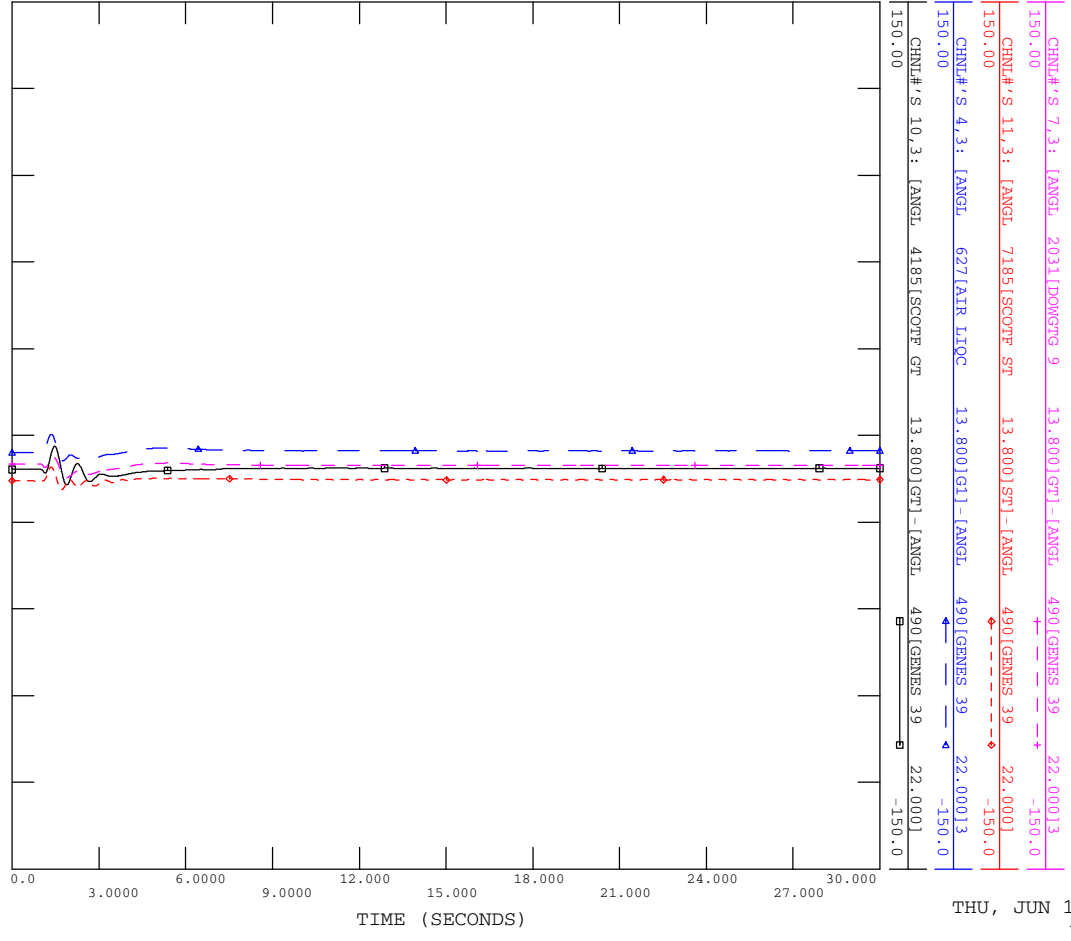


THU, JUN 19 2014 15:00  
 FIG E1-22A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

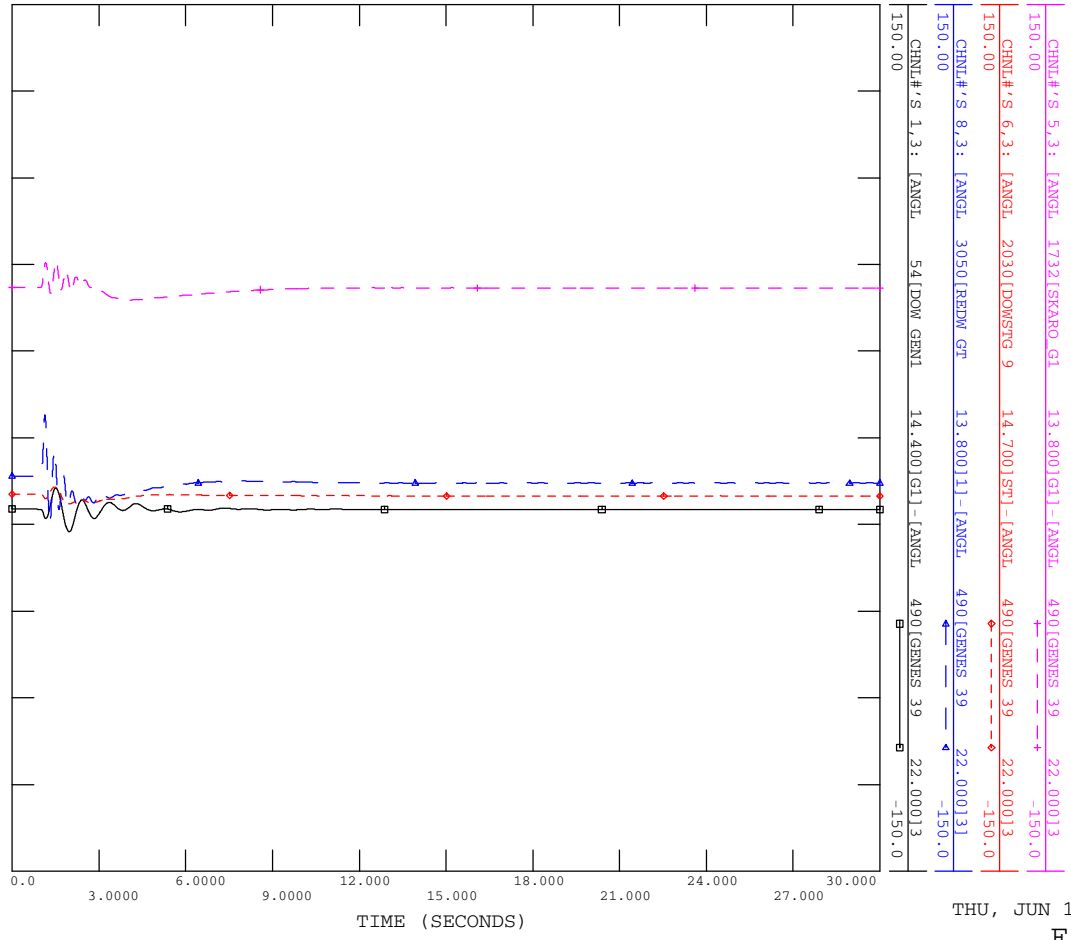


THU, JUN 19 2014 15:00  
 FIG E1-23



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT



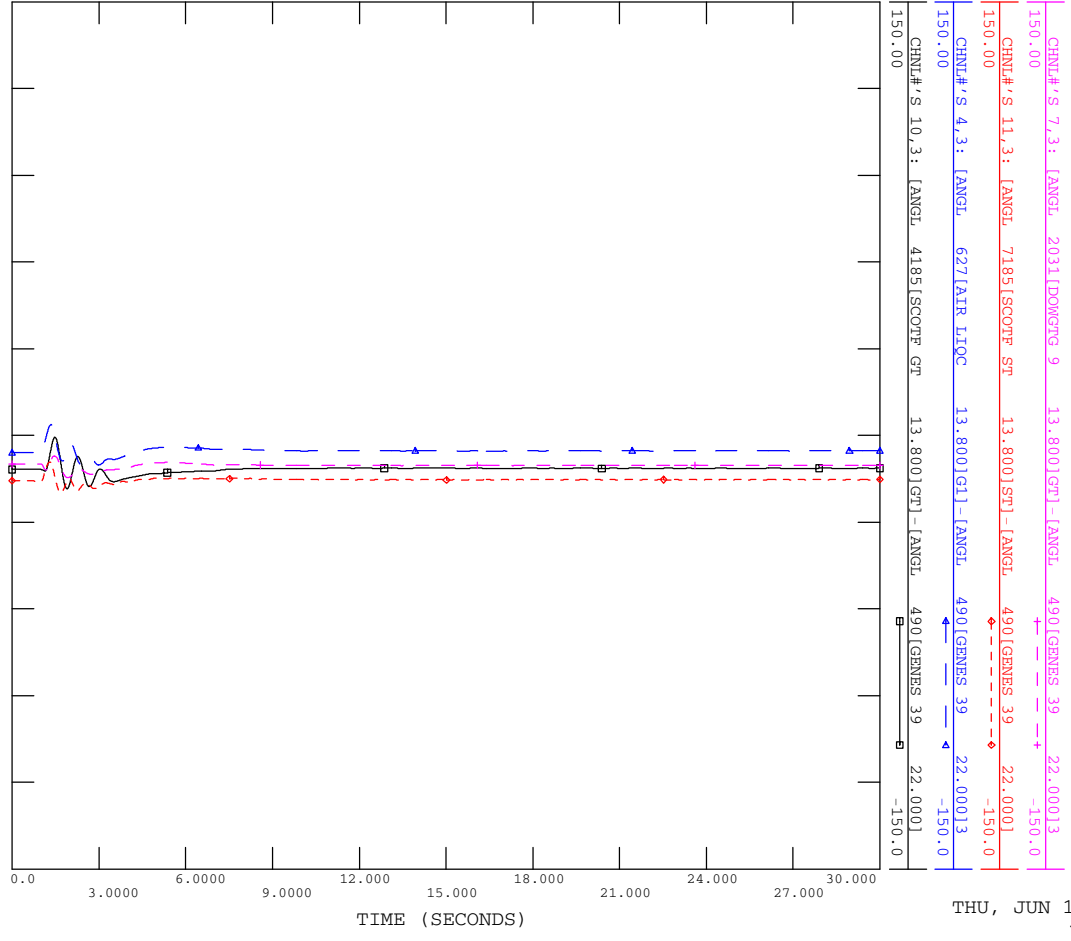
THU, JUN 19 2014 15:01  
 FIG E1-23A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

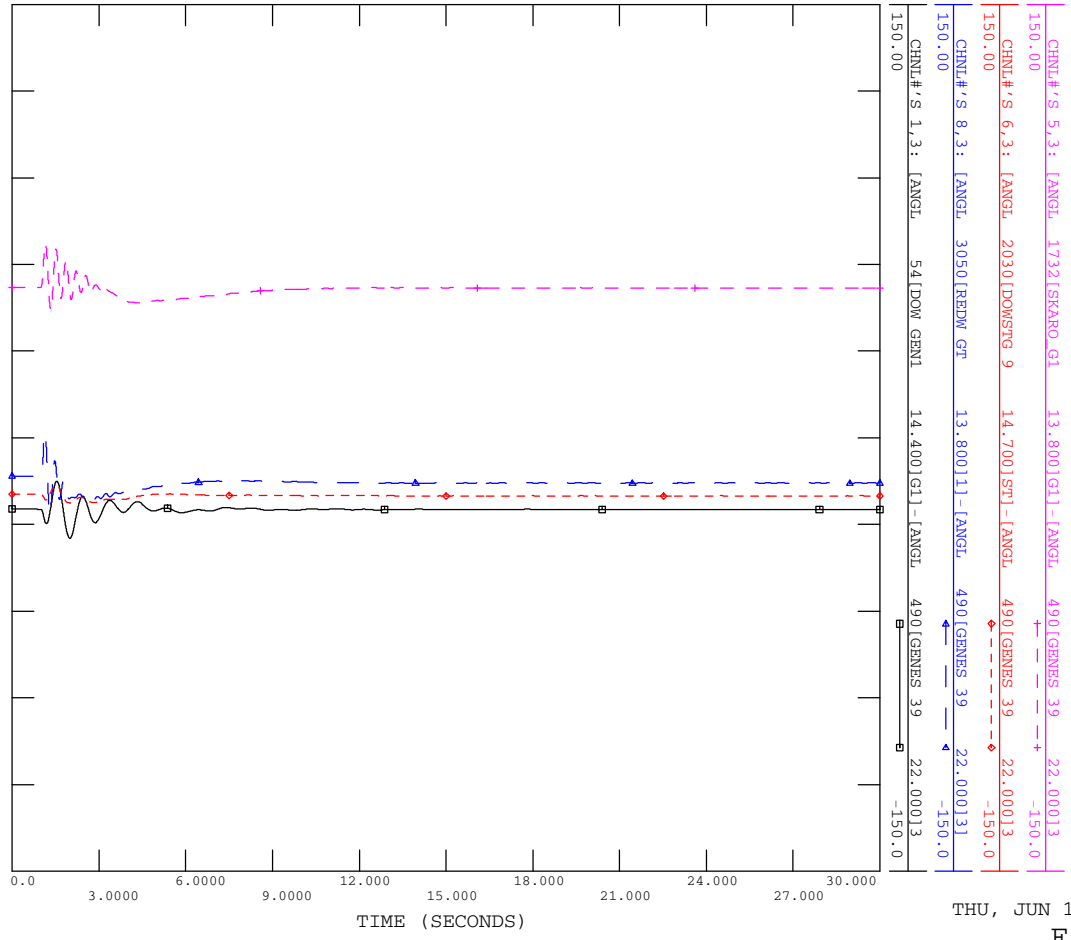


THU, JUN 19 2014 15:01  
FIG E1-24



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

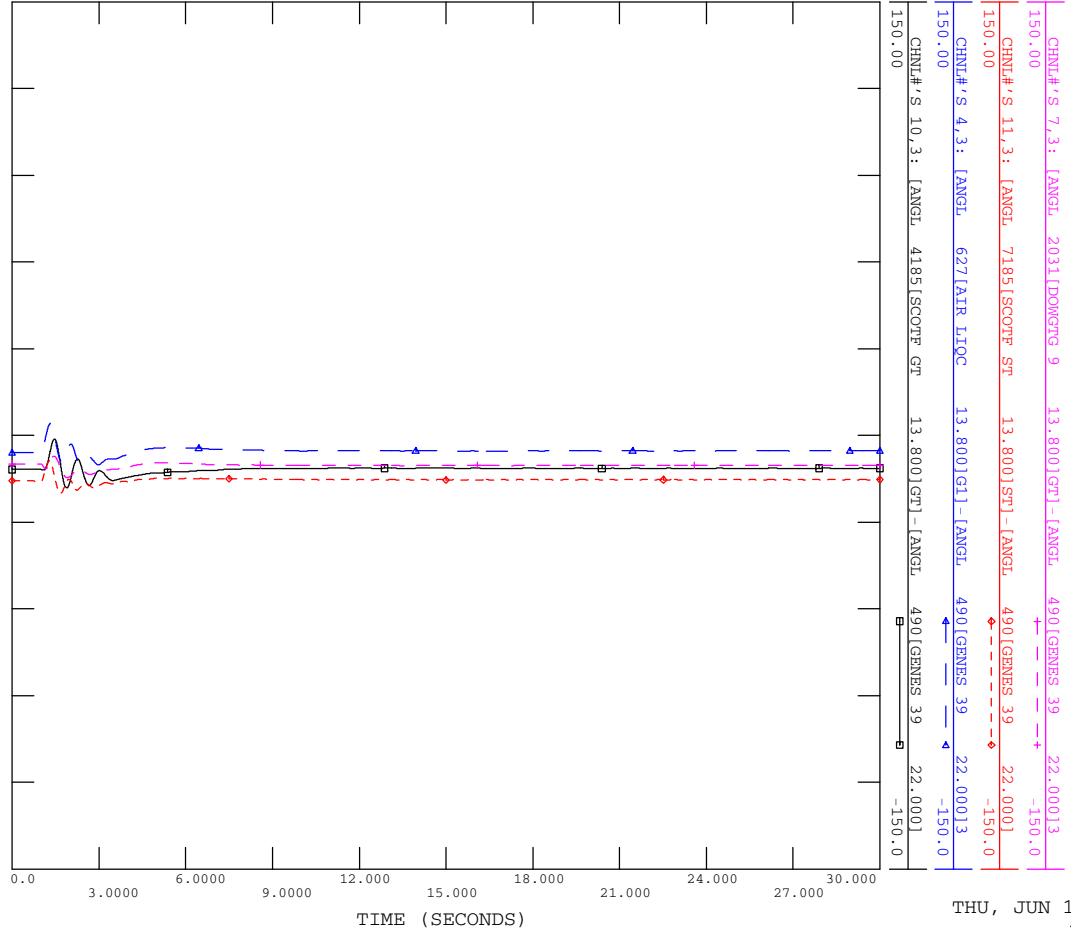


THU, JUN 19 2014 15:01  
FIG E1-24A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

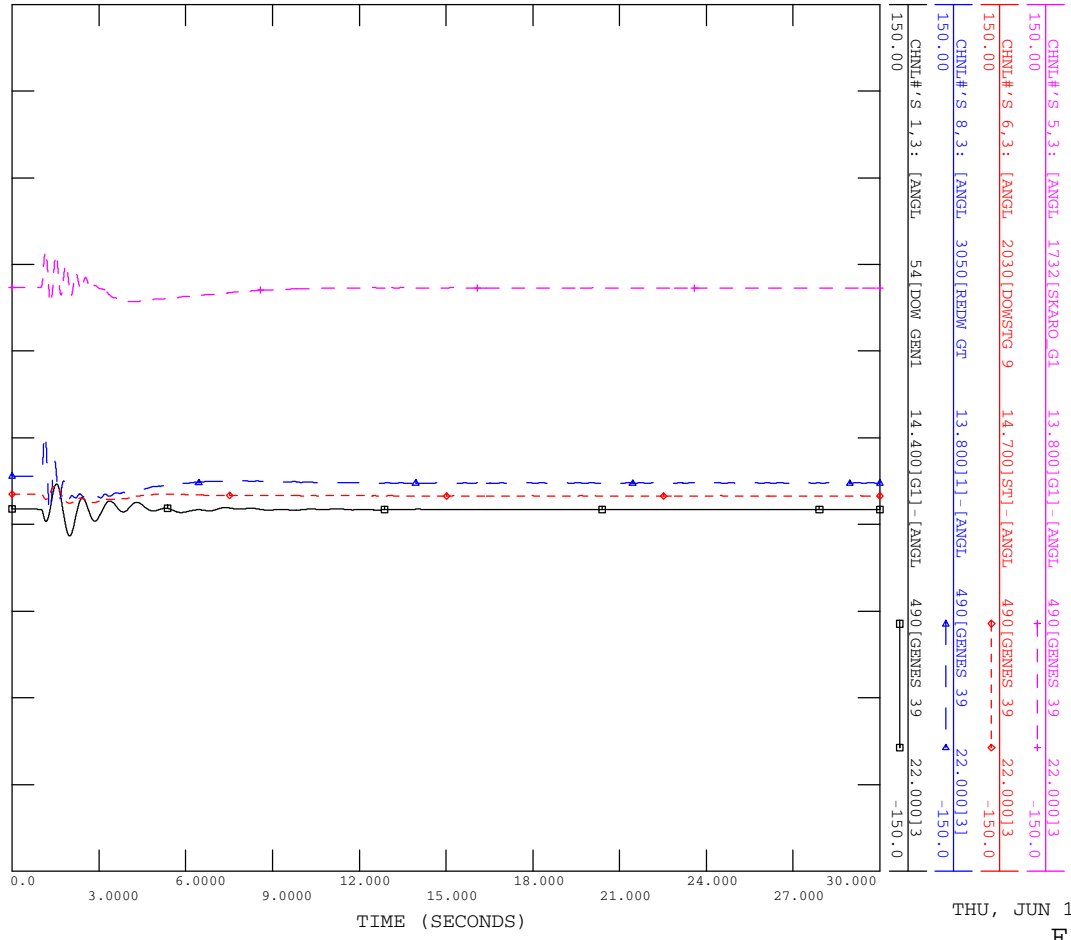


THU, JUN 19 2014 15:02  
 FIG E1-25



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

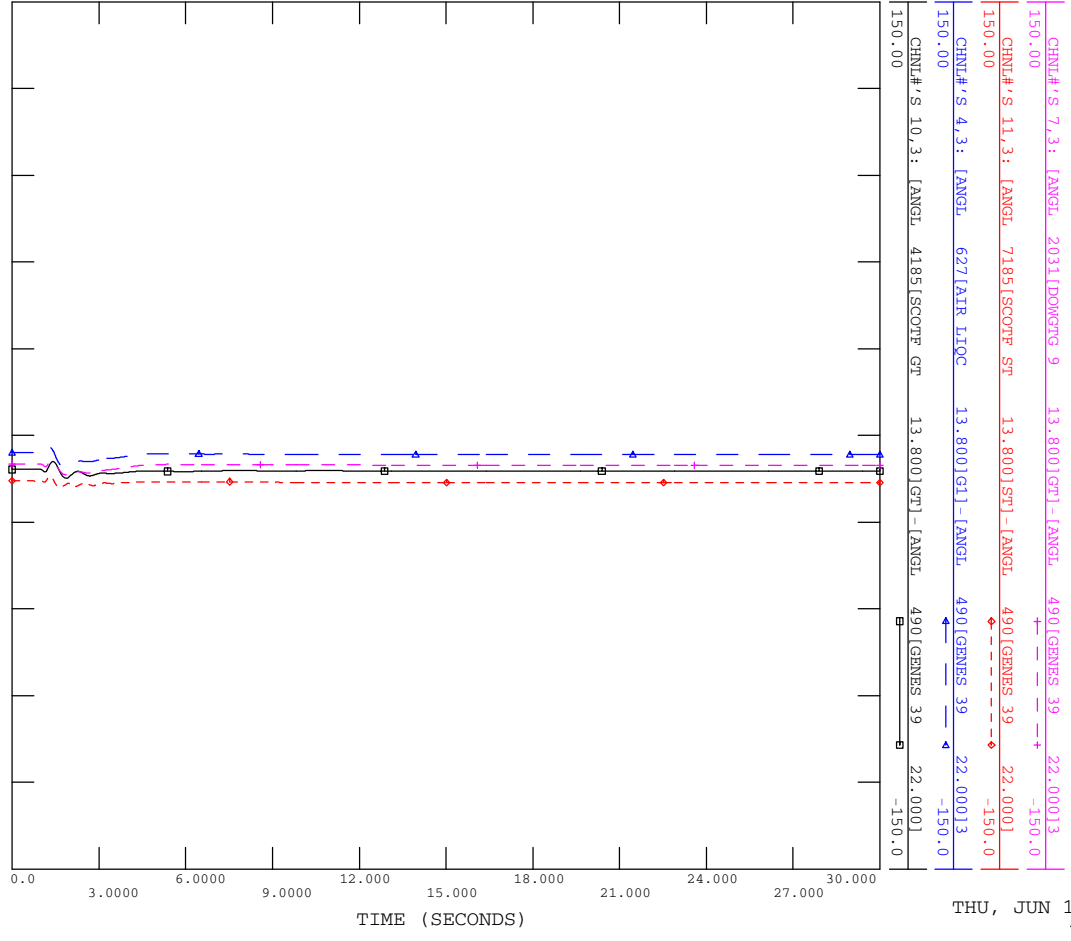


THU, JUN 19 2014 15:02  
 FIG E1-25A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT

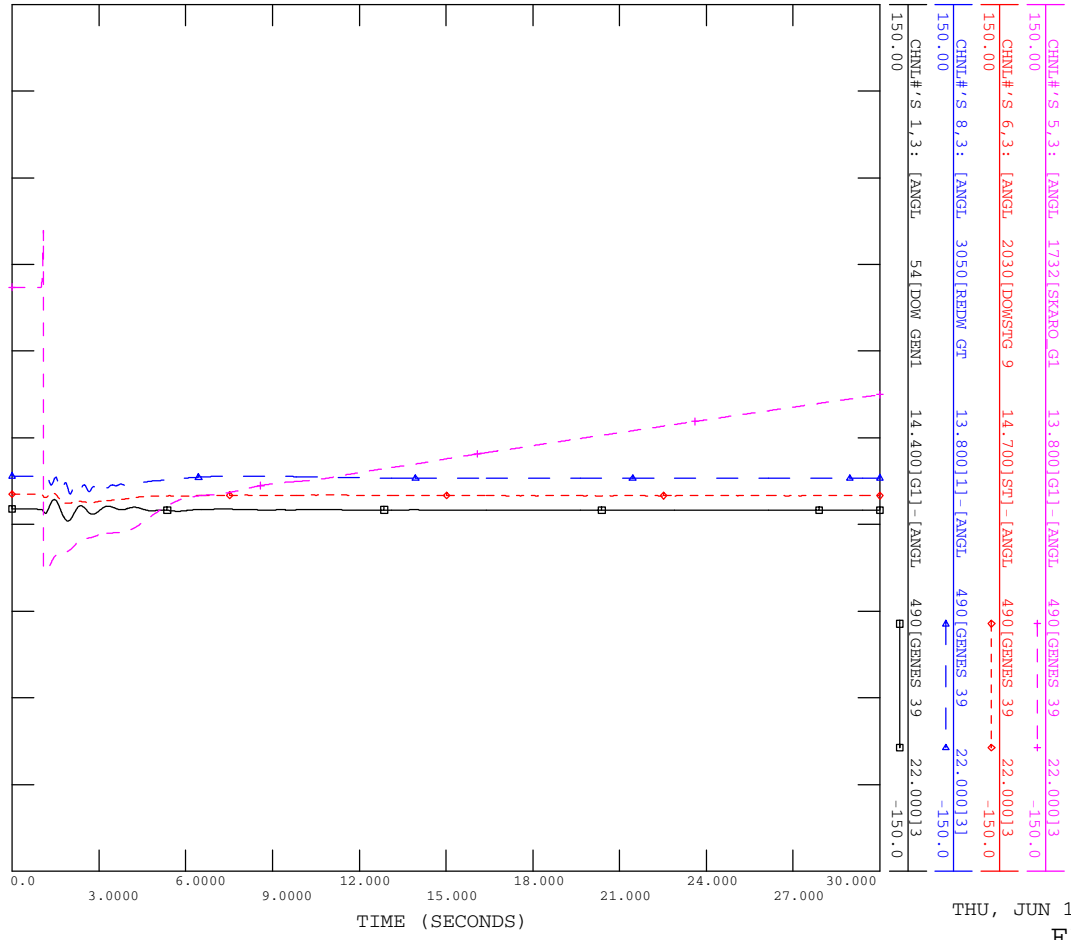


THU, JUN 19 2014 15:02  
 FIG E1-26



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT

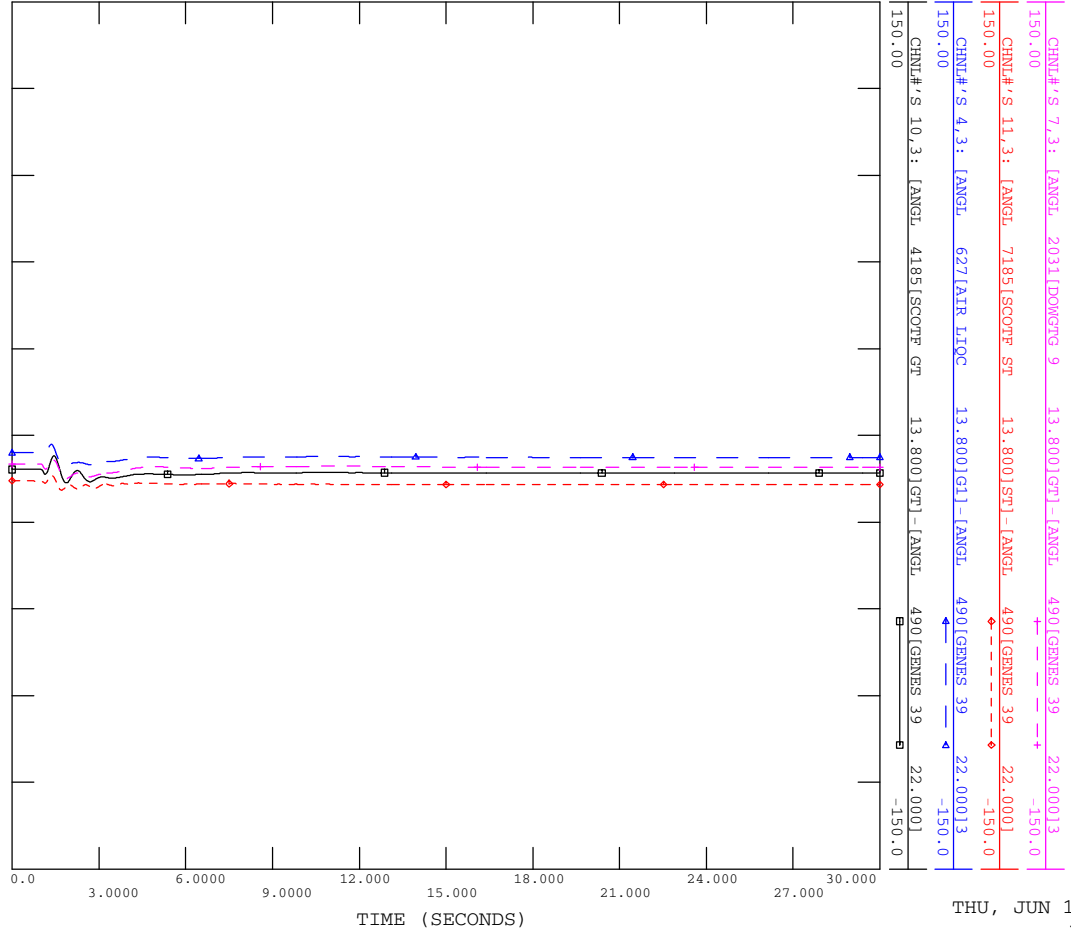


THU, JUN 19 2014 15:03  
 FIG E1-26A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

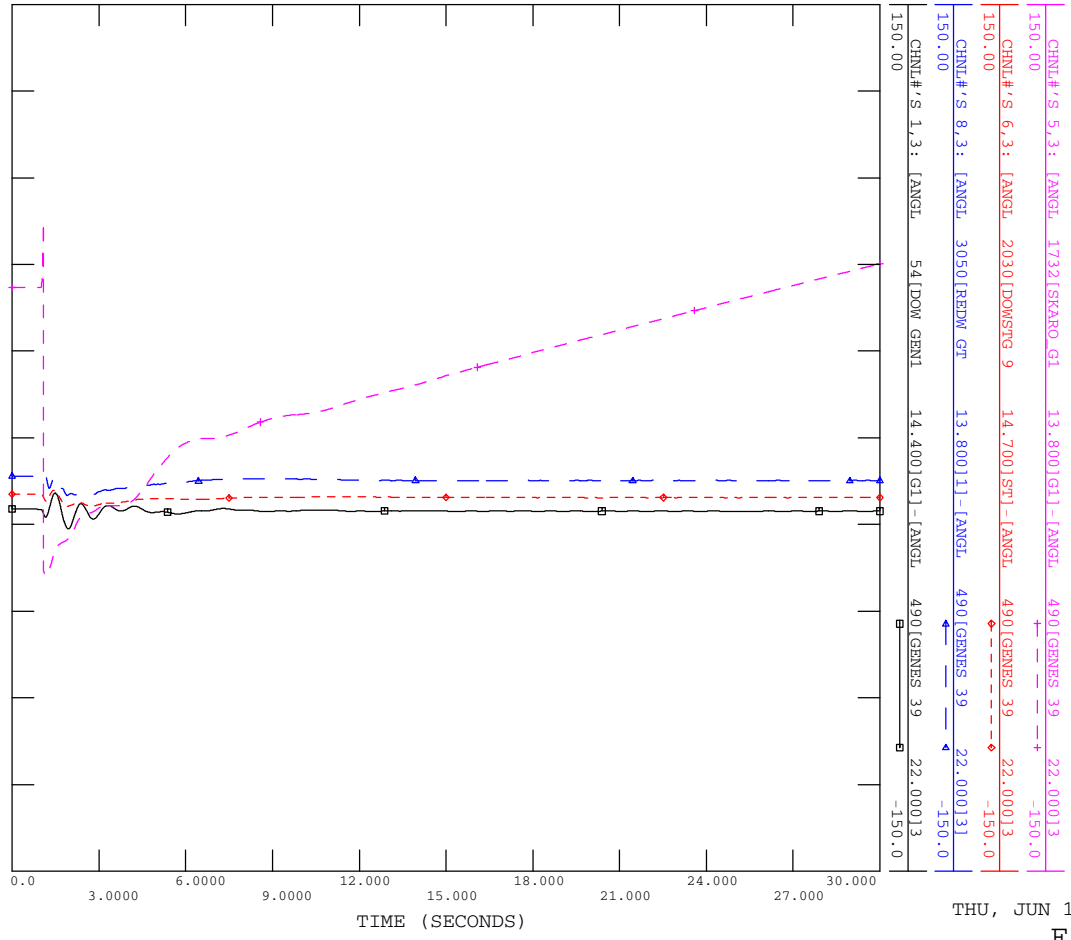


THU, JUN 19 2014 15:03  
 FIG E1-27



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

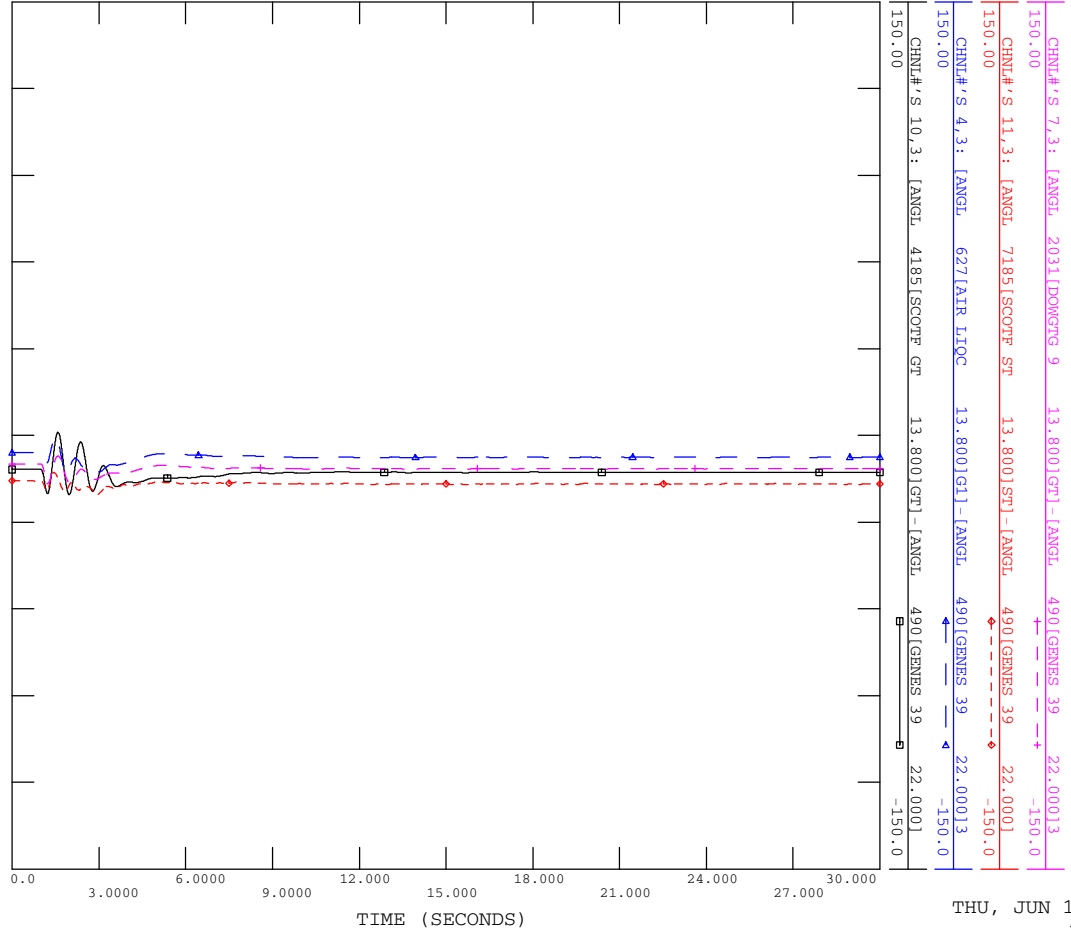


THU, JUN 19 2014 15:03  
 FIG E1-27A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT

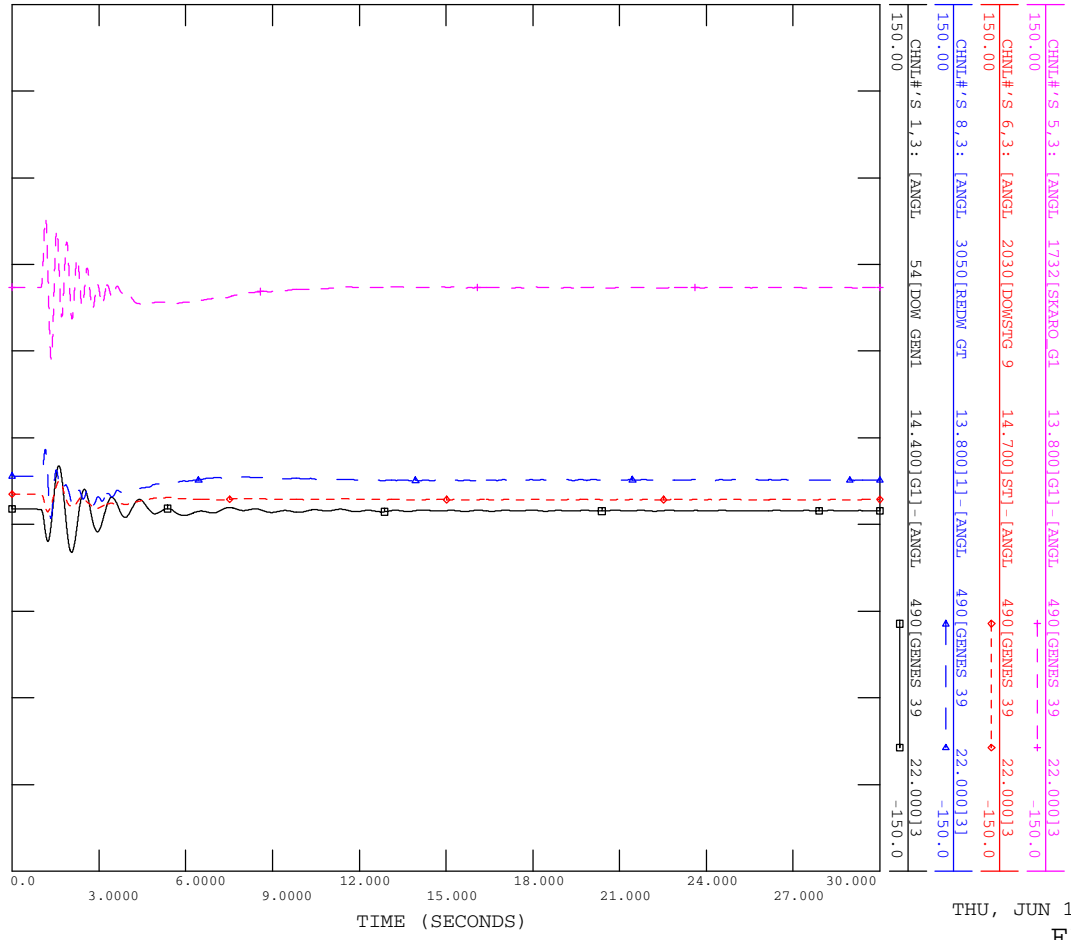


THU, JUN 19 2014 15:04  
 FIG E1-28



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT



THU, JUN 19 2014 15:04  
 FIG E1-28A

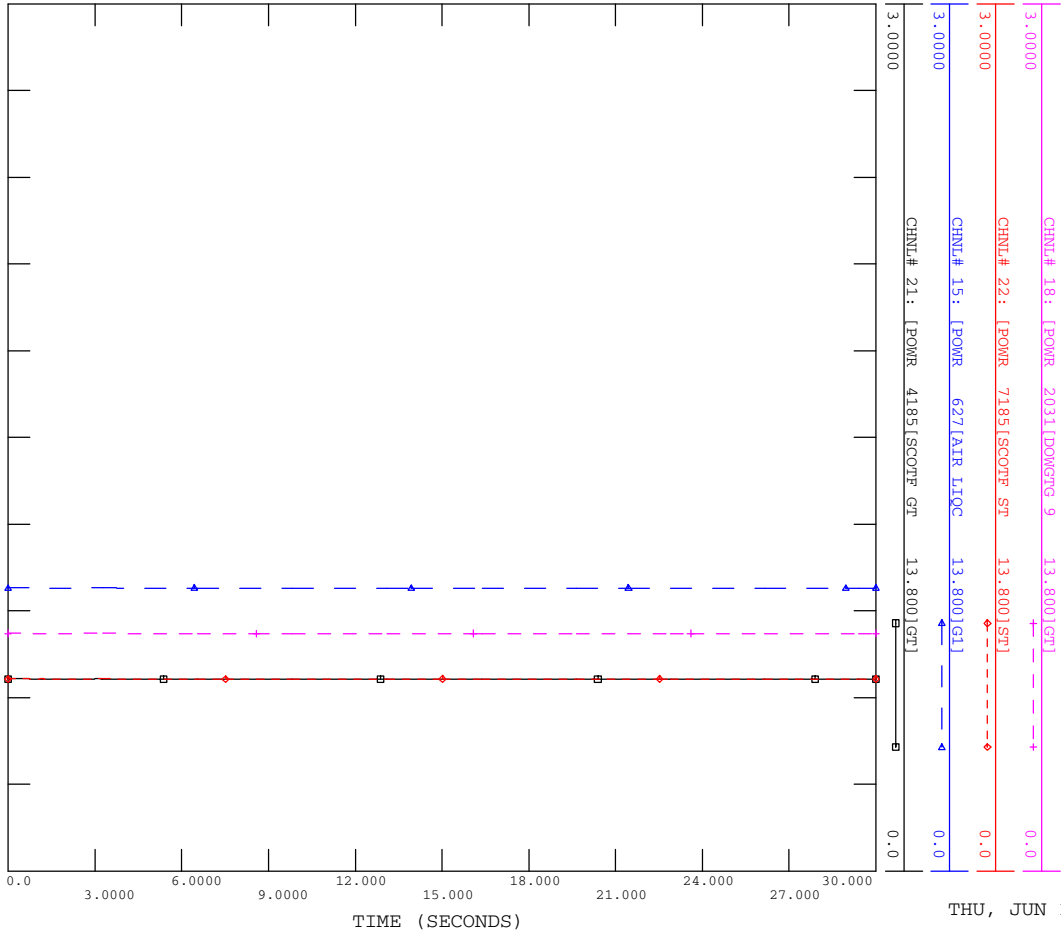
## **Attachment E-2**

### **Scenario 4 Transient Stability Plots Machine Power**



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP A - FLAT START

FILE: CON0.OUT

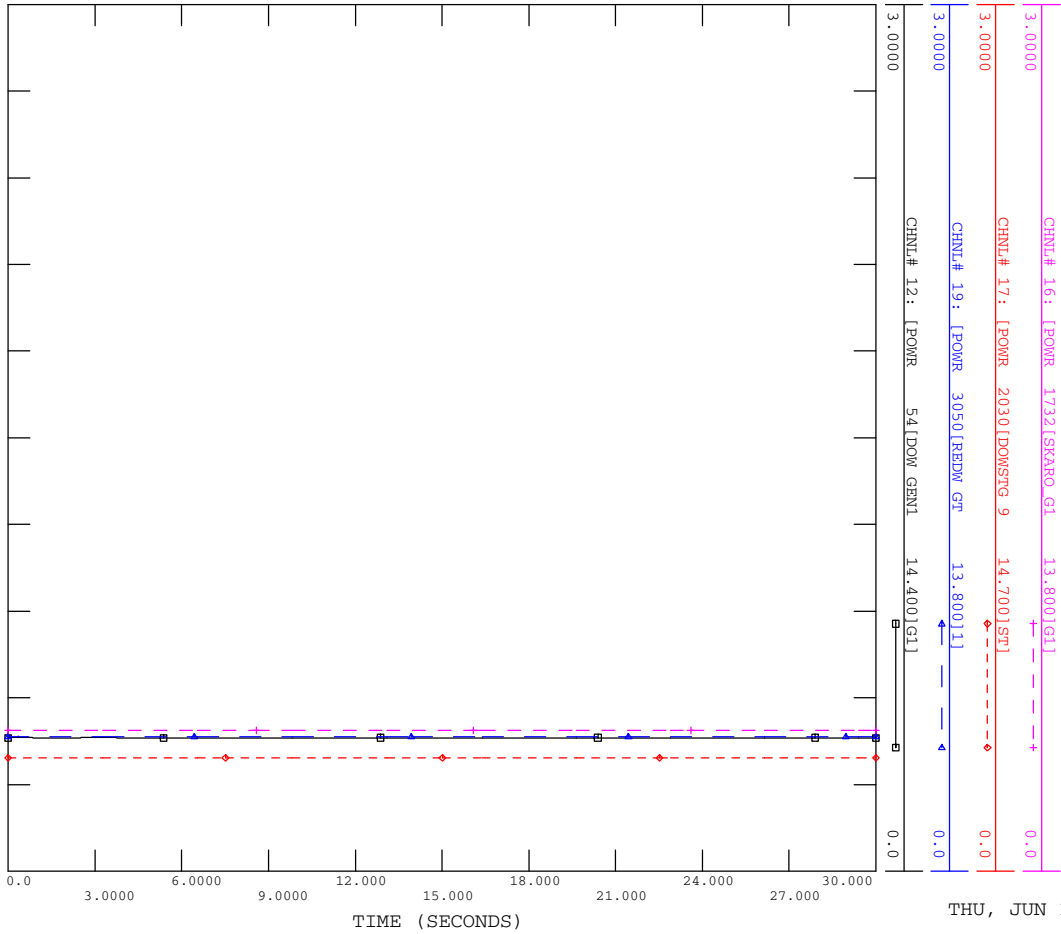


THU, JUN 19 2014 14:40  
 FIG E2-1



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP A - FLAT START

FILE: CON0.OUT

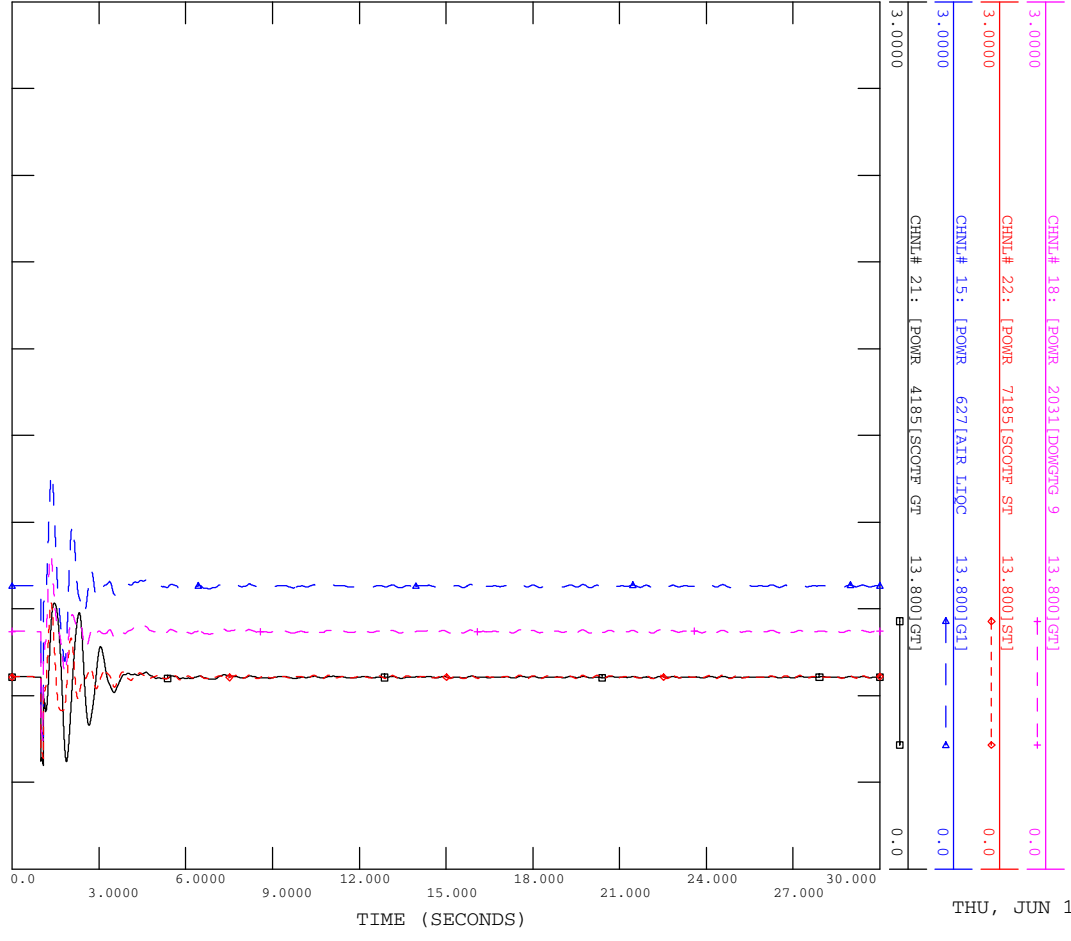


THU, JUN 19 2014 14:41  
 FIG E2-1A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

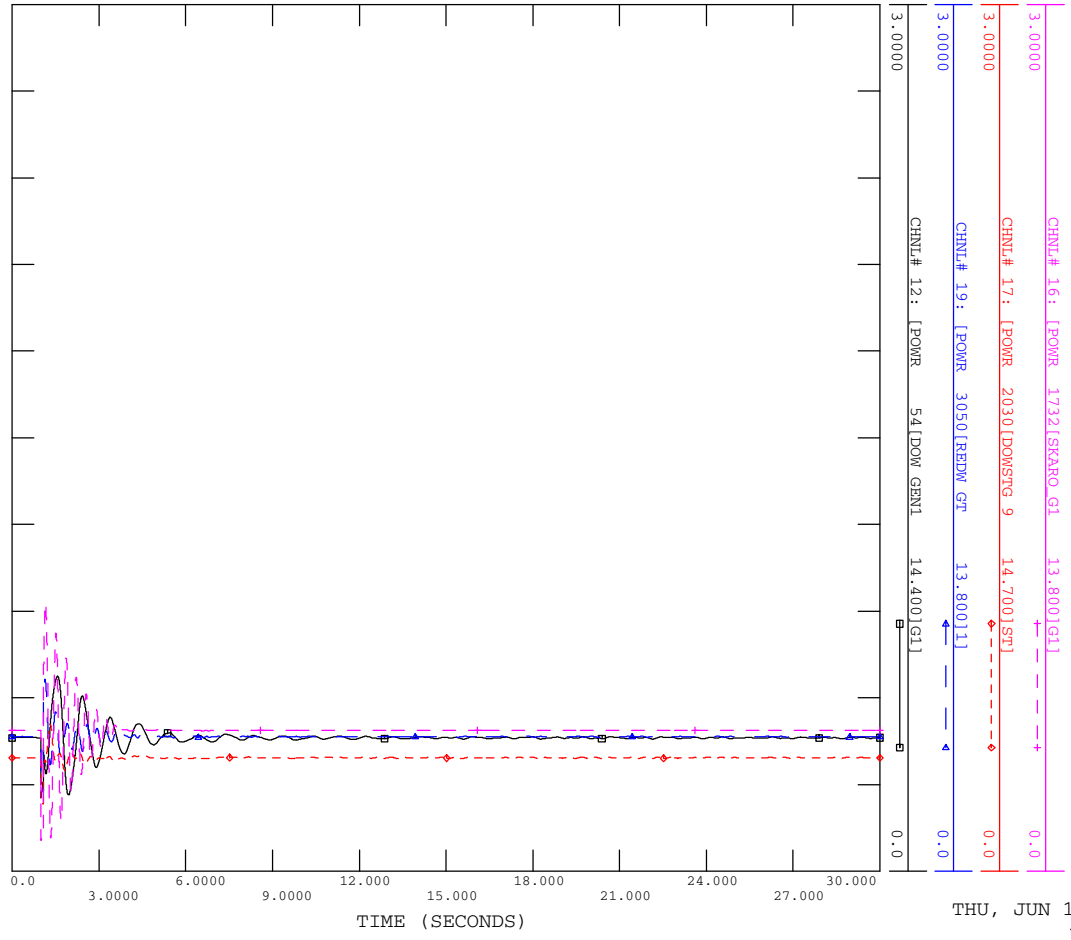


THU, JUN 19 2014 14:41  
FIG E2-2



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT



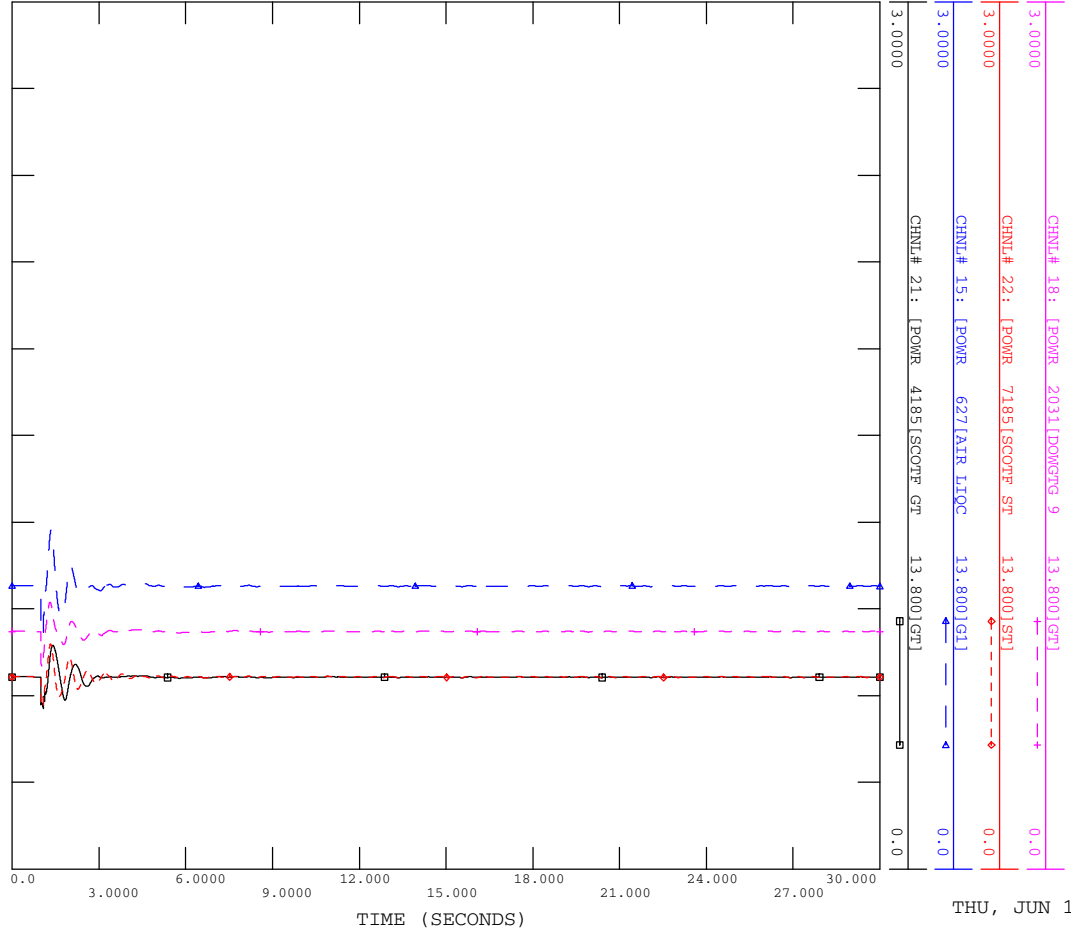
THU, JUN 19 2014 14:42  
FIG E2-2A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

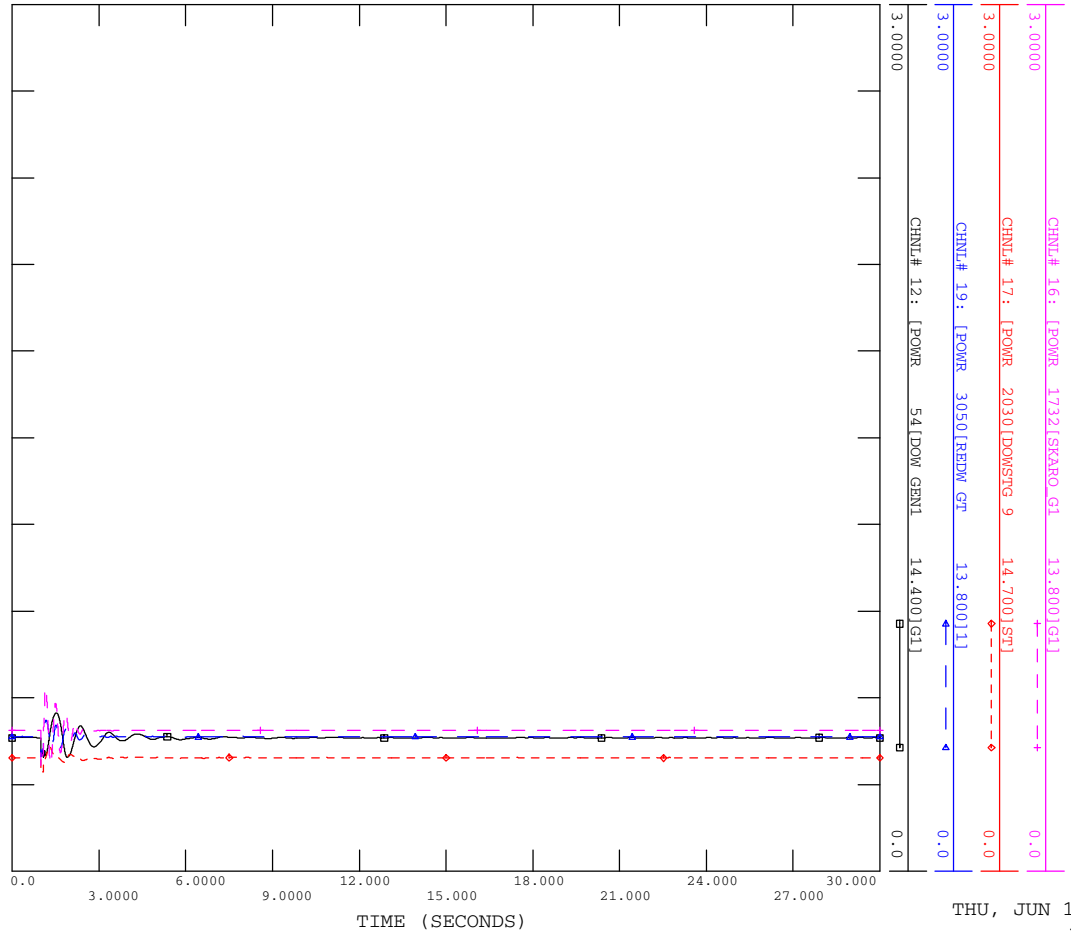


THU, JUN 19 2014 14:42  
FIG E2-3



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

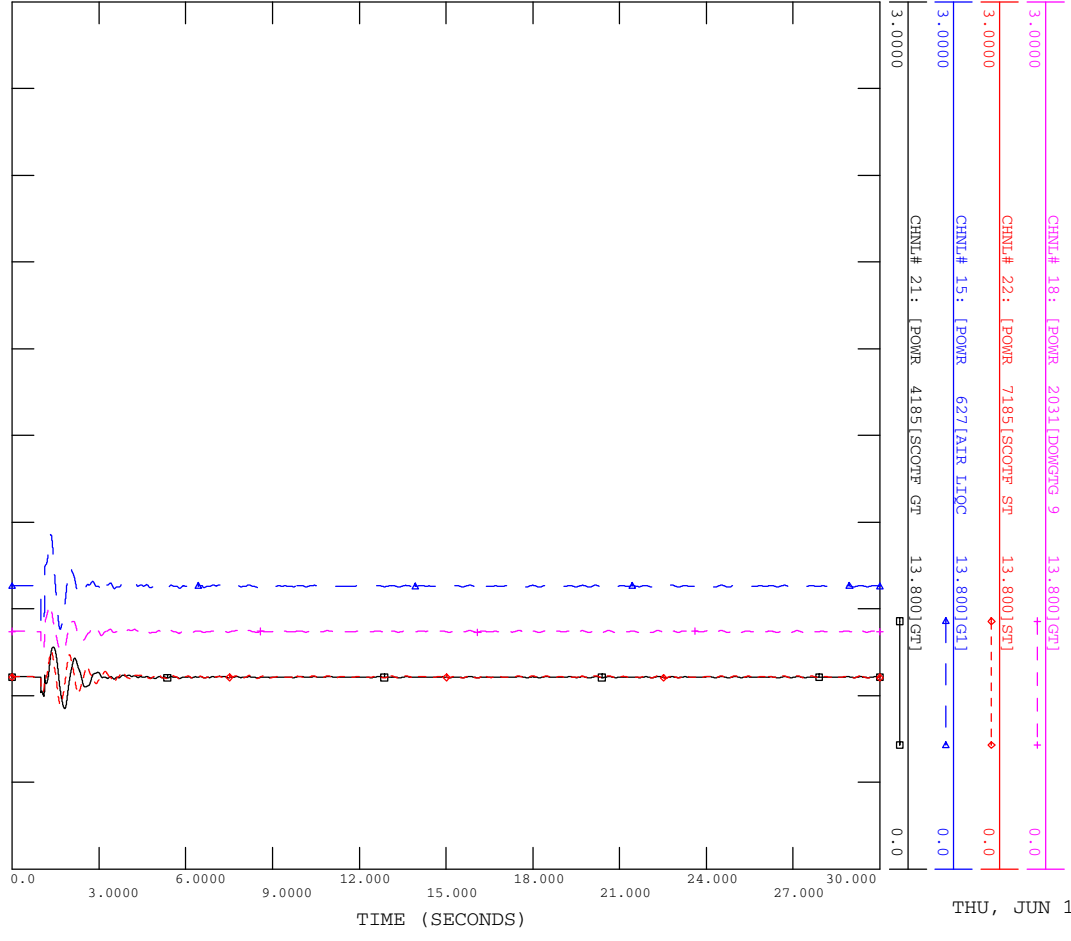


THU, JUN 19 2014 14:43  
FIG E2-3A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

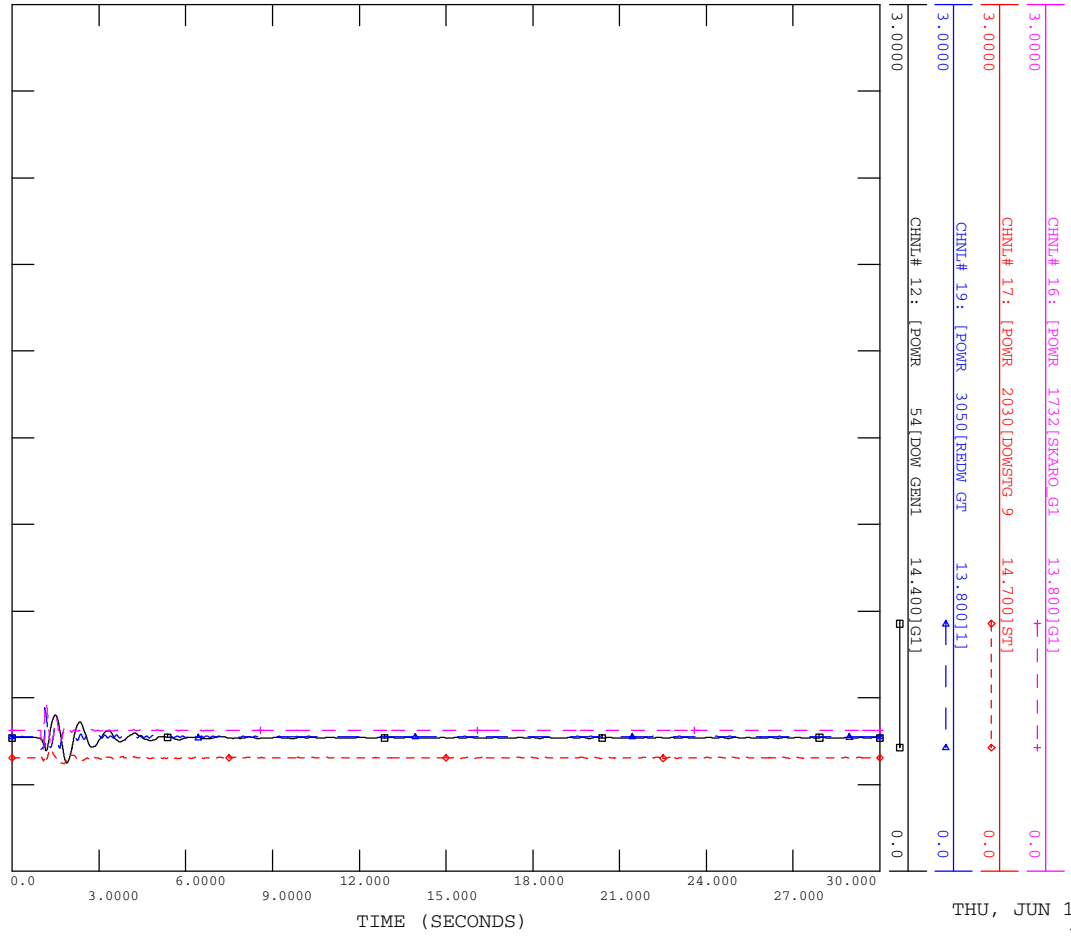


THU, JUN 19 2014 14:43  
FIG E2-4



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

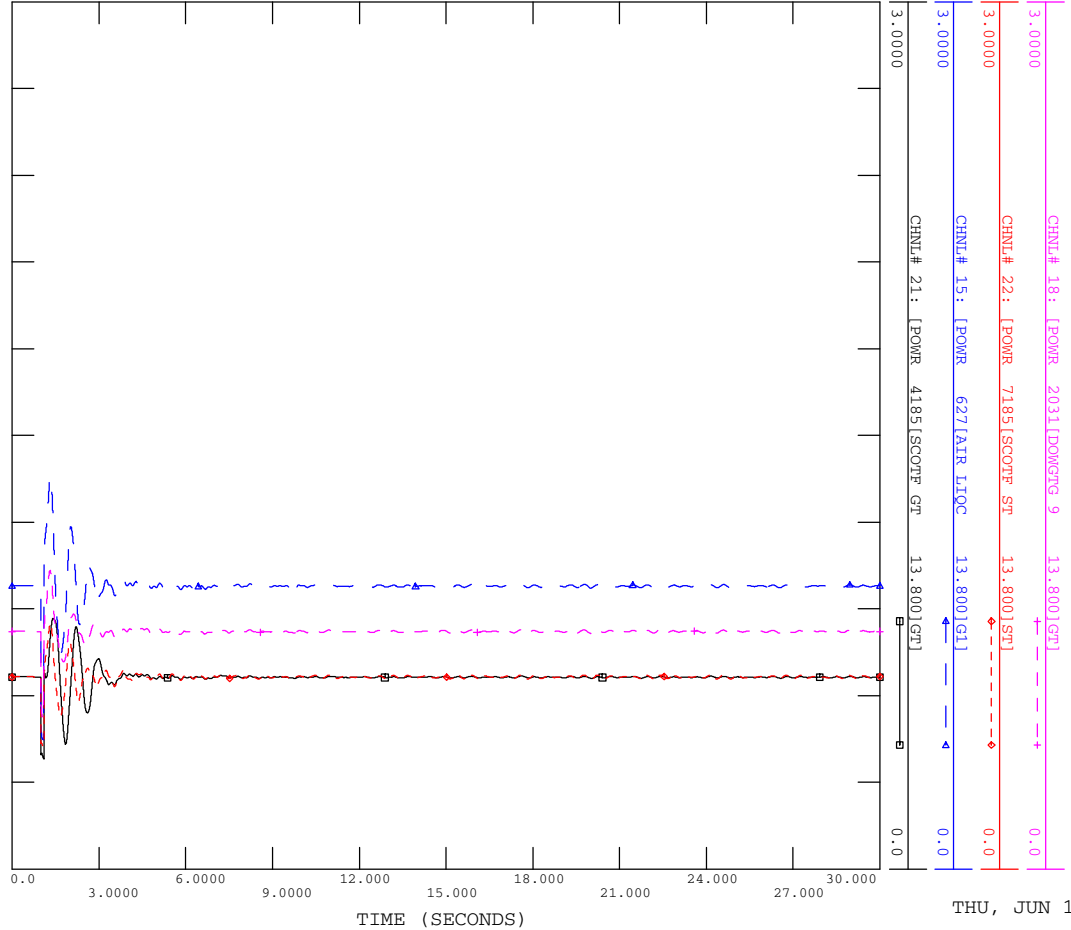


THU, JUN 19 2014 14:43  
FIG E2-4A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

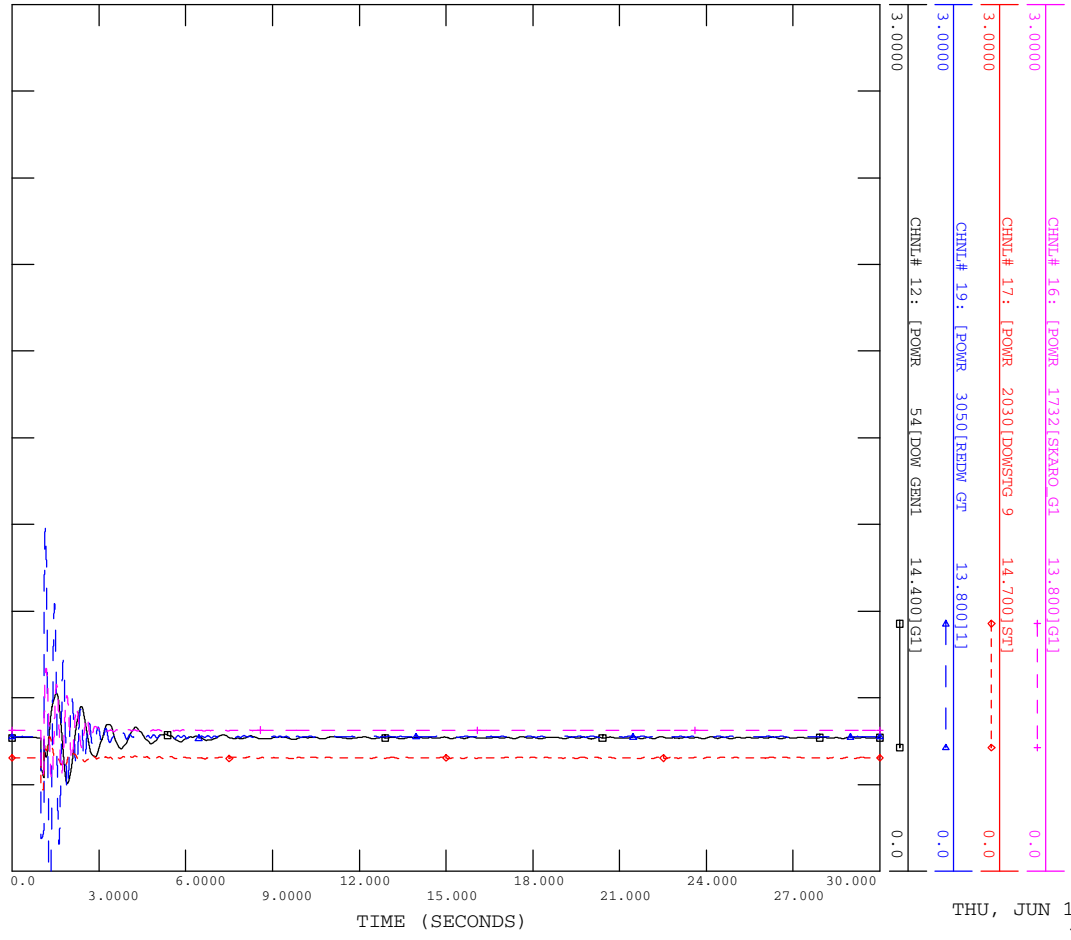


THU, JUN 19 2014 14:44  
FIG E2-5



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

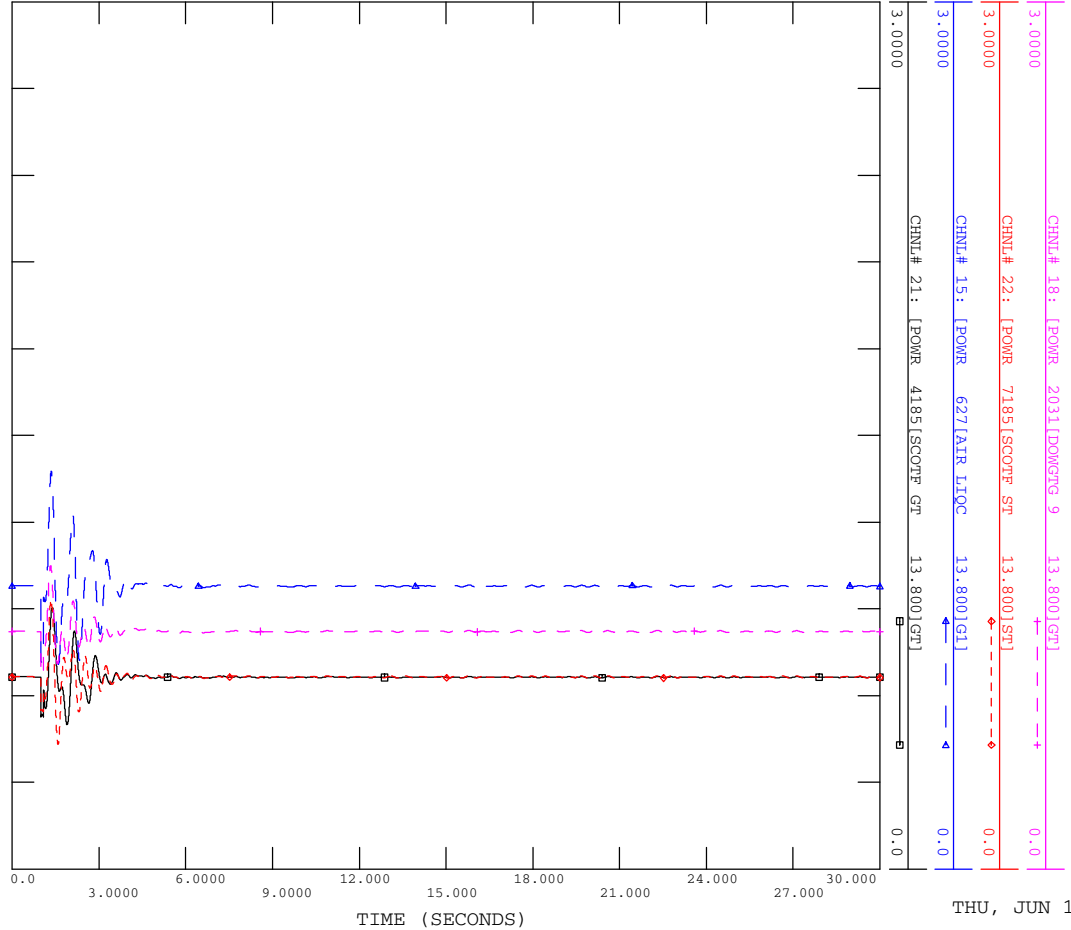


THU, JUN 19 2014 14:44  
FIG E2-5A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

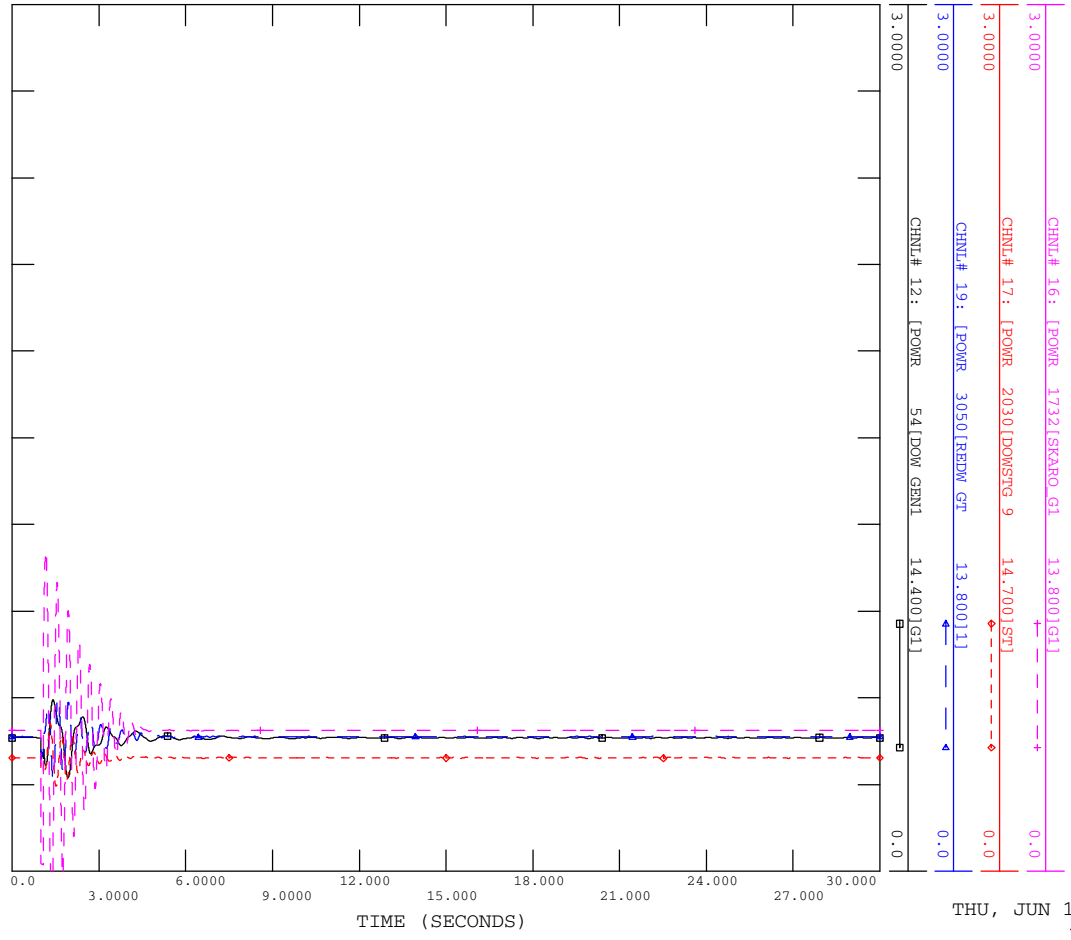


THU, JUN 19 2014 14:45  
FIG E2-6



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

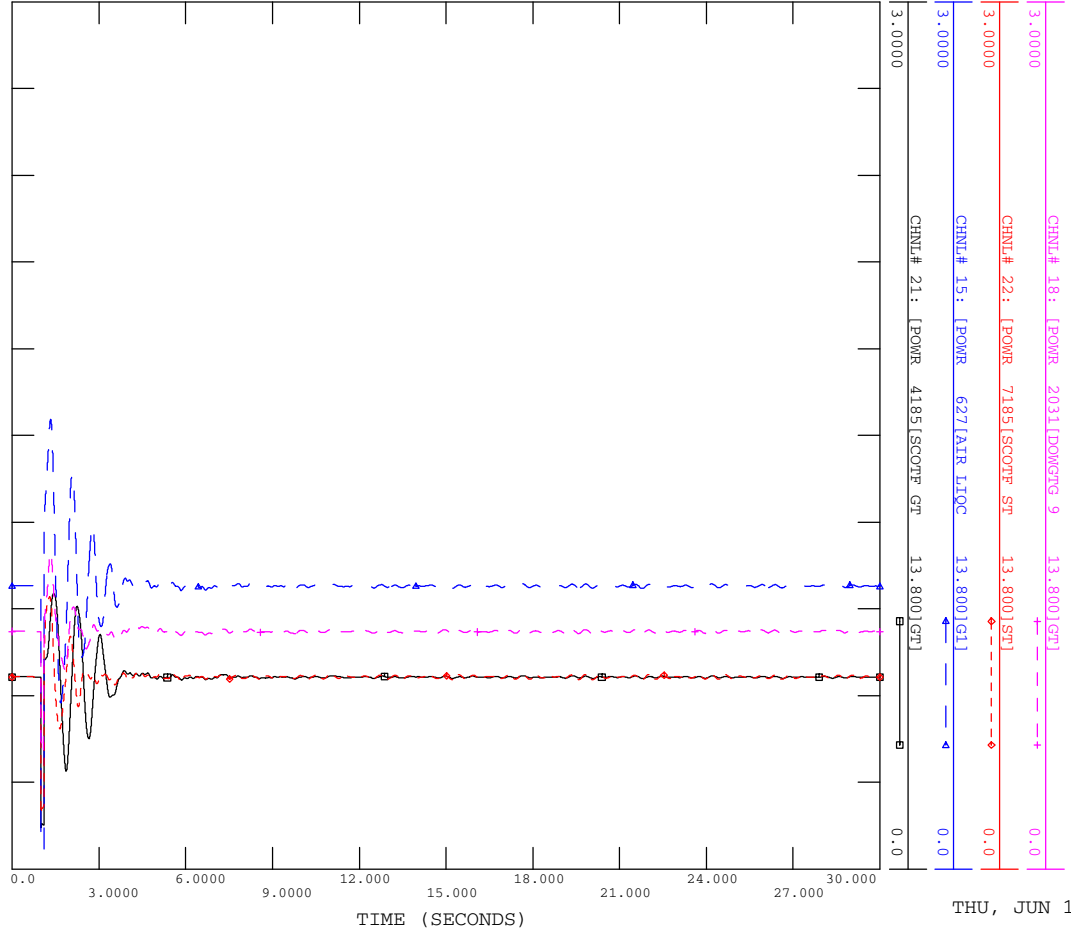


THU, JUN 19 2014 14:45  
FIG E2-6A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 410S

FILE: CON7.OUT

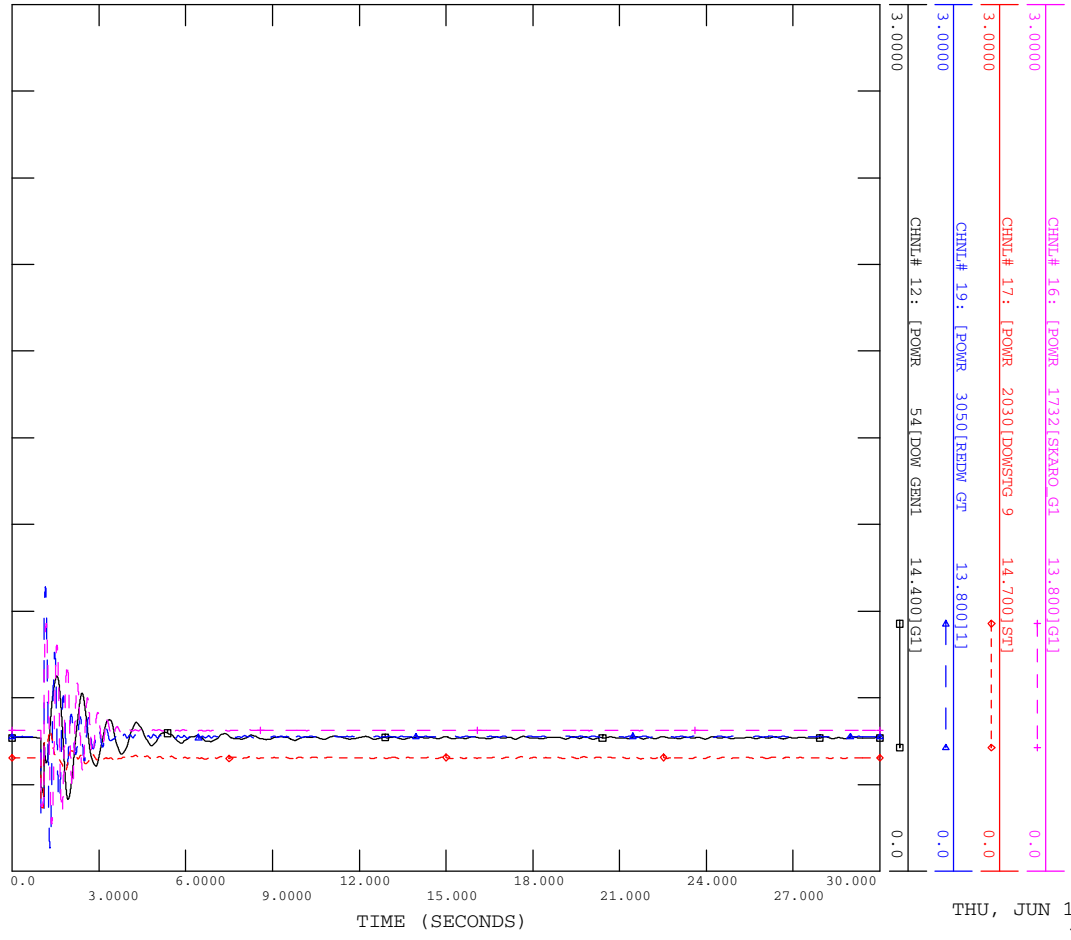


THU, JUN 19 2014 14:46  
FIG E2-7



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 410S

FILE: CON7.OUT

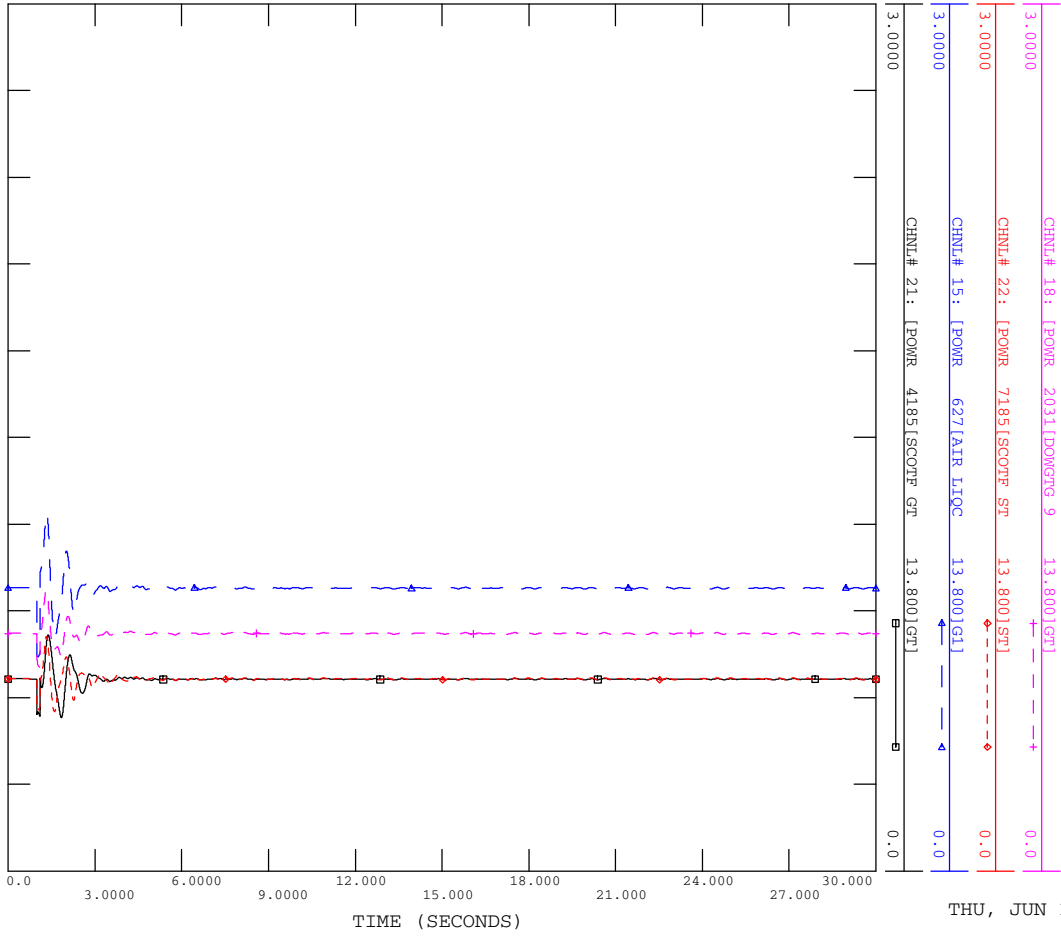


THU, JUN 19 2014 14:46  
FIG E2-7A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

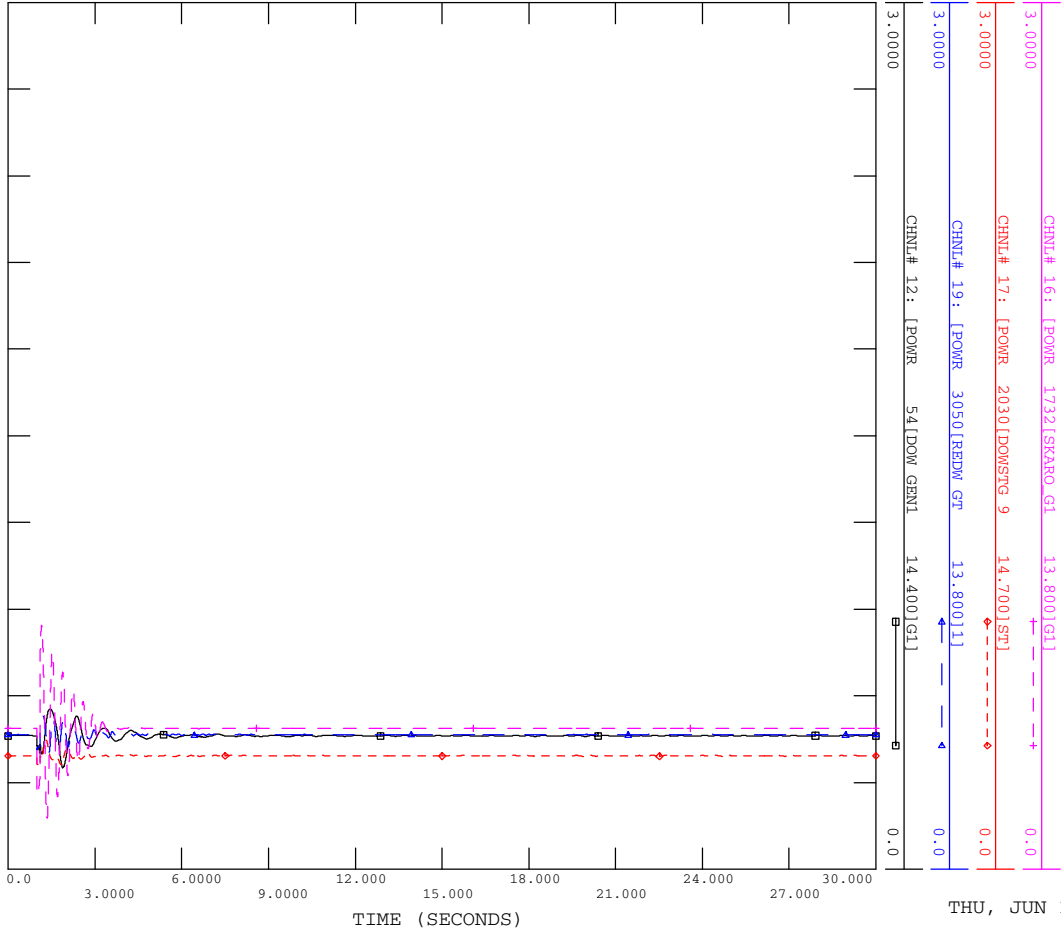


THU, JUN 19 2014 14:47  
FIG E2-8



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

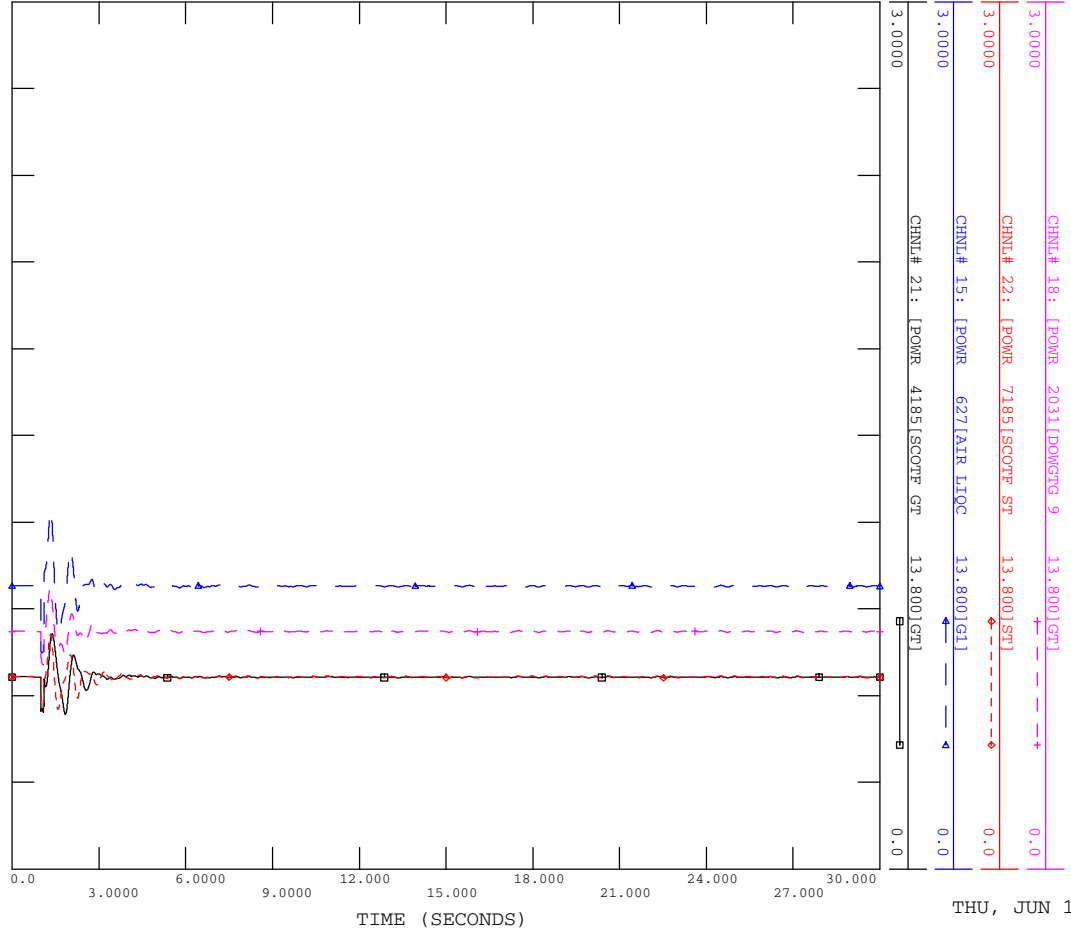


THU, JUN 19 2014 14:47  
FIG E2-8A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

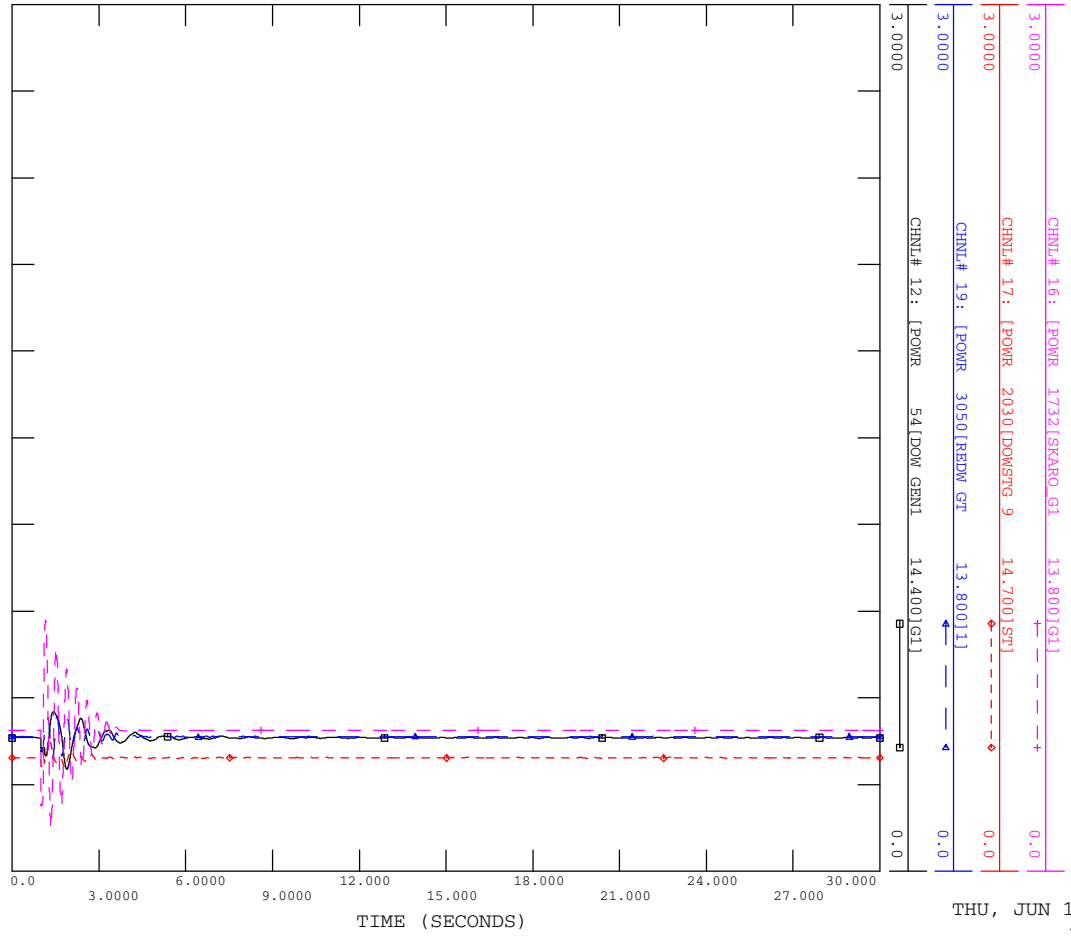


THU, JUN 19 2014 14:48  
FIG E2-9



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

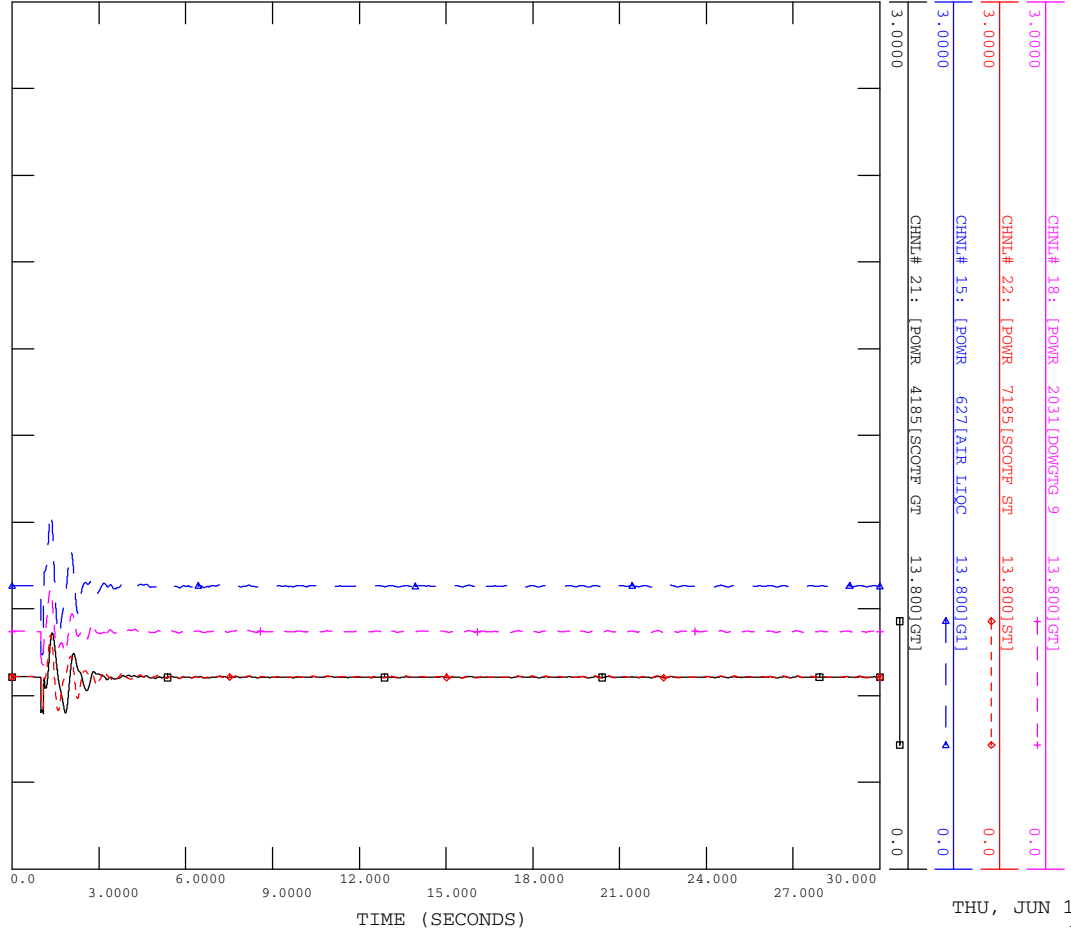


THU, JUN 19 2014 14:48  
FIG E2-9A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

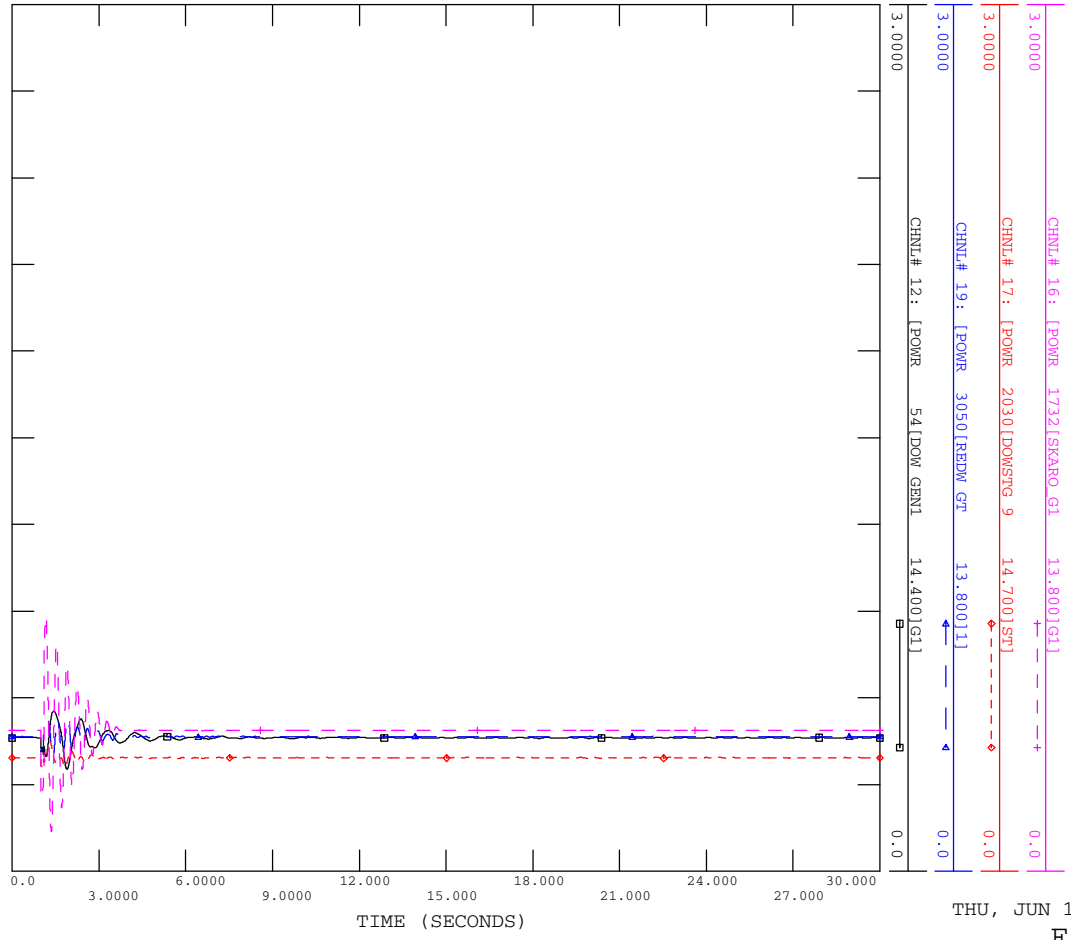


THU, JUN 19 2014 14:48  
FIG E2-10



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT



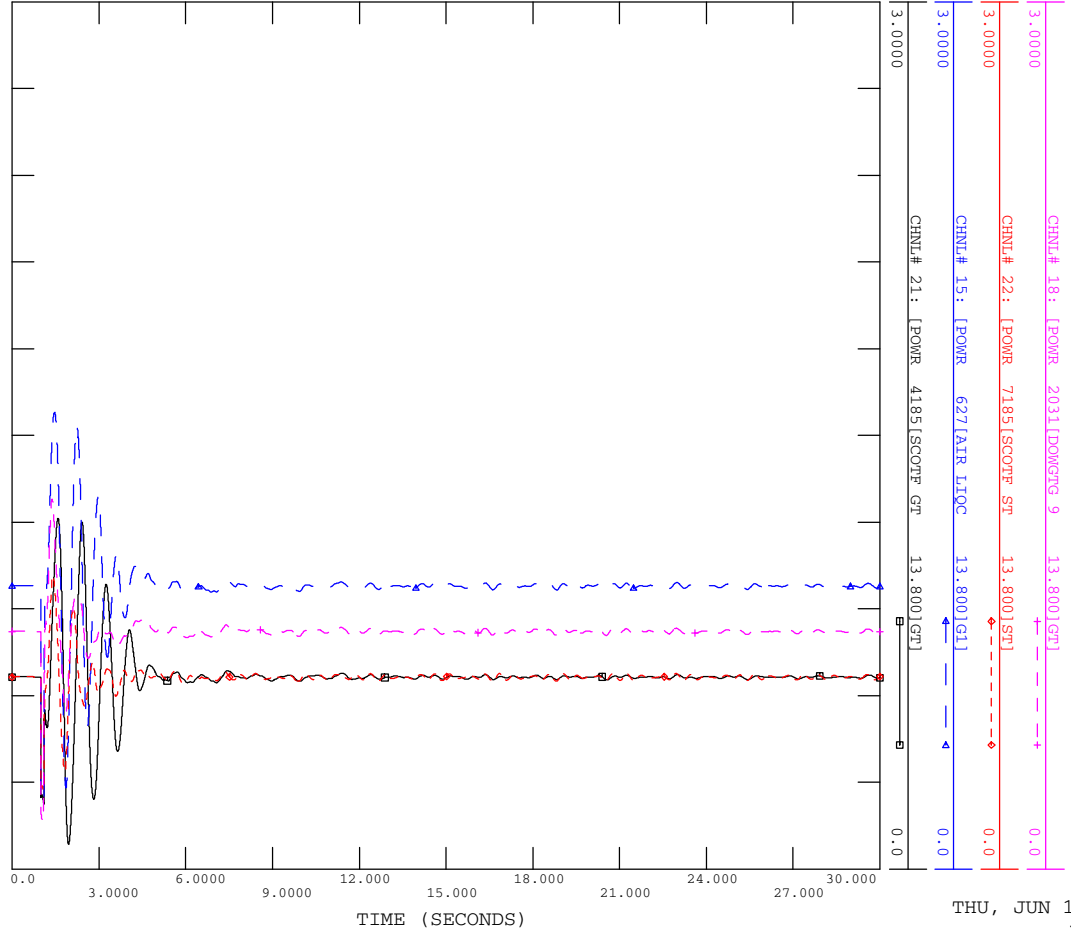
THU, JUN 19 2014 14:49  
FIG E2-10A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT

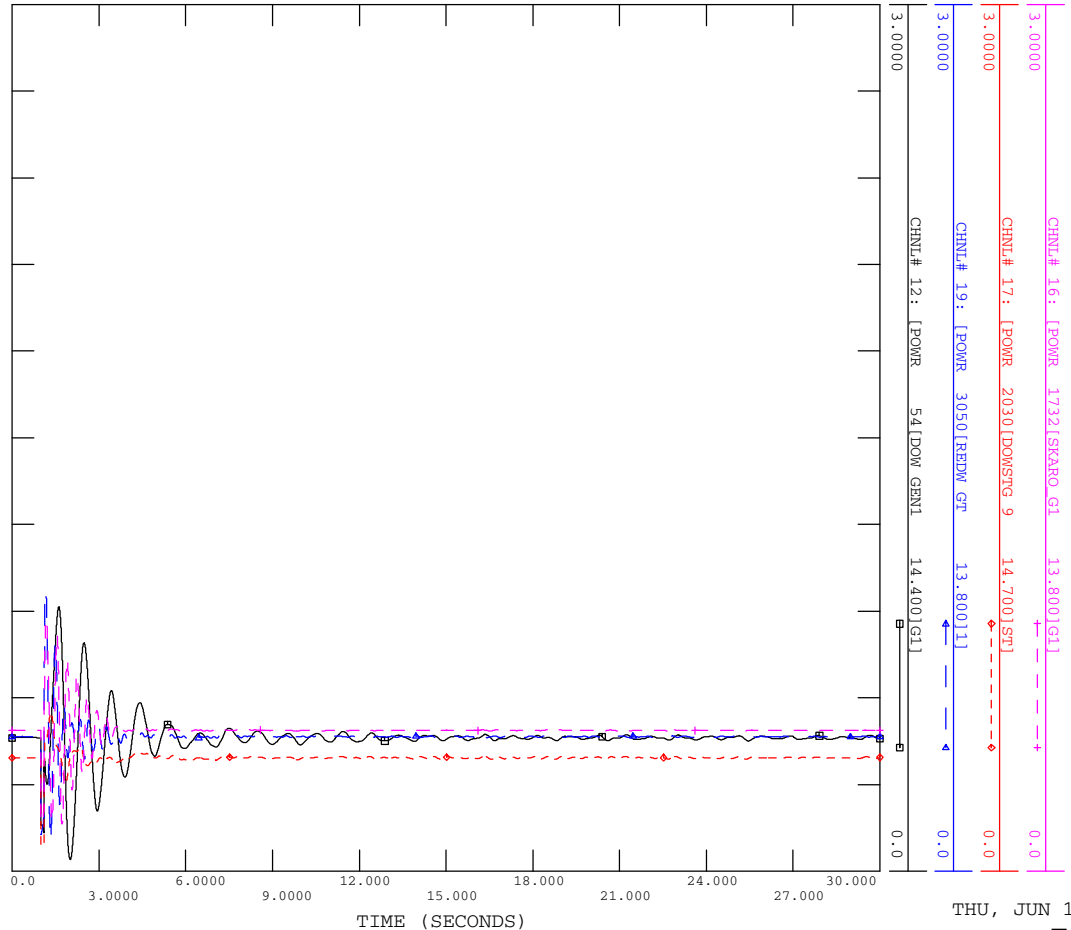


THU, JUN 19 2014 14:49  
 FIG E2-11



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT

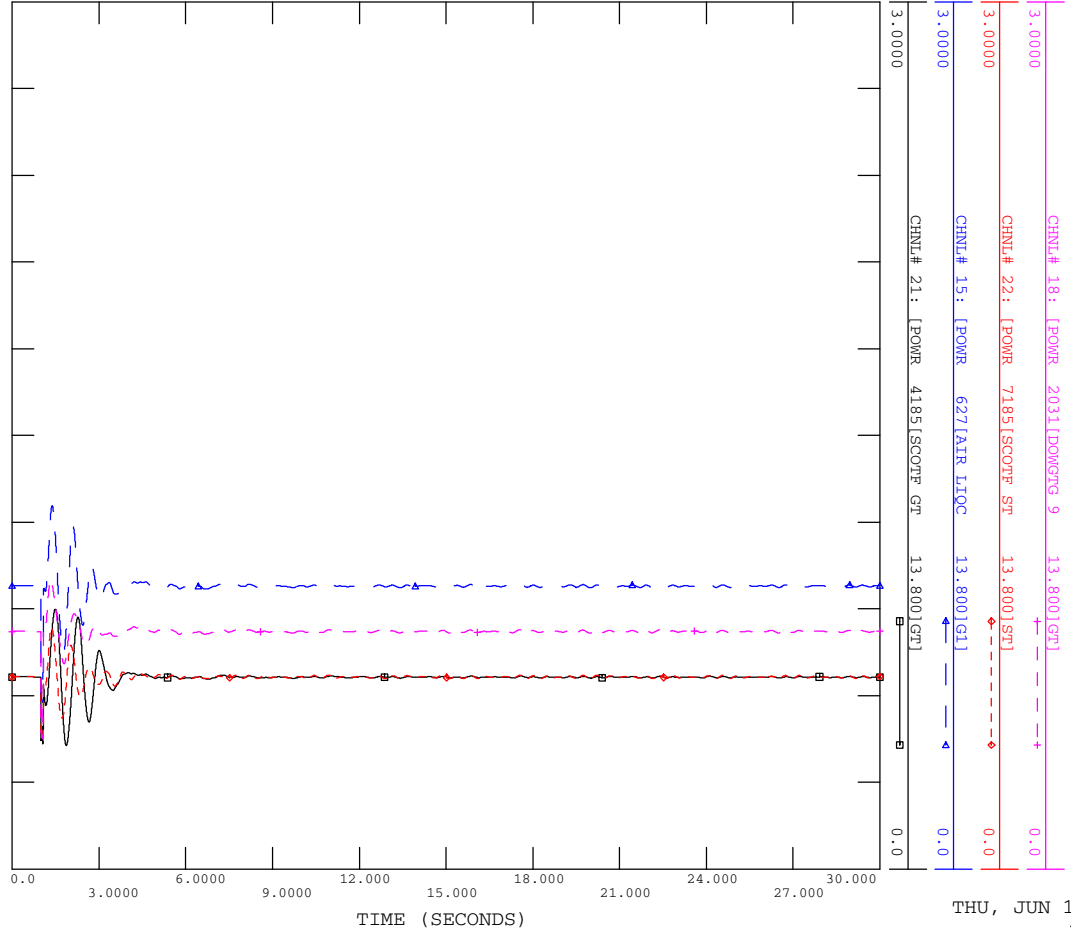


THU, JUN 19 2014 14:50  
 FIG E2-11A



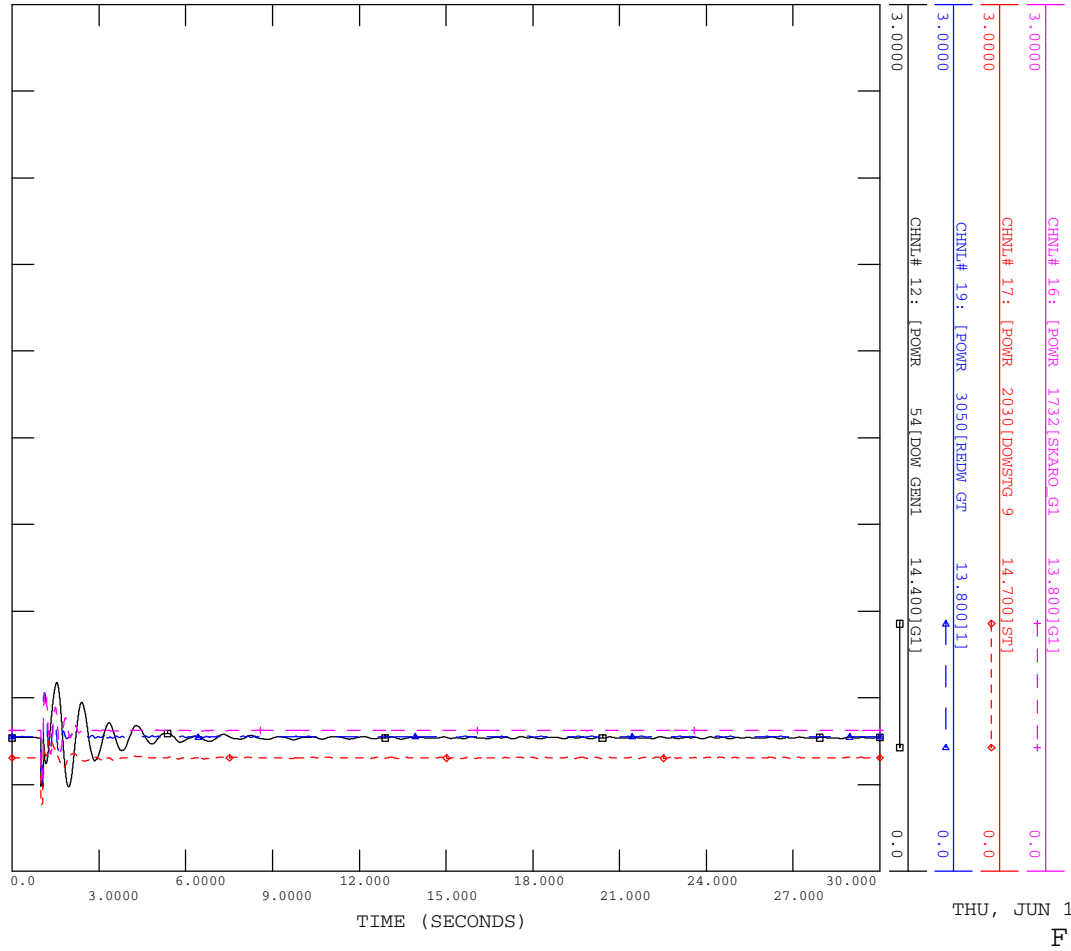
TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 920L 3PH FAULT AT 557S

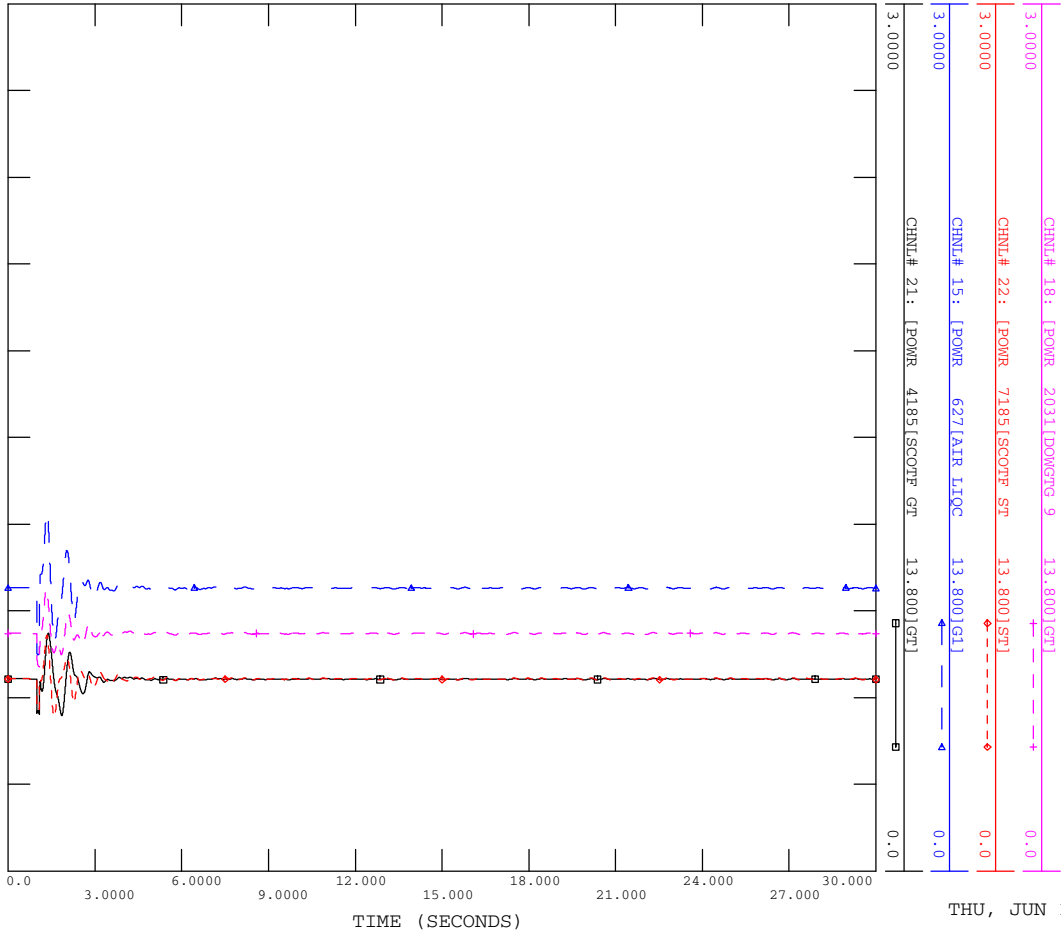
FILE: CON12.OUT





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

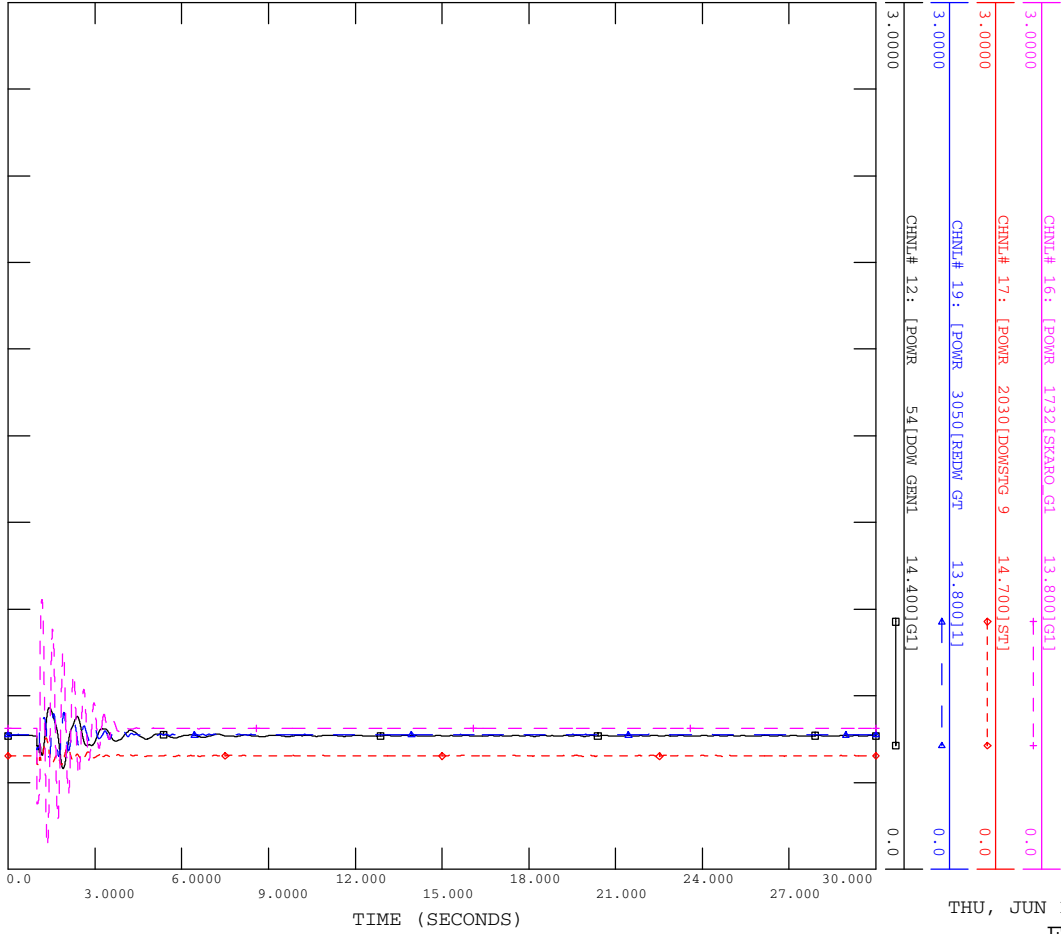


THU, JUN 19 2014 14:51  
 FIG E2-13



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

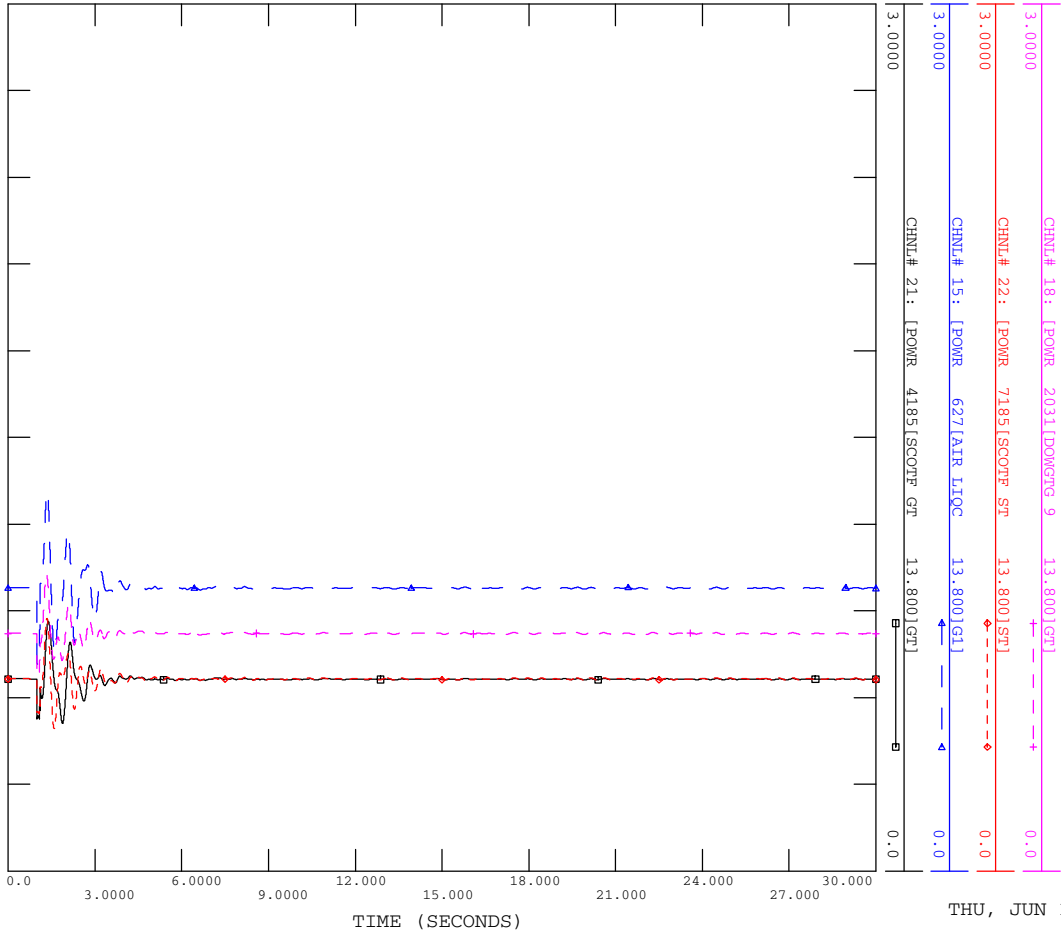


THU, JUN 19 2014 14:52  
 FIG E2-13A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

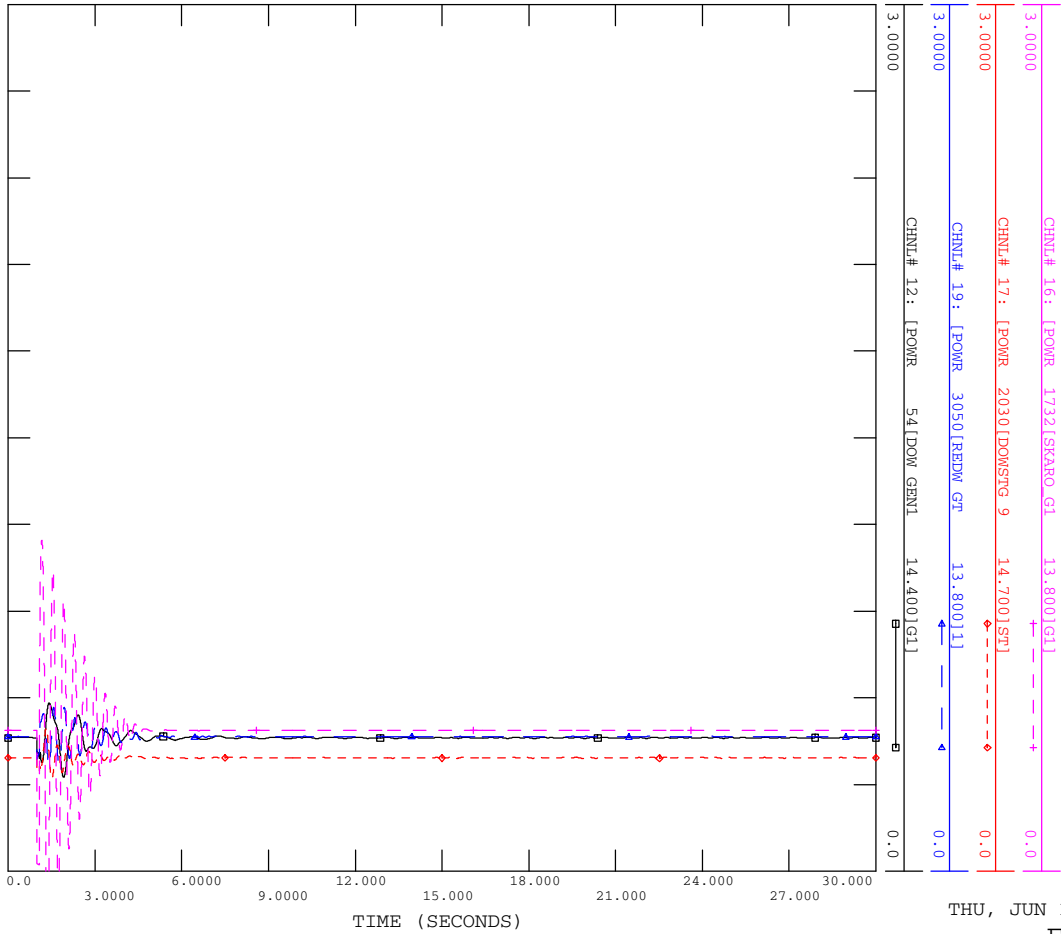


THU, JUN 19 2014 14:52  
FIG E2-14



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

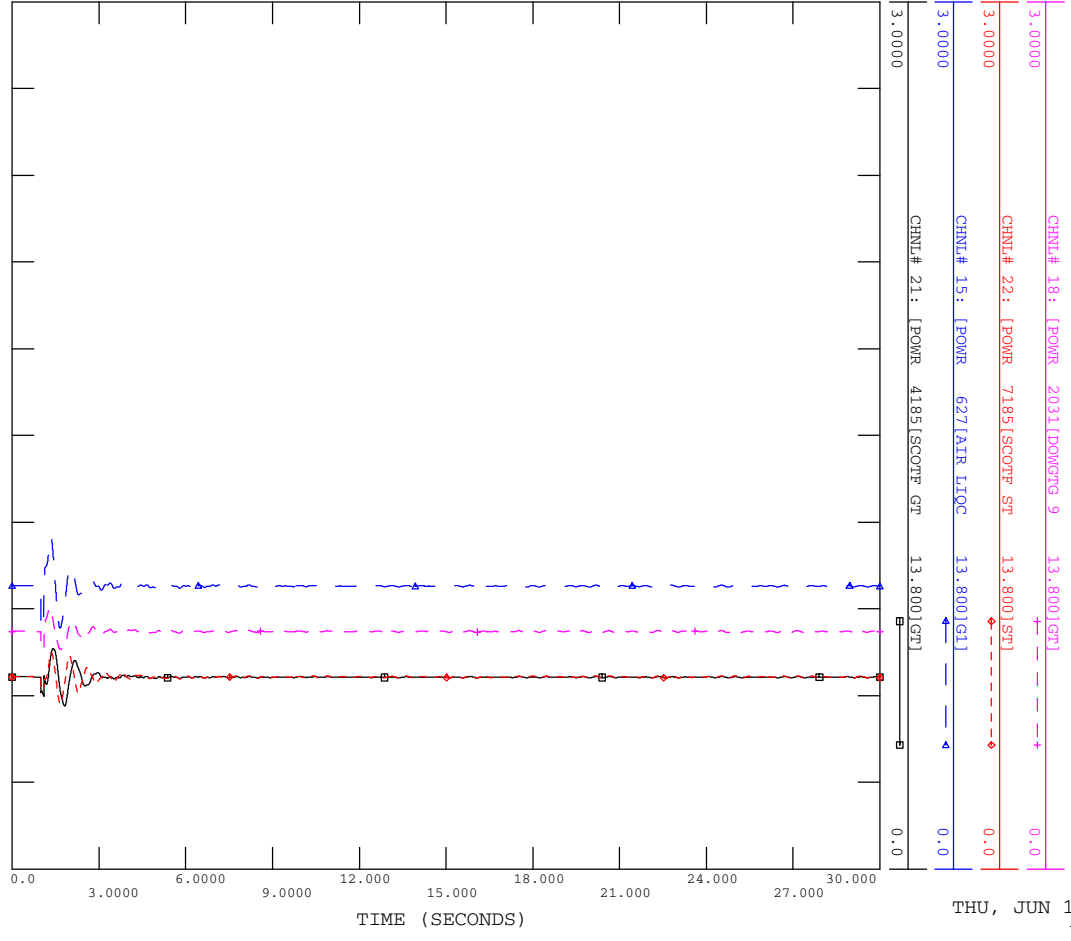


THU, JUN 19 2014 14:53  
FIG E2-14A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT

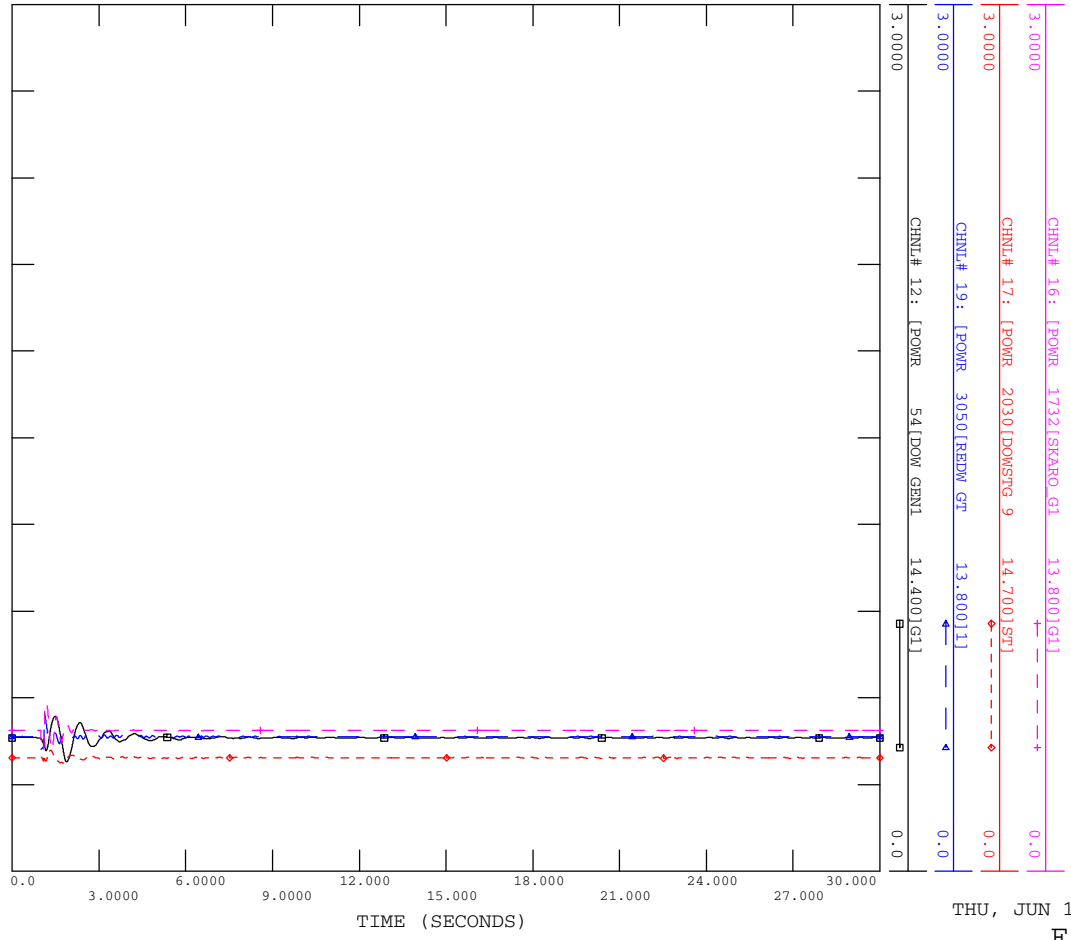


THU, JUN 19 2014 14:53  
FIG E2-15



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT

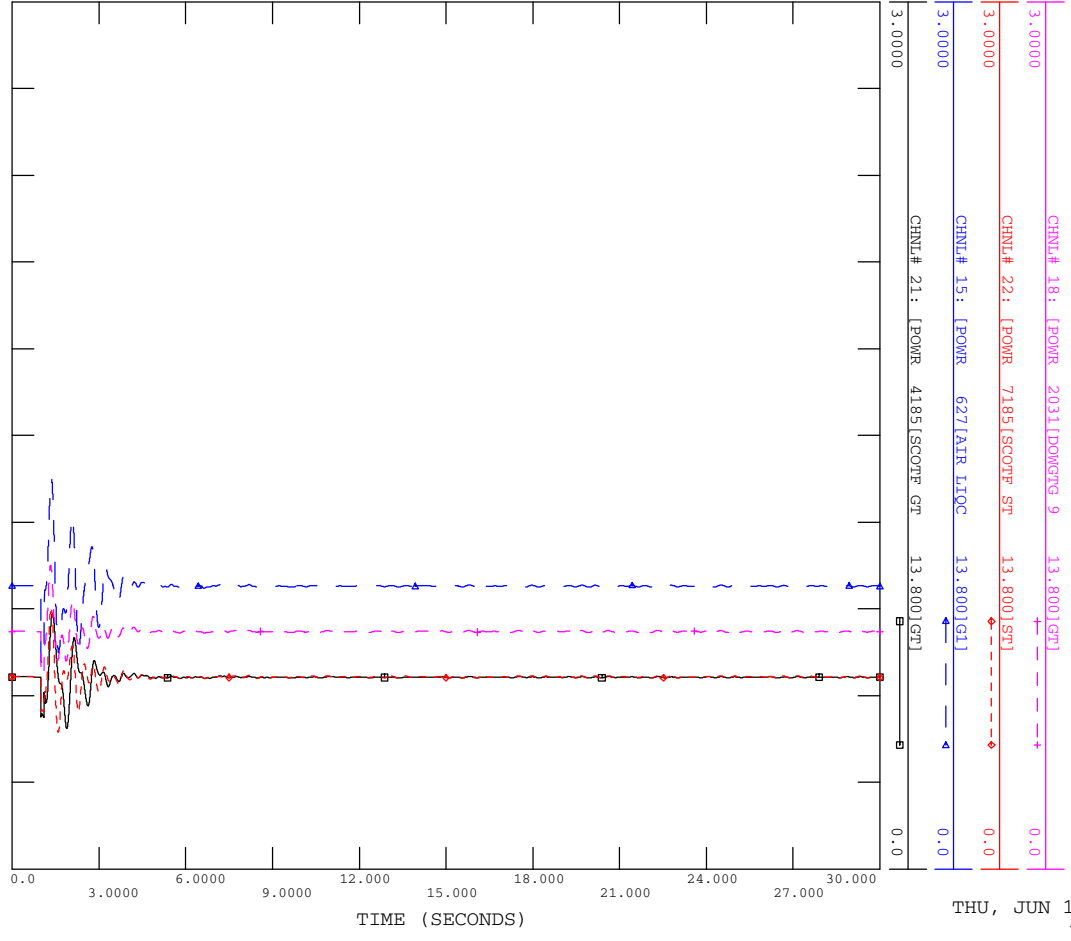


THU, JUN 19 2014 14:53  
FIG E2-15A



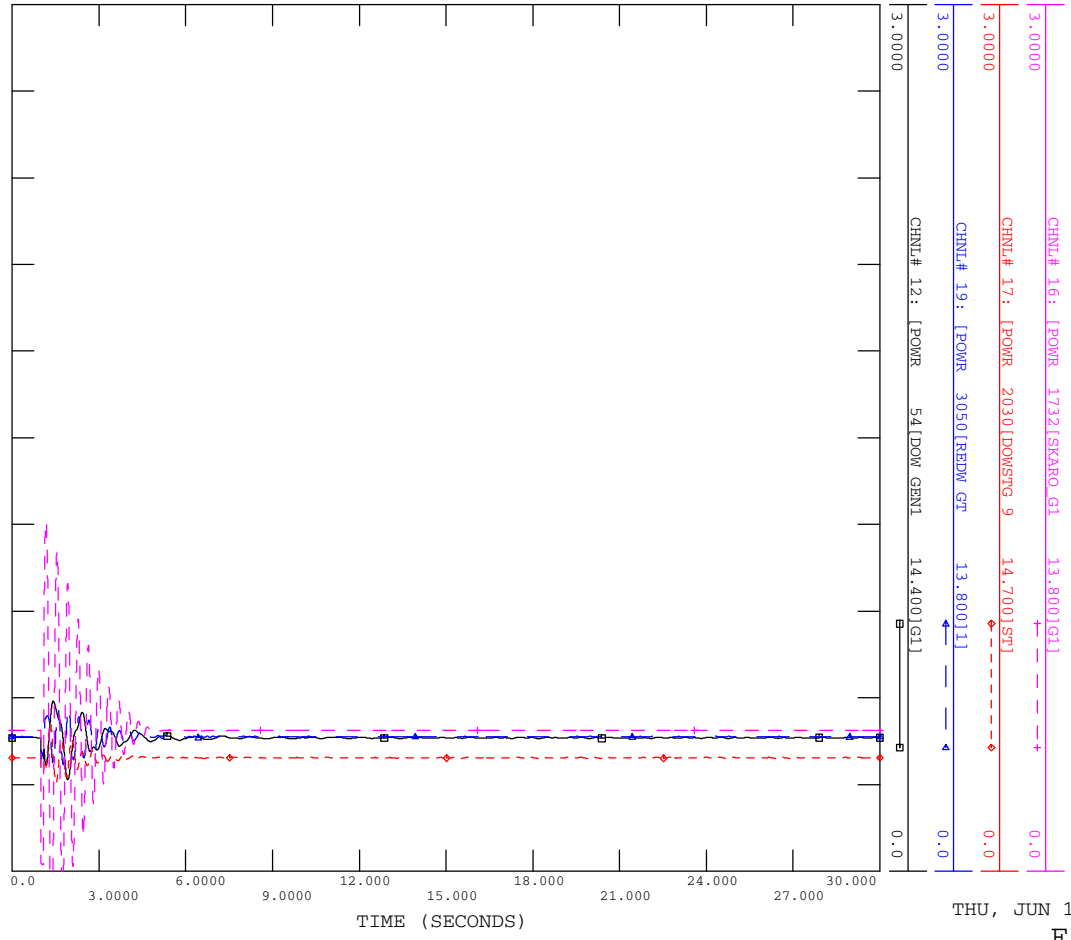
TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

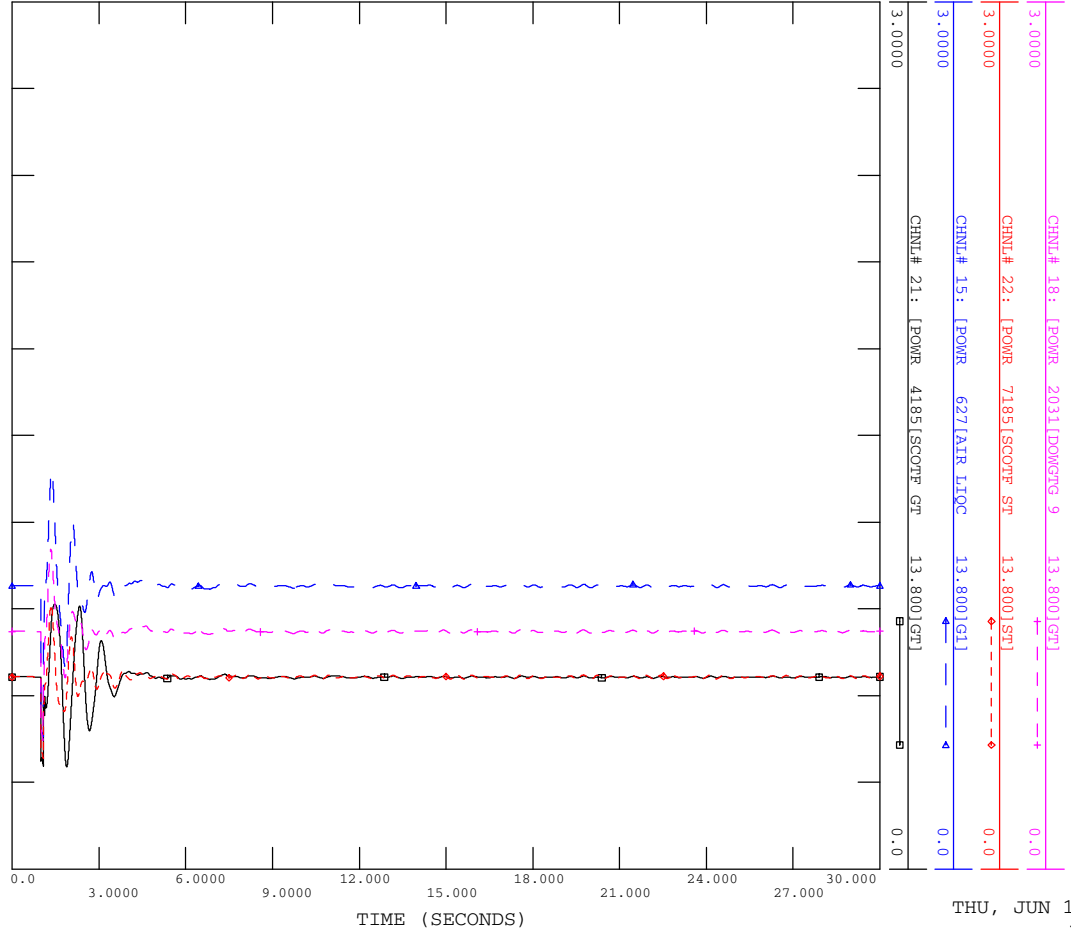
FILE: CON16.OUT





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

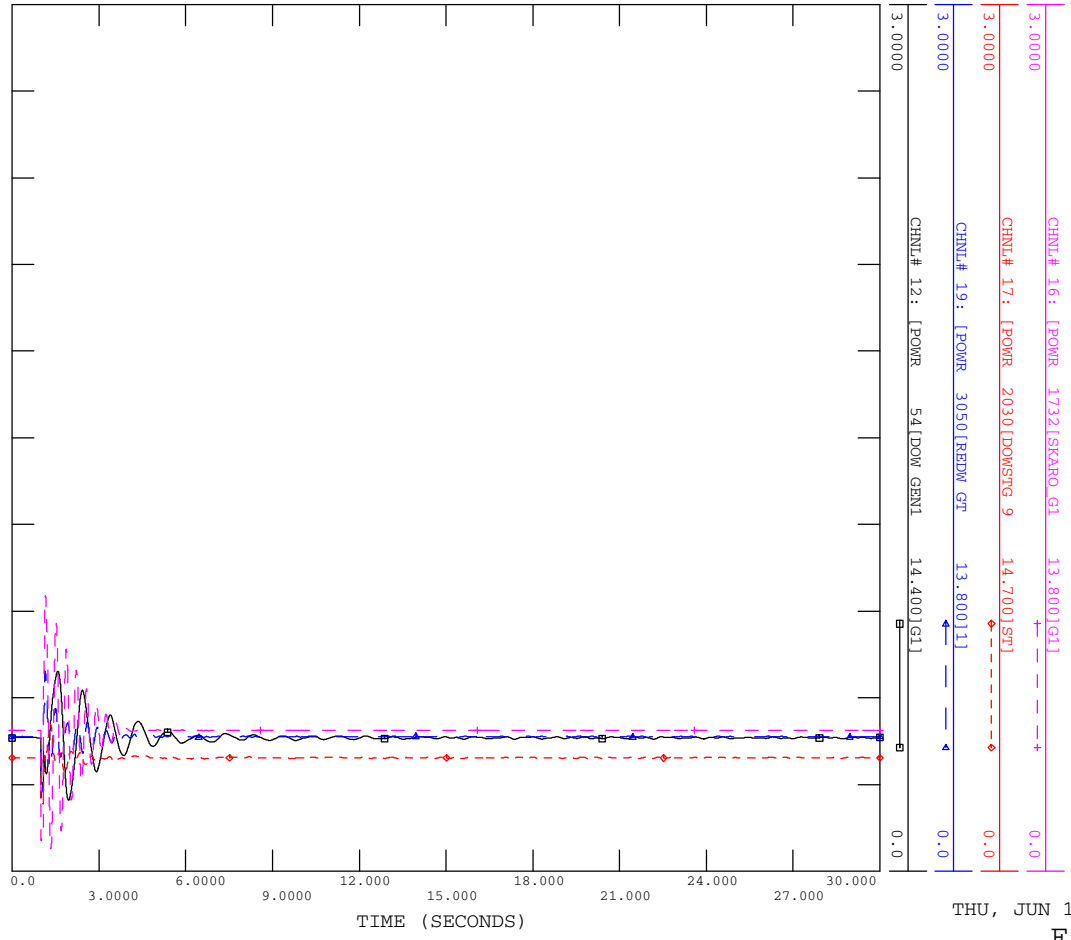


THU, JUN 19 2014 14:55  
 FIG E2-17



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

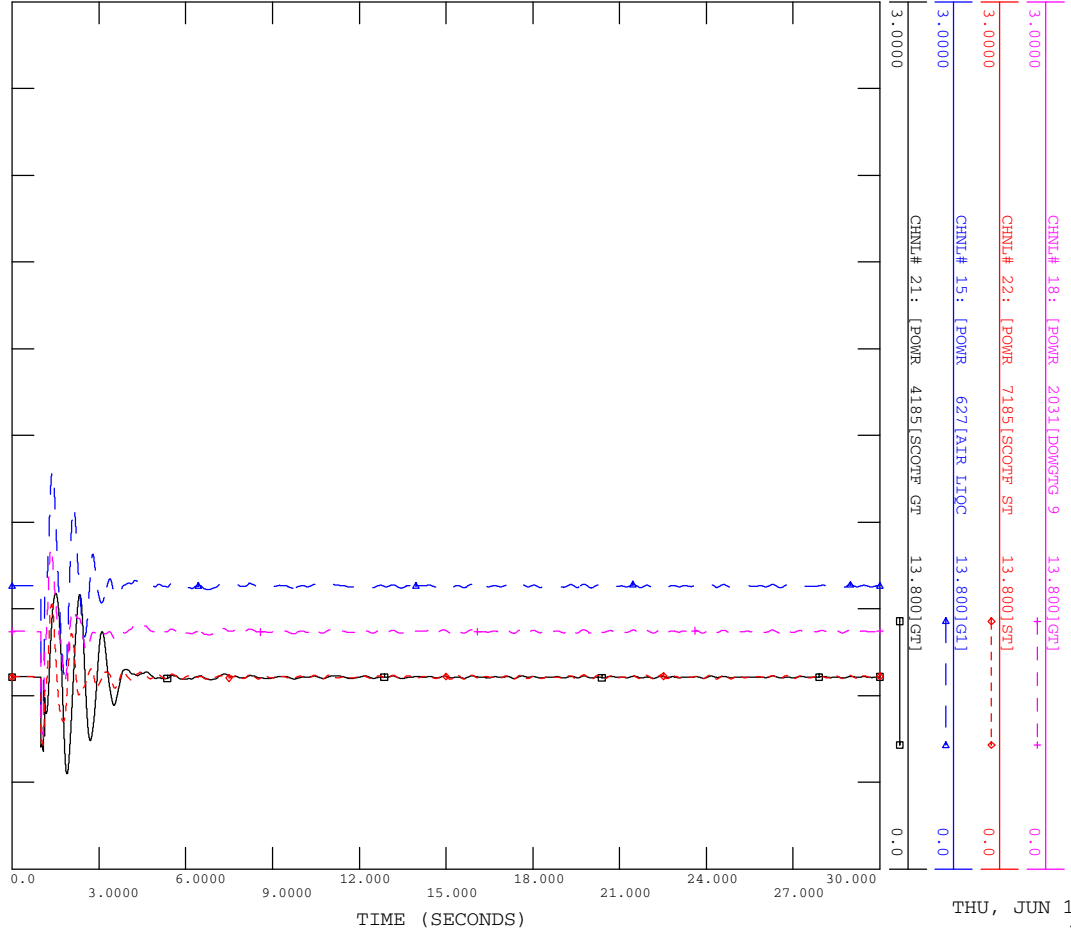


THU, JUN 19 2014 14:55  
 FIG E2-17A



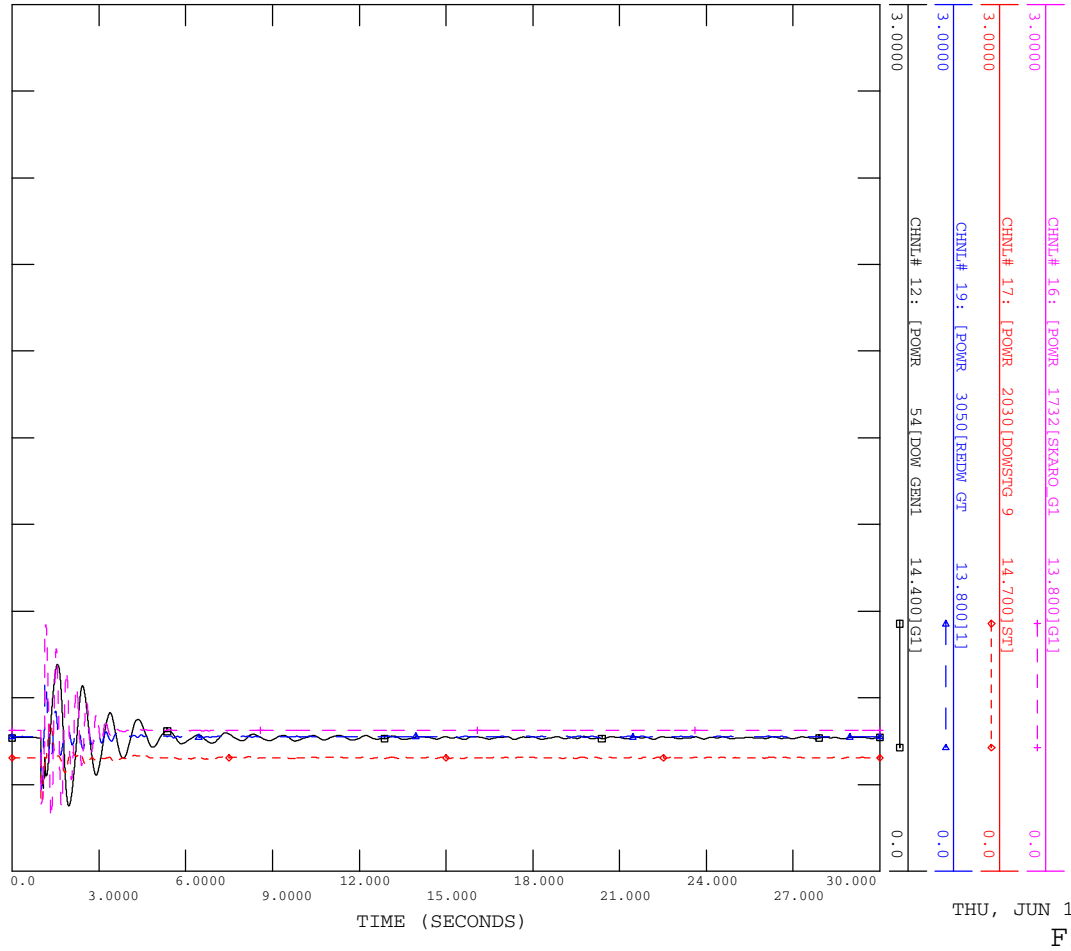
TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

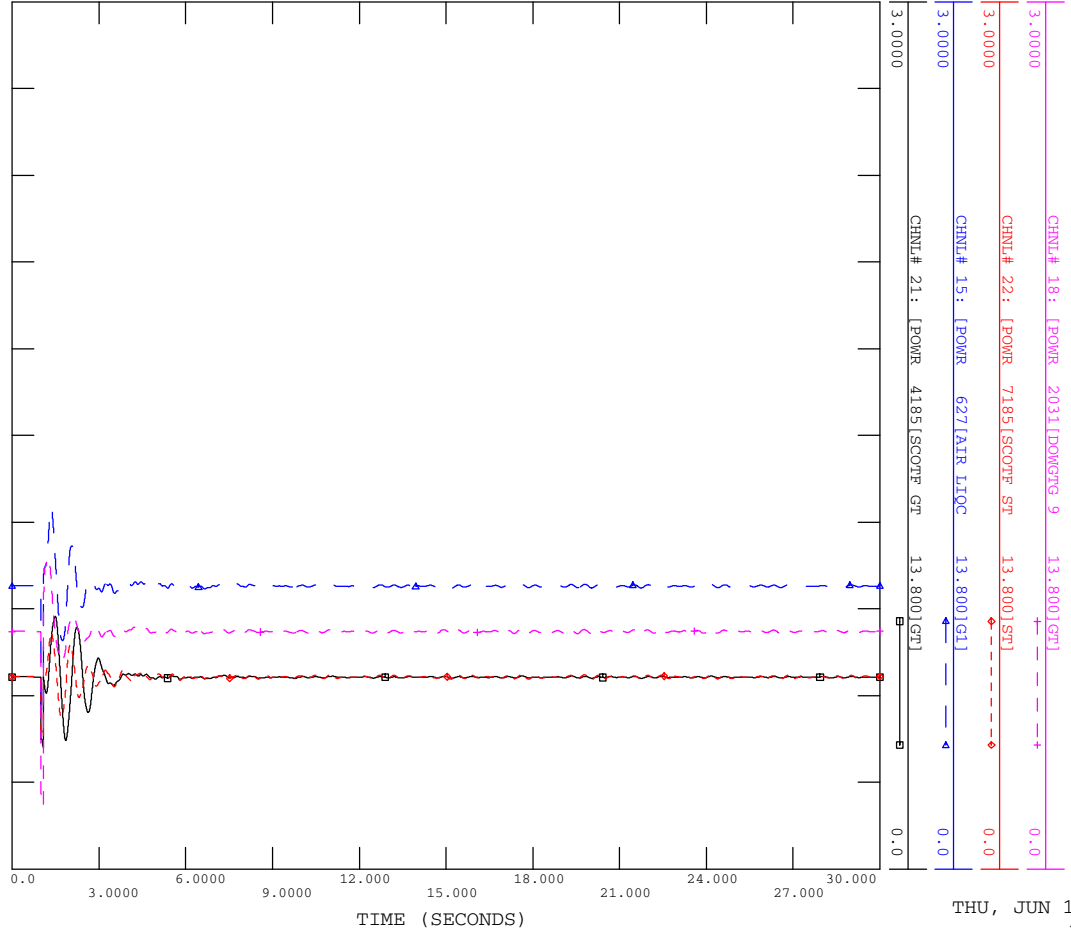






TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

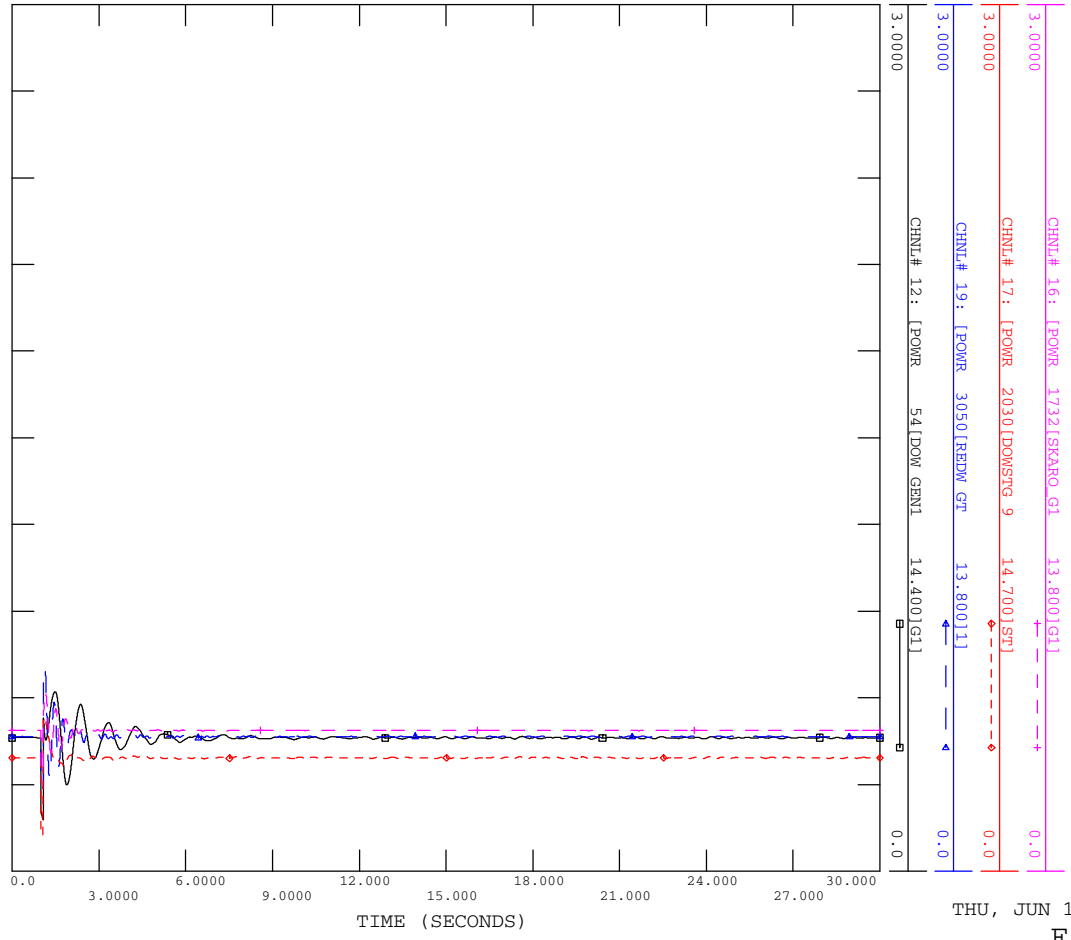


THU, JUN 19 2014 14:57  
FIG E2-19



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

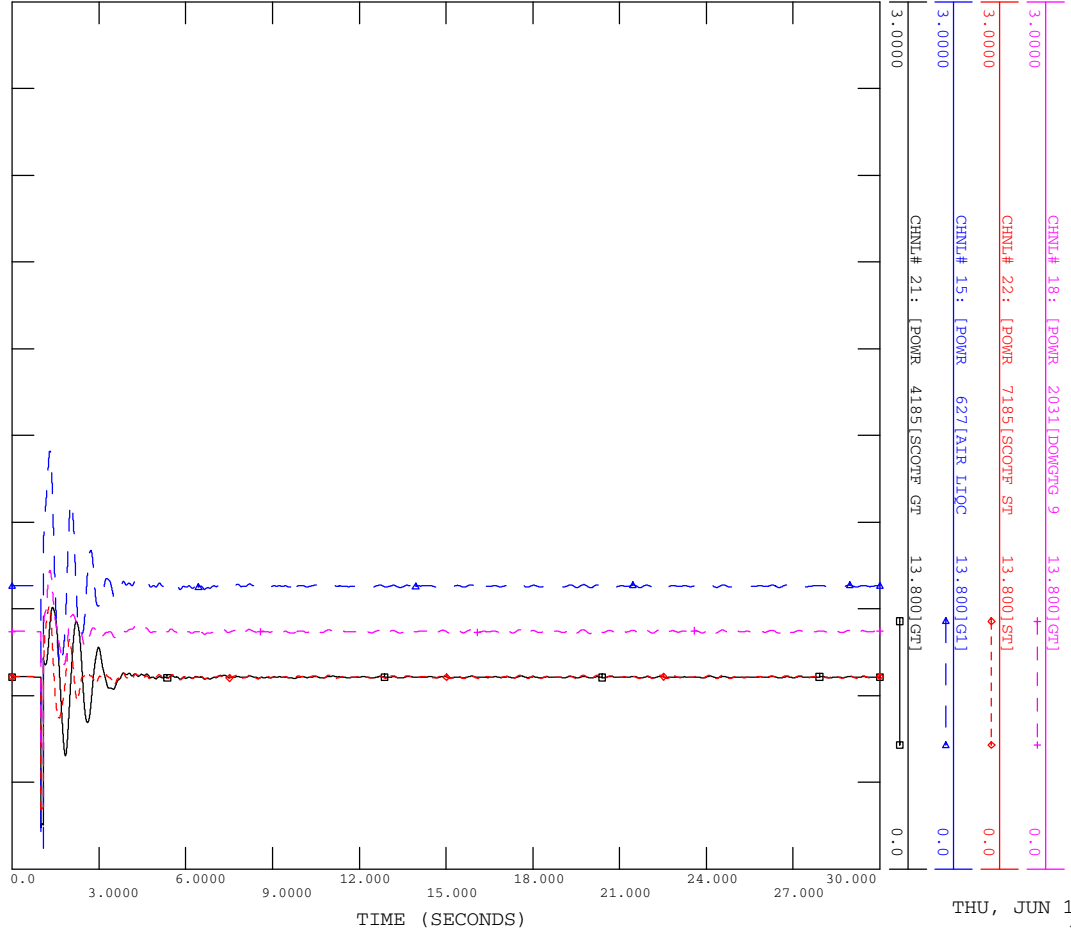


THU, JUN 19 2014 14:57  
FIG E2-19A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

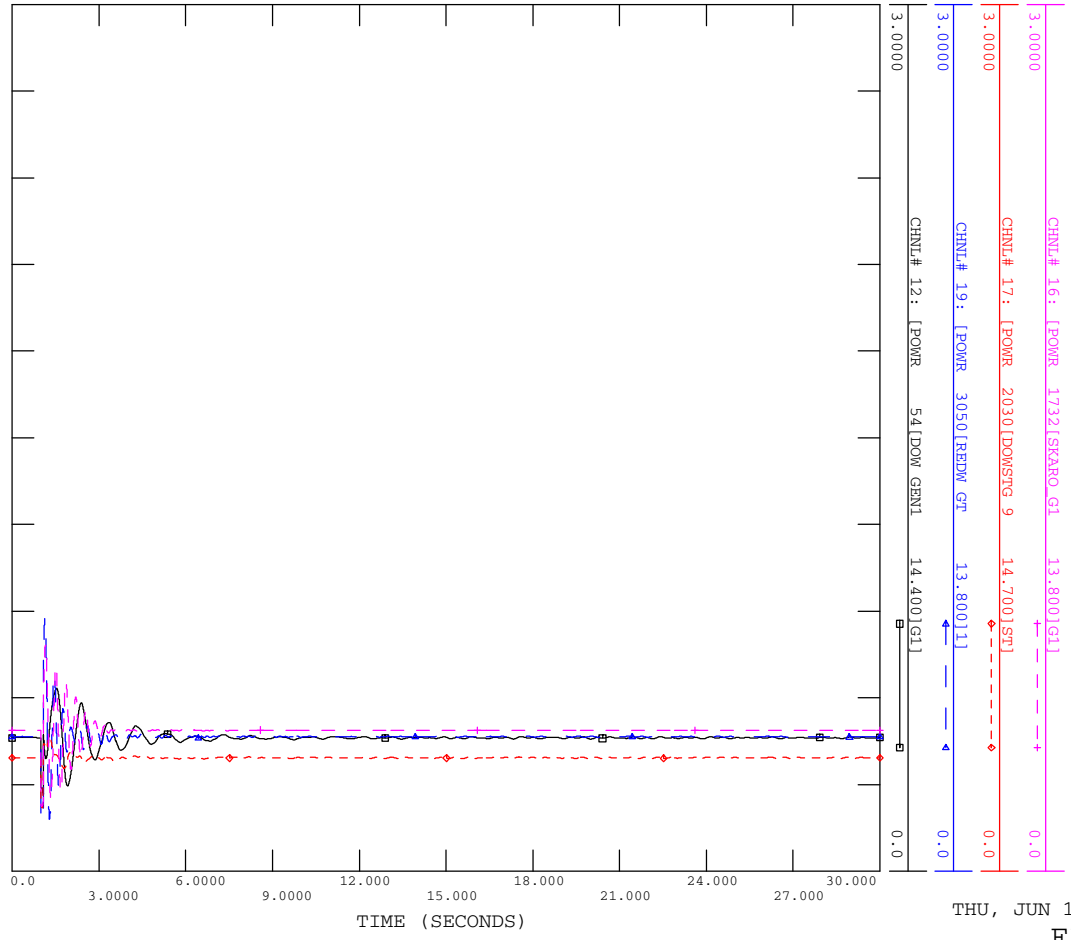


THU, JUN 19 2014 14:58  
FIG E2-20



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

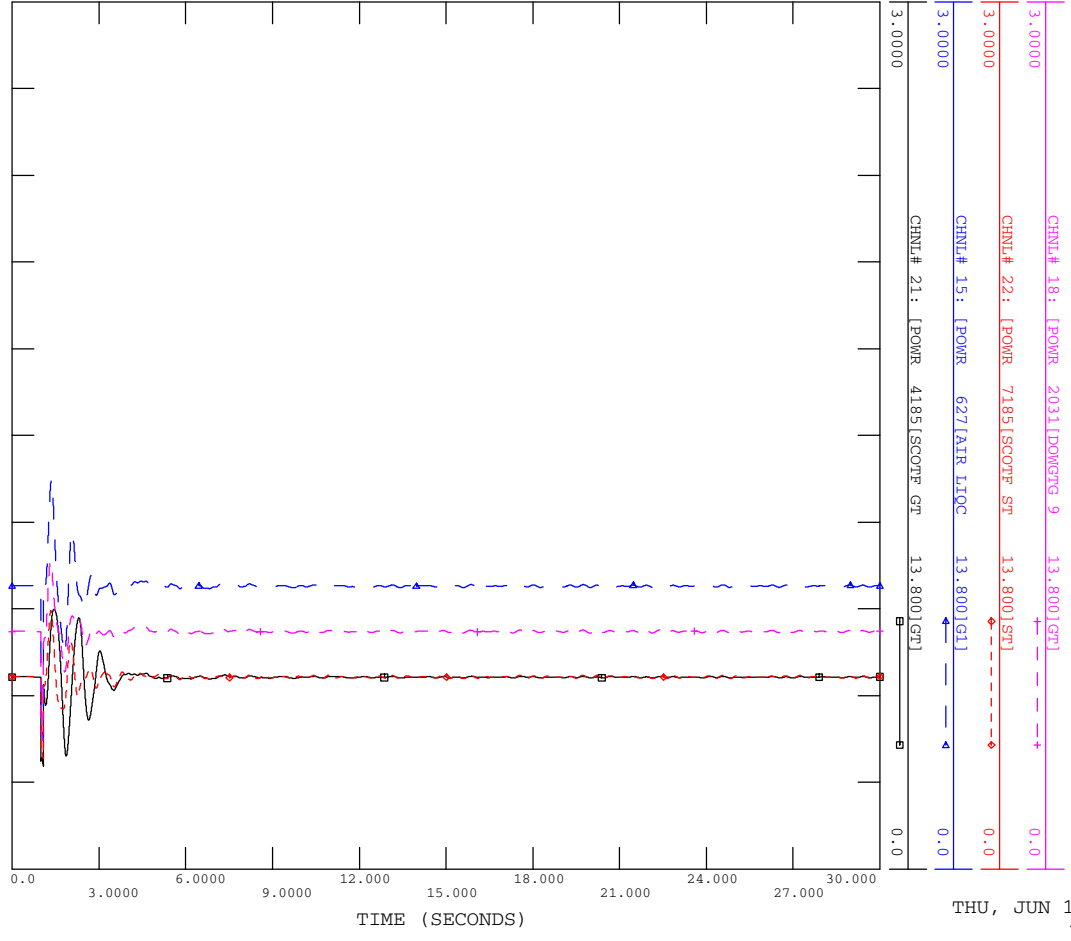


THU, JUN 19 2014 14:58  
FIG E2-20A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

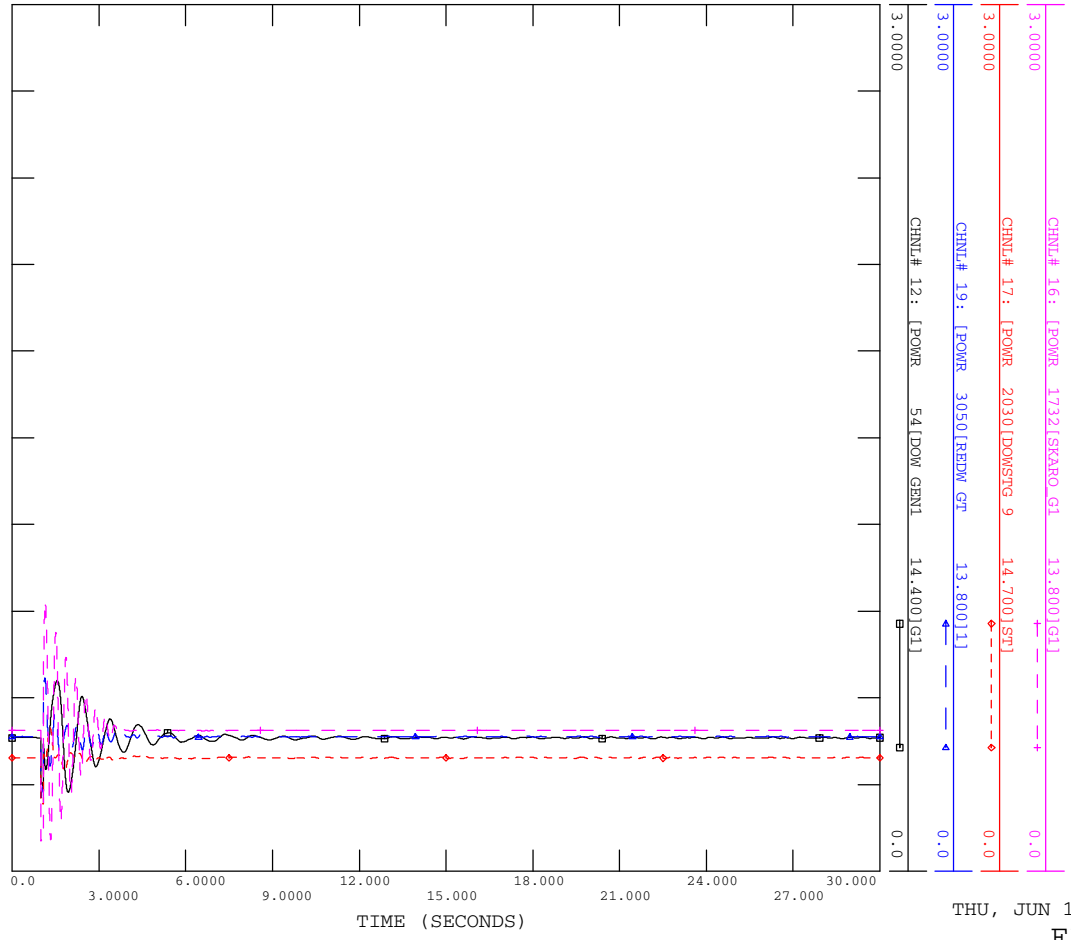


THU, JUN 19 2014 14:58  
FIG E2-21



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

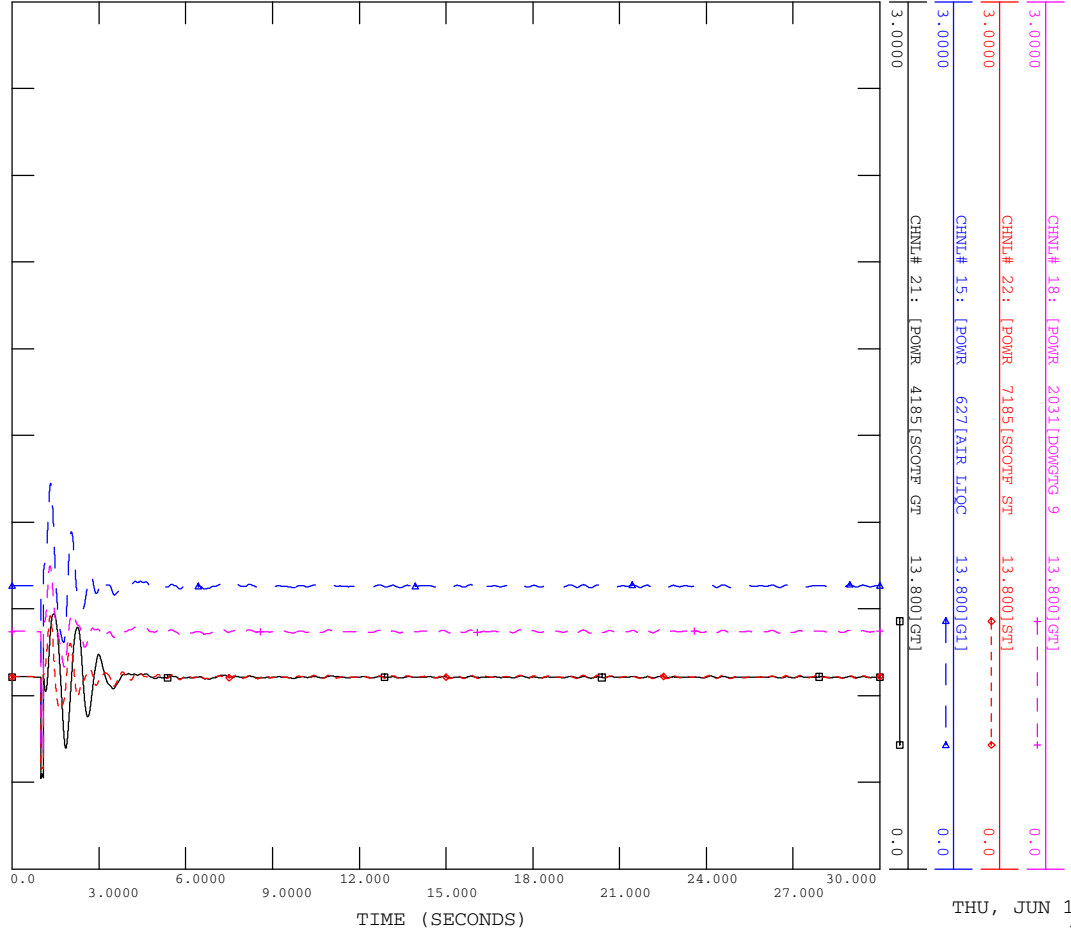


THU, JUN 19 2014 14:59  
FIG E2-21A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

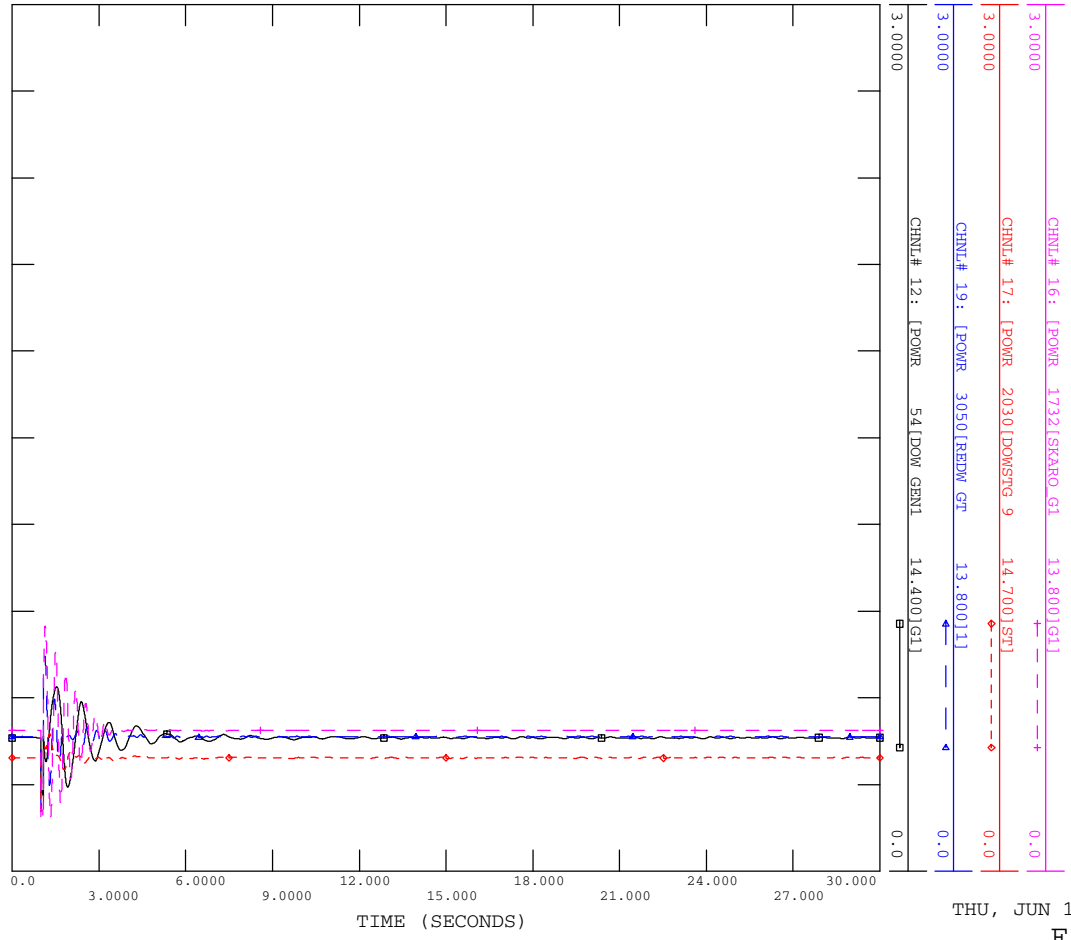


THU, JUN 19 2014 14:59  
 FIG E2-22



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

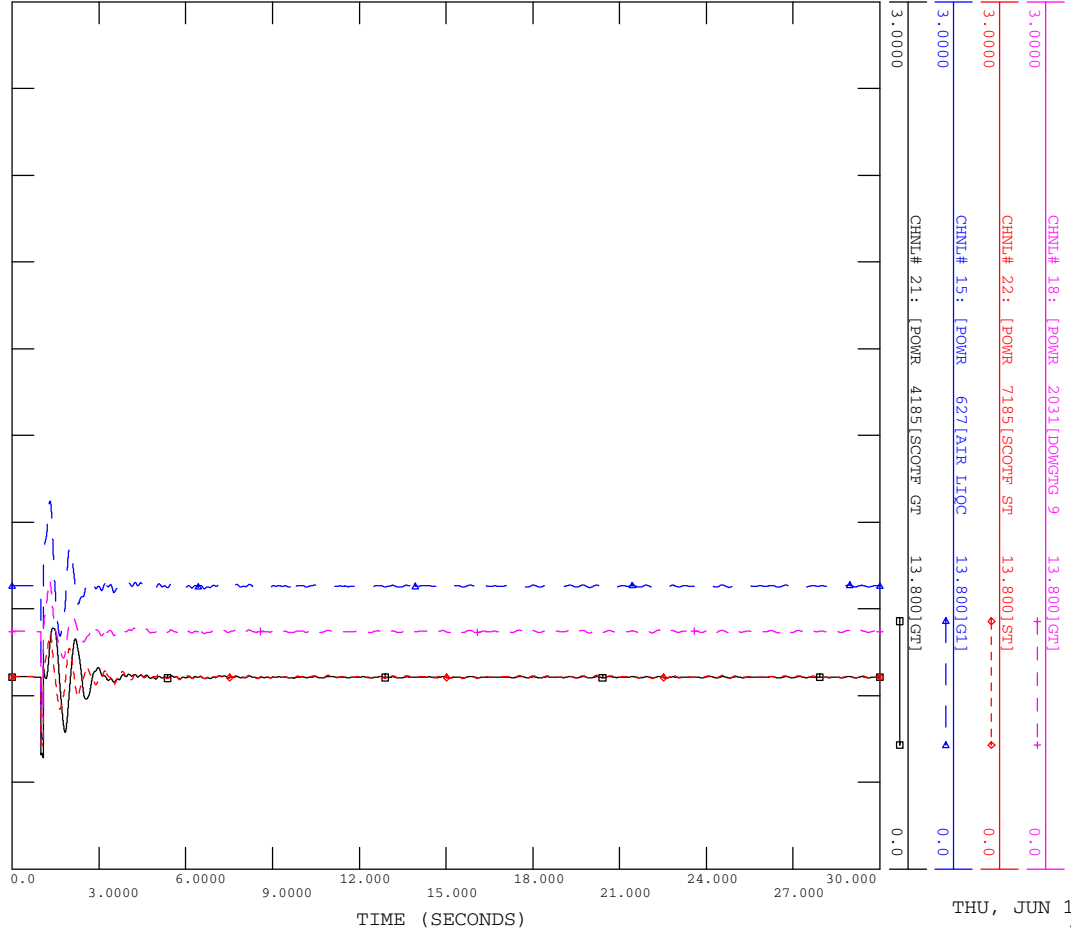


THU, JUN 19 2014 15:00  
 FIG E2-22A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

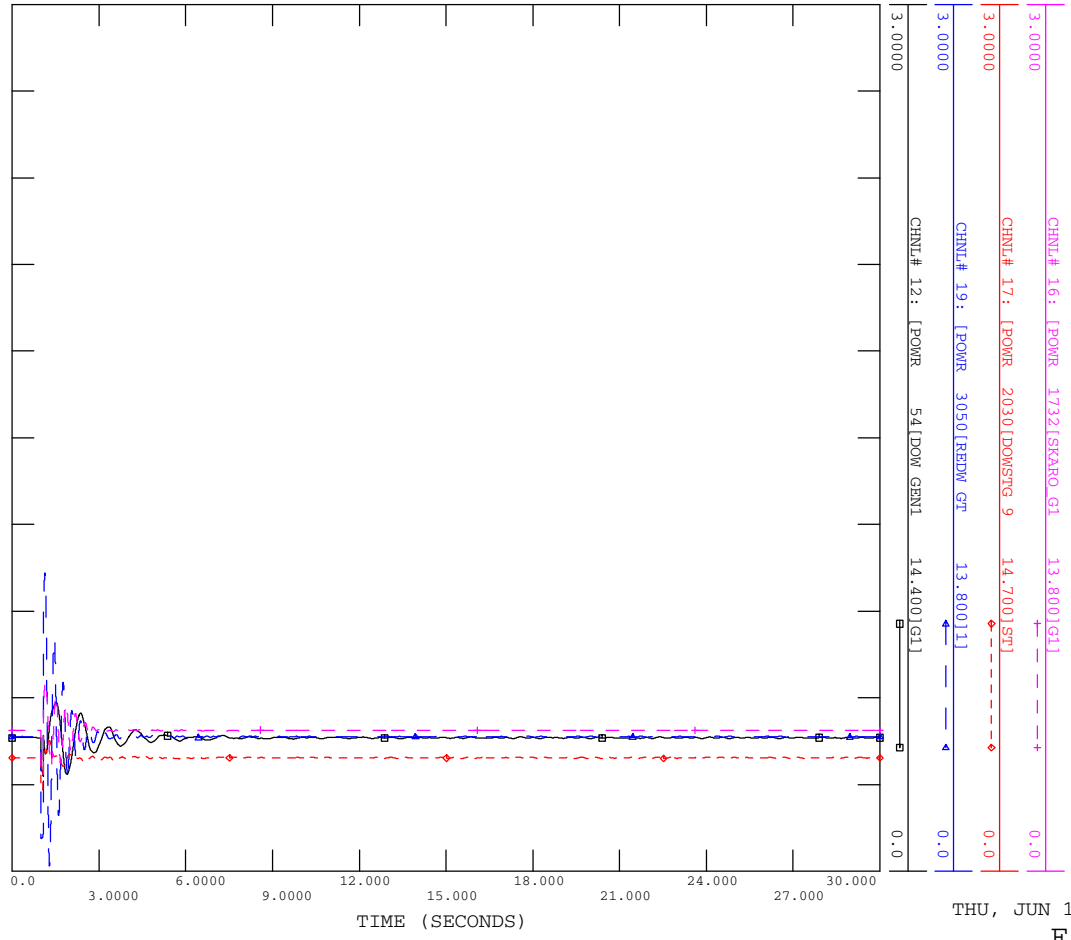


THU, JUN 19 2014 15:00  
FIG E2-23



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

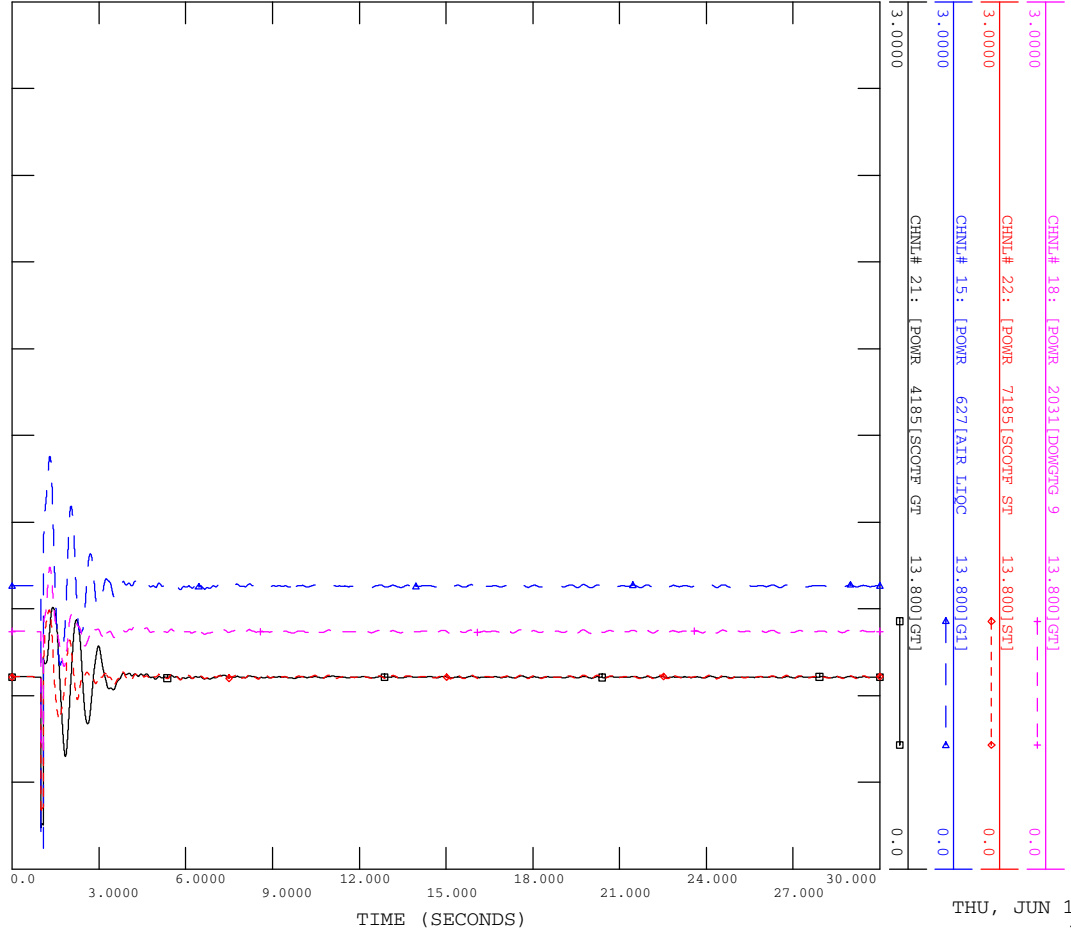


THU, JUN 19 2014 15:01  
FIG E2-23A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

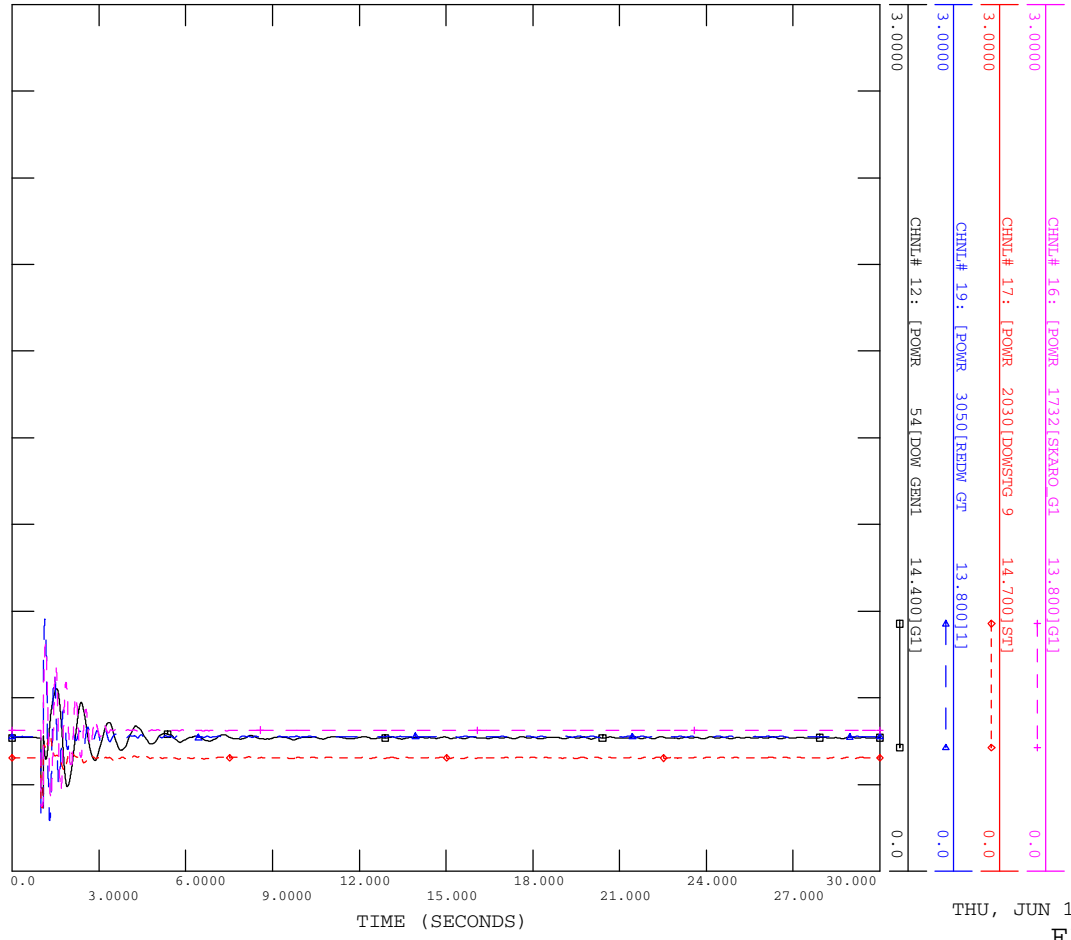


THU, JUN 19 2014 15:01  
FIG E2-24



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

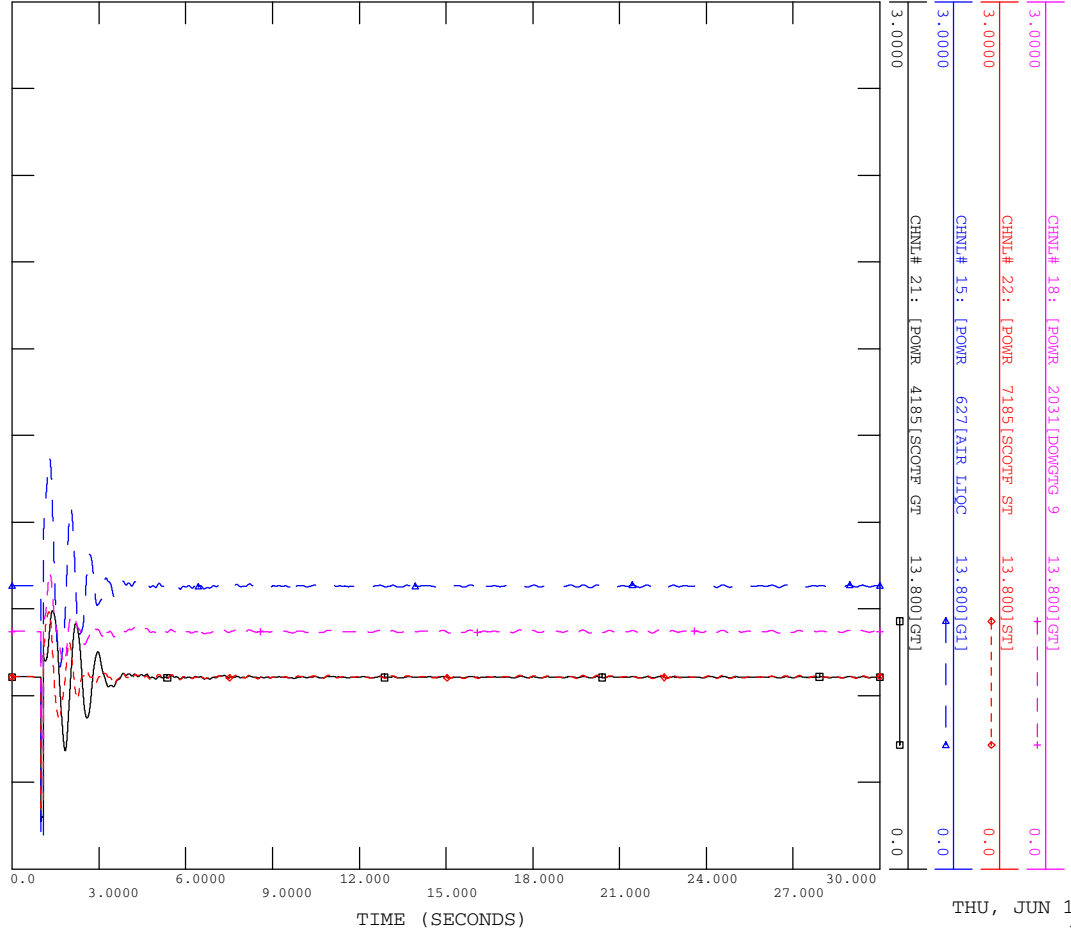


THU, JUN 19 2014 15:02  
FIG E2-24A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

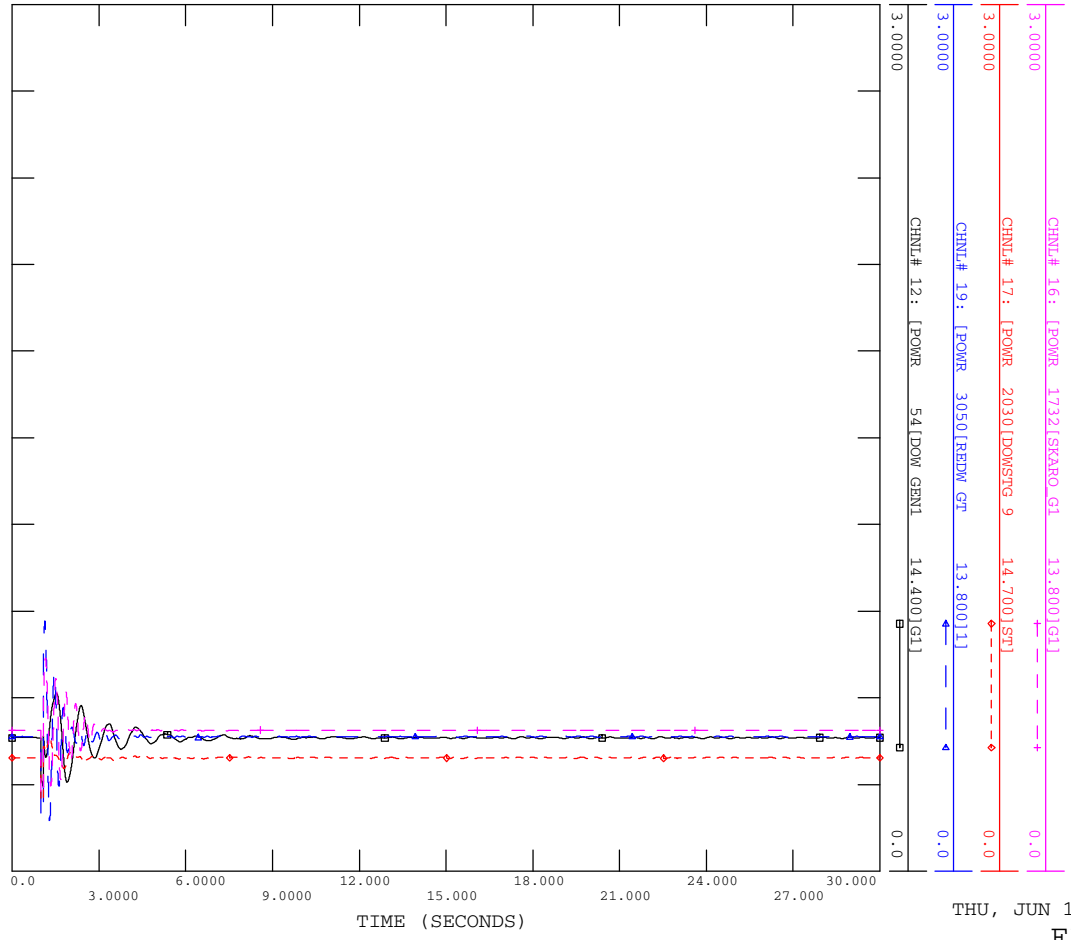


THU, JUN 19 2014 15:02  
 FIG E2-25



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

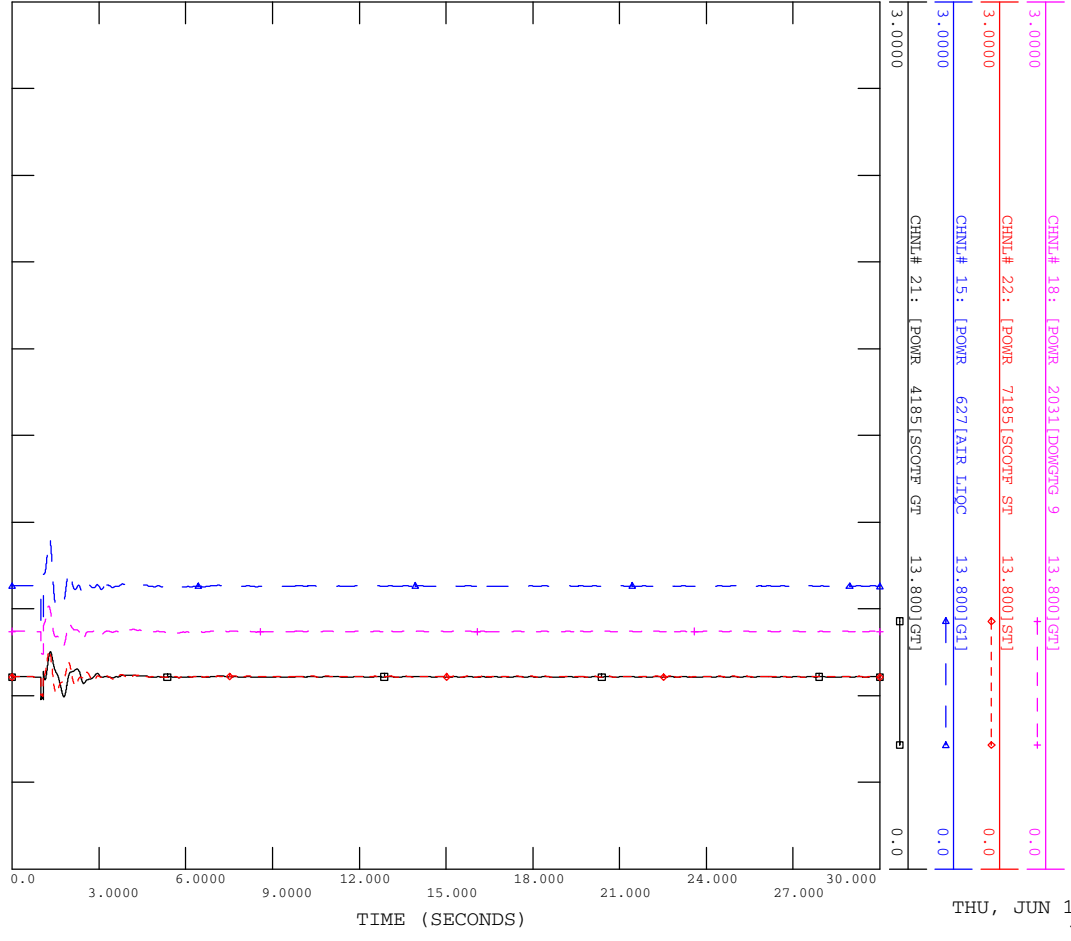


THU, JUN 19 2014 15:02  
 FIG E2-25A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT

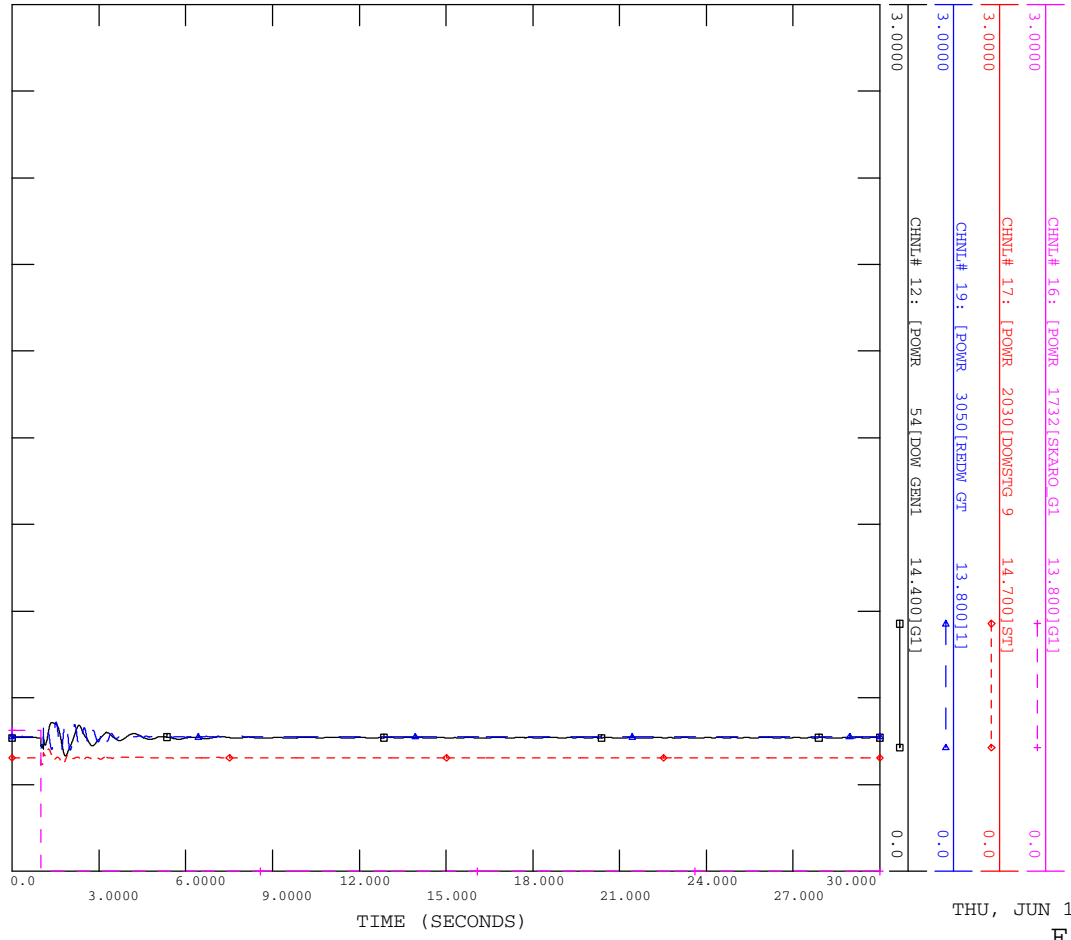


THU, JUN 19 2014 15:03  
 FIG E2-26



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT



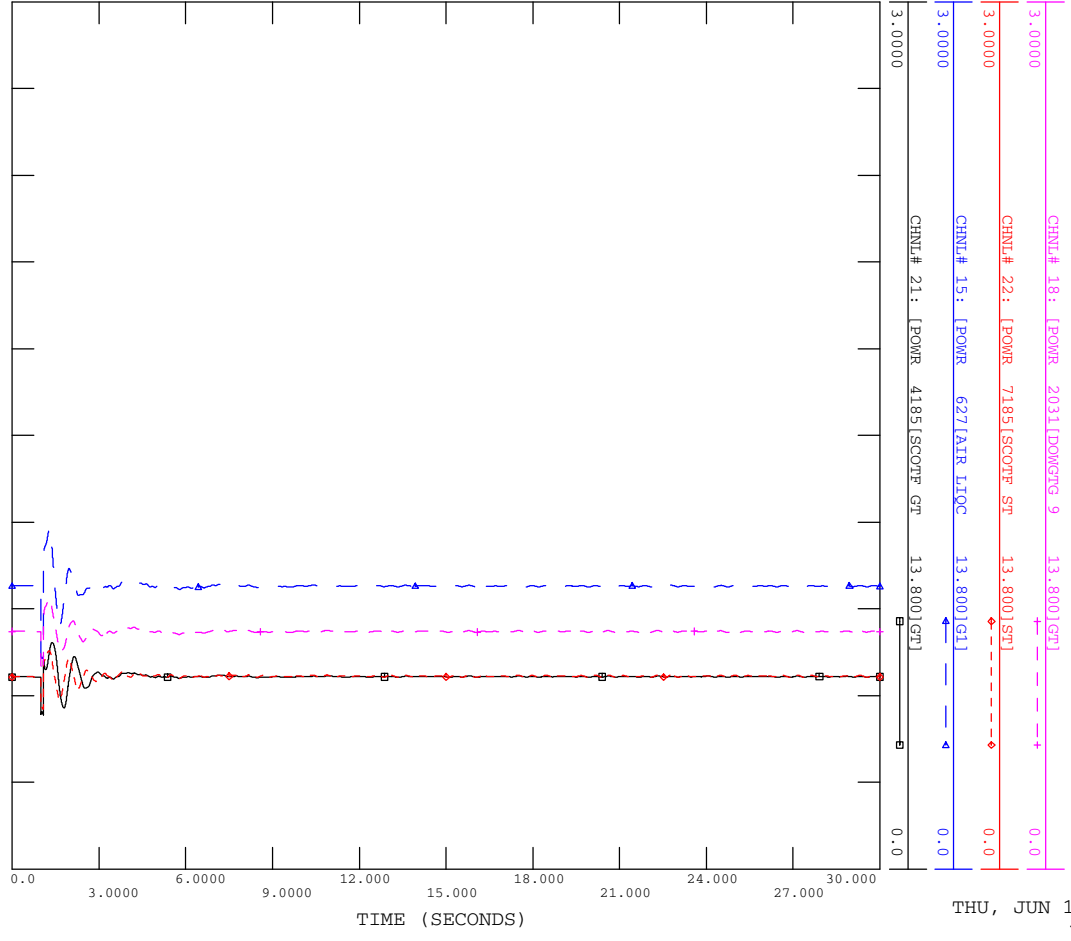
THU, JUN 19 2014 15:03  
 FIG E2-26A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

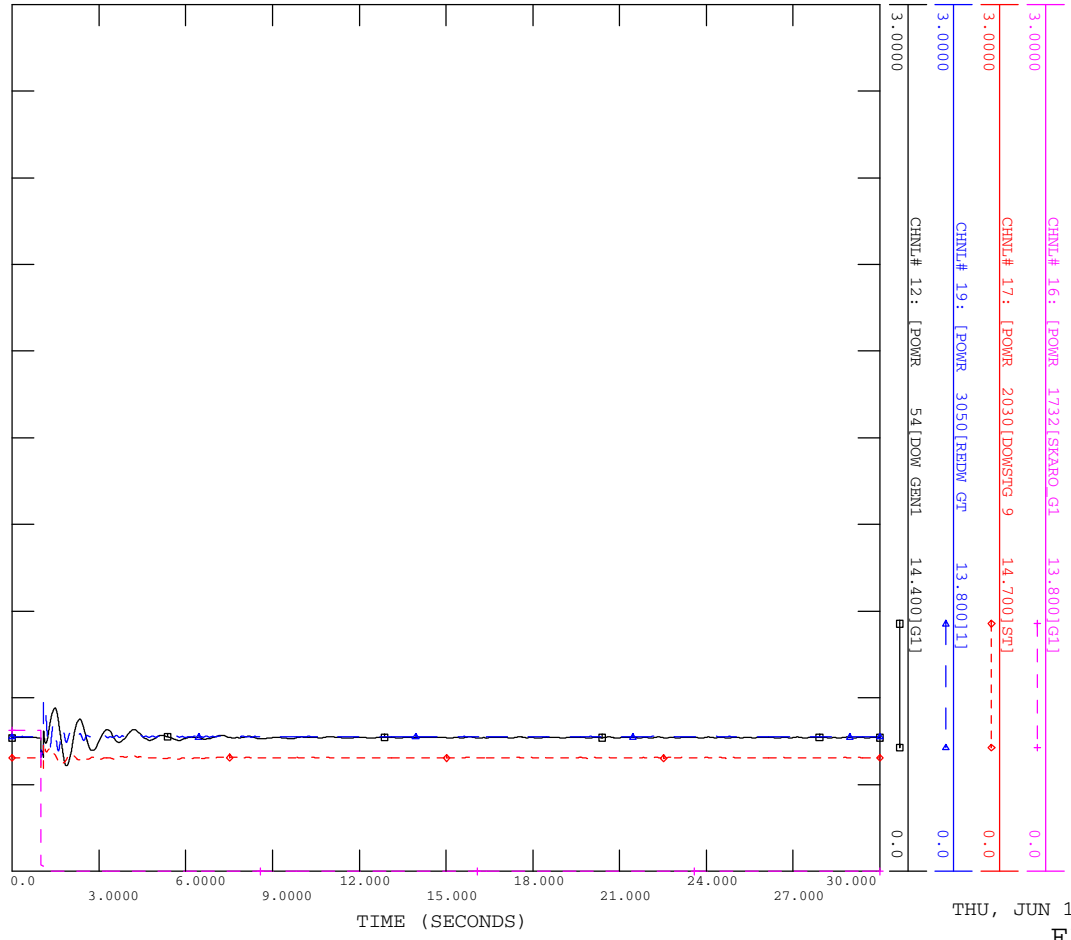


THU, JUN 19 2014 15:03  
 FIG E2-27



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

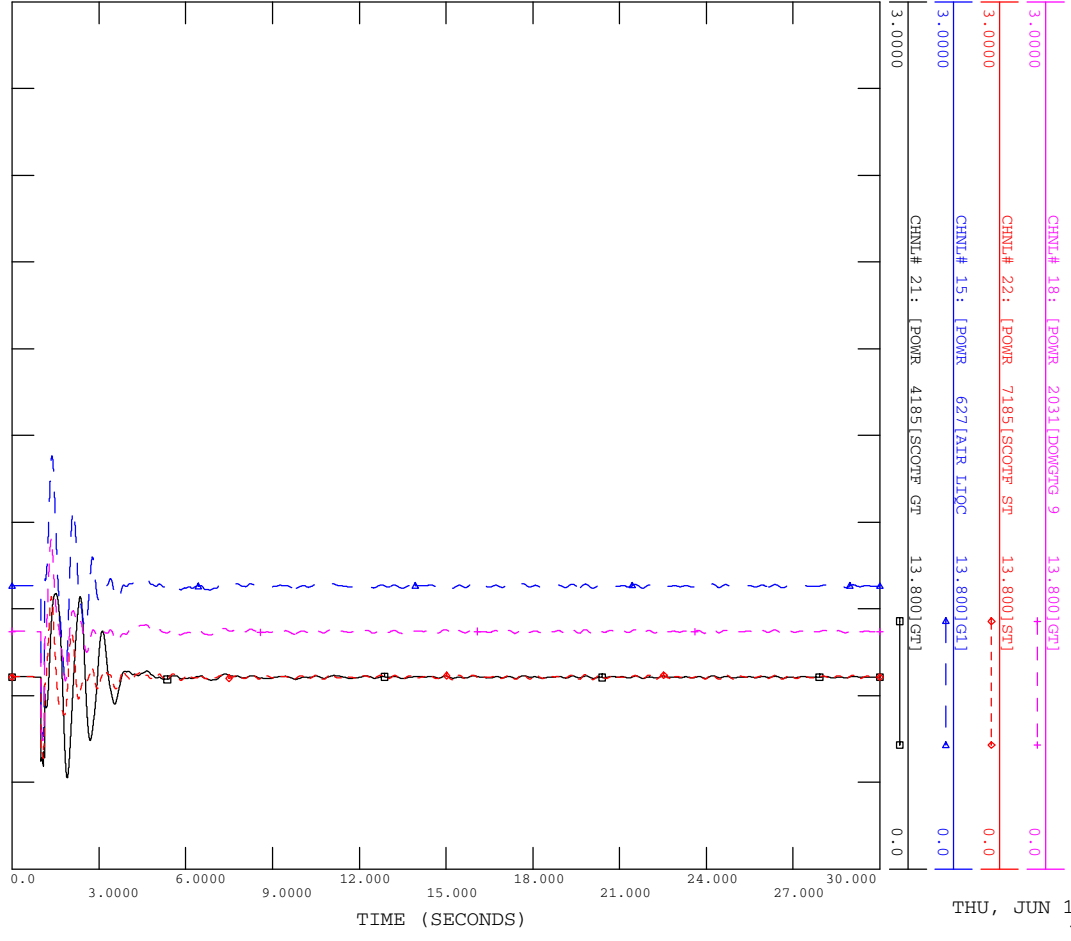


THU, JUN 19 2014 15:03  
 FIG E2-27A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:18:32--1-0-0-0  
CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT

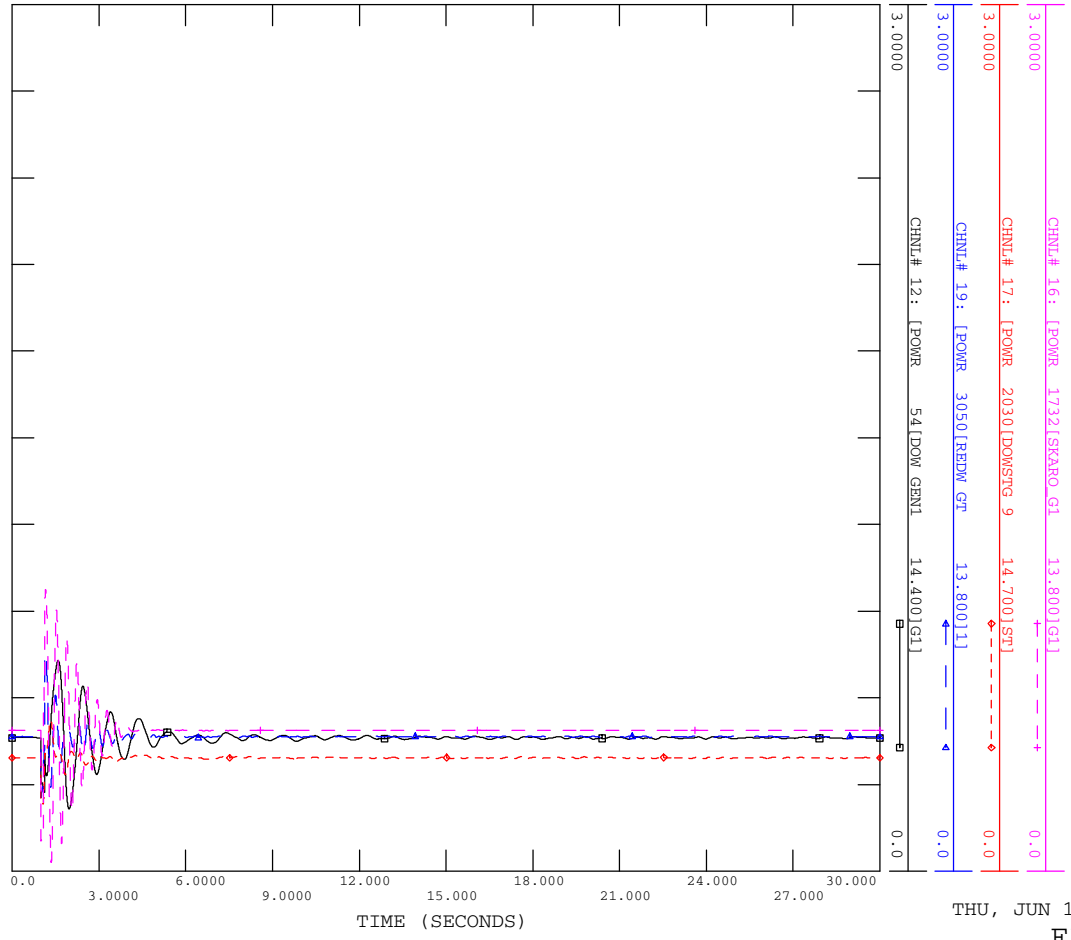


THU, JUN 19 2014 15:04  
FIG E2-28



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:18:32--1-0-0-0  
CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT



THU, JUN 19 2014 15:04  
FIG E2-28A

## **Attachment E-3**

### **Scenario 4**

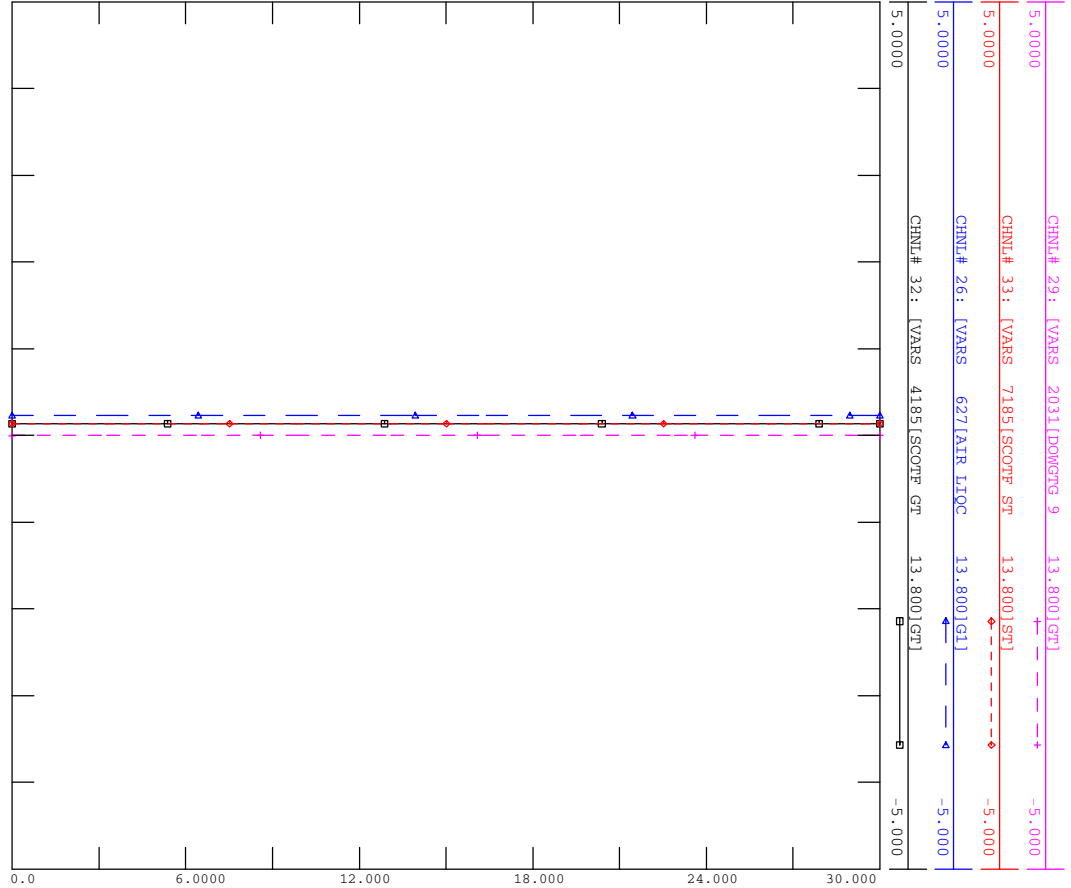
### **Transient Stability Plots**

### **Machine Reactive Power**



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP A - FLAT START

FILE: CON0.OUT

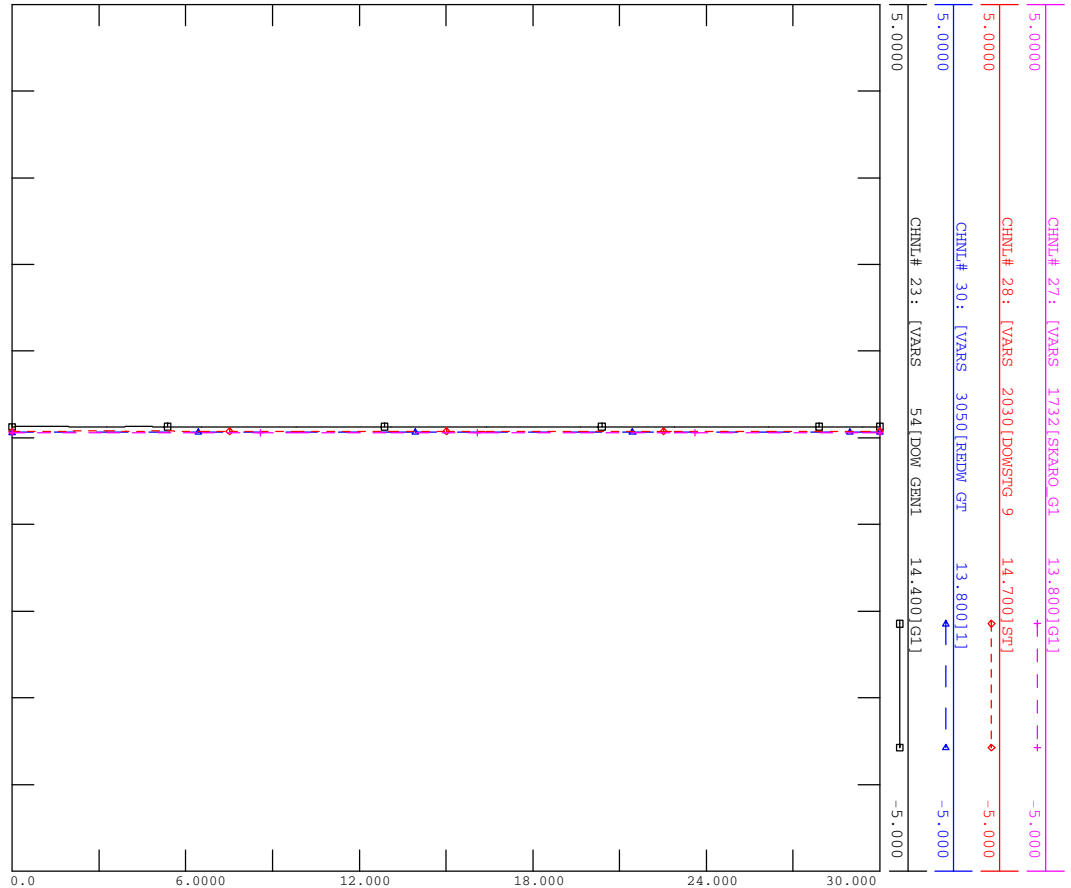


THU, JUN 19 2014 14:41  
FIG E3-1



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP A - FLAT START

FILE: CON0.OUT

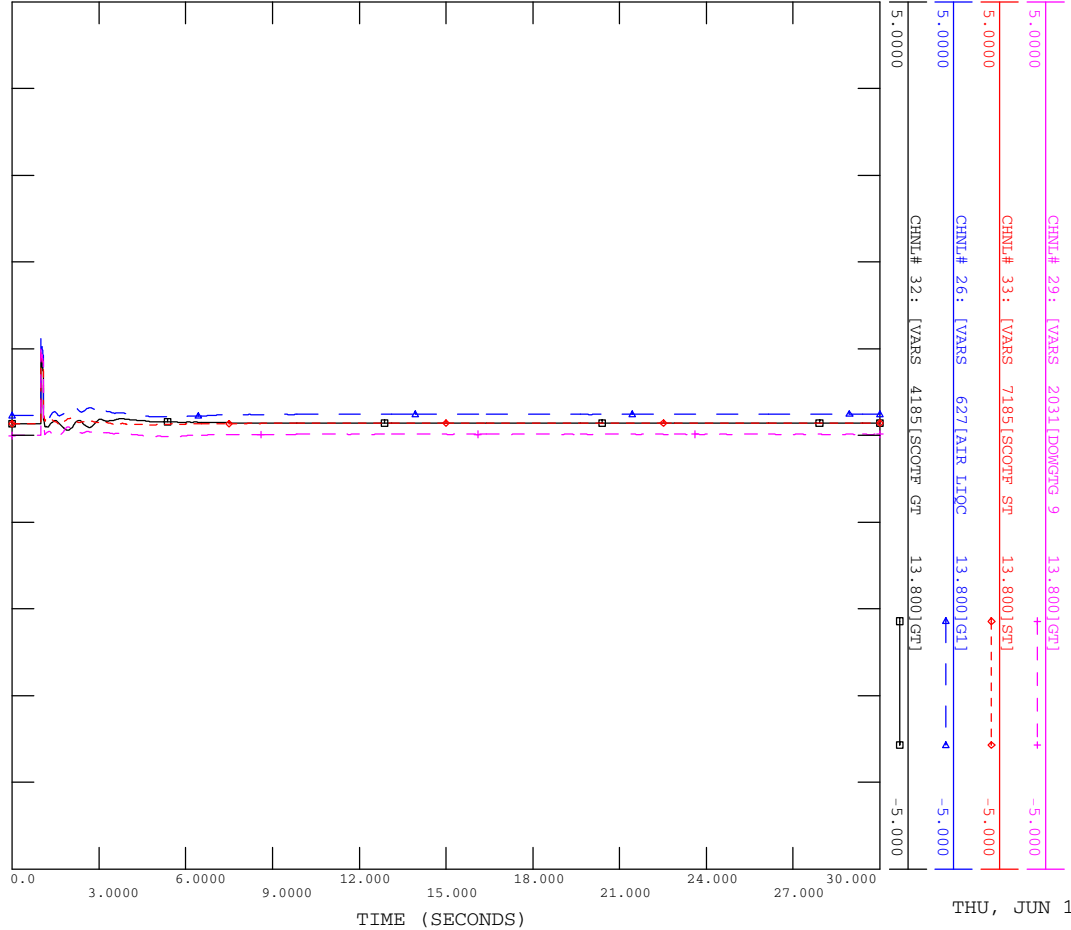


THU, JUN 19 2014 14:41  
FIG E3-1A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTPU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

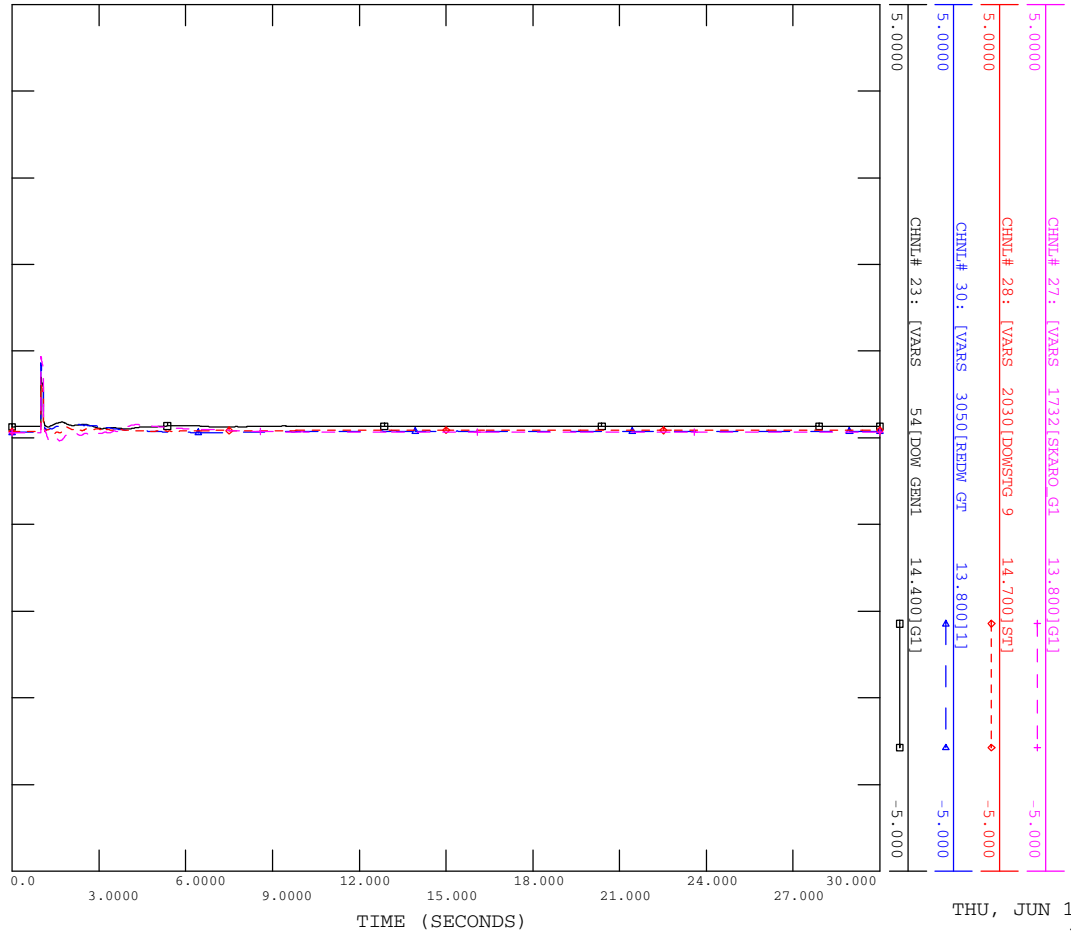


THU, JUN 19 2014 14:41  
FIG E3-2



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTPU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

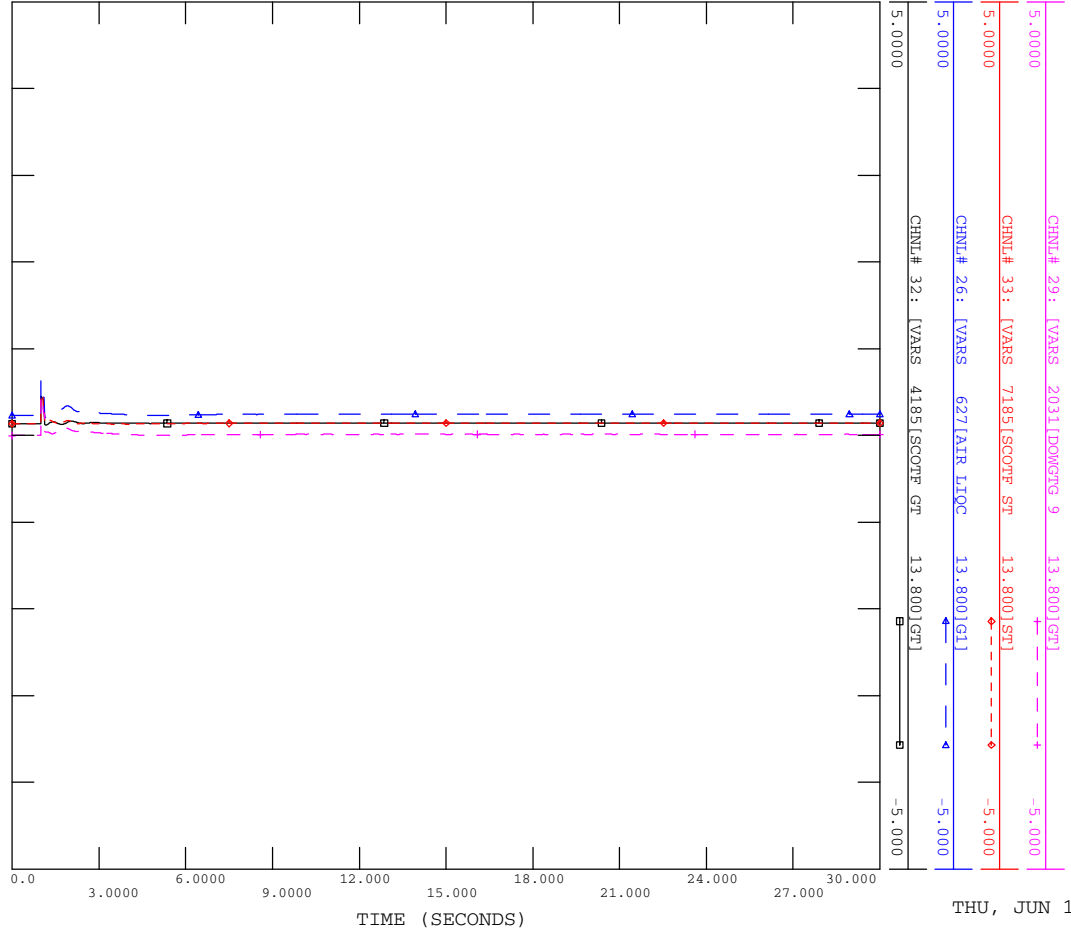


THU, JUN 19 2014 14:42  
FIG E3-2A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

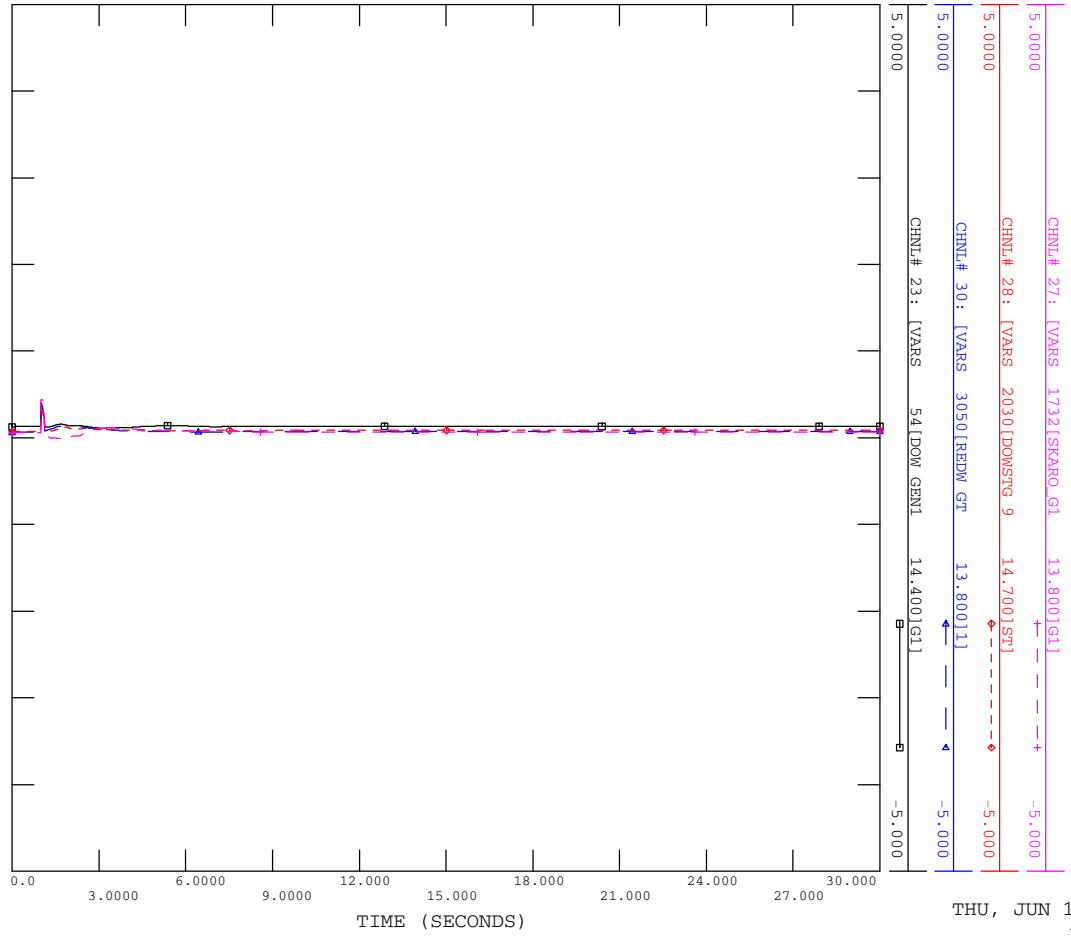


THU, JUN 19 2014 14:42  
FIG E3-3



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

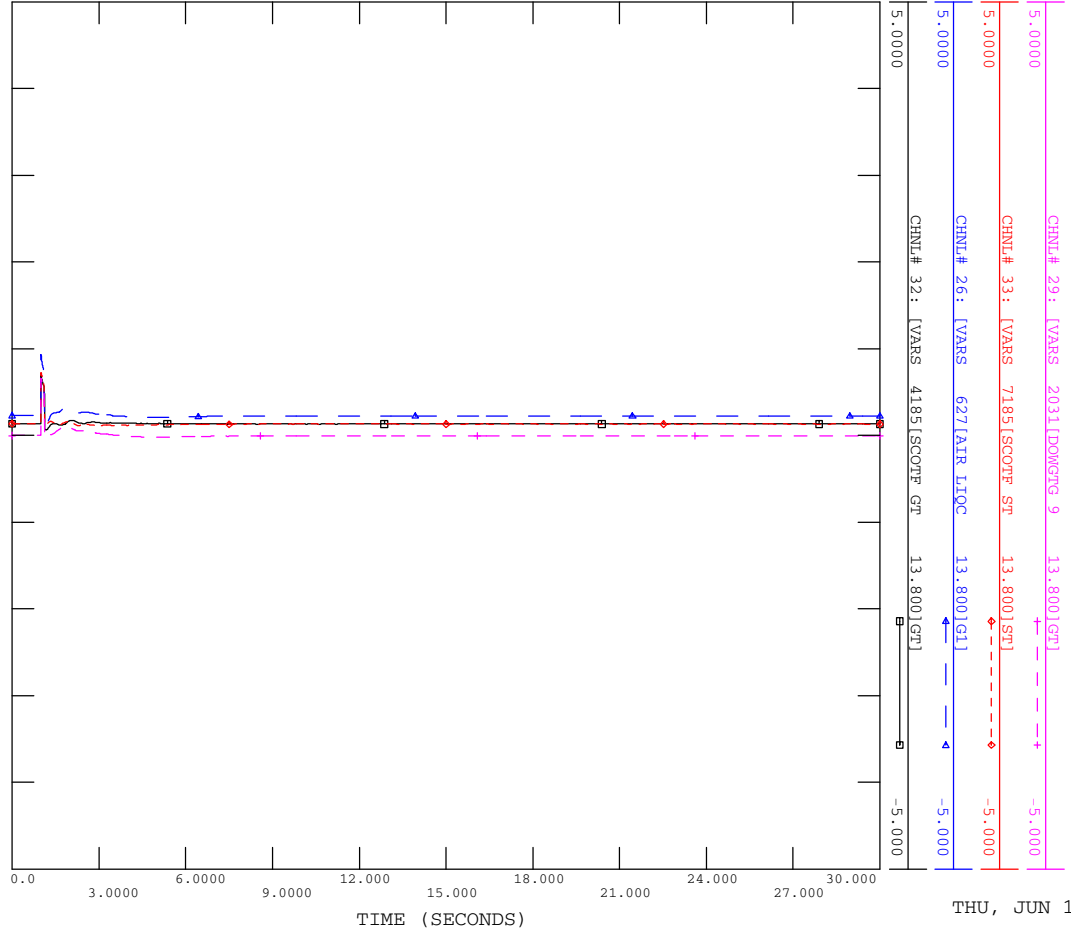


THU, JUN 19 2014 14:43  
FIG E3-3A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 735L 3PH FAULT AT 1715

FILE: CON3.OUT

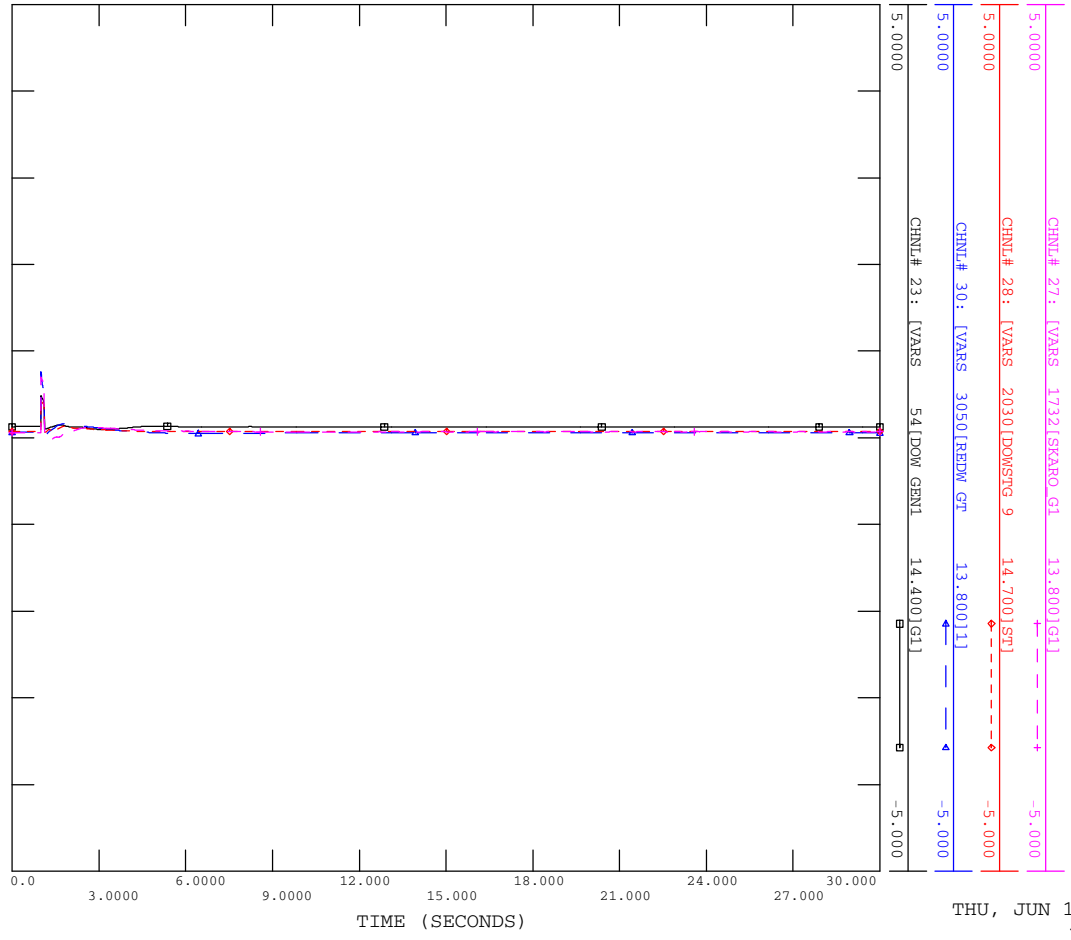


THU, JUN 19 2014 14:43  
FIG E3-4



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 735L 3PH FAULT AT 1715

FILE: CON3.OUT

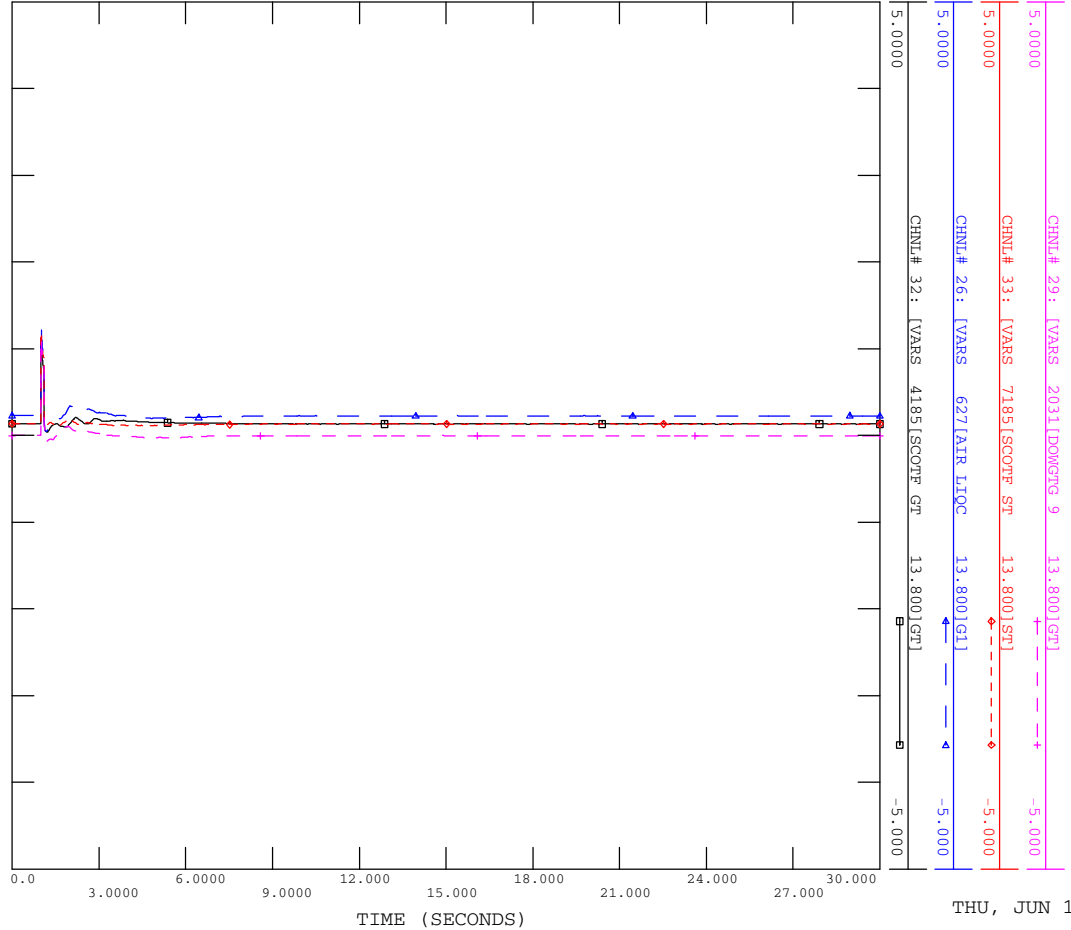


THU, JUN 19 2014 14:44  
FIG E3-4A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

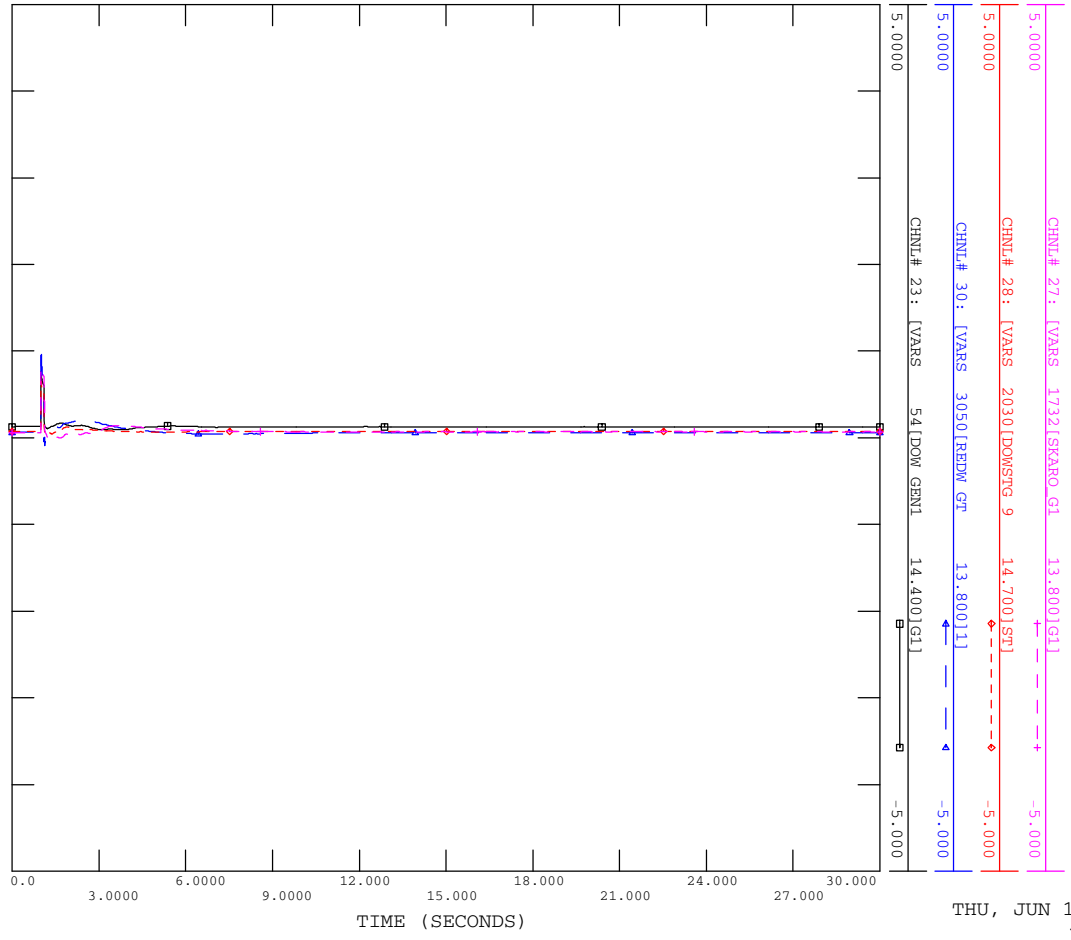


THU, JUN 19 2014 14:44  
FIG E3-5



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT



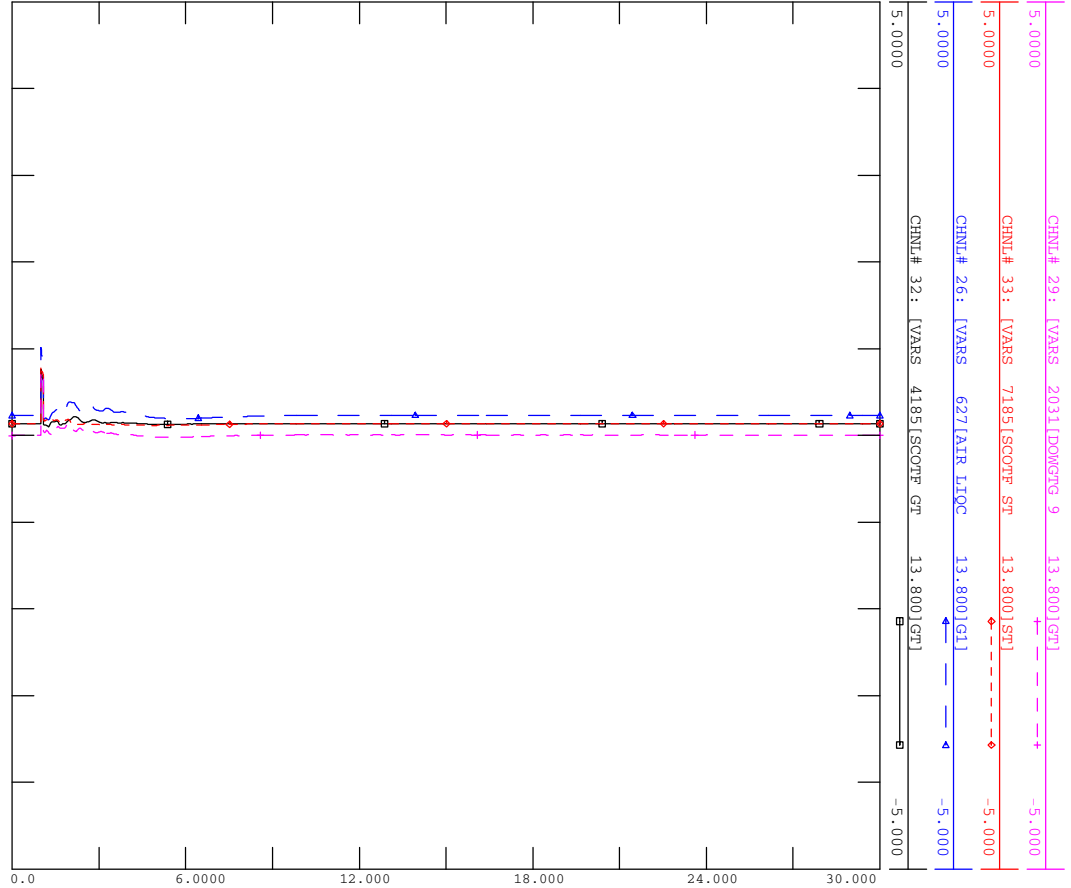
THU, JUN 19 2014 14:45  
FIG E3-5A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT



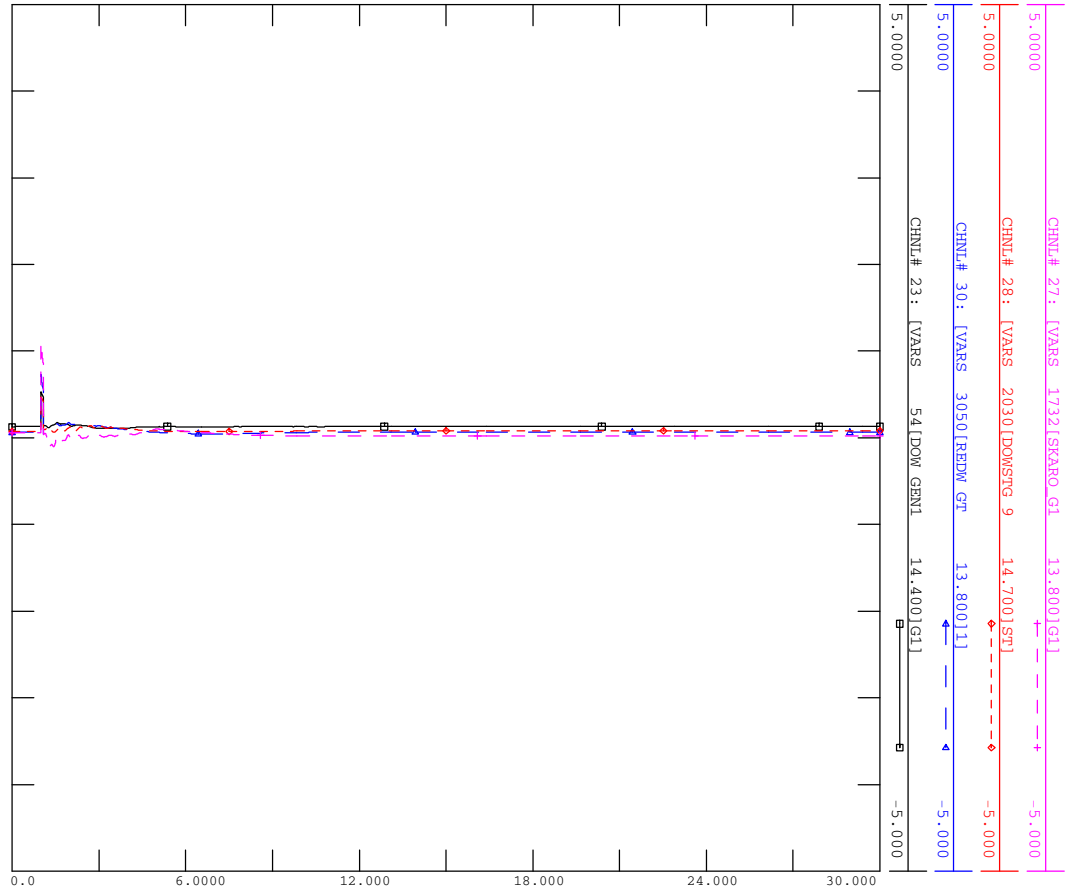
THU, JUN 19 2014 14:45

FIG E3-6



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT



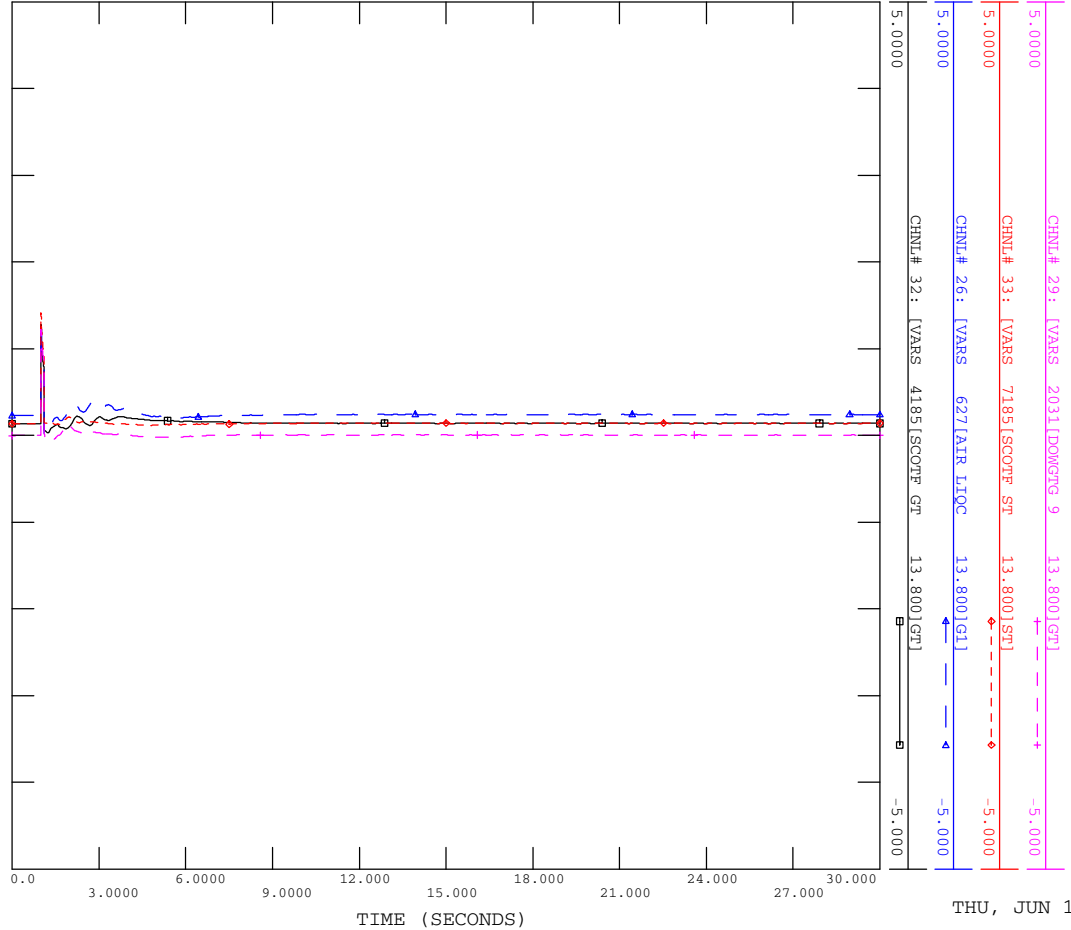
THU, JUN 19 2014 14:45

FIG E3-6A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 410S

FILE: CON7.OUT

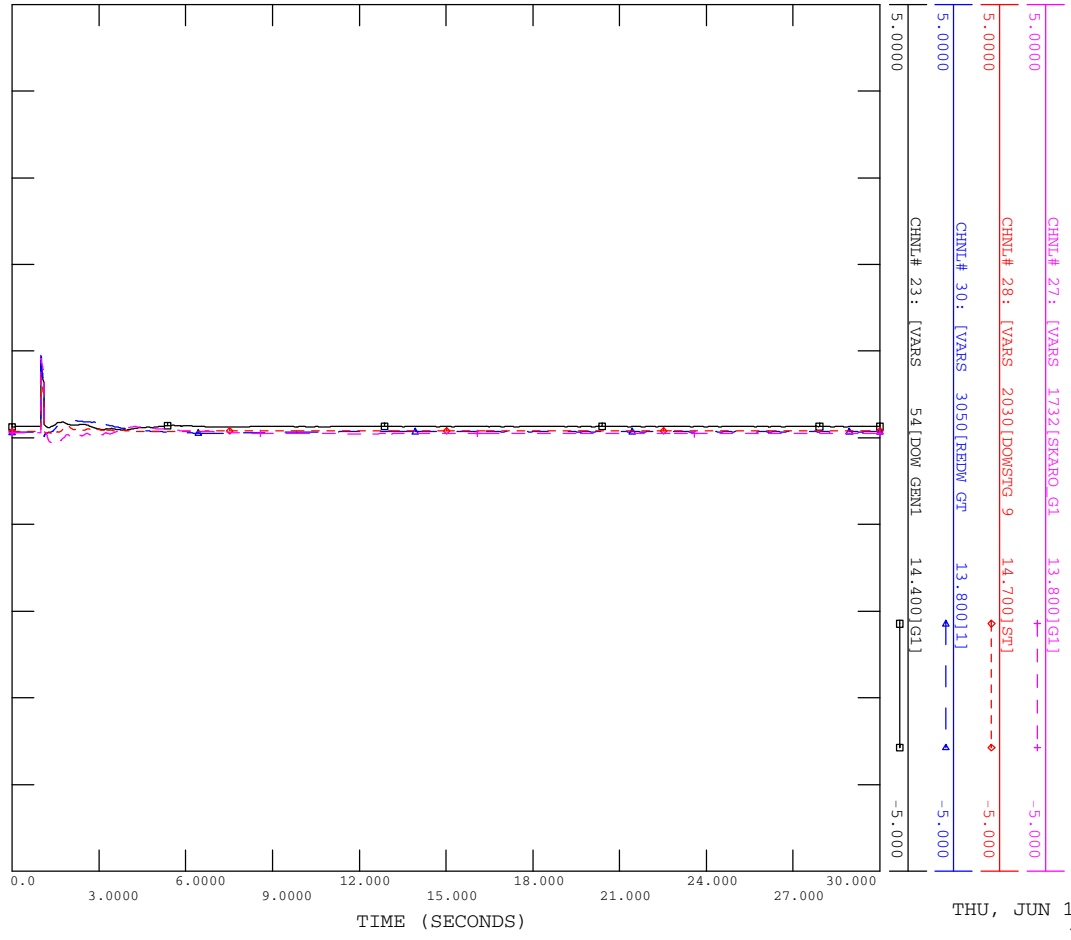


THU, JUN 19 2014 14:46  
FIG E3-7



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 410S

FILE: CON7.OUT

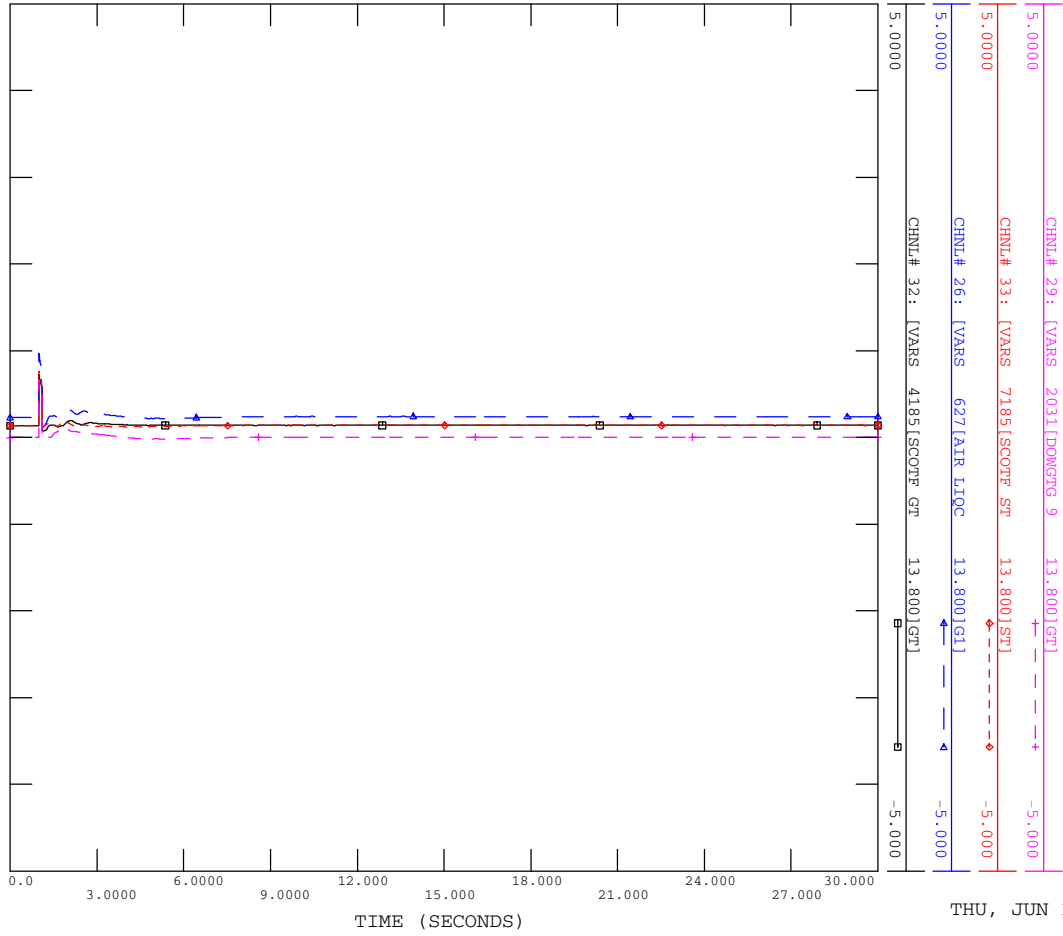


THU, JUN 19 2014 14:46  
FIG E3-7A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

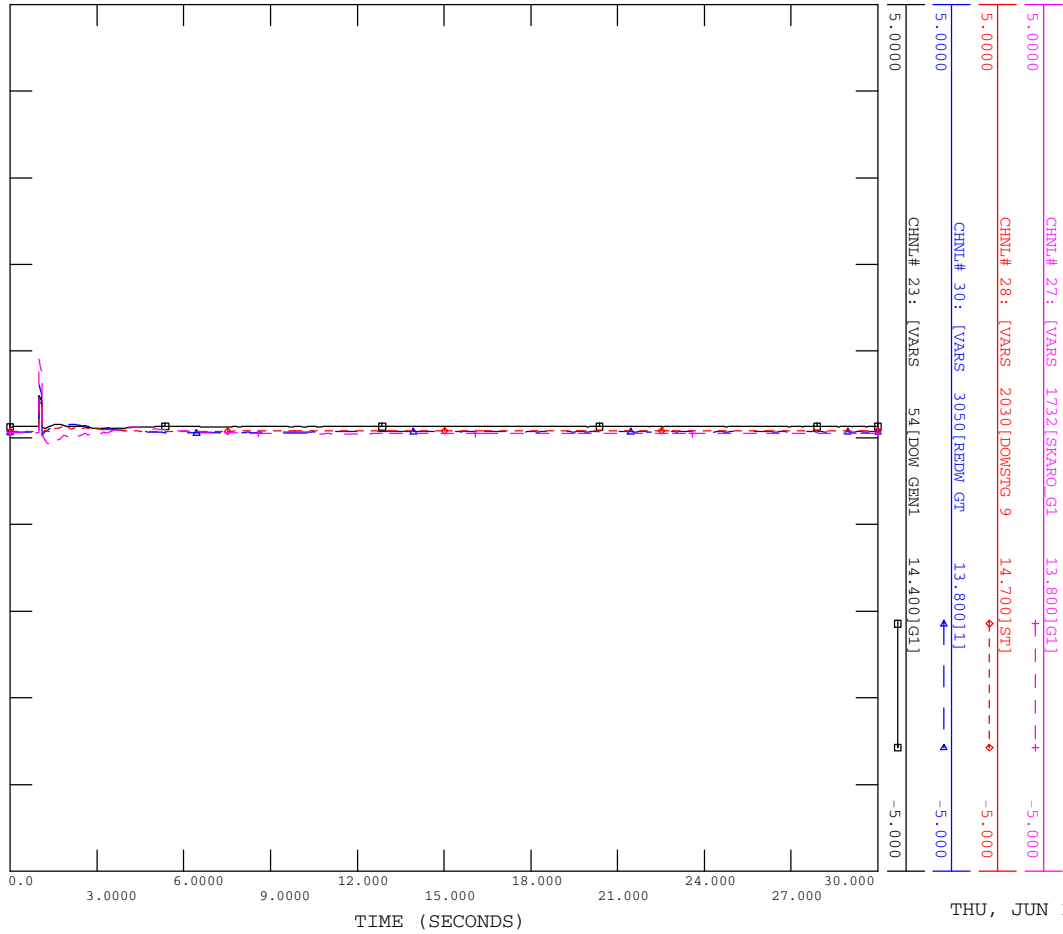


THU, JUN 19 2014 14:47  
FIG E3-8



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

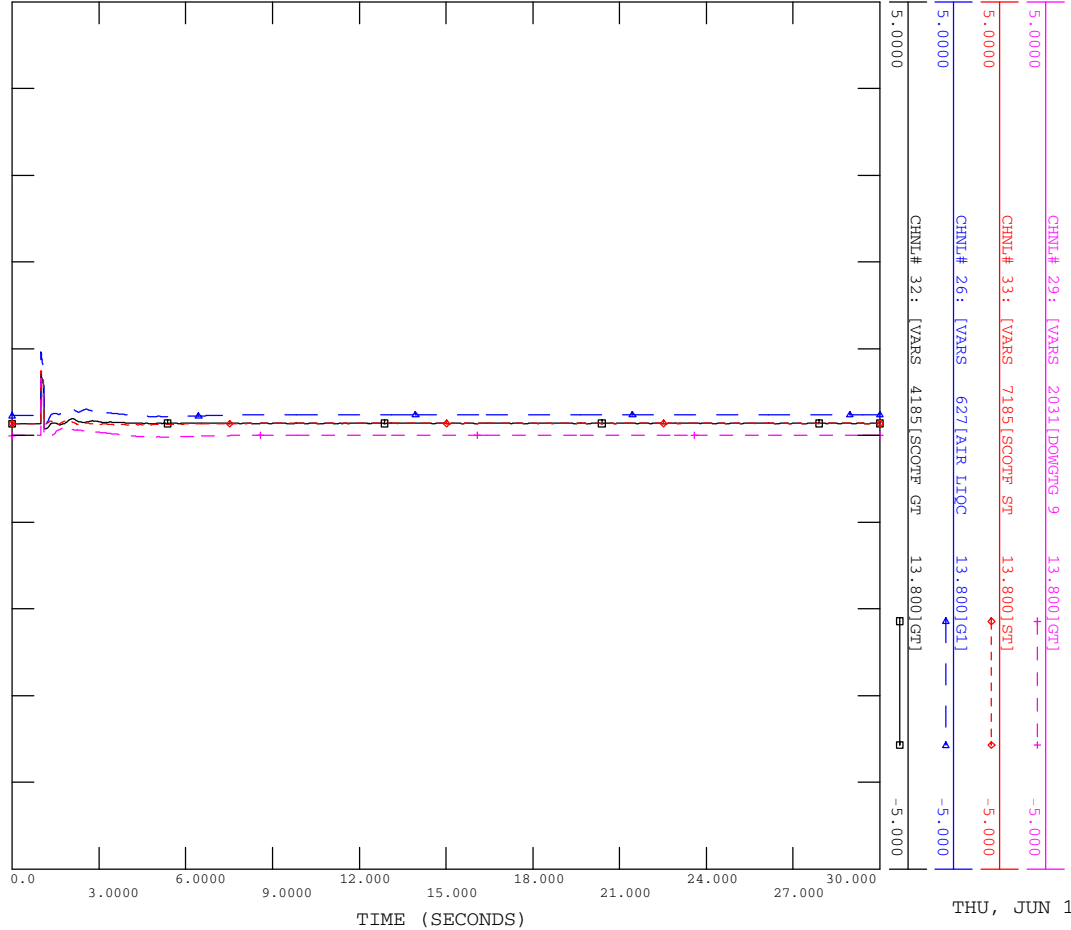


THU, JUN 19 2014 14:47  
FIG E3-8A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

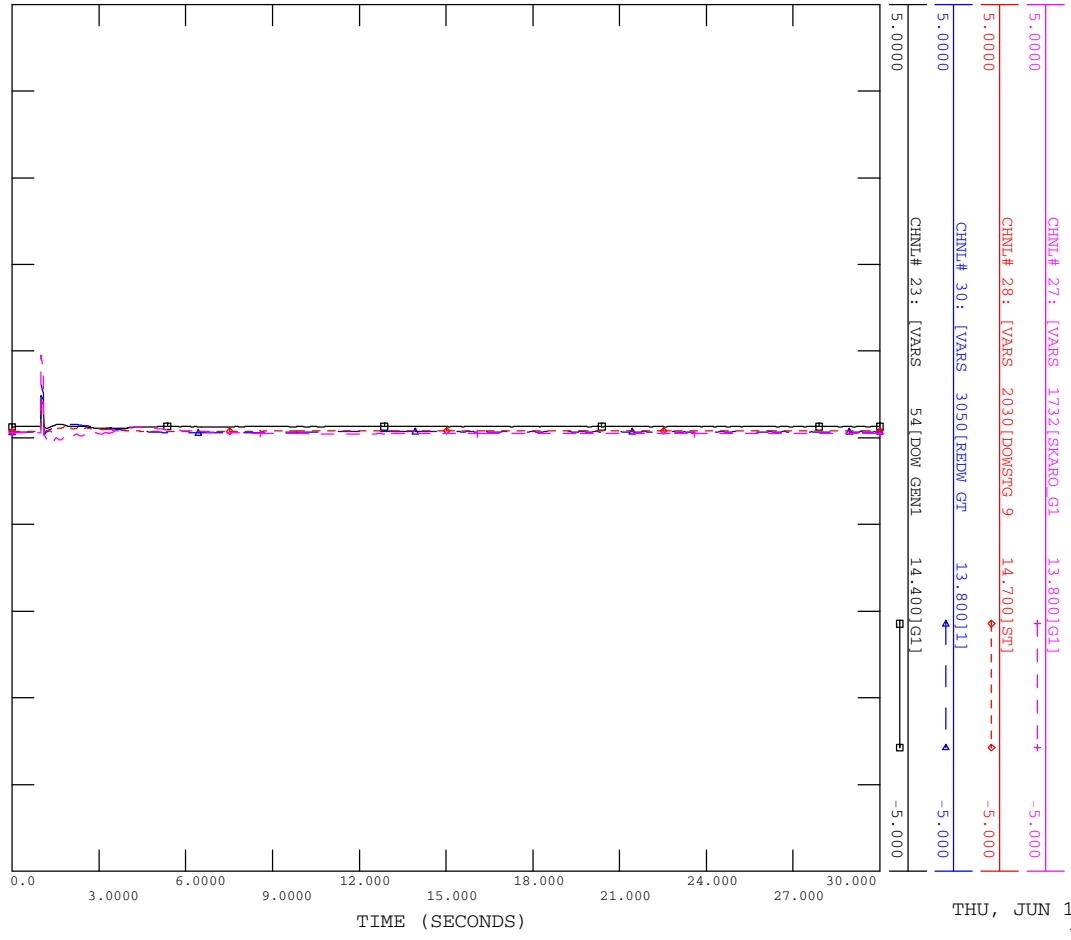


THU, JUN 19 2014 14:48  
FIG E3-9



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

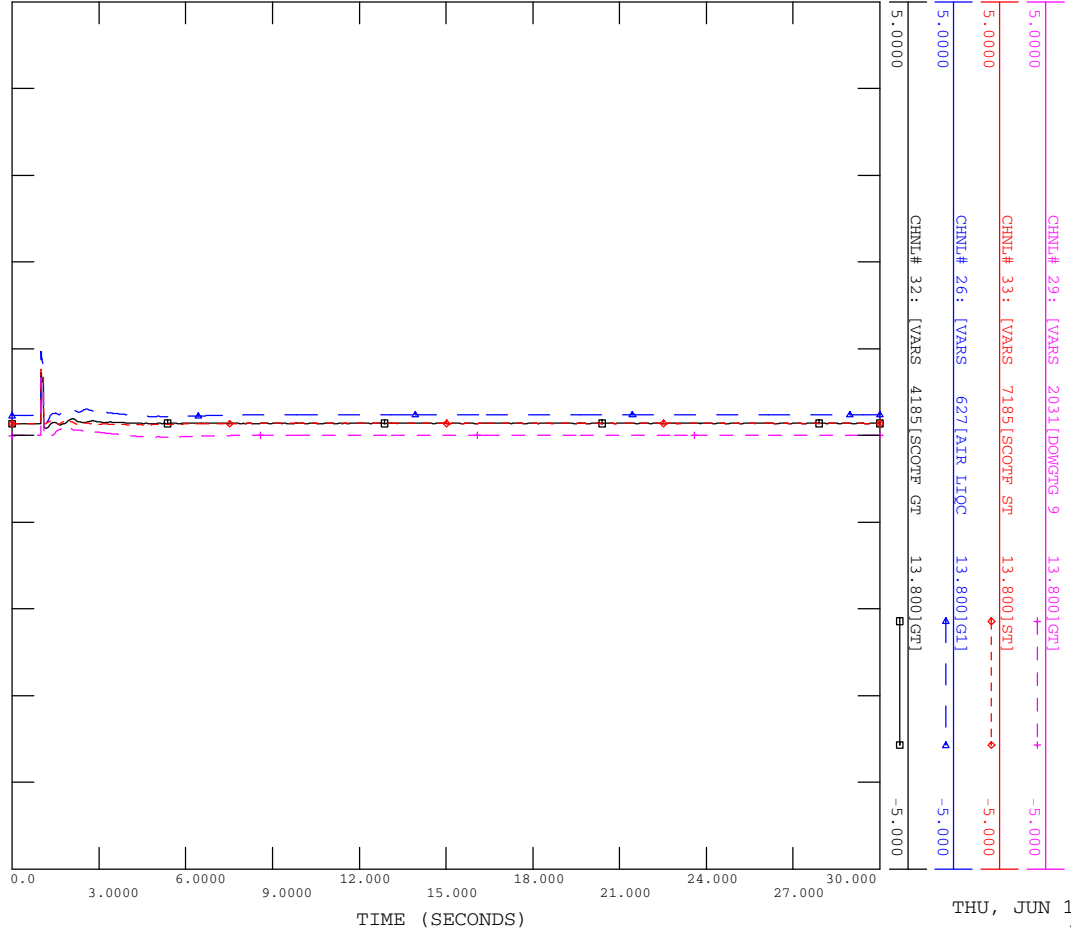


THU, JUN 19 2014 14:48  
FIG E3-9A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

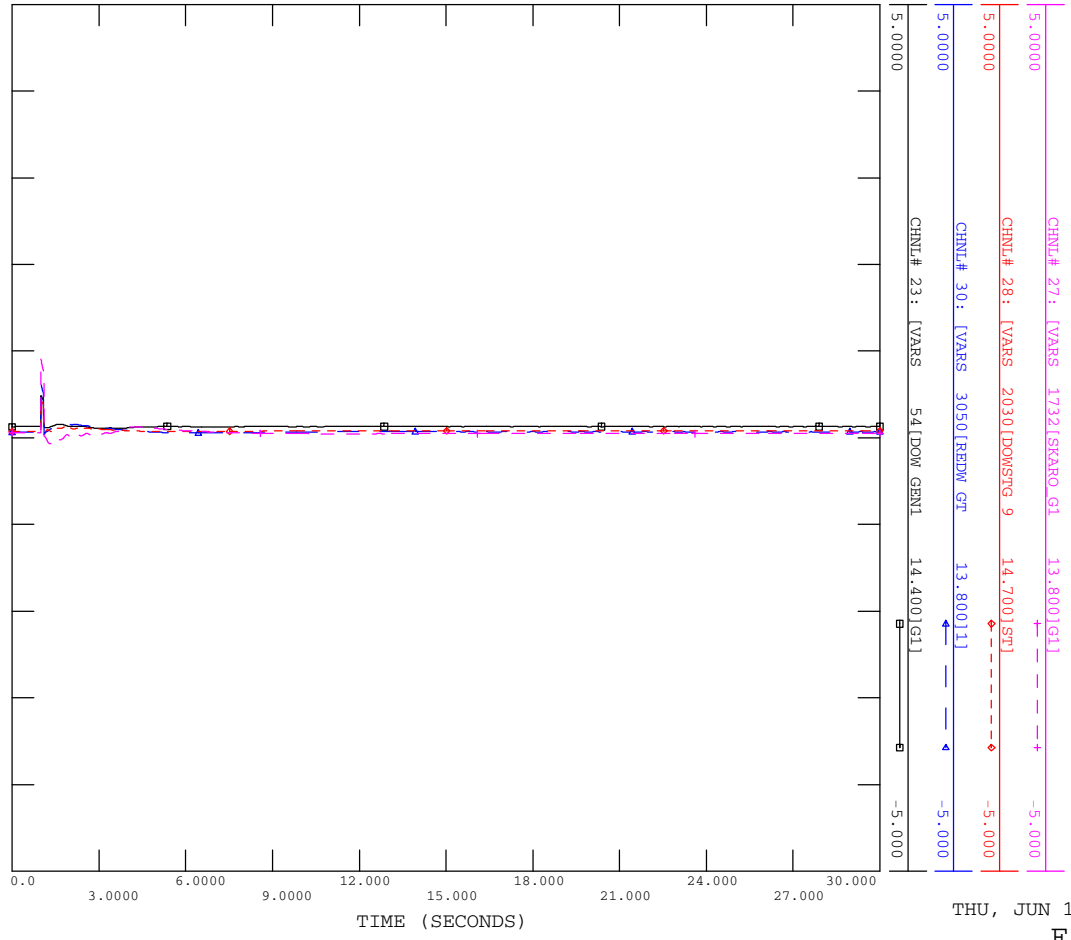


THU, JUN 19 2014 14:49  
 FIG E3-10



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

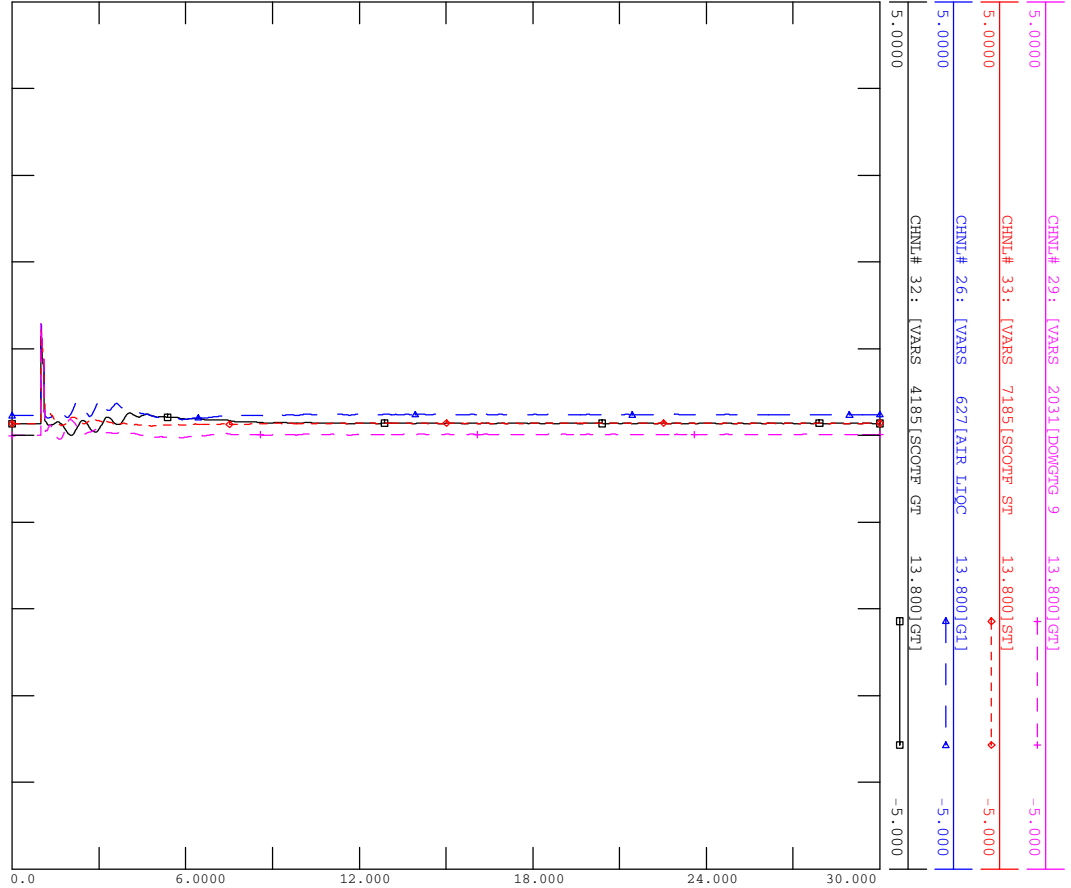


THU, JUN 19 2014 14:49  
 FIG E3-10A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT



TIME (SECONDS)

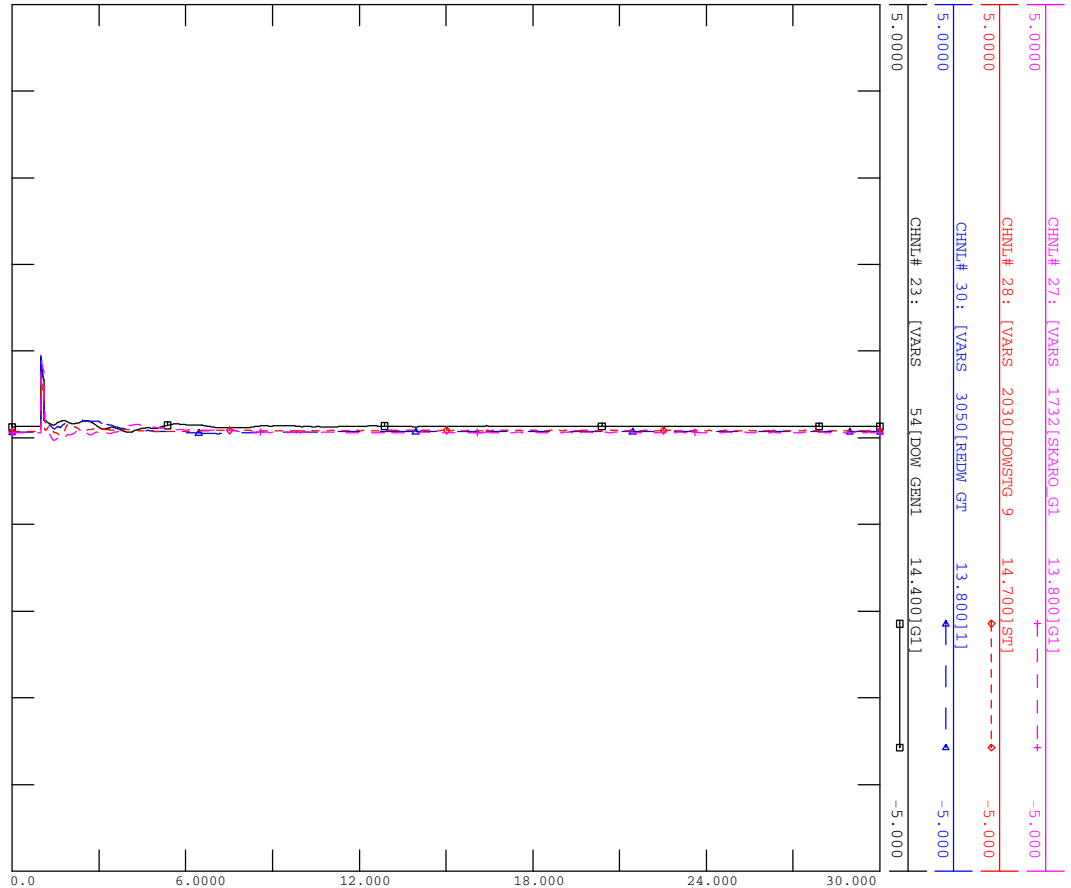
THU, JUN 19 2014 14:50

FIG E3-11



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT



TIME (SECONDS)

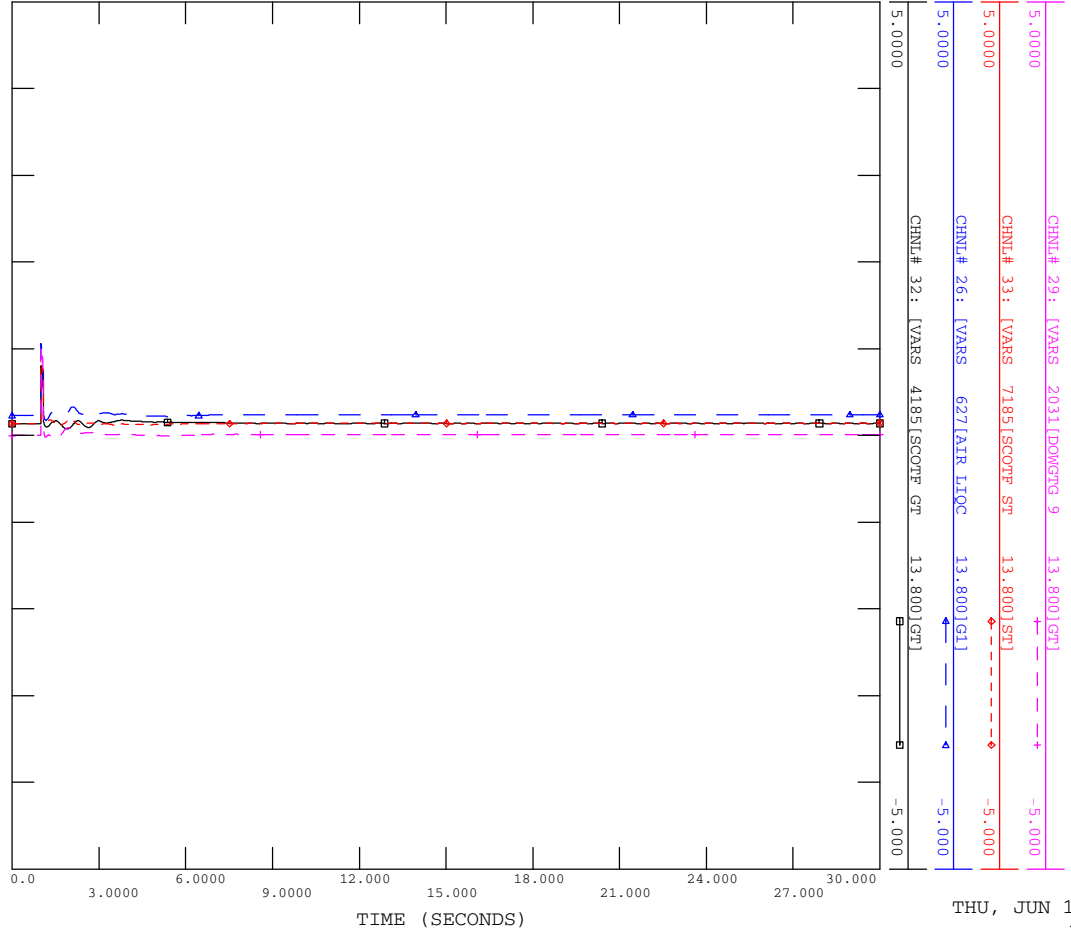
THU, JUN 19 2014 14:50

FIG E3-11A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT

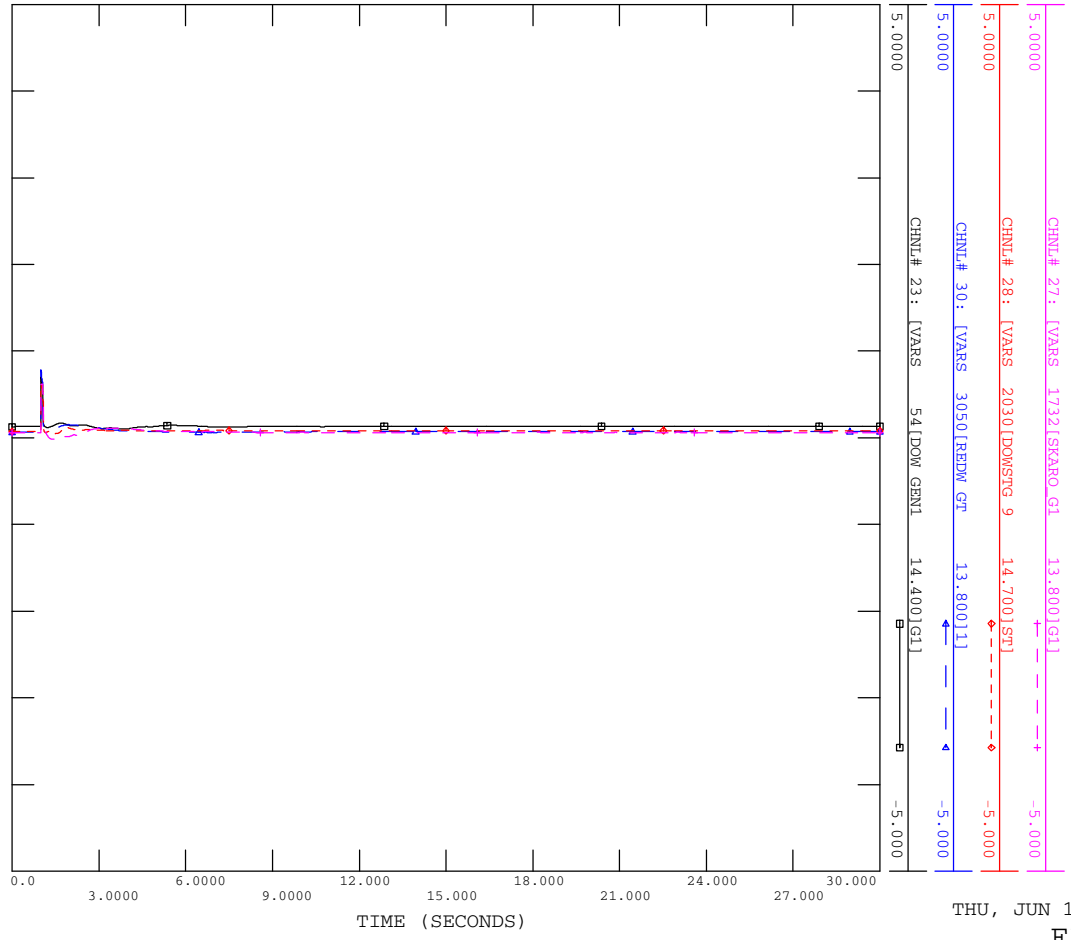


THU, JUN 19 2014 14:50  
FIG E3-12



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT

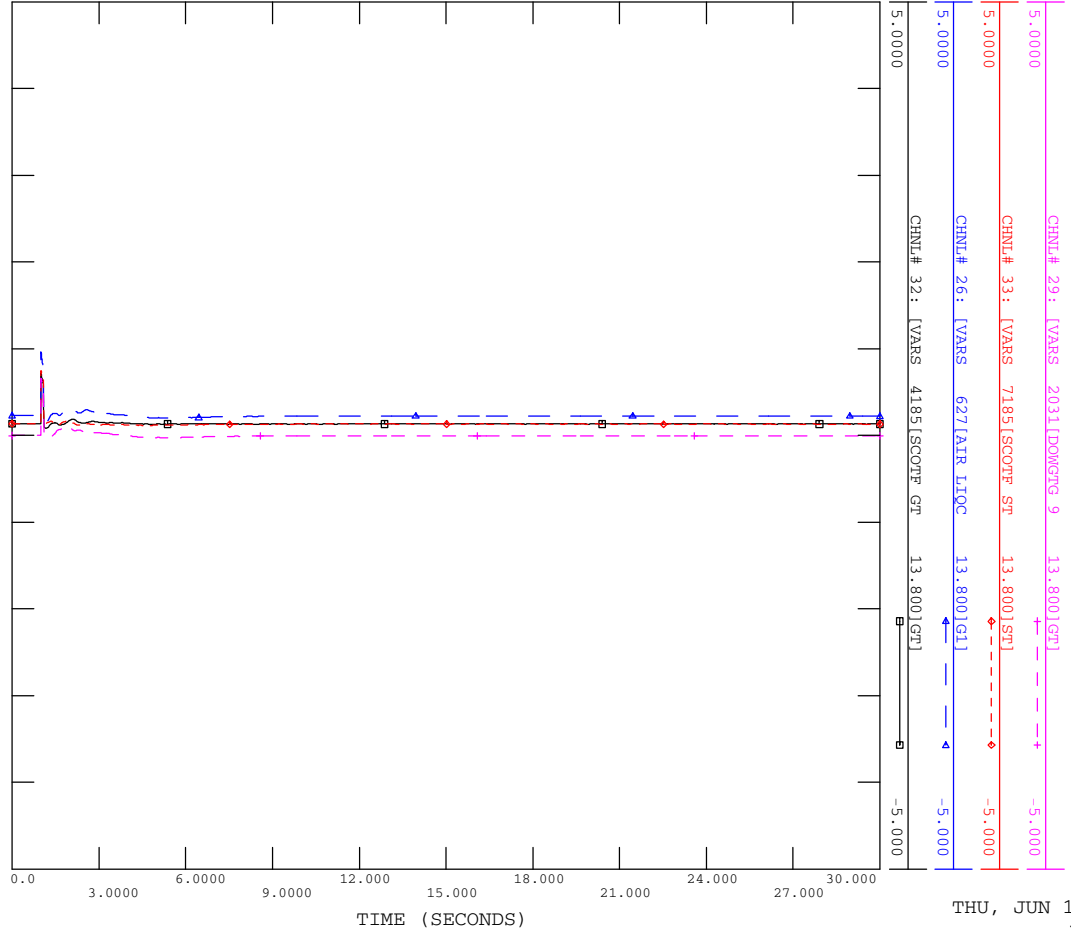


THU, JUN 19 2014 14:51  
FIG E3-12A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

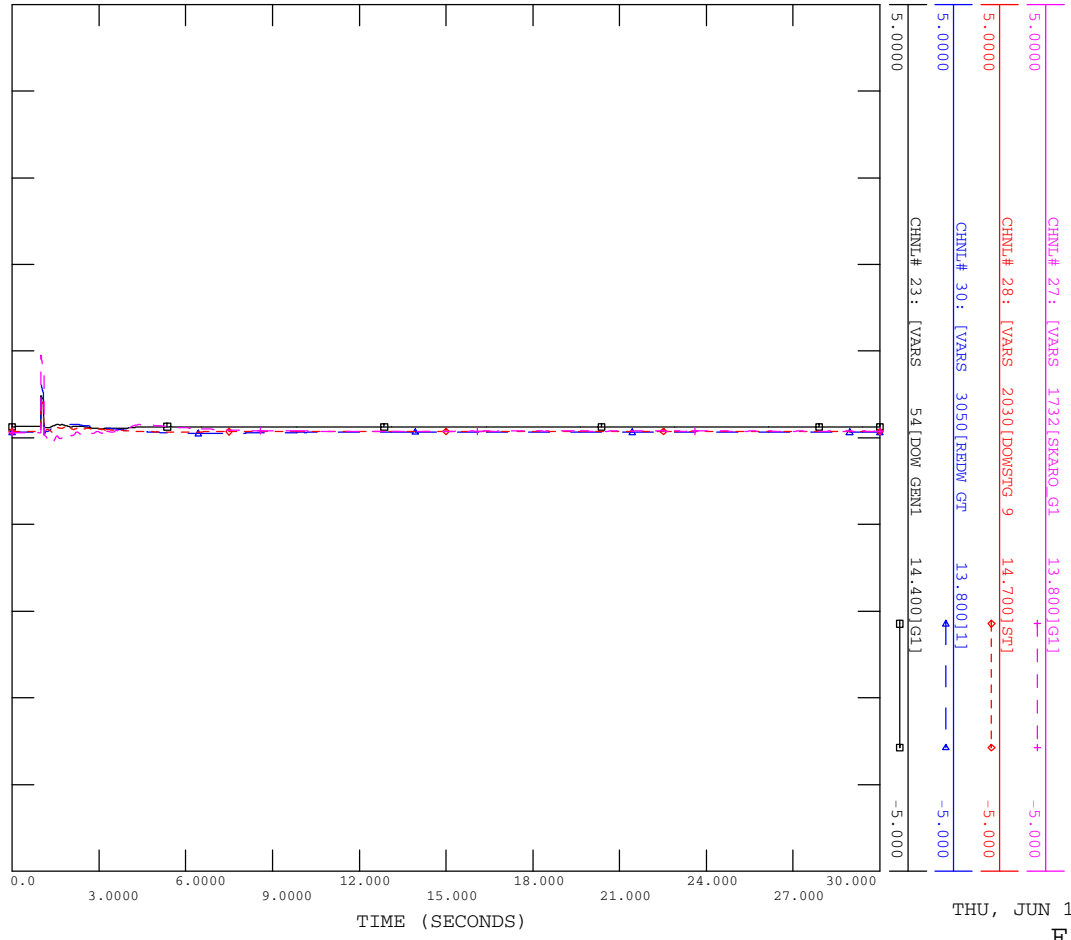


THU, JUN 19 2014 14:51  
FIG E3-13



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT



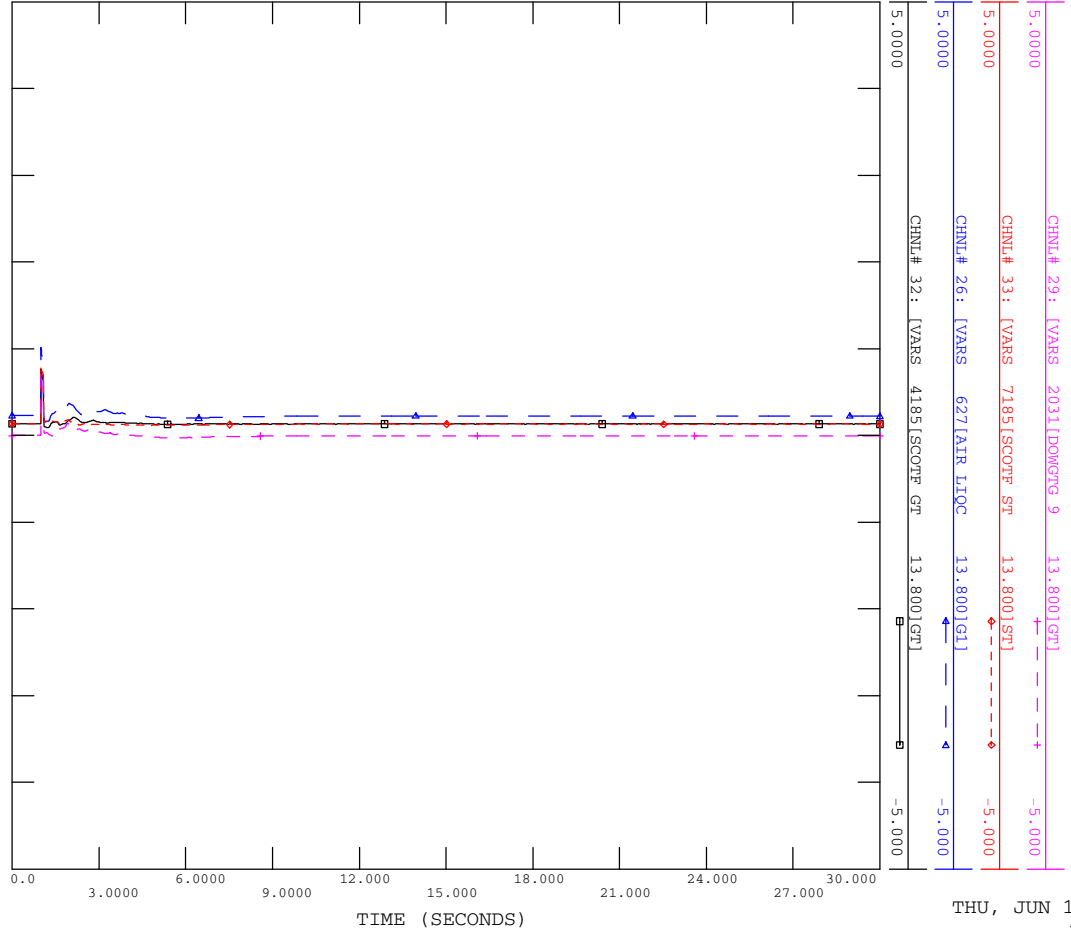
THU, JUN 19 2014 14:52  
FIG E3-13A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

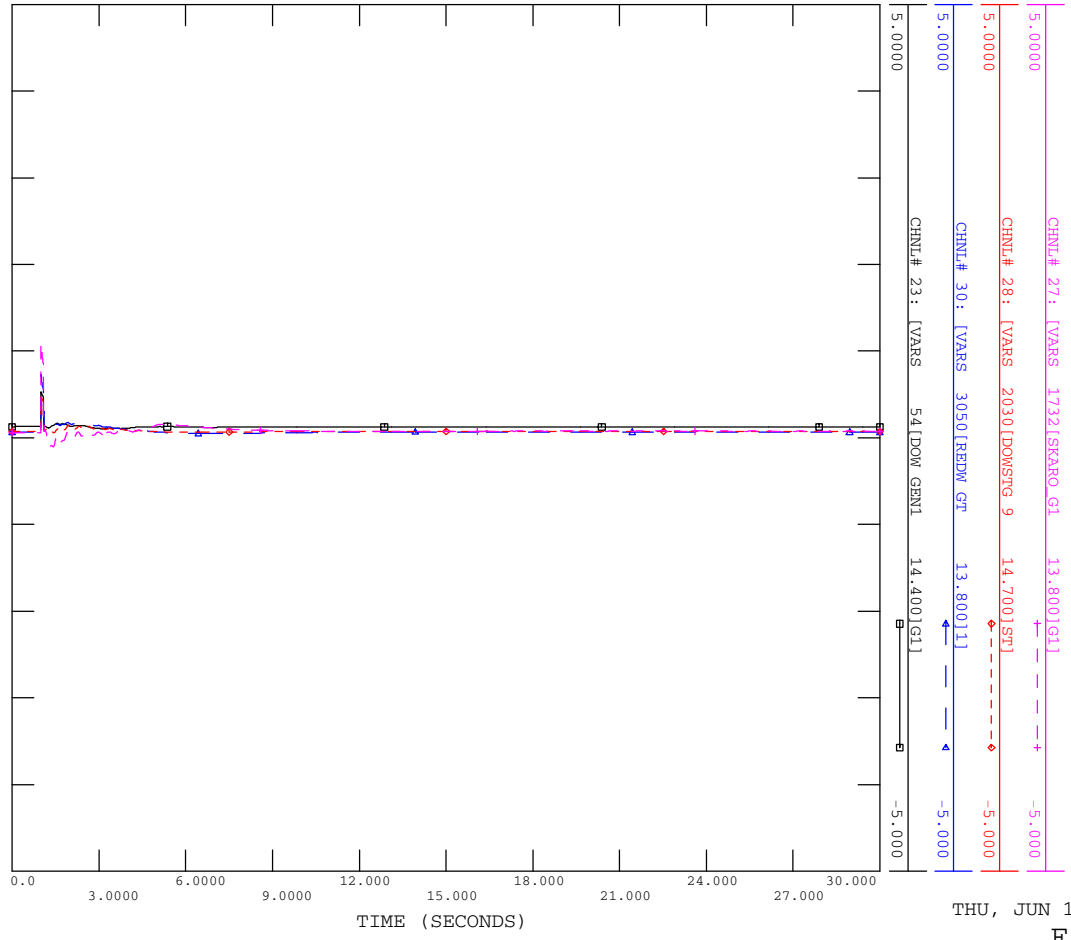


THU, JUN 19 2014 14:52  
FIG E3-14



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

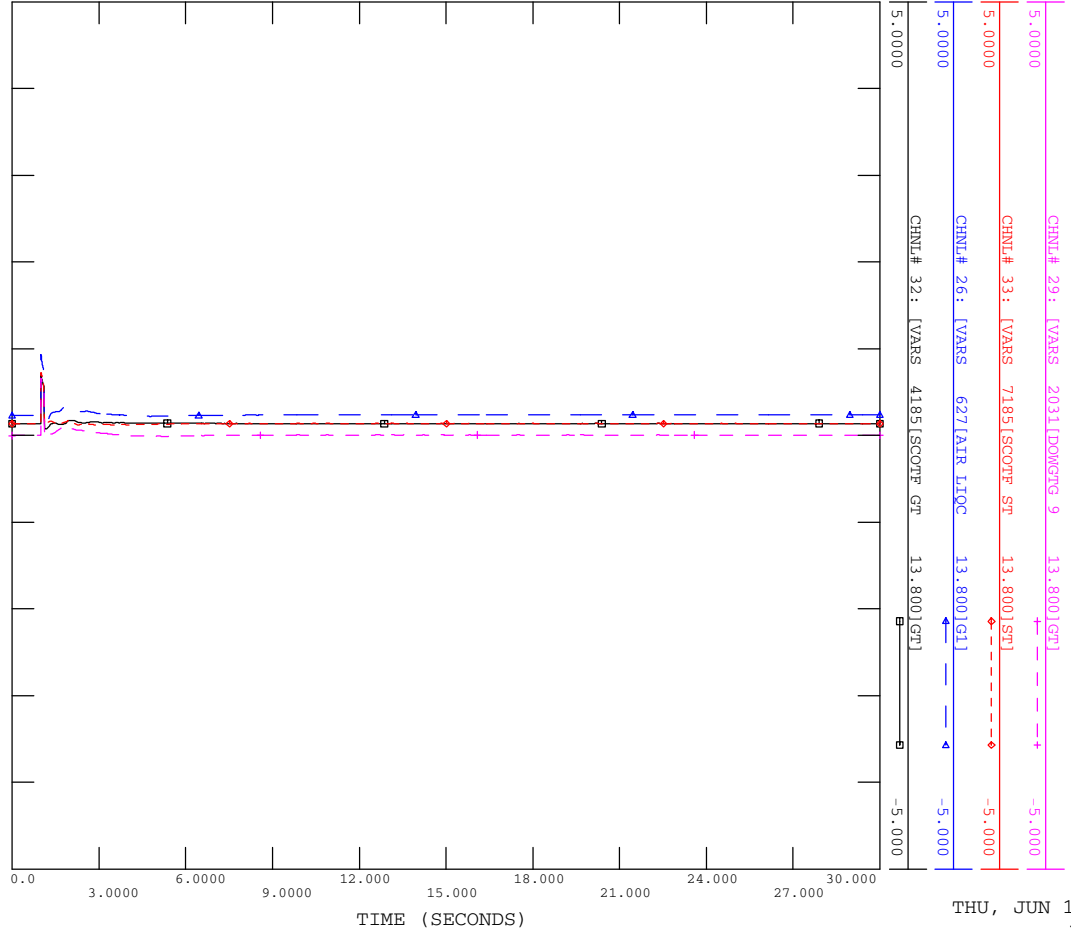


THU, JUN 19 2014 14:53  
FIG E3-14A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 1715

FILE: CON15.OUT

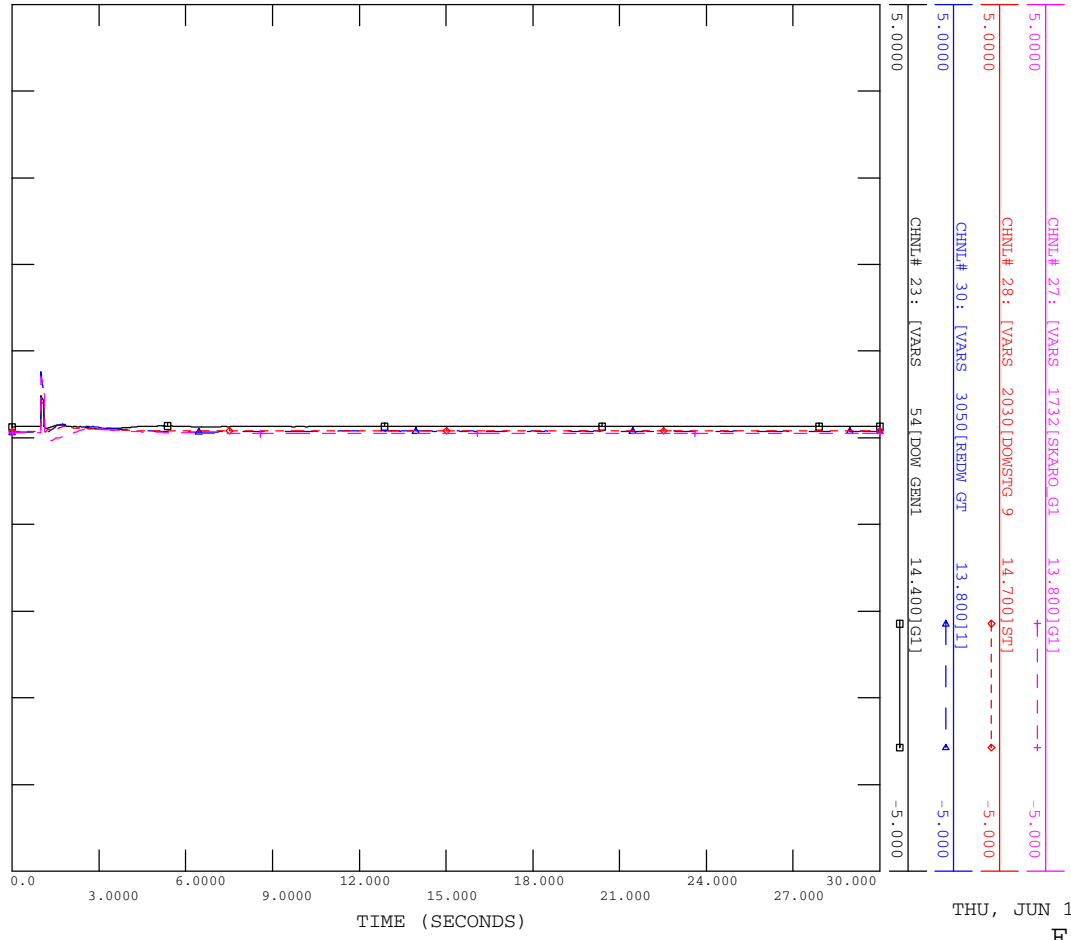


THU, JUN 19 2014 14:53  
FIG E3-15



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 1715

FILE: CON15.OUT

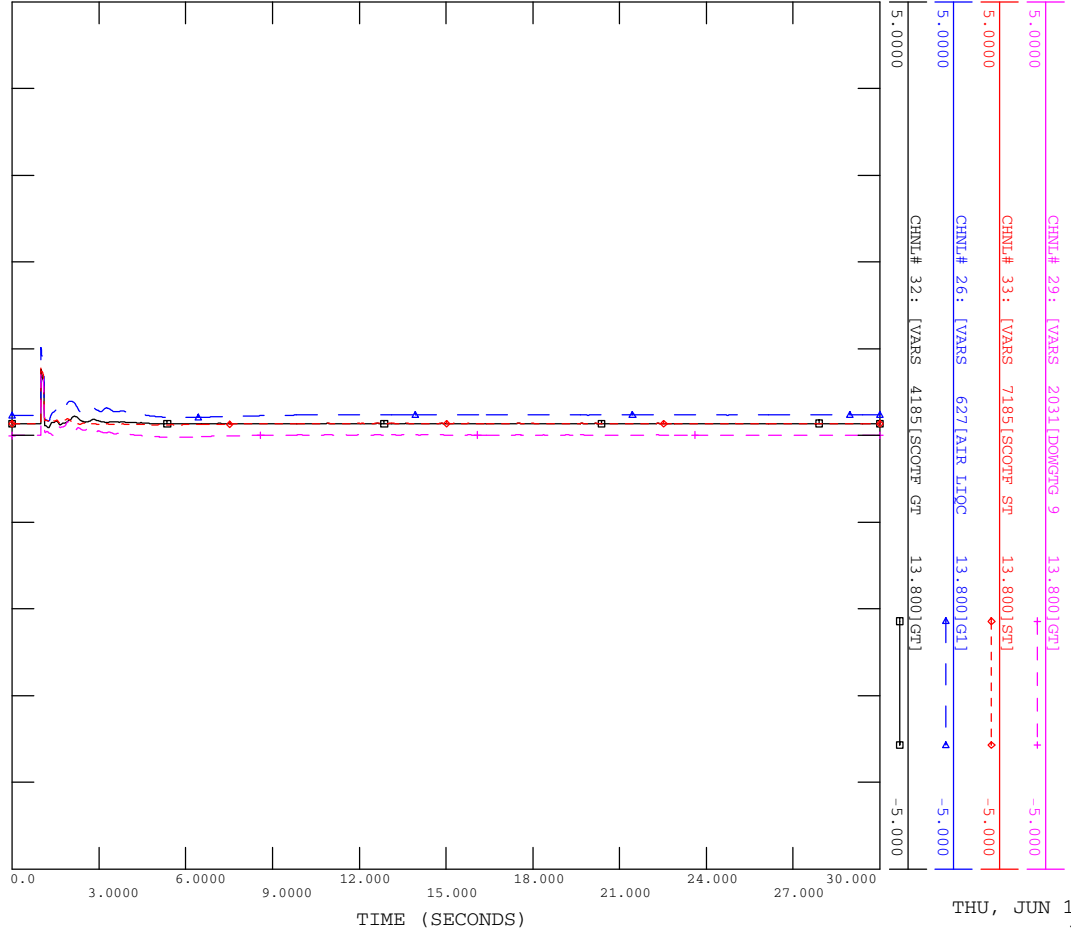


THU, JUN 19 2014 14:54  
FIG E3-15A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

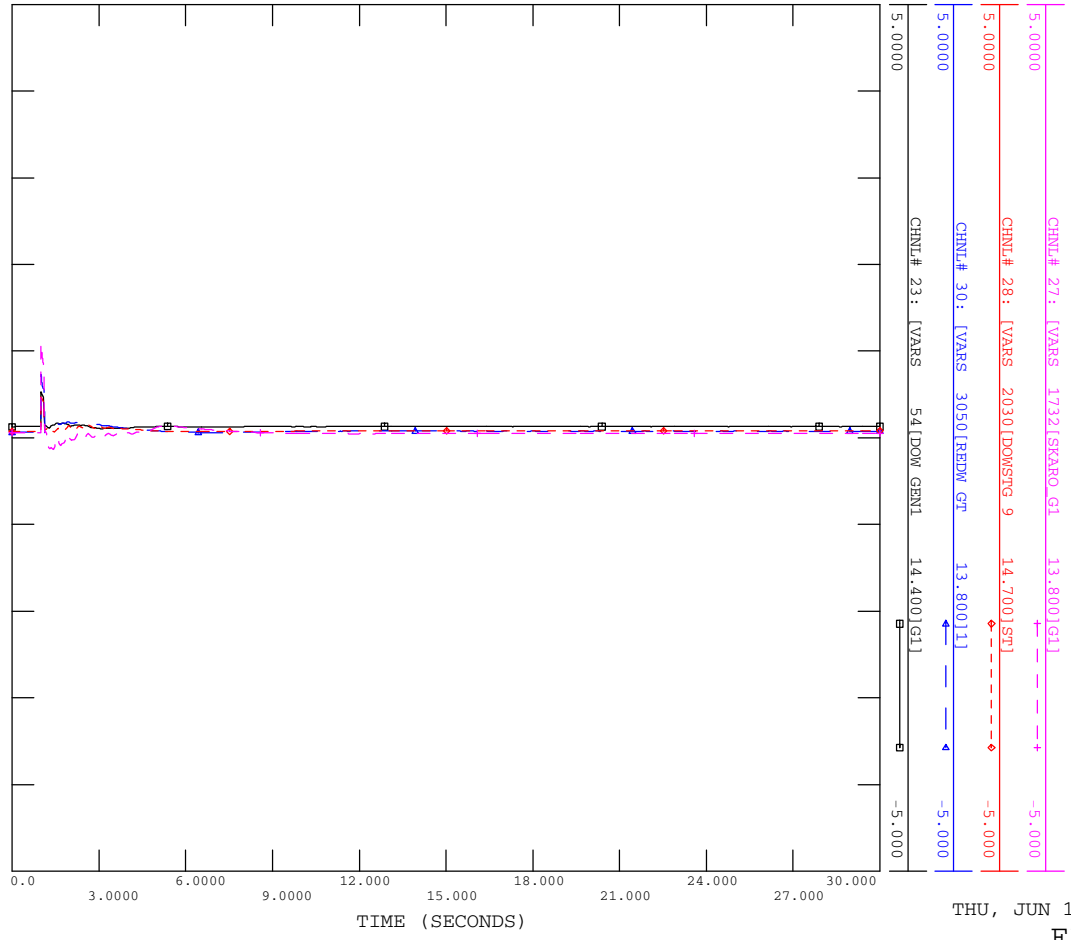


THU, JUN 19 2014 14:54  
FIG E3-16



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

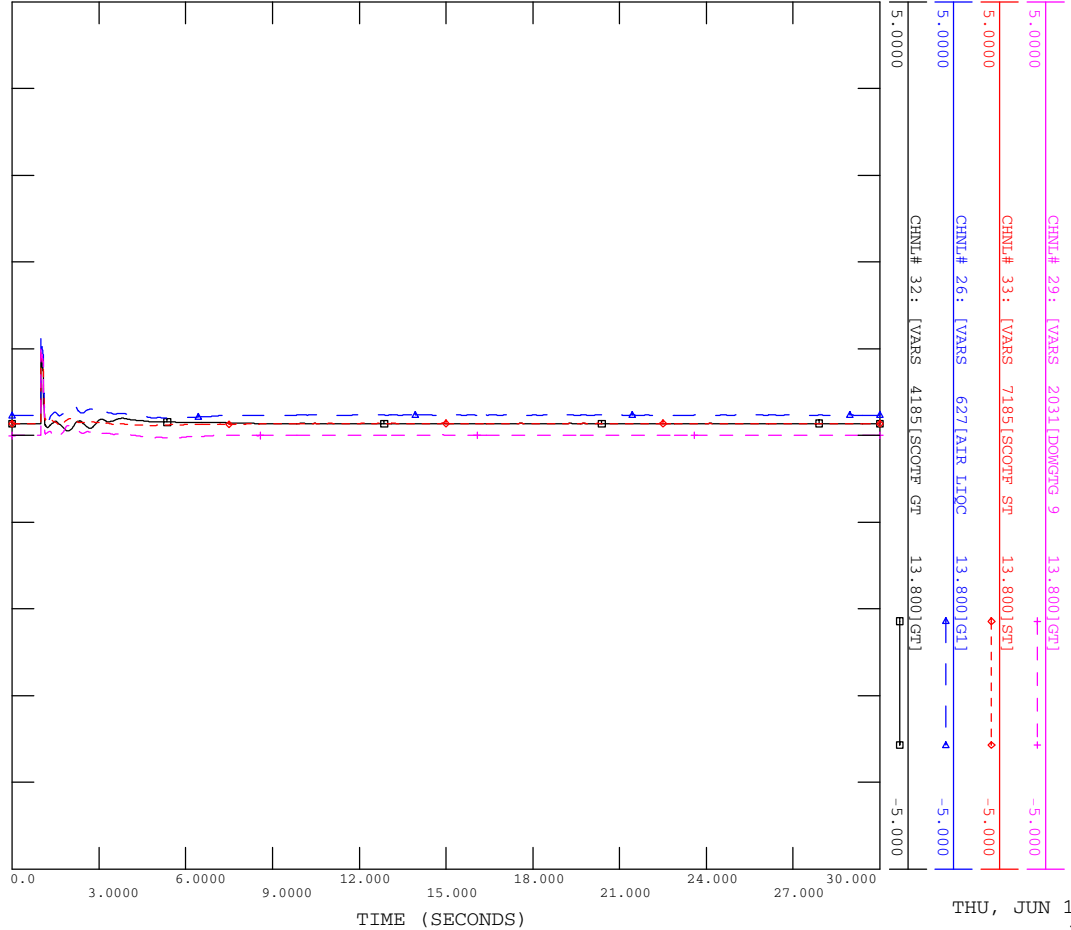


THU, JUN 19 2014 14:55  
FIG E3-16A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

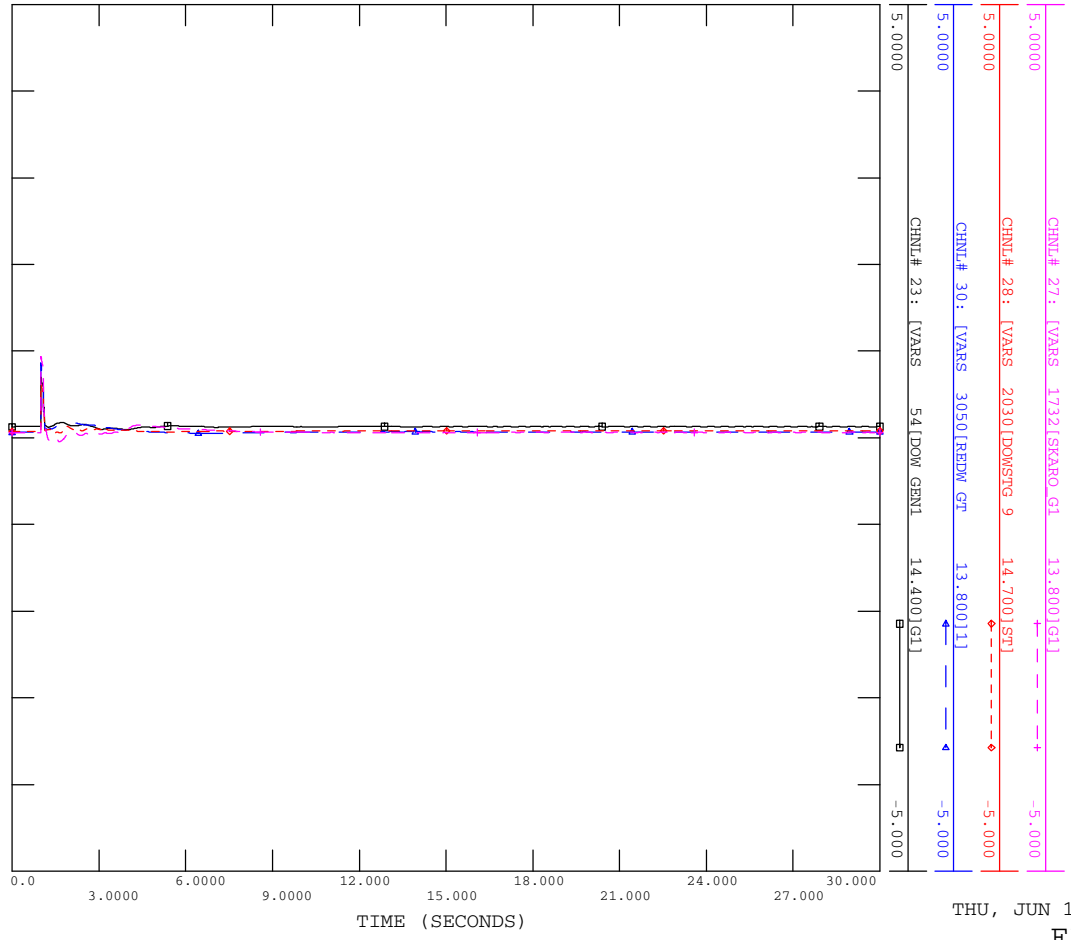


THU, JUN 19 2014 14:55  
FIG E3-17



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

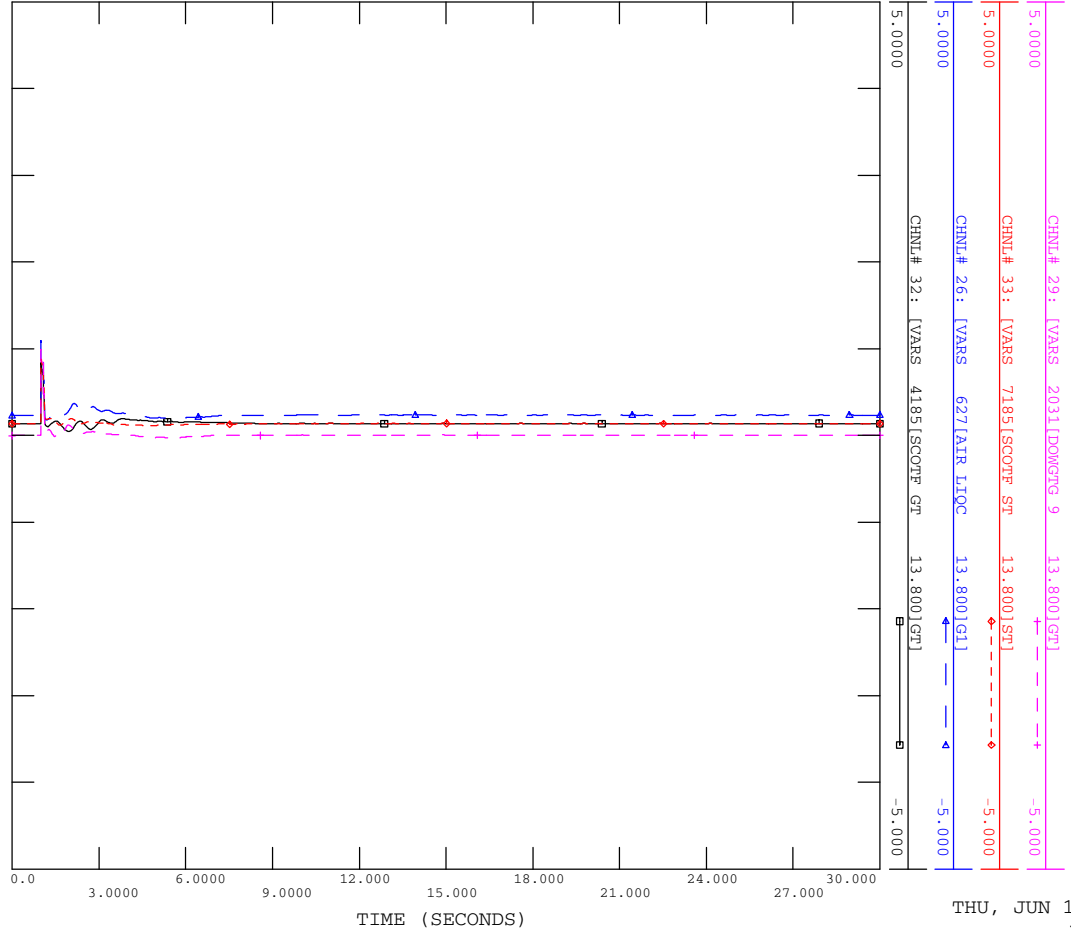


THU, JUN 19 2014 14:55  
FIG E3-17A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

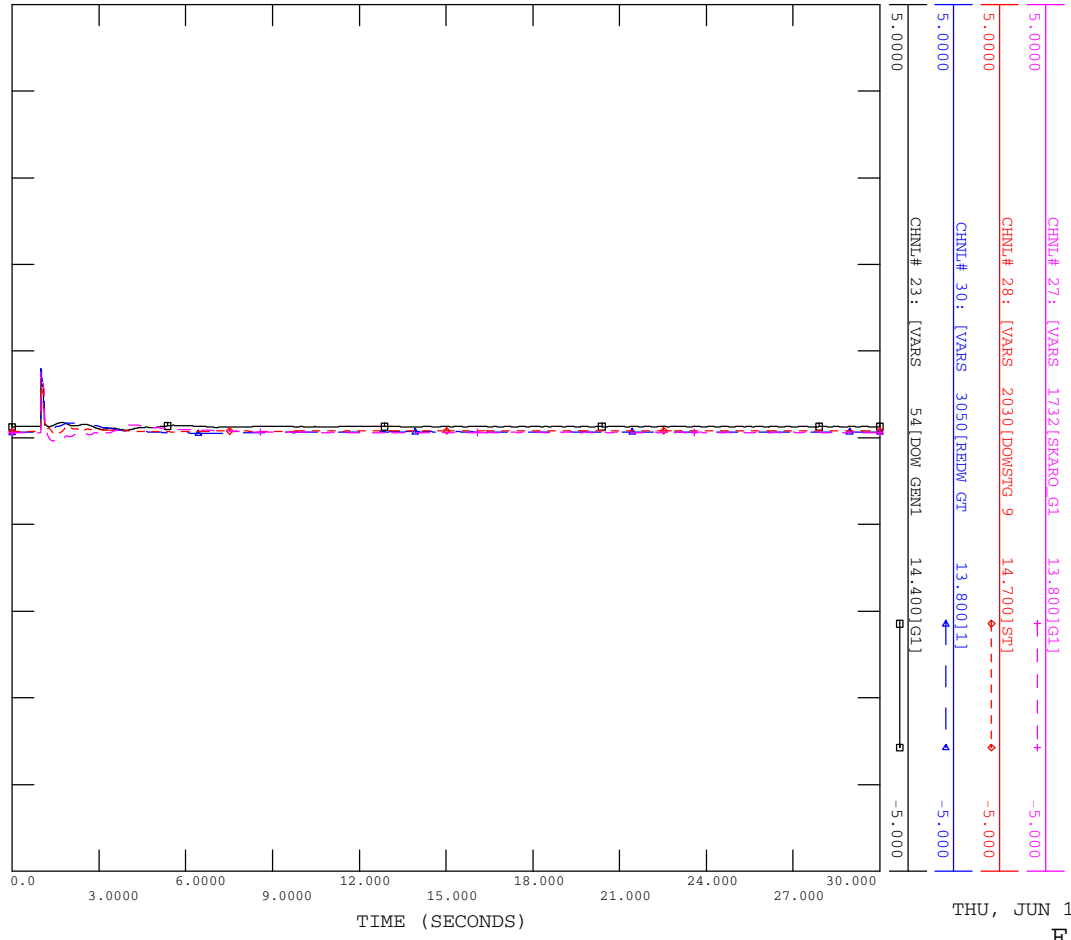


THU, JUN 19 2014 14:56  
FIG E3-18



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

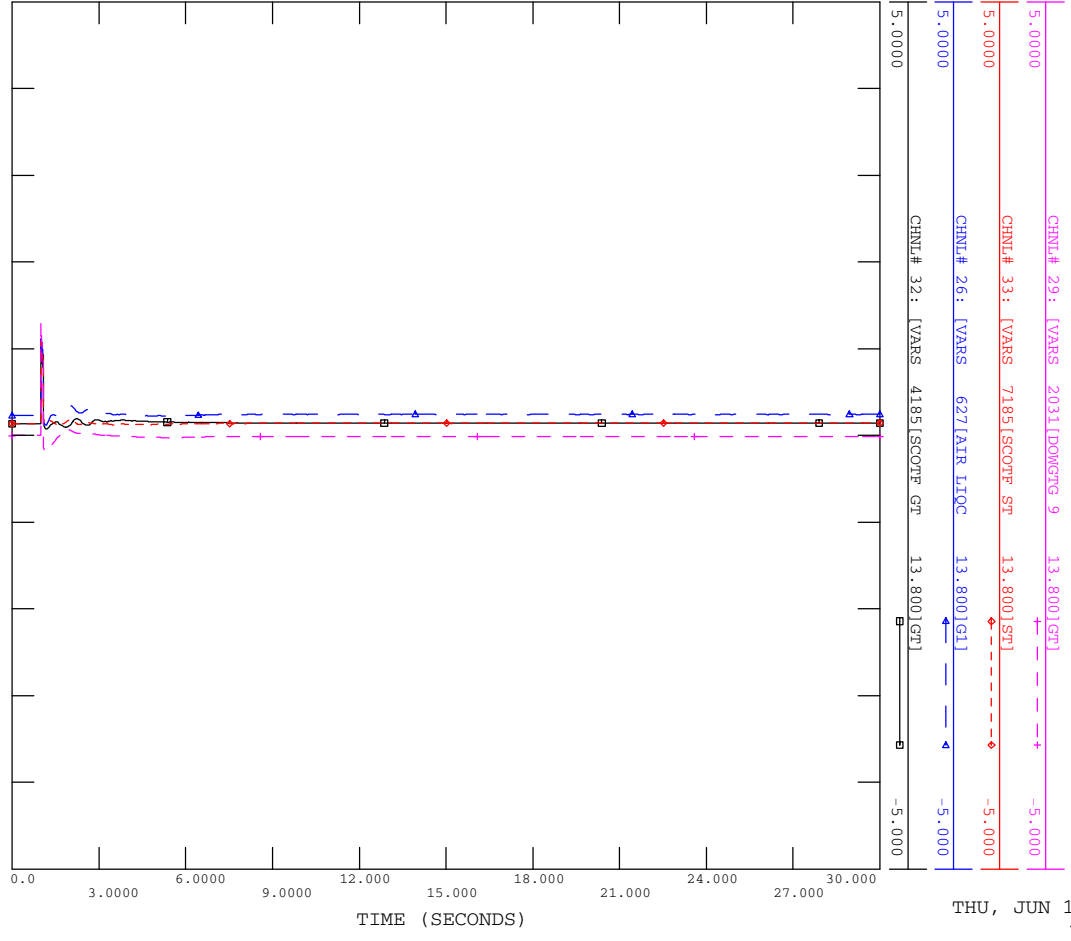


THU, JUN 19 2014 14:56  
FIG E3-18A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

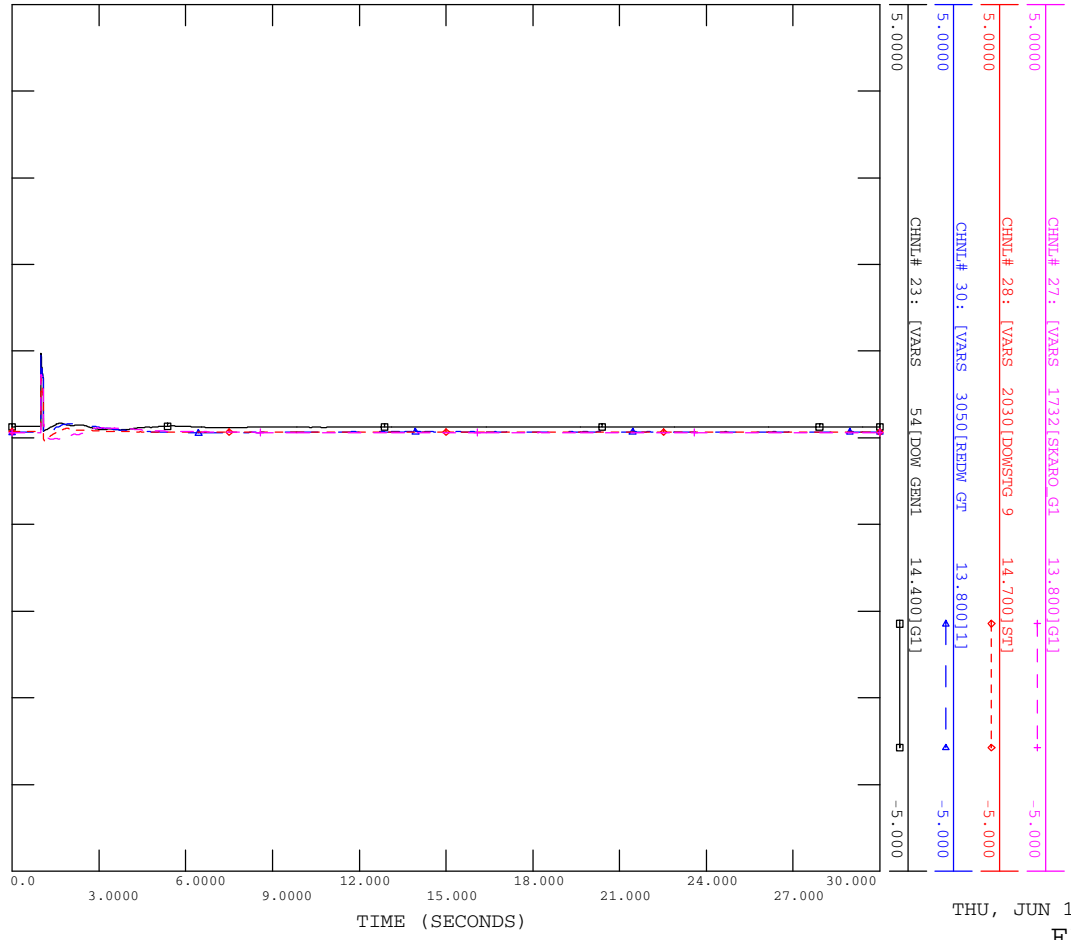


THU, JUN 19 2014 14:57  
FIG E3-19



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

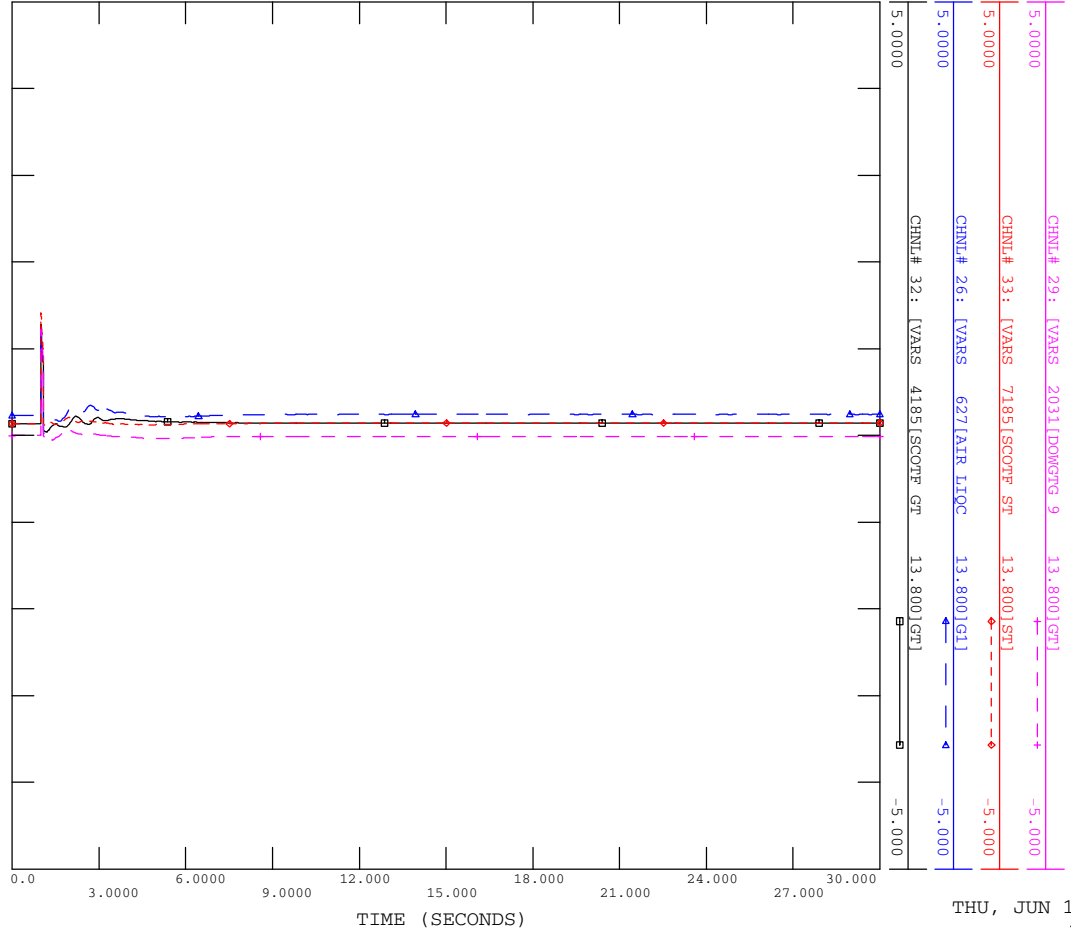


THU, JUN 19 2014 14:57  
FIG E3-19A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

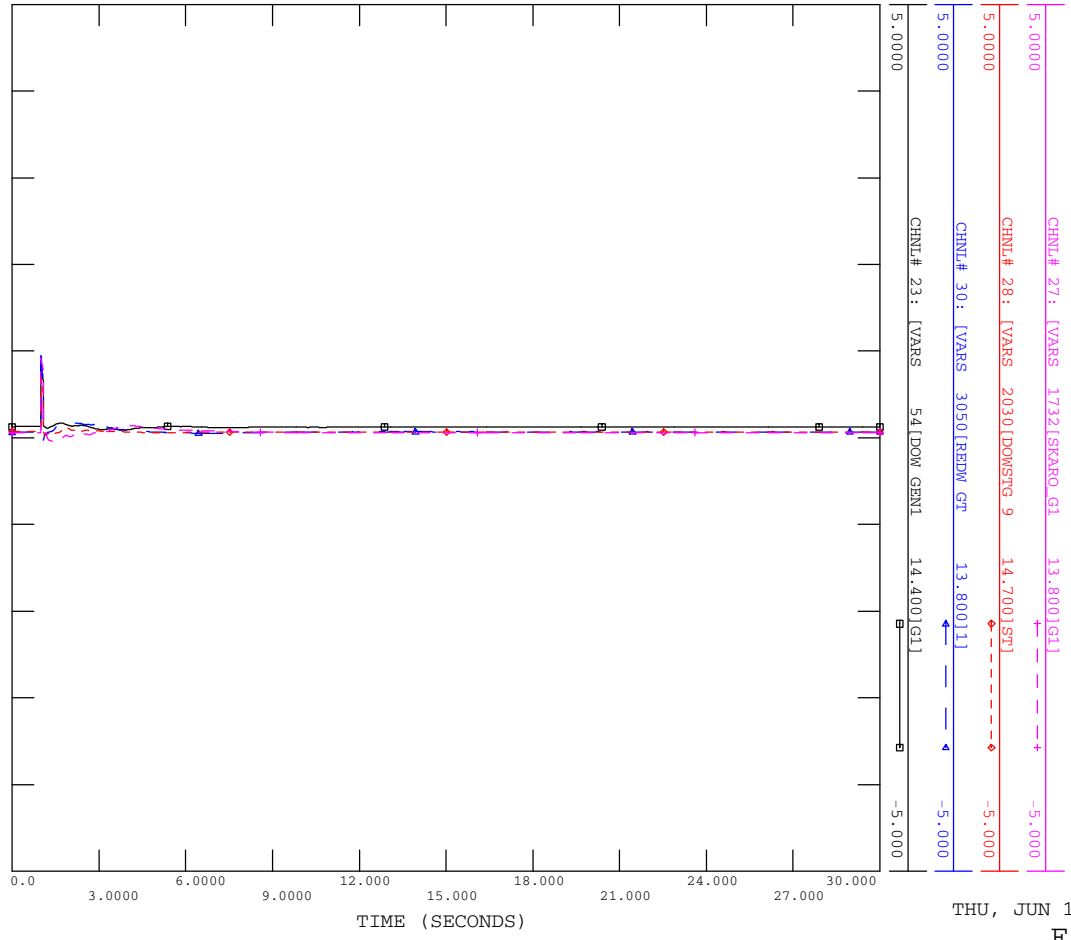


THU, JUN 19 2014 14:58  
FIG E3-20



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

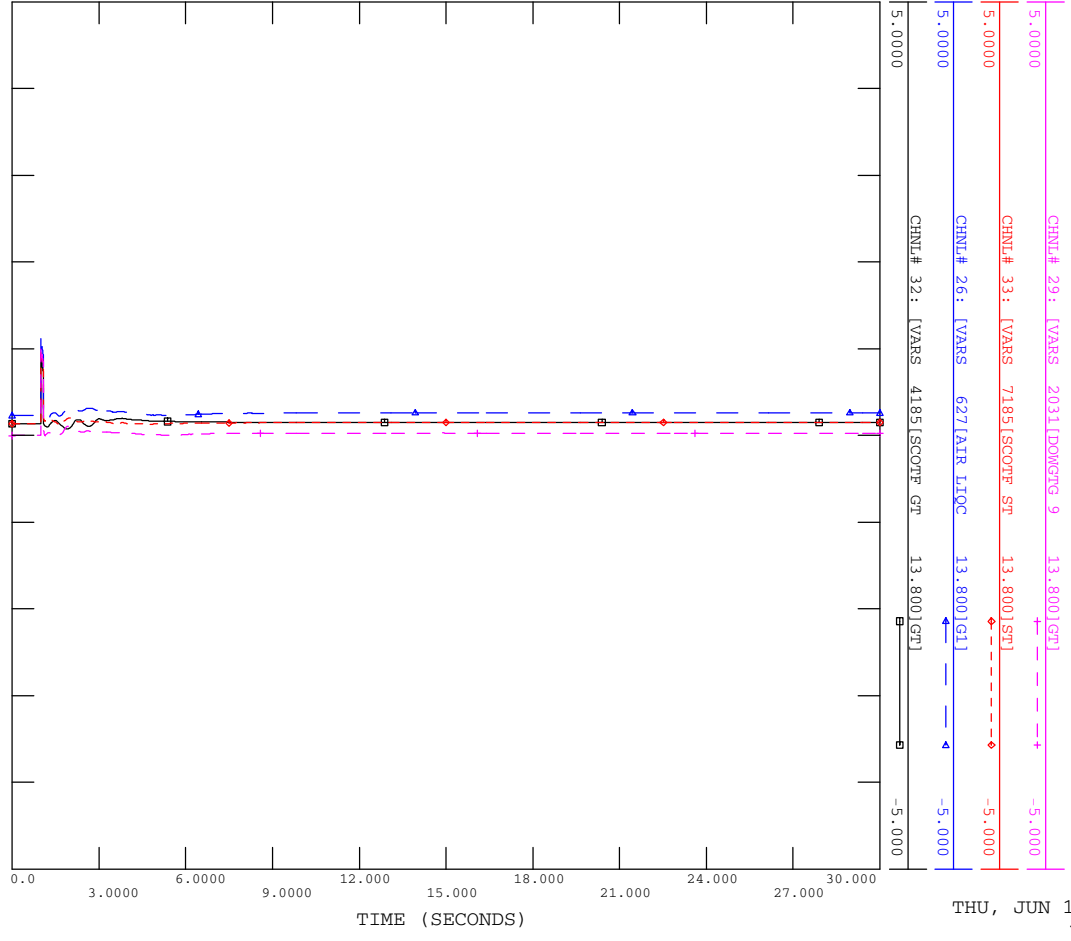


THU, JUN 19 2014 14:58  
FIG E3-20A



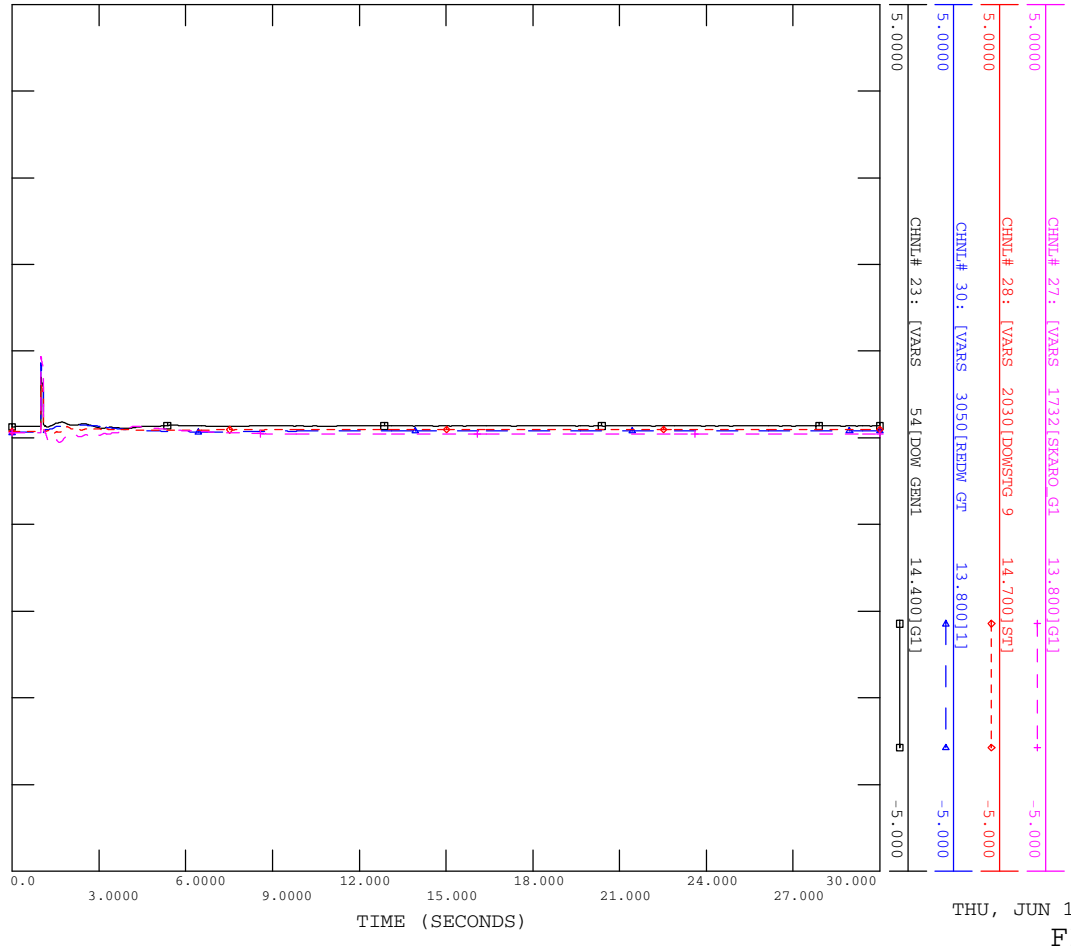
TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

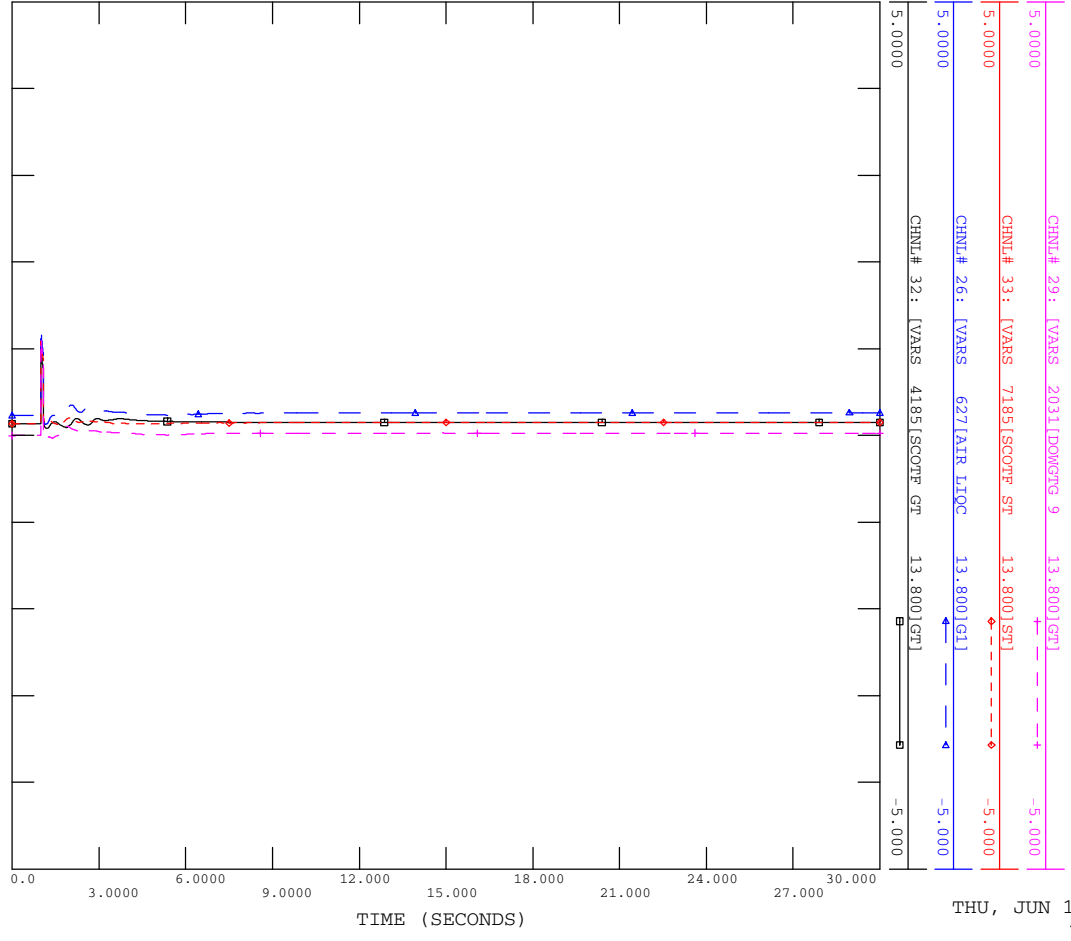






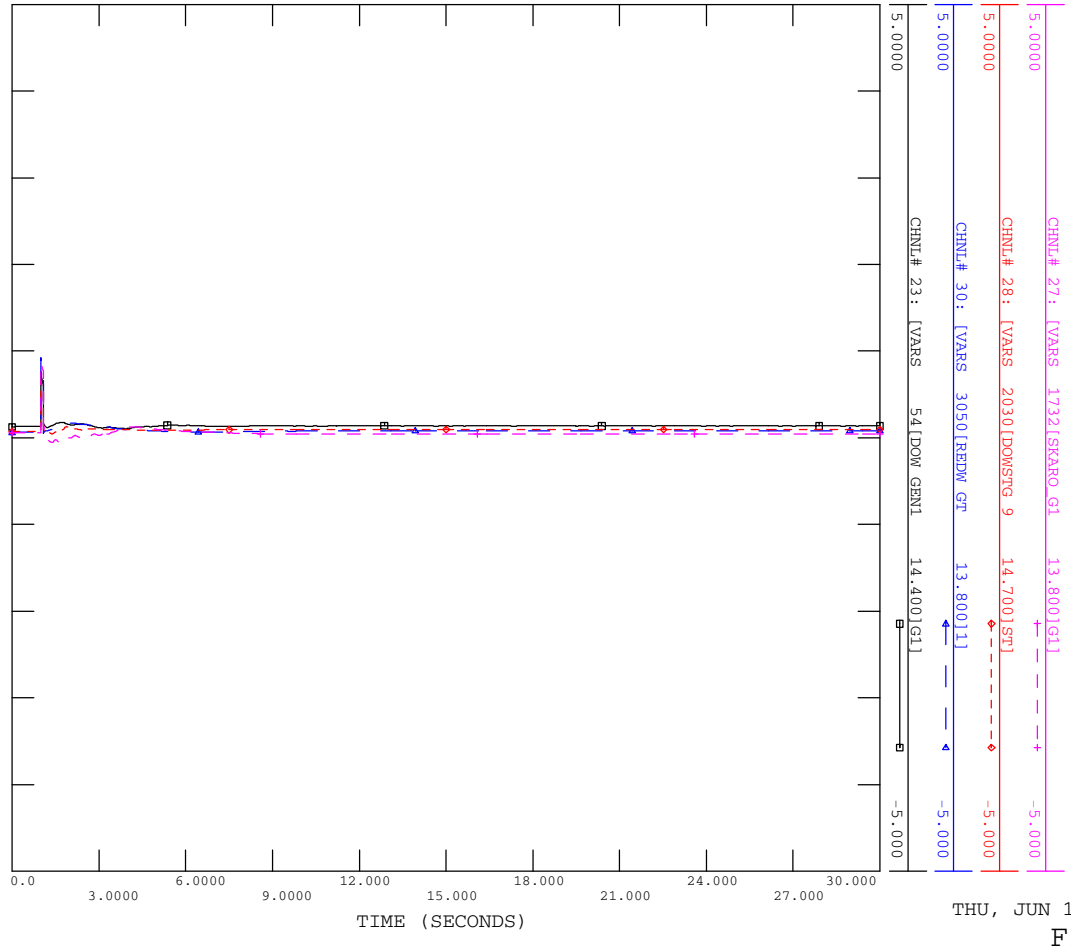
TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 108S

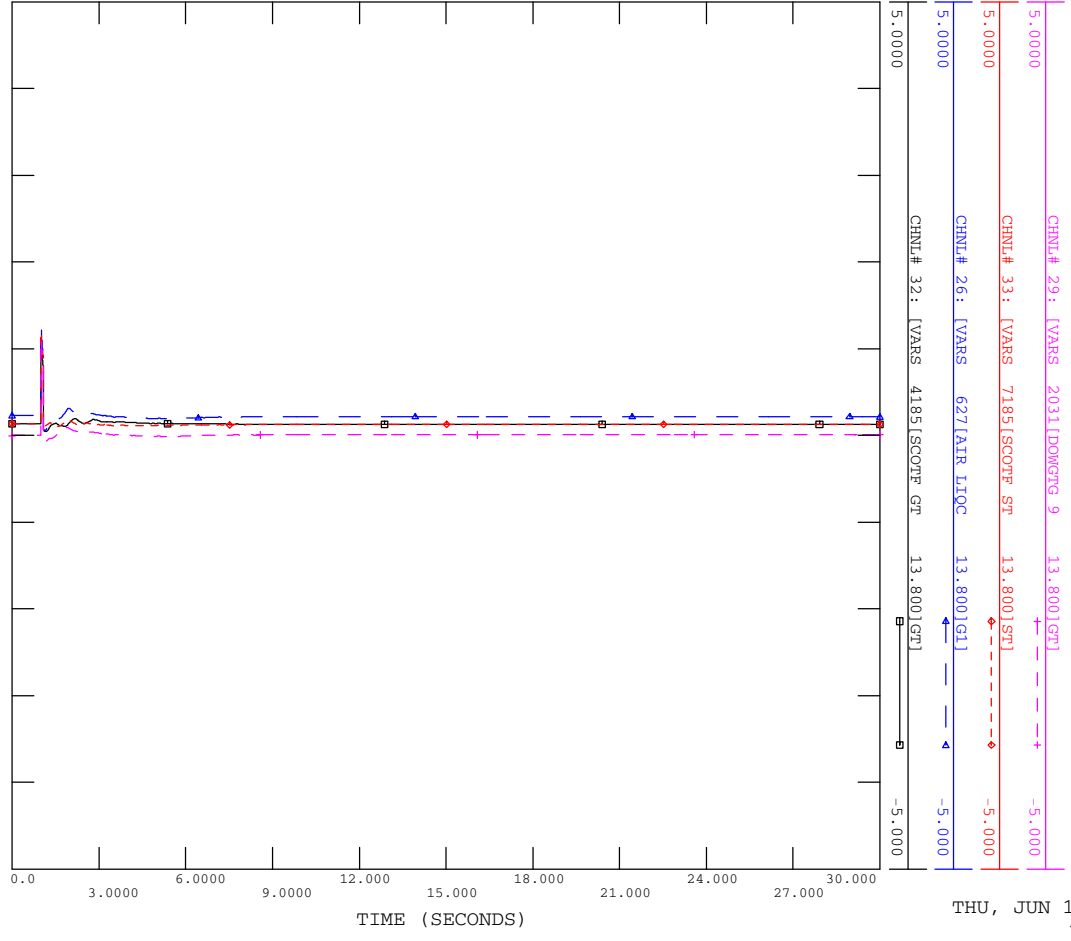
FILE: CON23.OUT





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

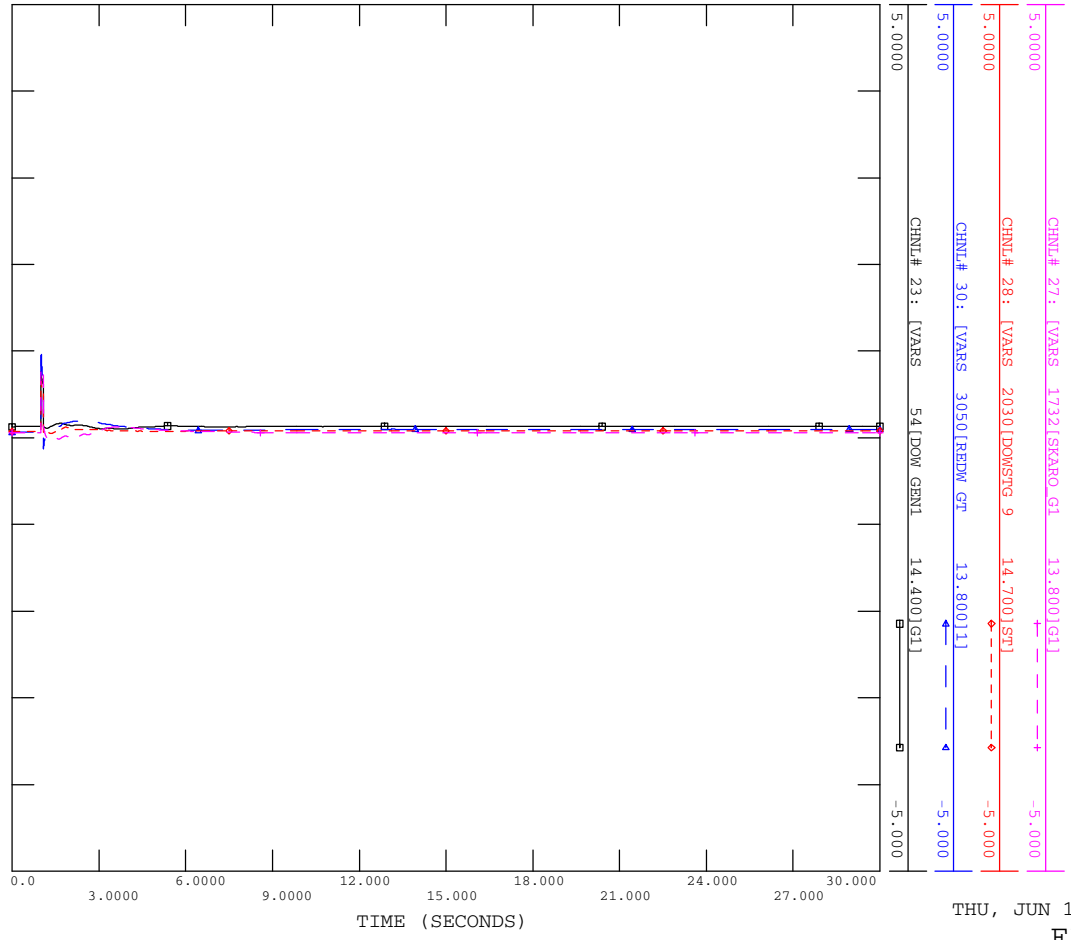


THU, JUN 19 2014 15:00  
FIG E3-23



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

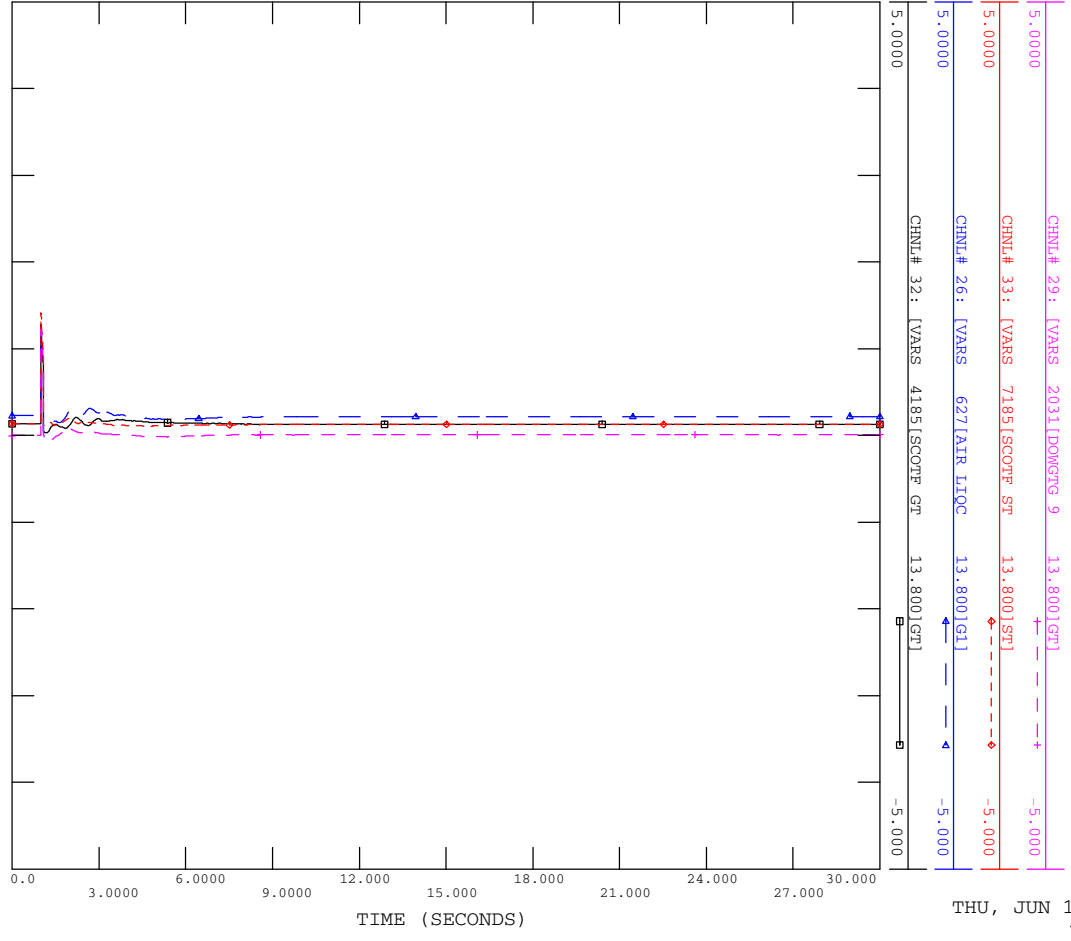


THU, JUN 19 2014 15:01  
FIG E3-23A



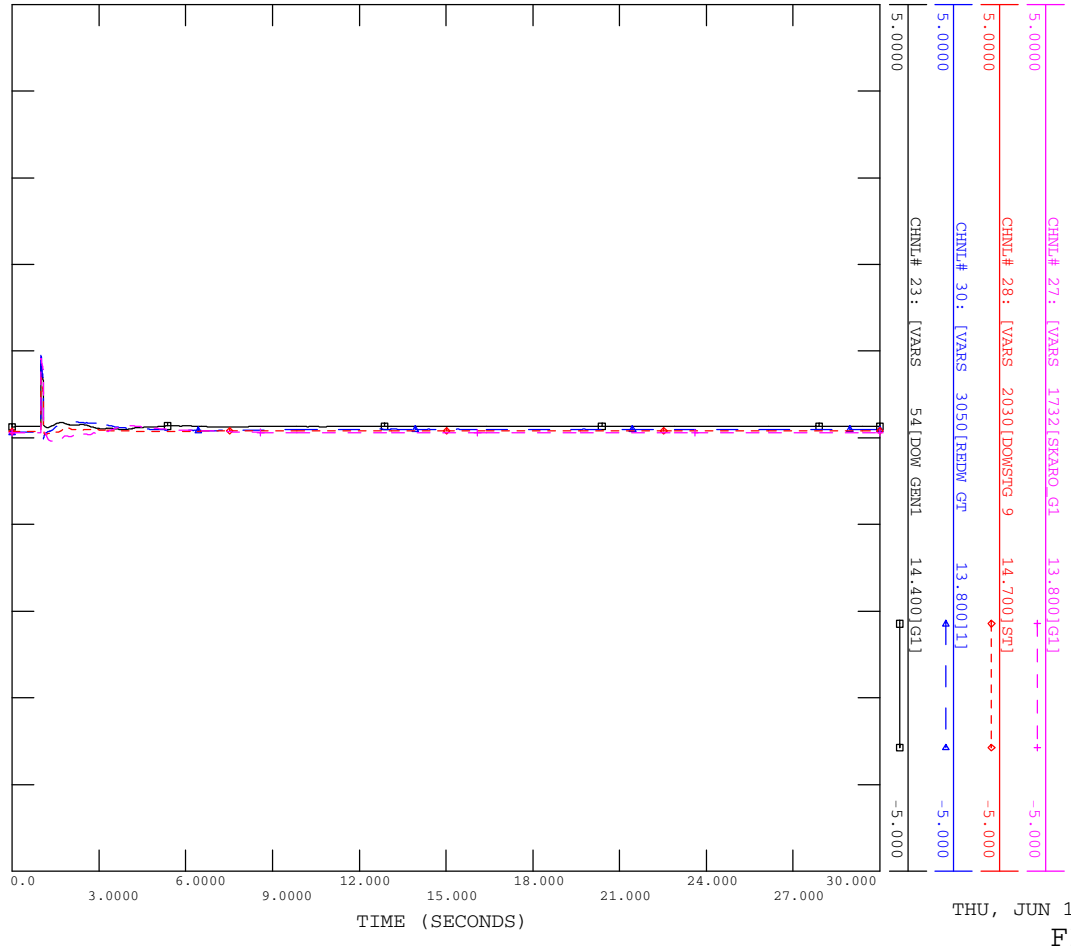
TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

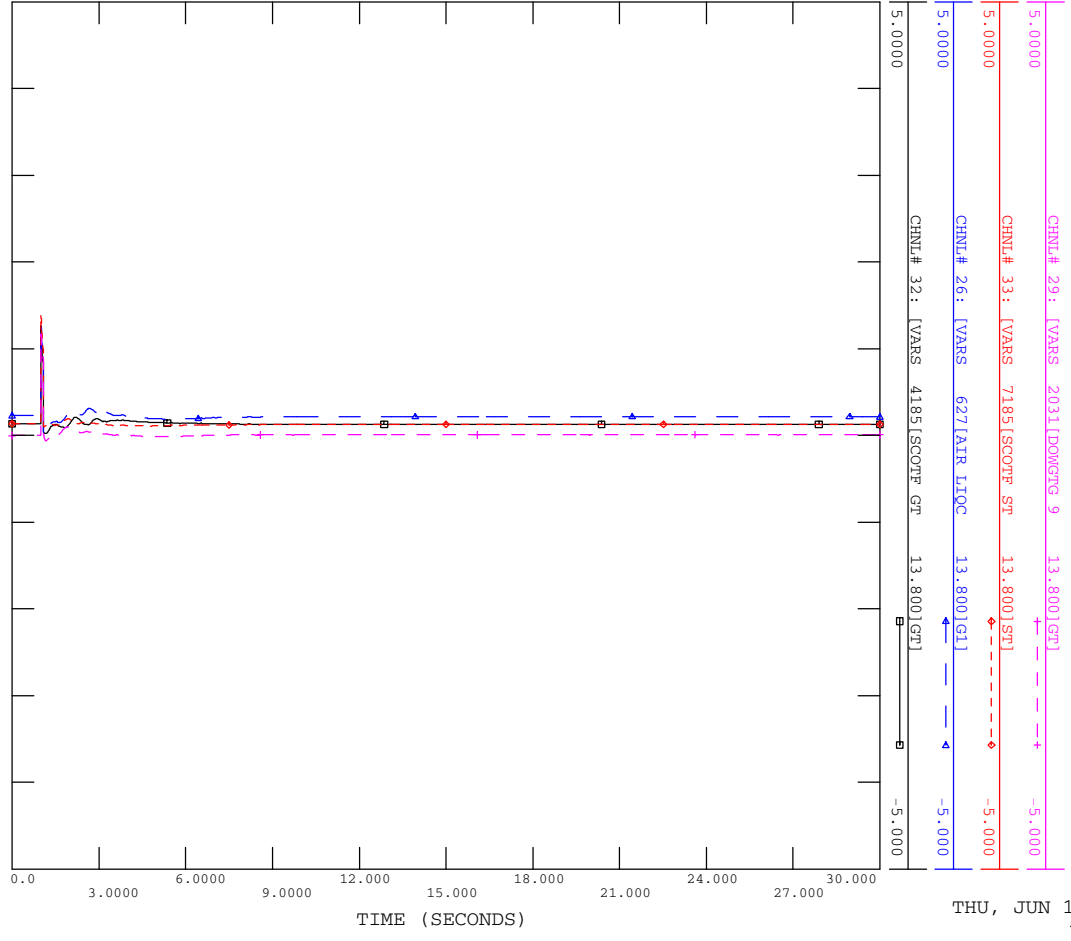
FILE: CON26.OUT





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

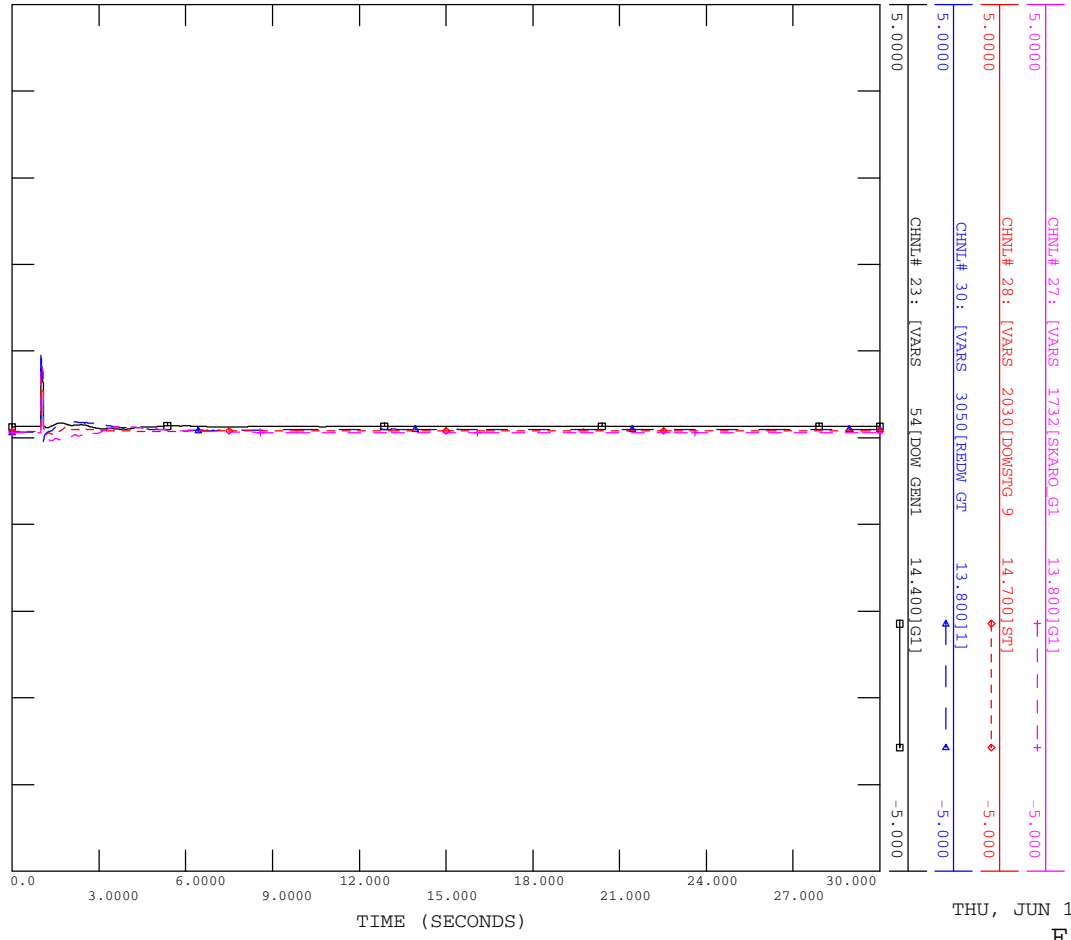


THU, JUN 19 2014 15:02  
FIG E3-25



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

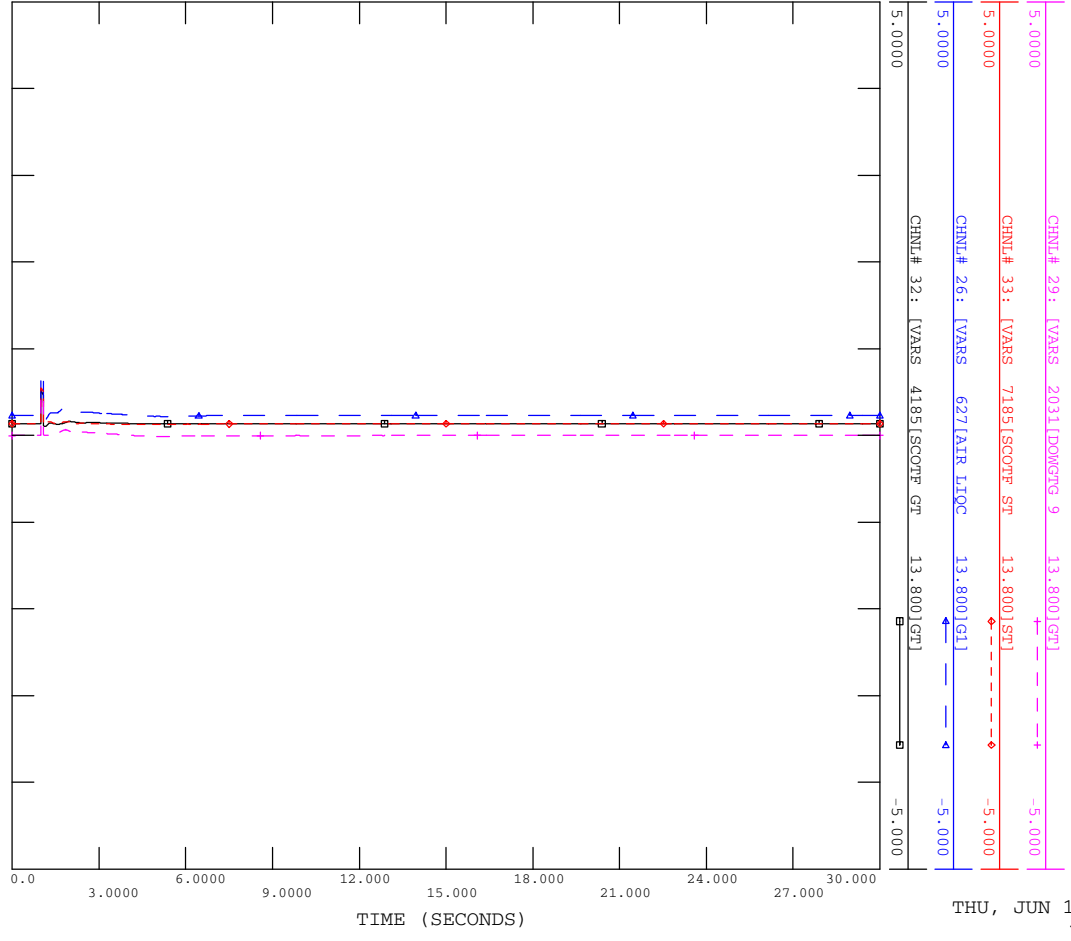


THU, JUN 19 2014 15:02  
FIG E3-25A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 109S T1

FILE: CONG1.OUT

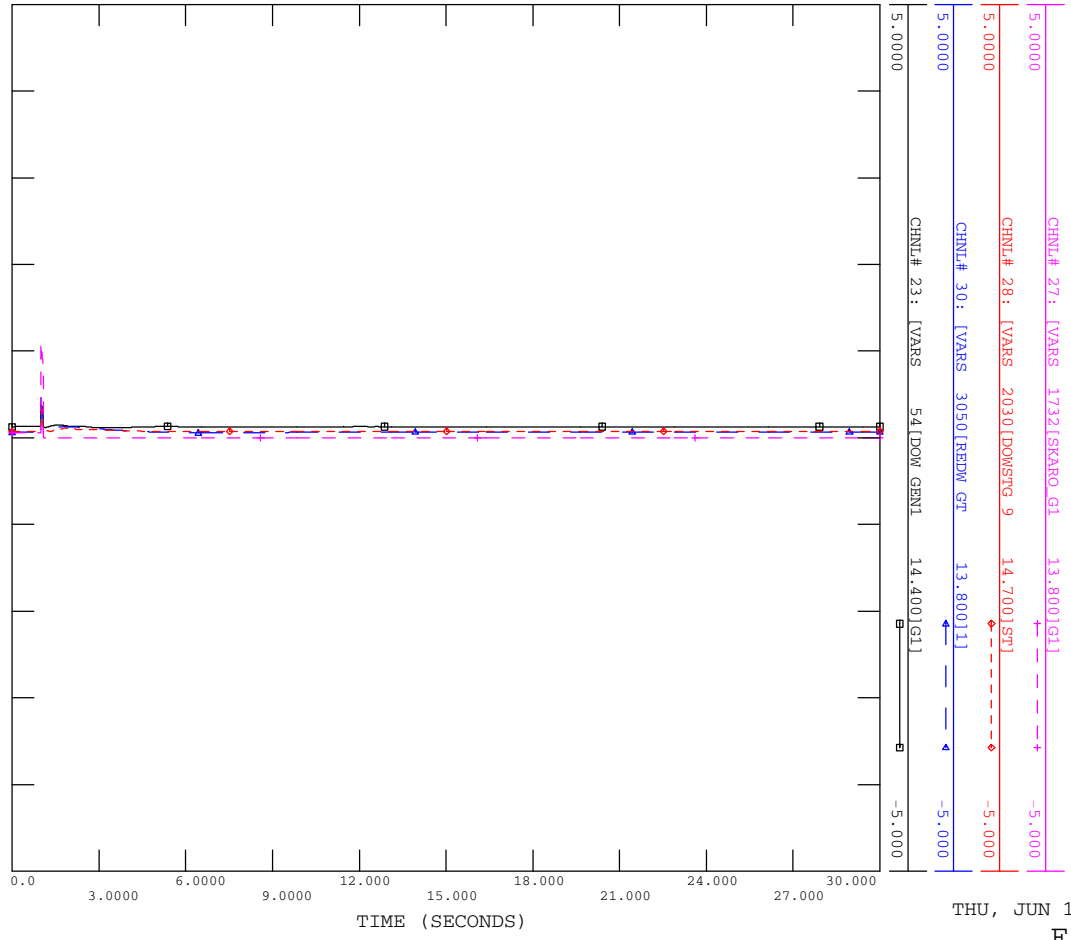


THU, JUN 19 2014 15:03  
FIG E3-26



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 109S T1

FILE: CONG1.OUT

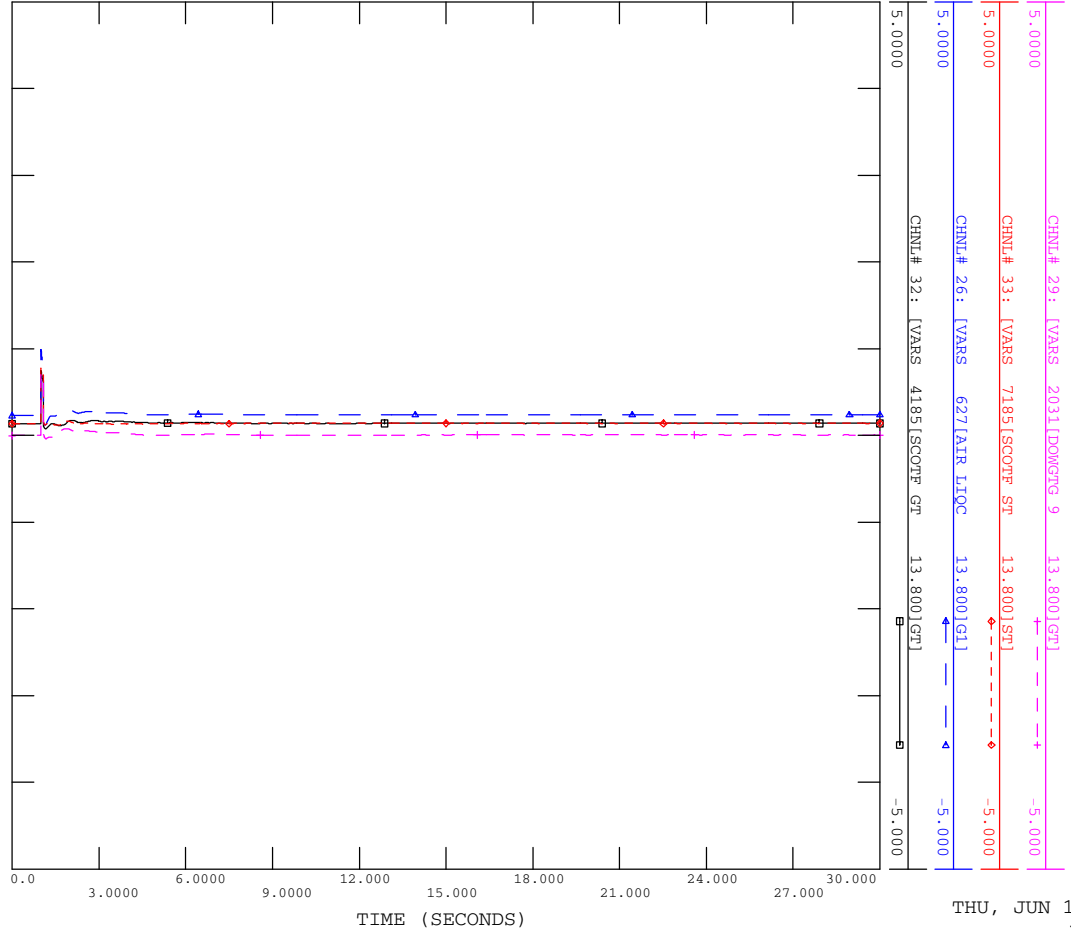


THU, JUN 19 2014 15:03  
FIG E3-26A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

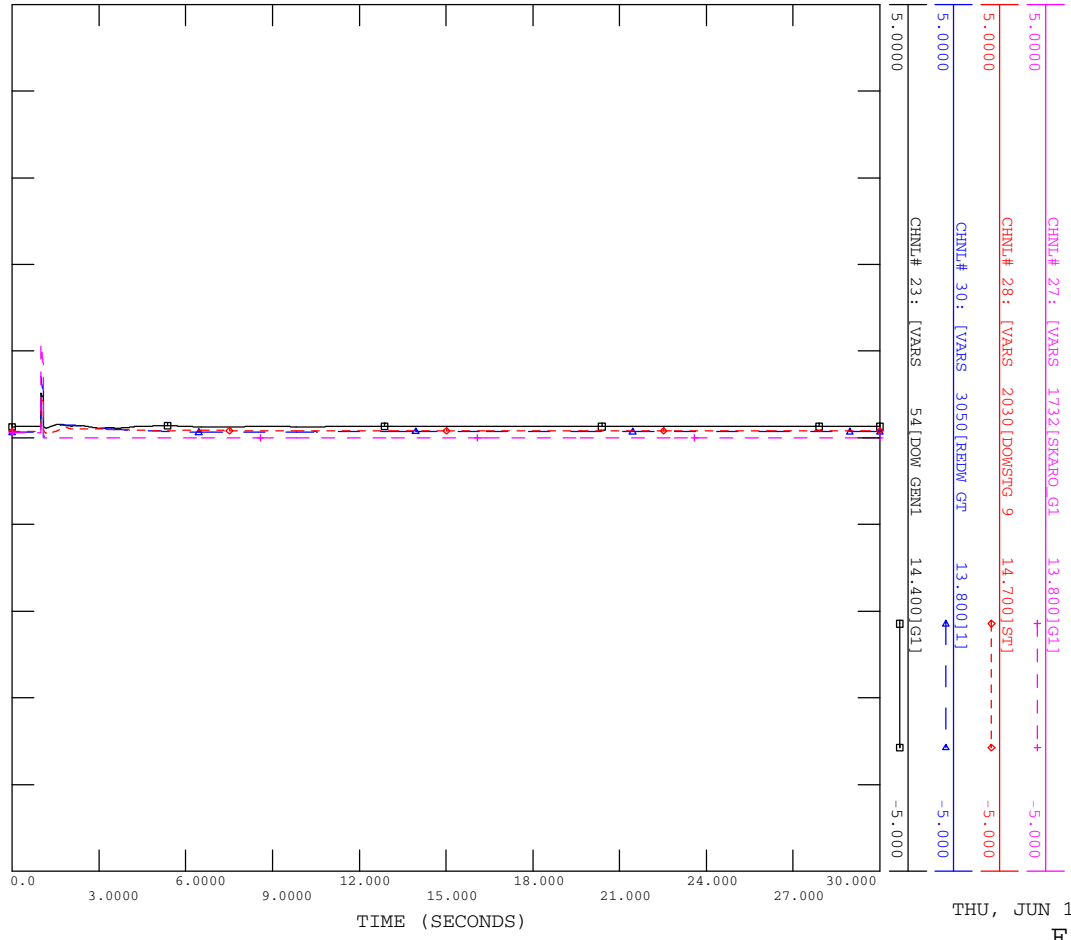


THU, JUN 19 2014 15:03  
FIG E3-27



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

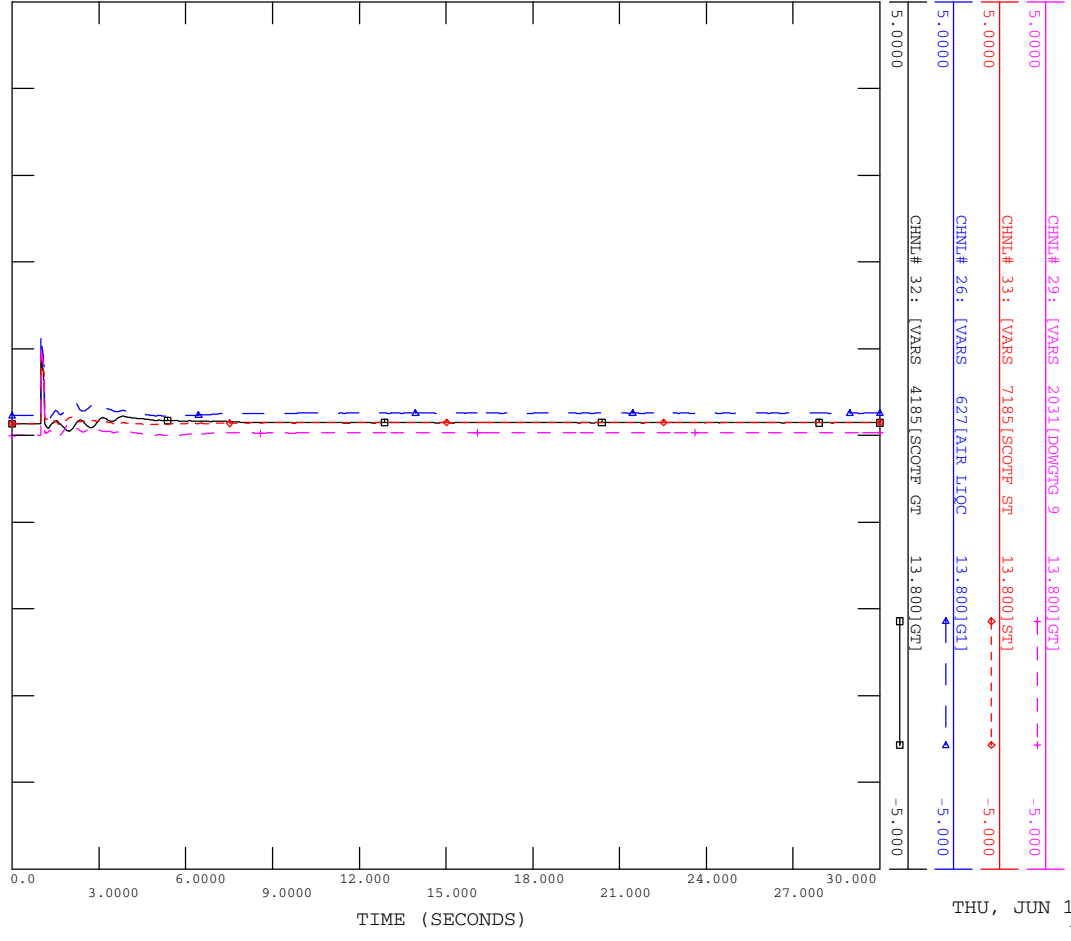


THU, JUN 19 2014 15:03  
FIG E3-27A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP C - 1054L & 943L 3PH FAULT AP 13S

FILE: CON28.OUT

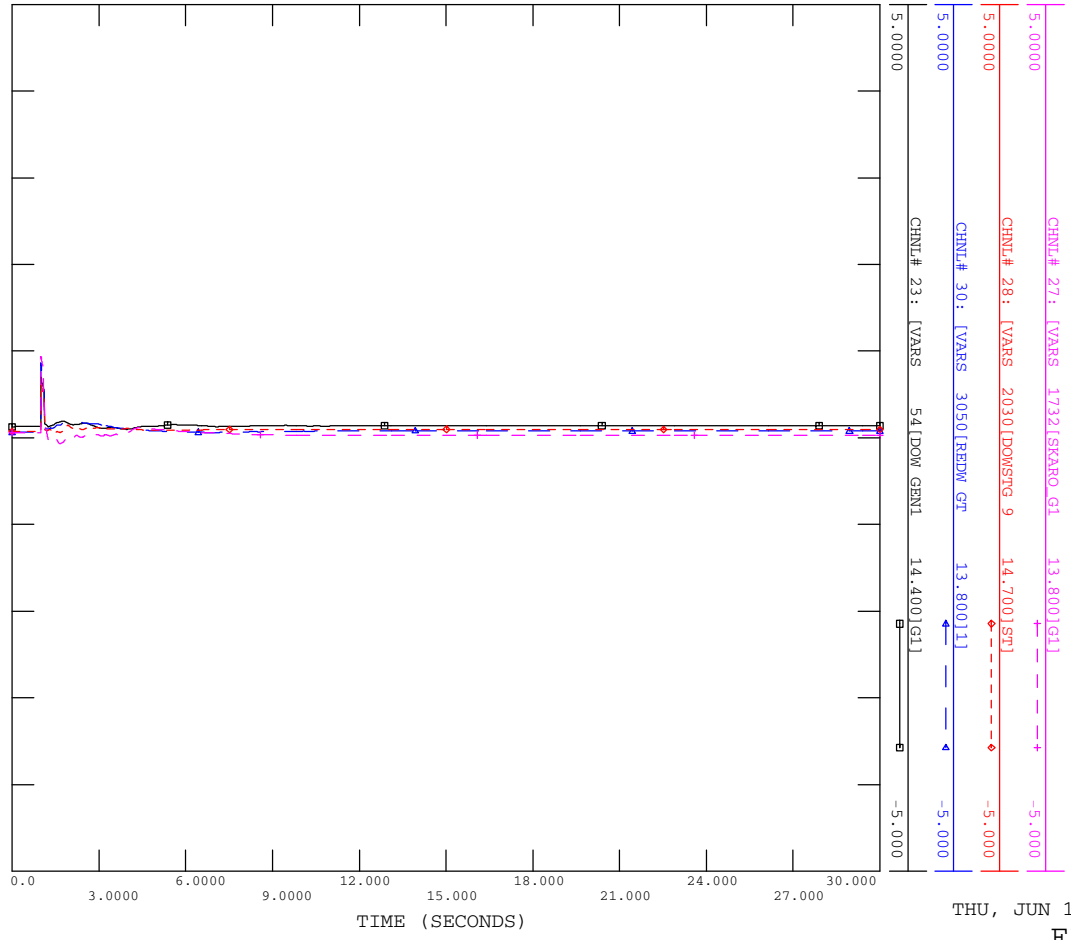


THU, JUN 19 2014 15:04  
FIG E3-28



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP C - 1054L & 943L 3PH FAULT AP 13S

FILE: CON28.OUT



THU, JUN 19 2014 15:04  
FIG E3-28A

## **Attachment E-4**

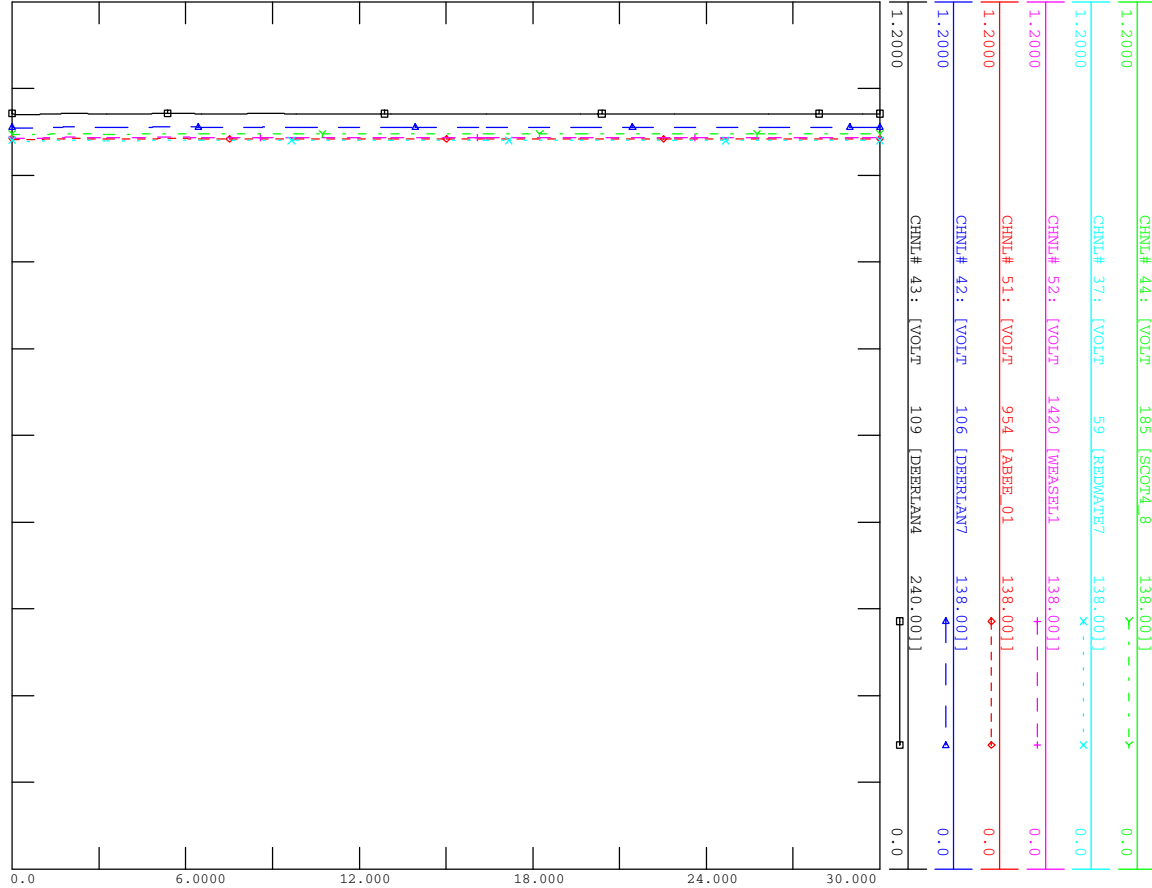
### **Scenario 4 Transient Stability Plots Monitored Area Bus Voltages**





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP A - FLAT START

FILE: CONO.OUT

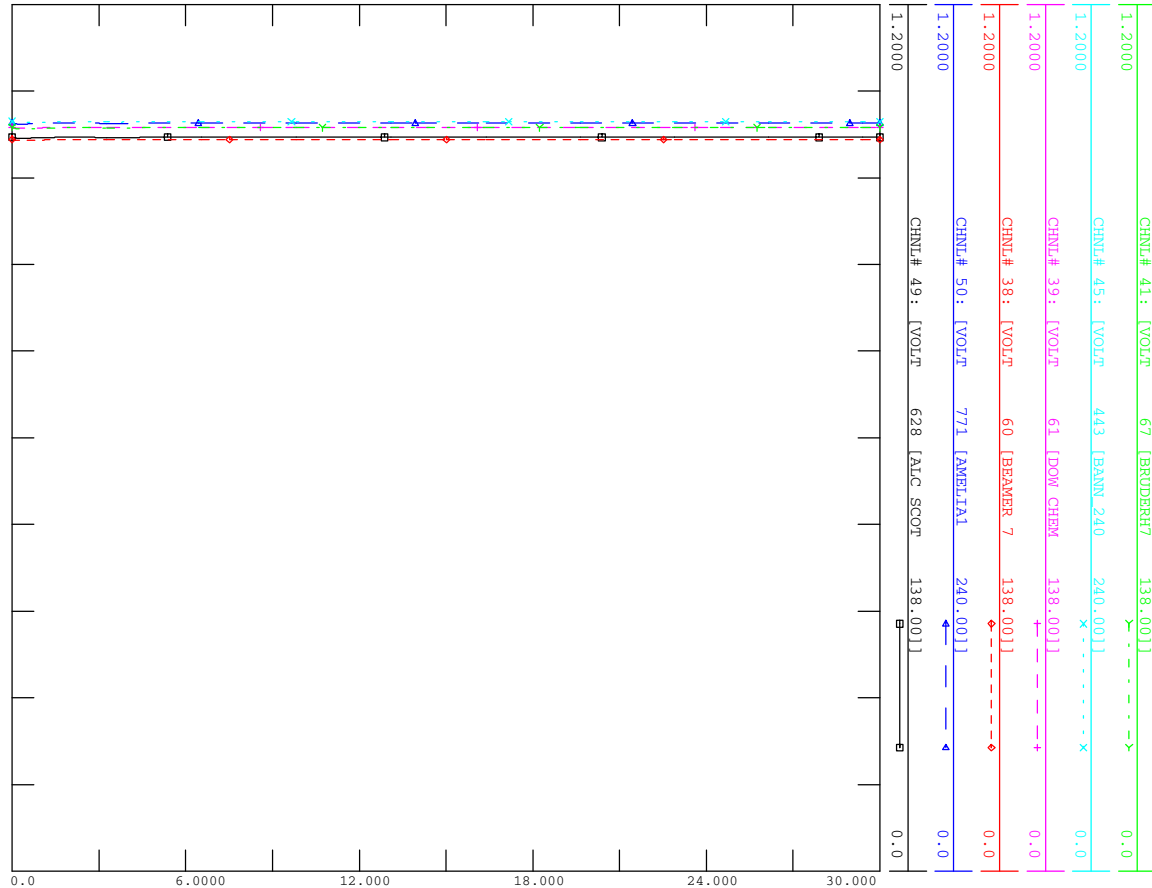


THU, JUN 19 2014 14:41  
 FIG E4-1



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP A - FLAT START

FILE: CONO.OUT

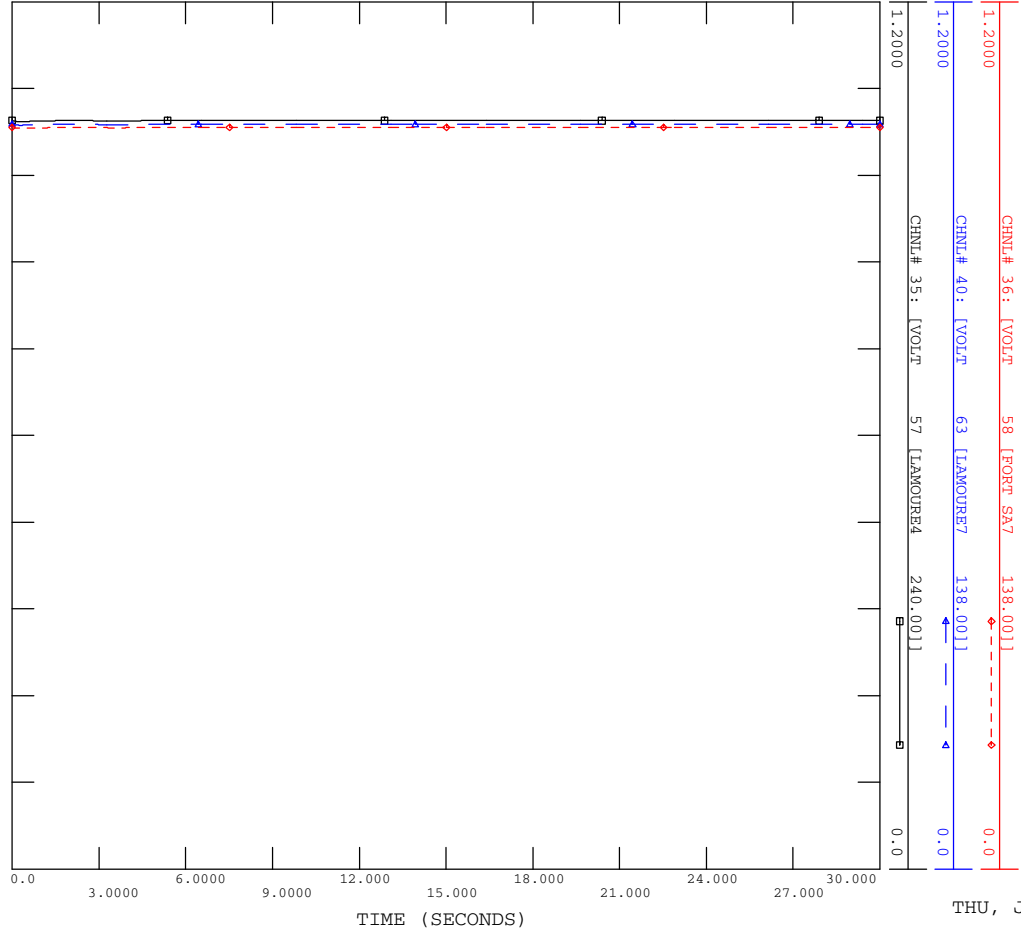


THU, JUN 19 2014 14:41  
 FIG E4-1A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP A - FLAT START

FILE: CON0.OUT

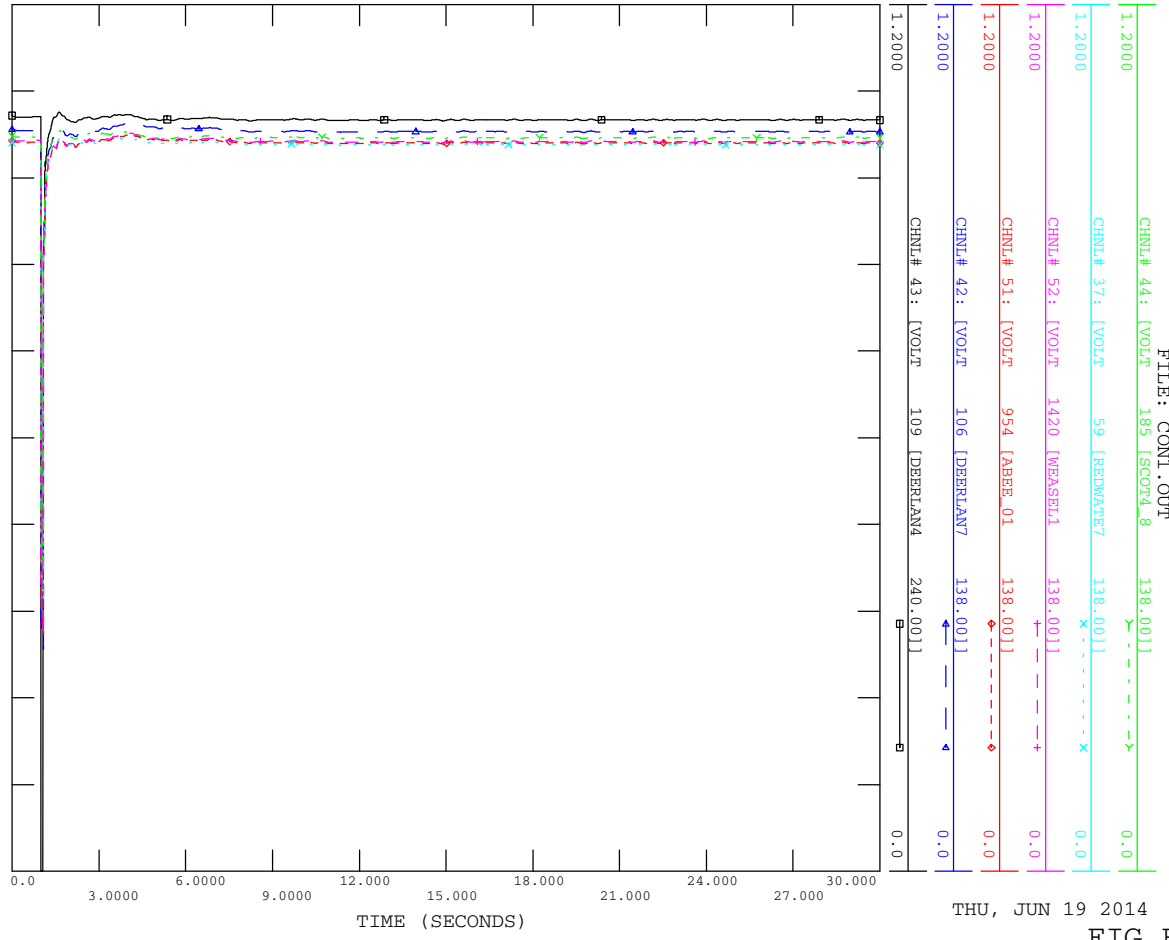


THU, JUN 19 2014 14:42  
 FIG E4-1B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 91,961 3PH FAULT AT 13S

FILE: CON1.OUT



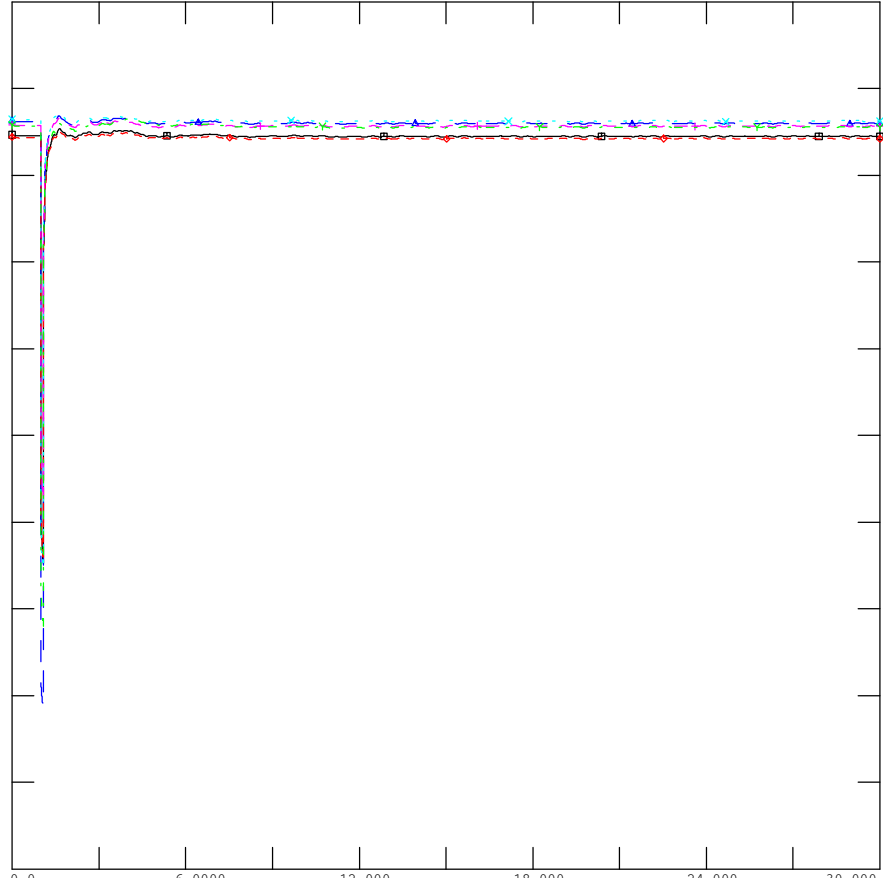
THU, JUN 19 2014 14:42  
 FIG E4-2



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

CHNL#	[VOLT]	67 [BRUDERH7]	138.001]	0.0
1.2000	[VOLT]	443 [BANNV_240]	240.001]	0.0
1.2000	[VOLT]	61 [DOH CHRM]	138.001]	0.0
1.2000	[VOLT]	60 [BEAMER 7]	138.001]	0.0
1.2000	[VOLT]	771 [AMETA1]	240.001]	0.0
1.2000	[VOLT]	628 [ALG SCOR]	138.001]	0.0



TIME (SECONDS)

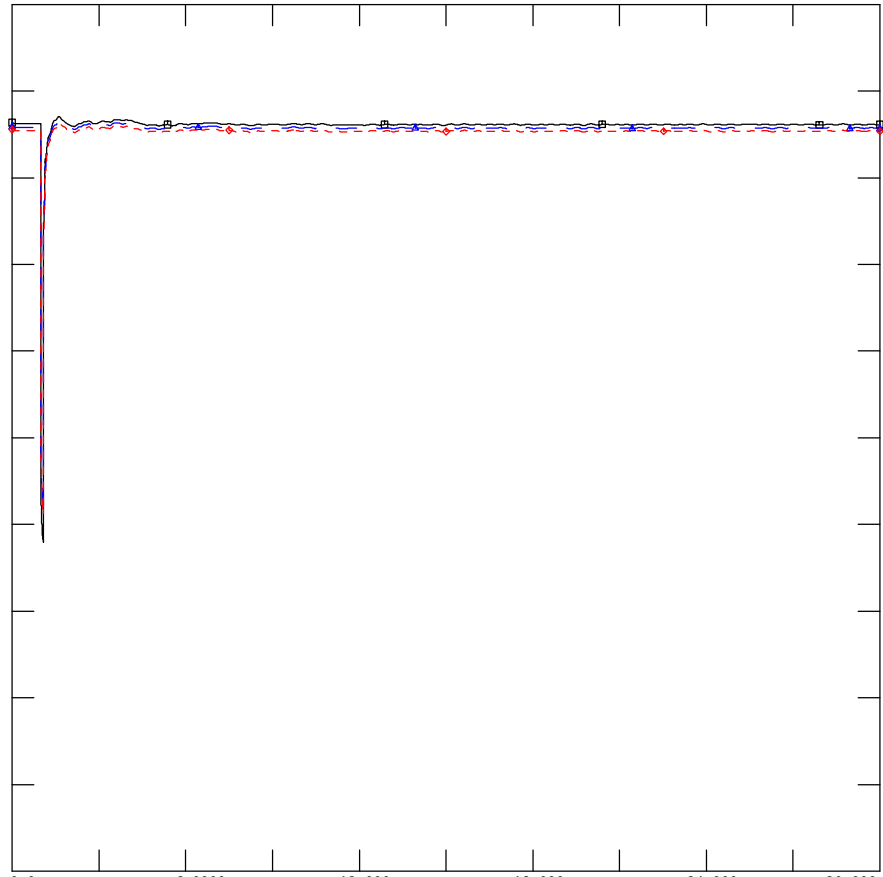
THU, JUN 19 2014 14:43  
 FIG E4-2A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

CHNL#	[VOLT]	58 [PORT SA7]	138.001]	0.0
1.2000	[VOLT] <td>63 [LAMOURB7]</td> <td>138.001]</td> <td>0.0</td>	63 [LAMOURB7]	138.001]	0.0
1.2000	[VOLT] <td>57 [LAMOURB4]</td> <td>240.001]</td> <td>0.0</td>	57 [LAMOURB4]	240.001]	0.0



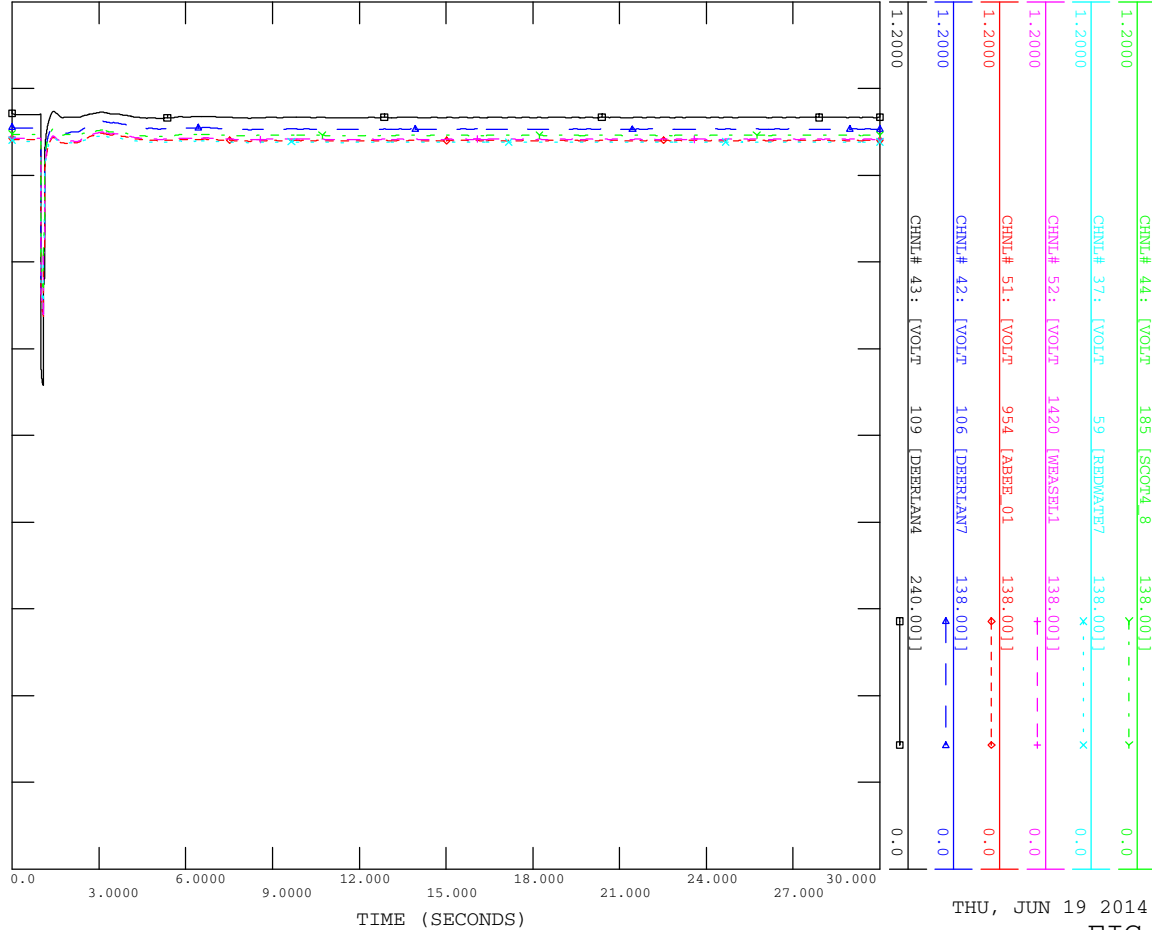
TIME (SECONDS)

THU, JUN 19 2014 14:43  
 FIG E4-2B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

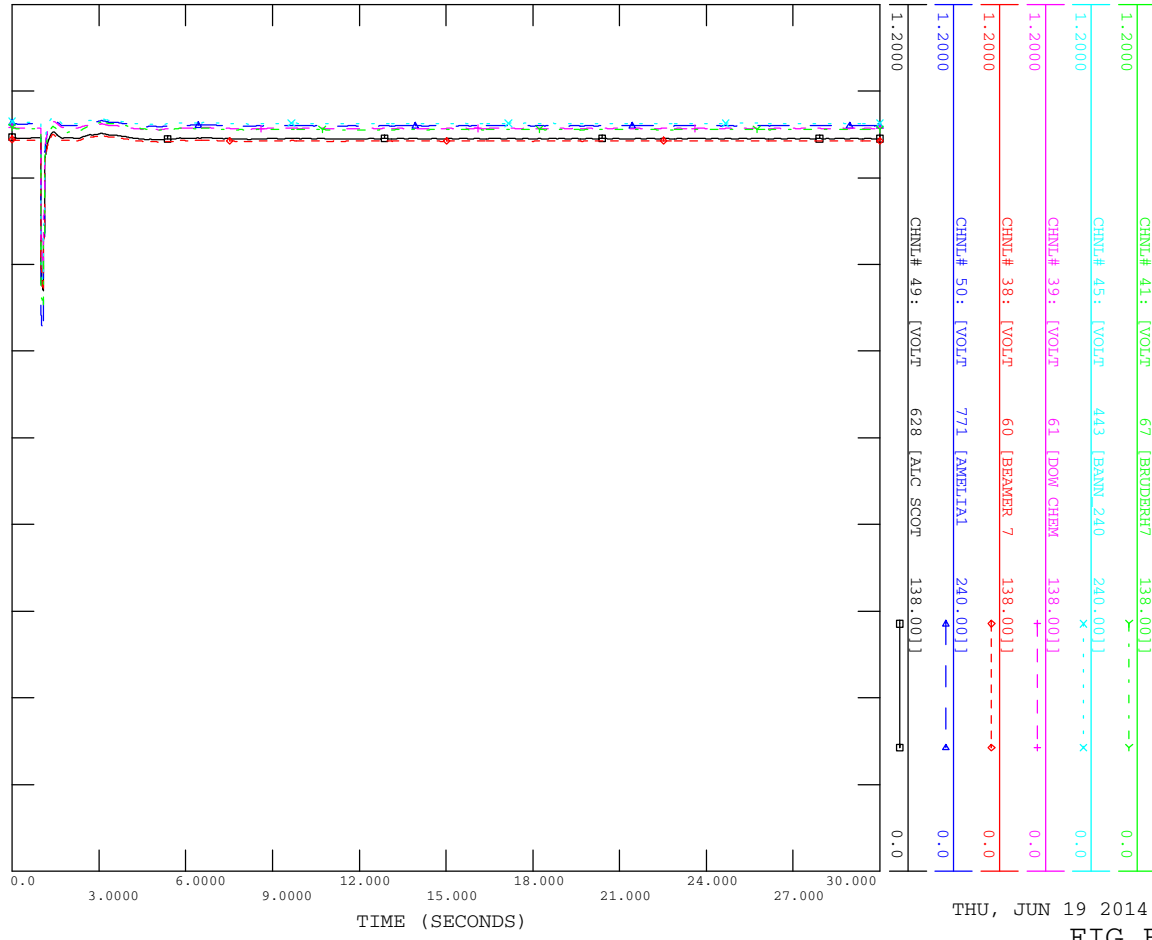


THU, JUN 19 2014 14:43  
 FIG E4-3



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

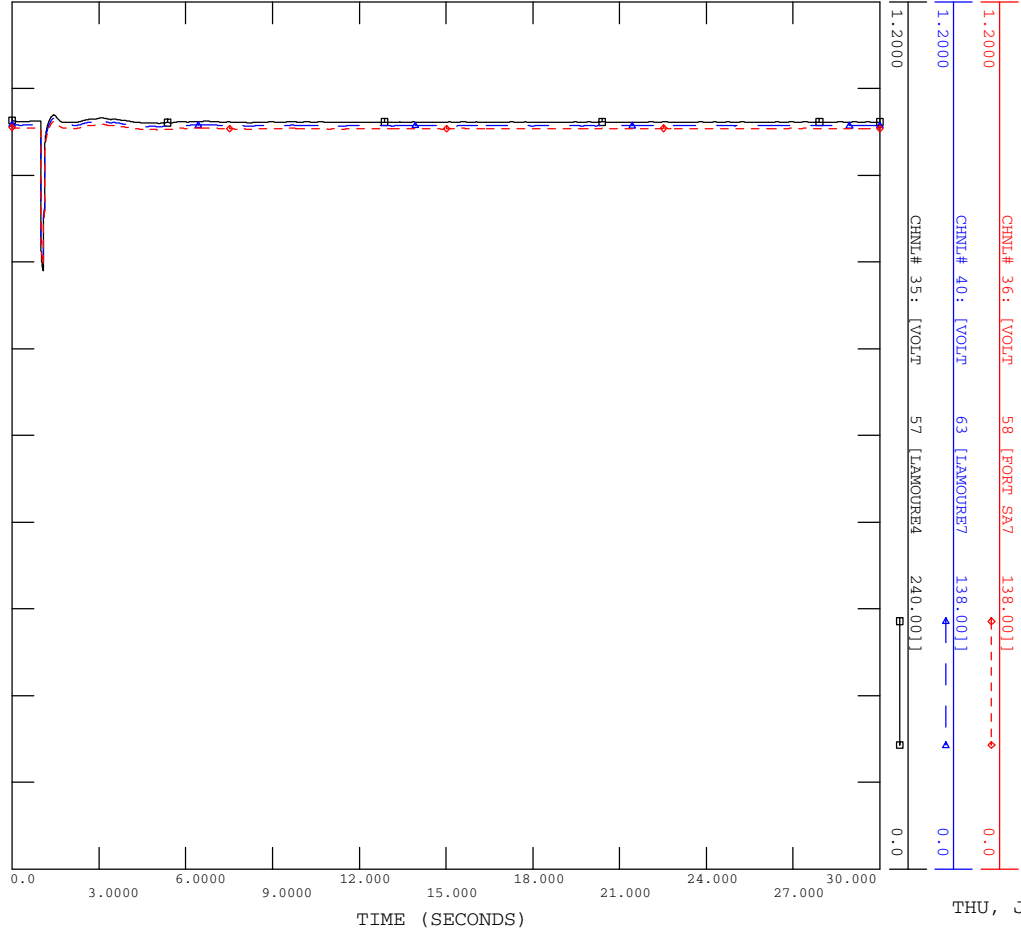


THU, JUN 19 2014 14:44  
 FIG E4-3A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

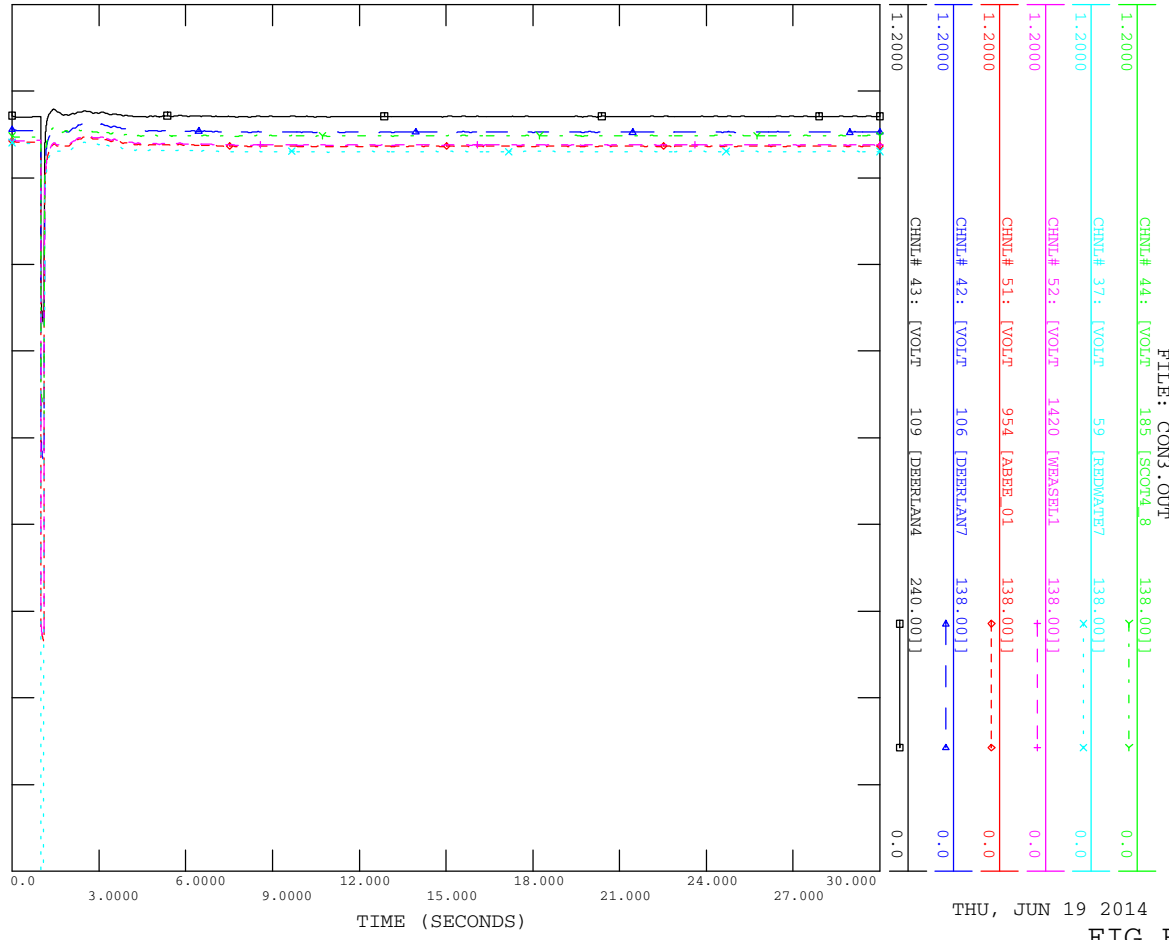


THU, JUN 19 2014 14:44  
 FIG E4-3B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT



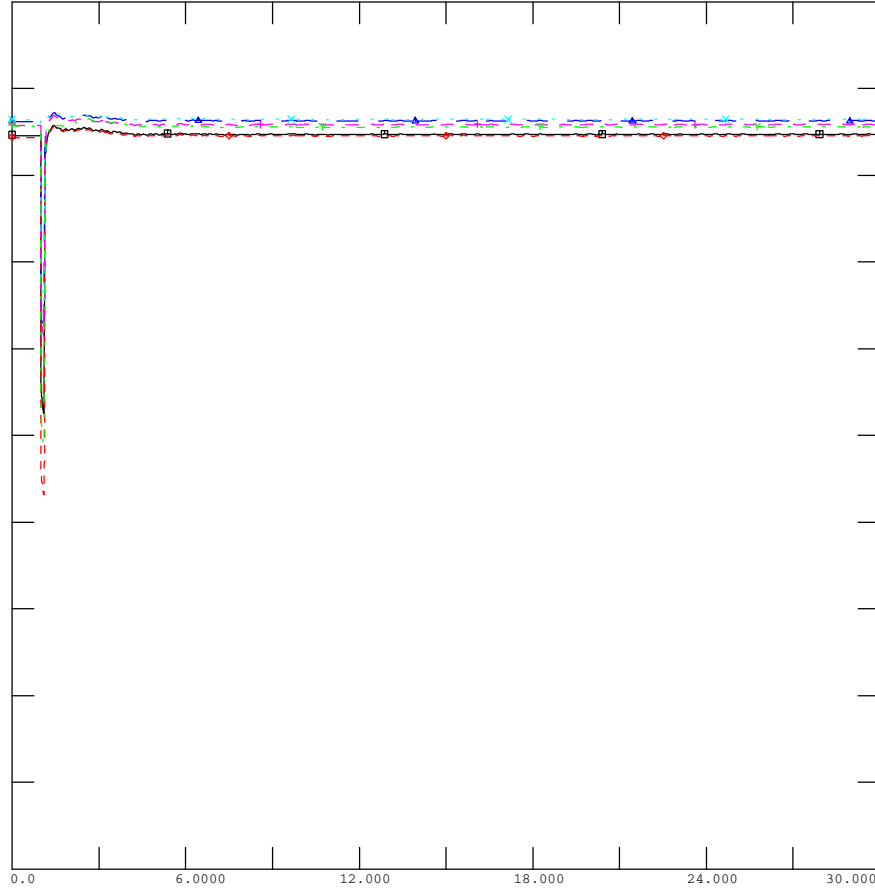
THU, JUN 19 2014 14:45  
 FIG E4-4



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

CHNL#	[VOLT]	[BRUDERH7]	[38.001]
41	67	138.001	0.0
45	443	240.001	0.0
39	61	138.001	0.0
38	60	138.001	0.0
50	771	240.001	0.0
49	628	138.001	0.0



THU, JUN 19 2014 14:45

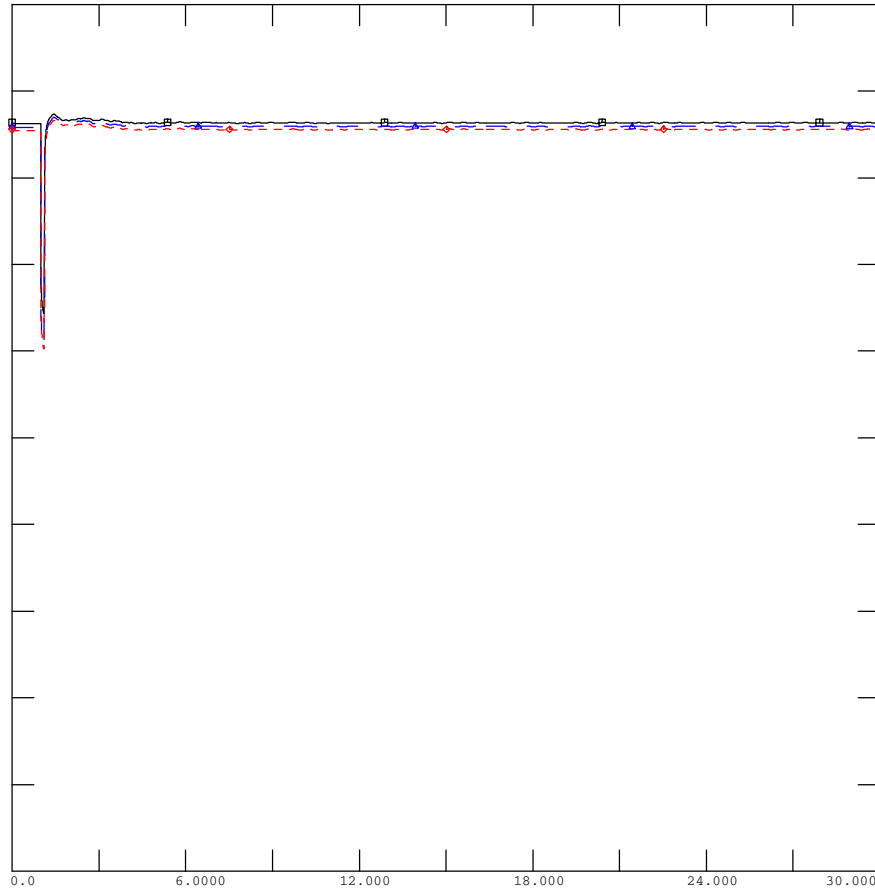
FIG E4-4A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

CHNL#	[VOLT]	[PORT SA7]	[38.001]
36	58	138.001	0.0
40	63	138.001	0.0
35	57	240.001	0.0



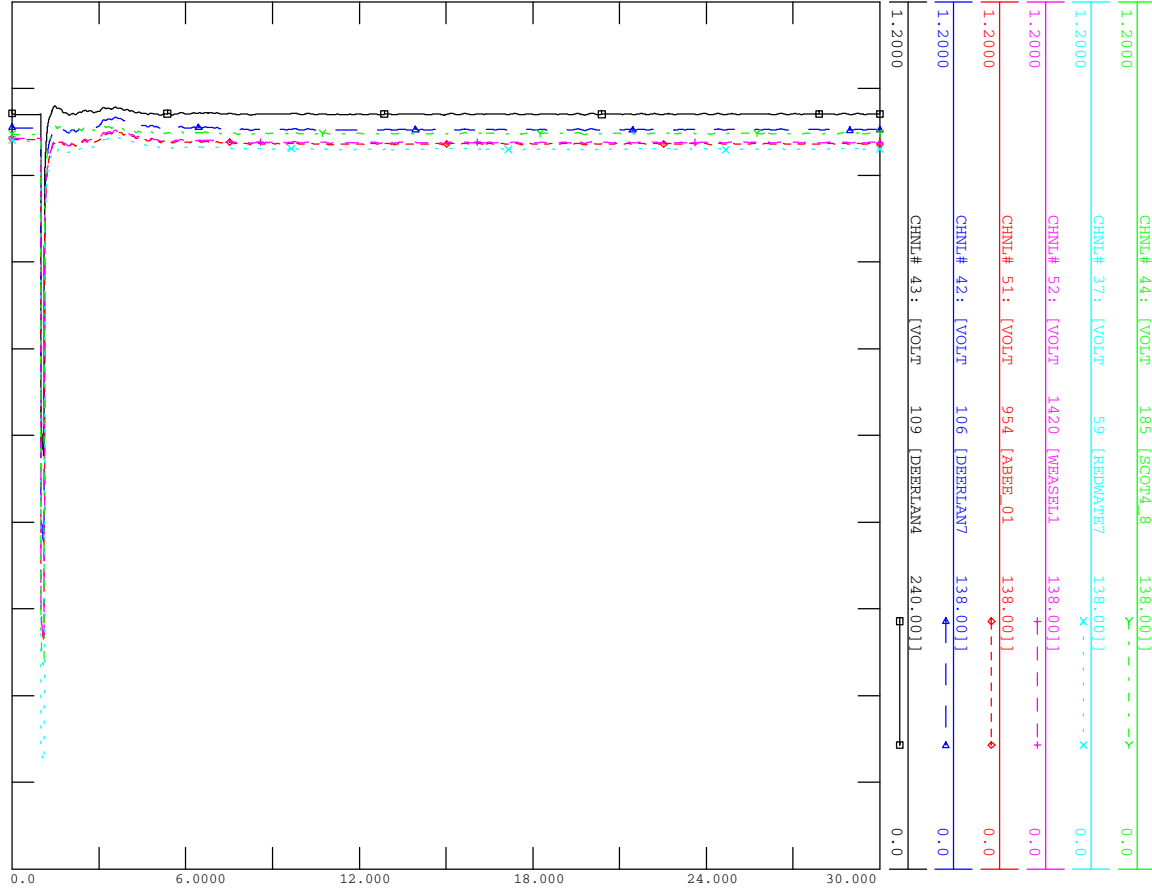
THU, JUN 19 2014 14:46

FIG E4-4B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT



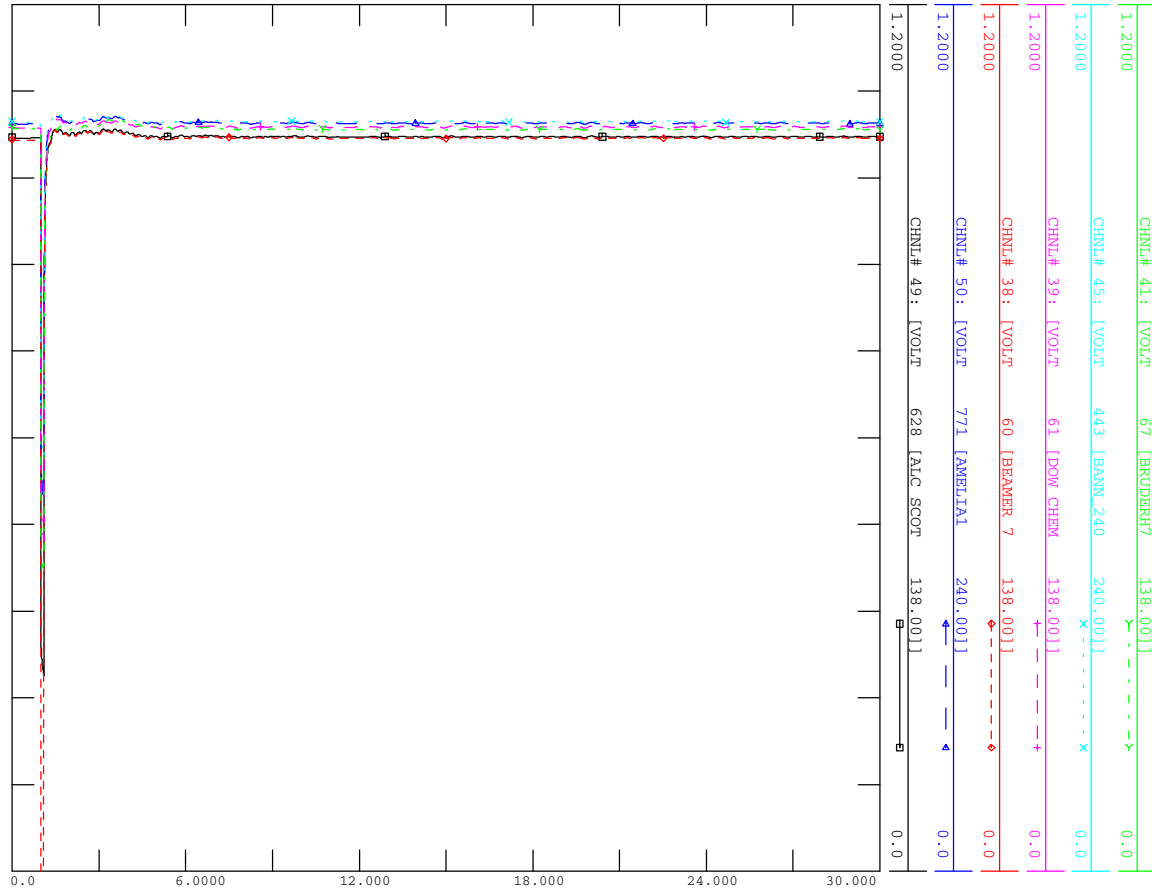
THU, JUN 19 2014 14:46

FIG E4-5



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT



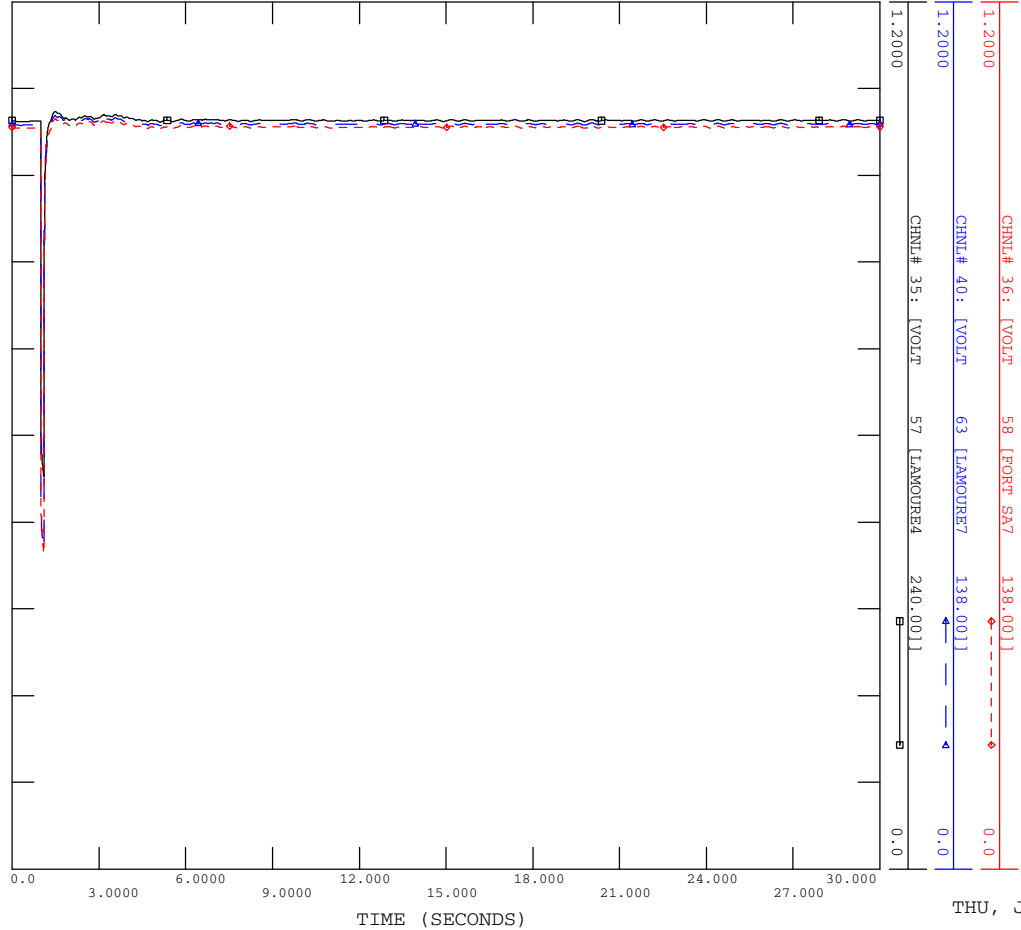
THU, JUN 19 2014 14:47

FIG E4-5A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

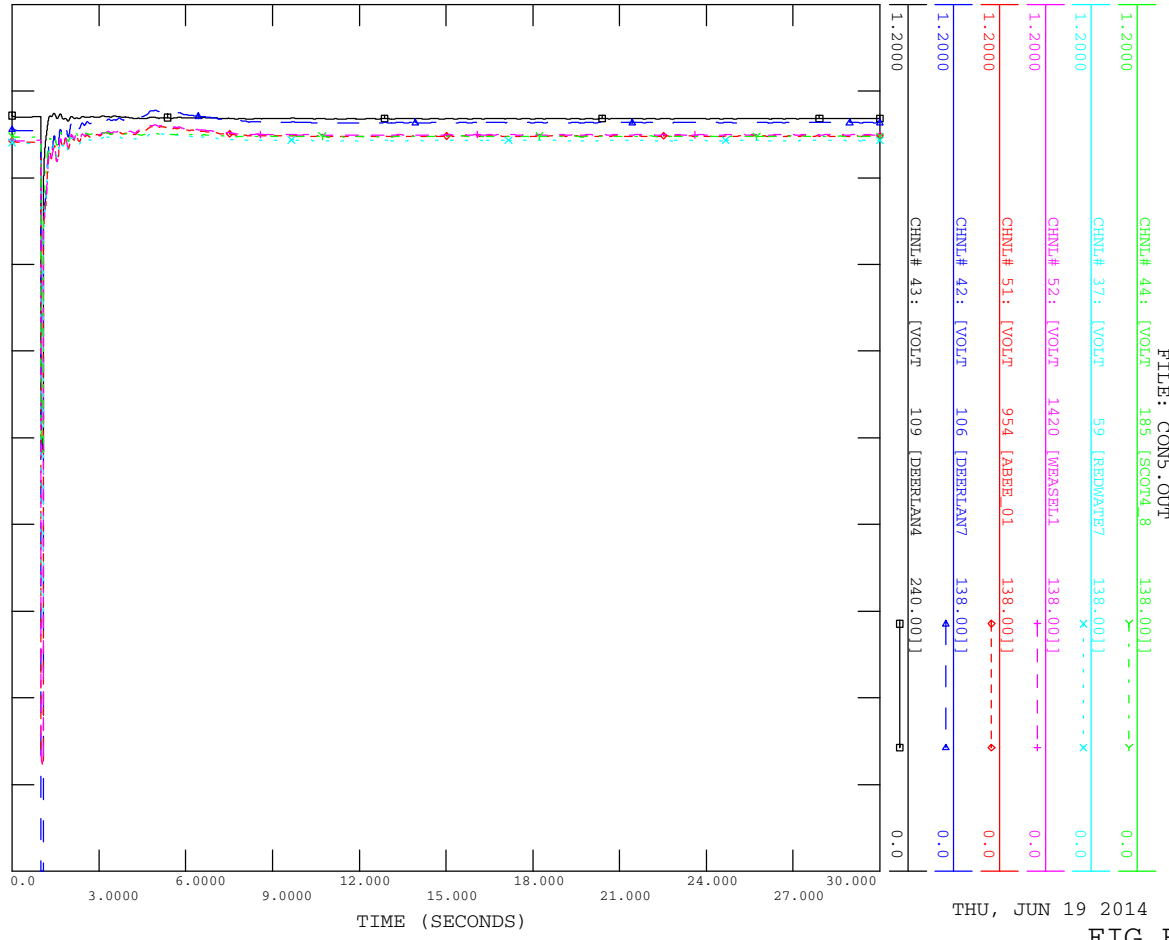


THU, JUN 19 2014 14:47  
 FIG E4-5B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT



THU, JUN 19 2014 14:47  
 FIG E4-6

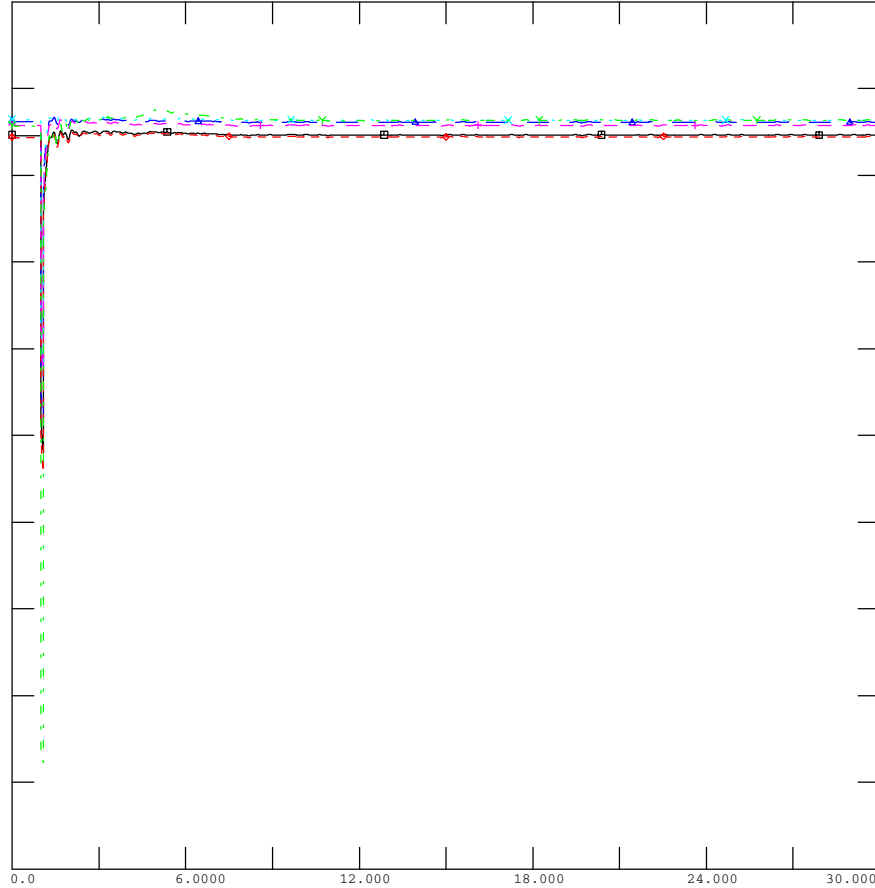




TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

CHNL#	[VOLT]	[BRUDERH7]	[138.001]
1.2000	443	[BAVNY 240]	0.0
1.2000	61	[DOH CHRM]	0.0
1.2000	60	[BEANER 7]	0.0
1.2000	771	[AMELTA1]	0.0
1.2000	628	[ALC SCOR]	0.0
1.2000	138.001		0.0



THU, JUN 19 2014 14:48

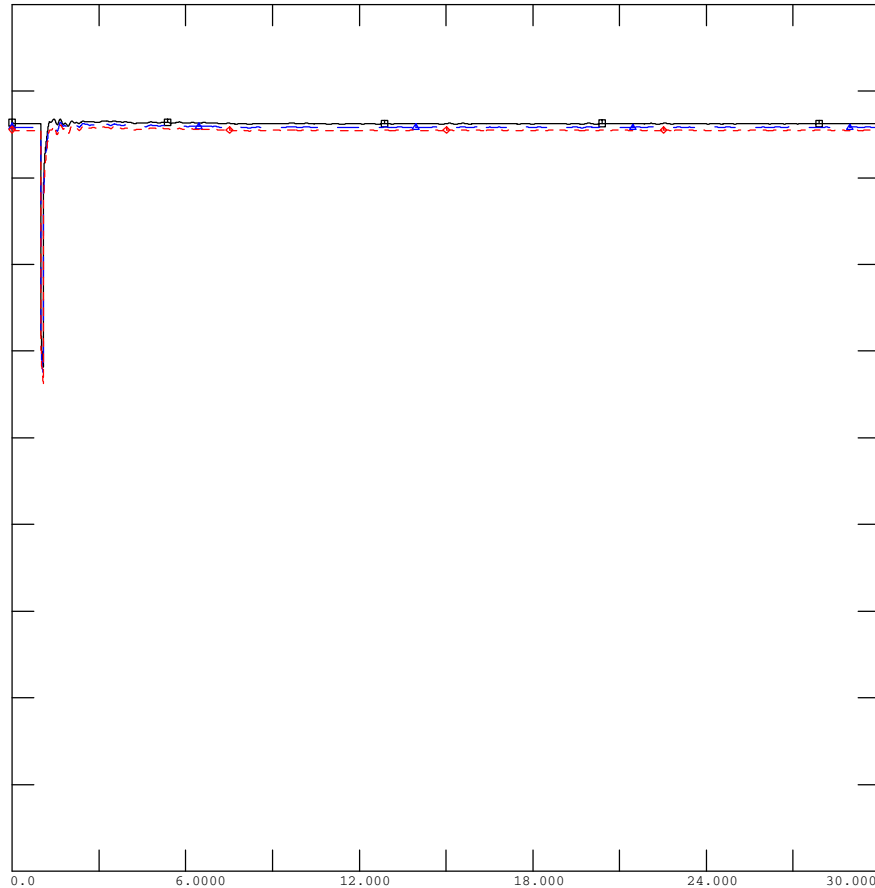
FIG E4-6A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

CHNL#	[VOLT]	[FOPR SA7]	[138.001]
1.2000	63	[LAMOURB7]	0.0
1.2000	57	[LAMOURB4]	0.0
1.2000	240.001		0.0



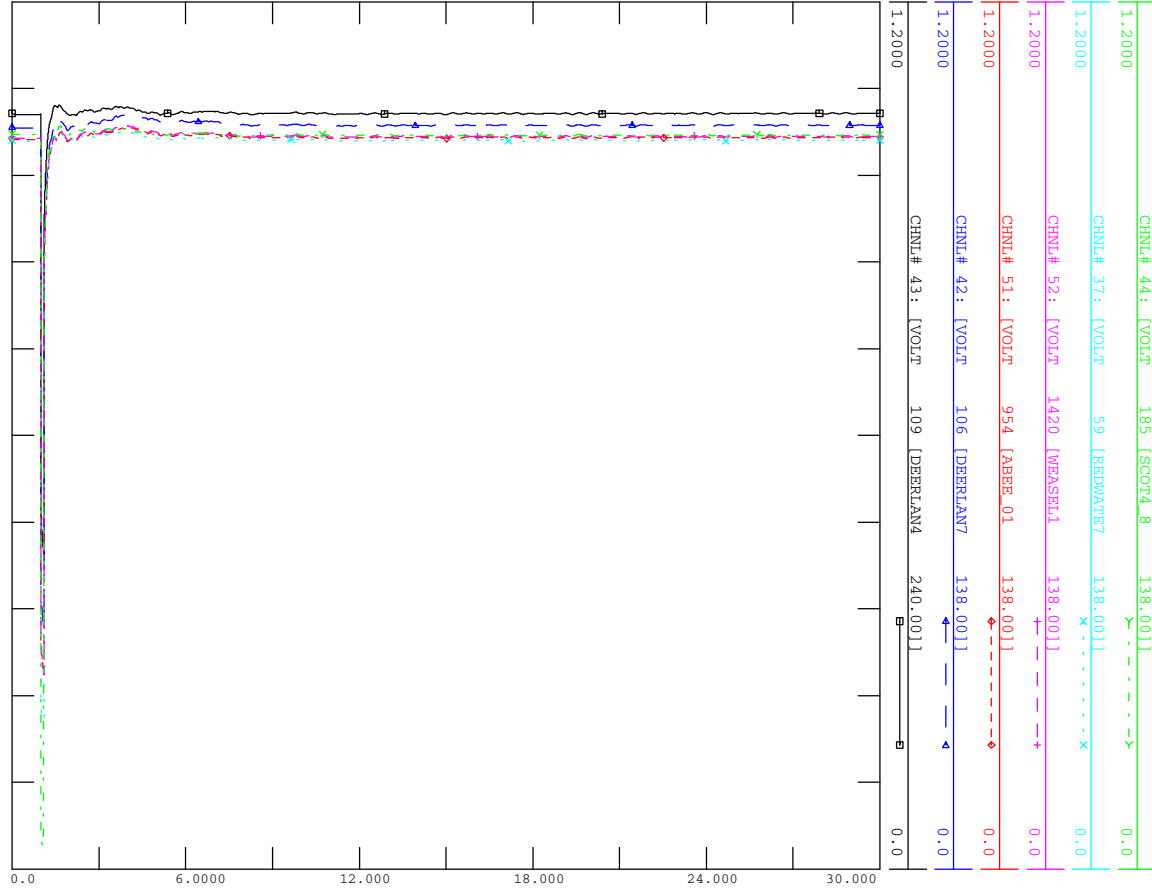
THU, JUN 19 2014 14:48

FIG E4-6B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 410S

FILE: CONT.OUT



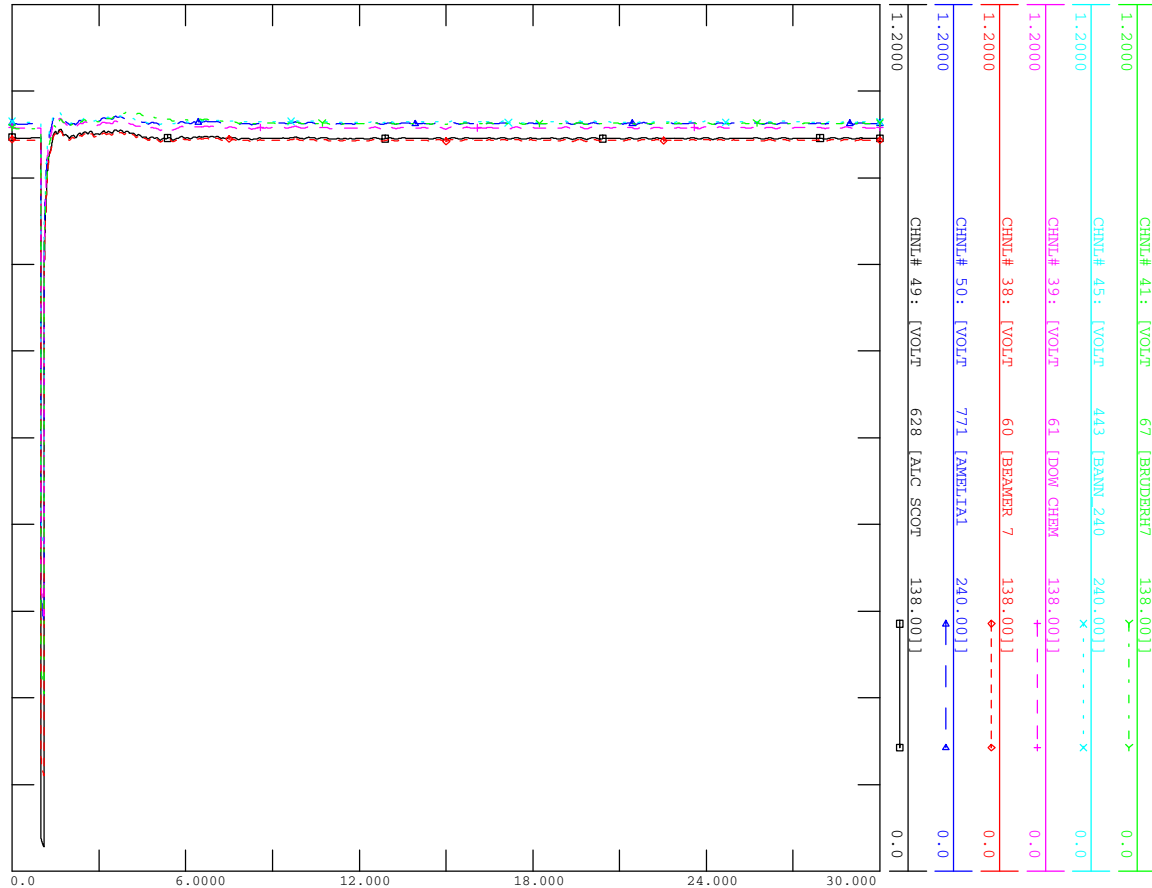
TIME (SECONDS)

THU, JUN 19 2014 14:49  
FIG E4-7



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 410S

FILE: CONT.OUT



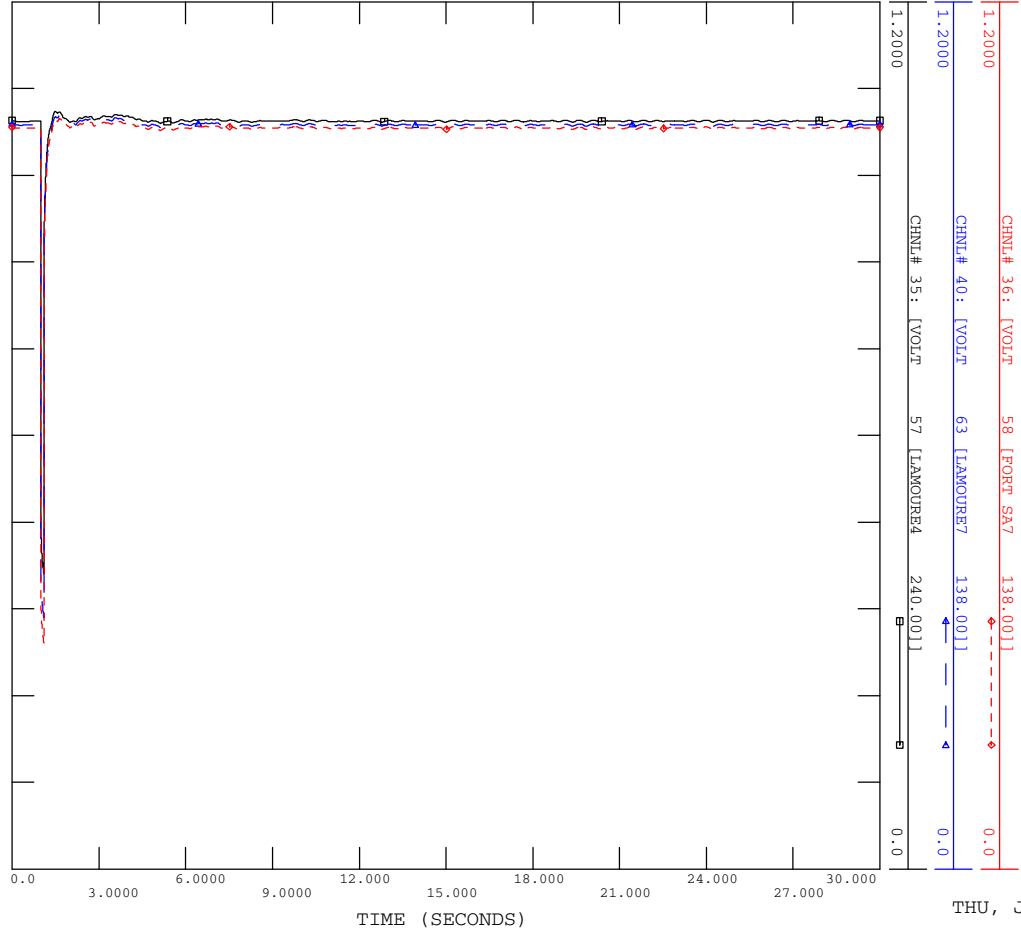
TIME (SECONDS)

THU, JUN 19 2014 14:49  
FIG E4-7A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 410S

FILE: CON7.OUT

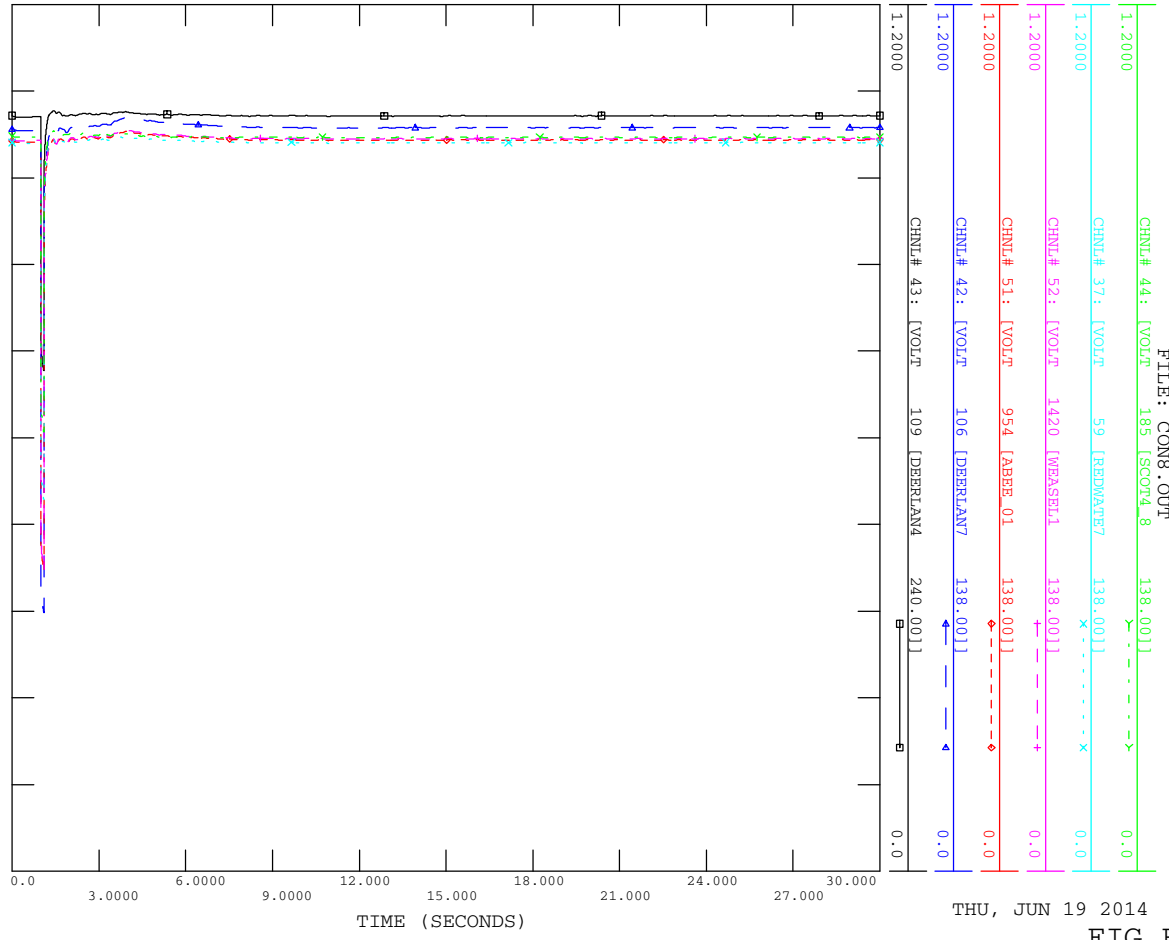


THU, JUN 19 2014 14:50  
 FIG E4-7B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT



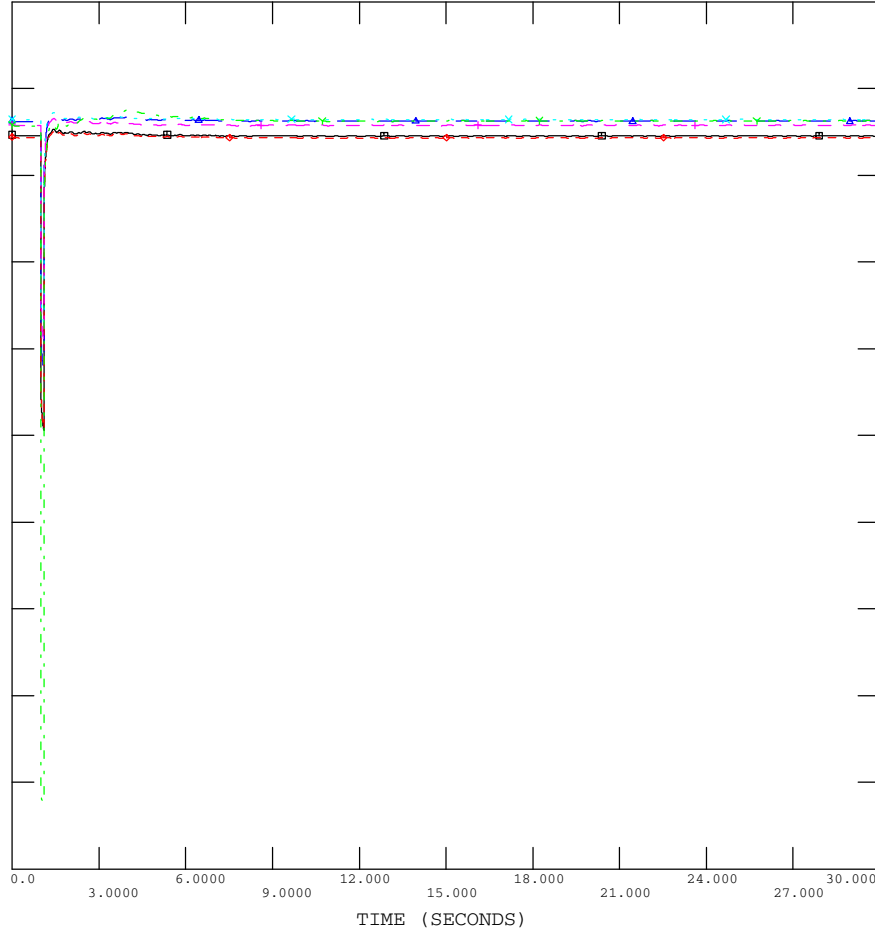
THU, JUN 19 2014 14:50  
 FIG E4-8



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

CHNL#	[VOLT]	67 [BRUDERH7]	138.001]	0.0
1.2000	CHNL# 41:	[VOLT]	67 [BRUDERH7]	138.001]
1.2000	CHNL# 45:	[VOLT]	443 [BANNV_240]	240.001]
1.2000	CHNL# 39:	[VOLT]	61 [DOH CHRM]	138.001]
1.2000	CHNL# 38:	[VOLT]	60 [BEMBR 7]	138.001]
1.2000	CHNL# 50:	[VOLT]	771 [AMELTA1]	240.001]
1.2000	CHNL# 49:	[VOLT]	628 [ALC SCOF]	138.001]



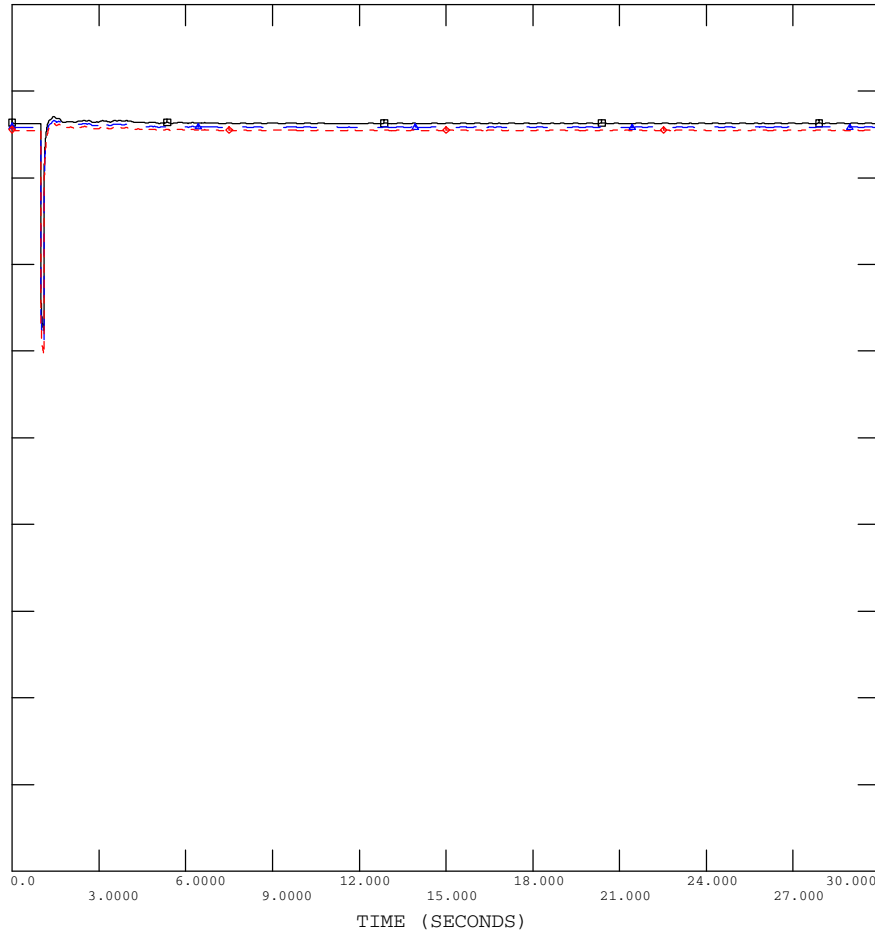
THU, JUN 19 2014 14:51  
FIG E4-8A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

CHNL#	[VOLT]	58 [PORT SA7]	138.001]	0.0
1.2000	CHNL# 36:	[VOLT]	58 [PORT SA7]	138.001]
1.2000	CHNL# 40:	[VOLT]	63 [LAMOURB7]	138.001]
1.2000	CHNL# 35:	[VOLT]	57 [LAMOURB4]	240.001]

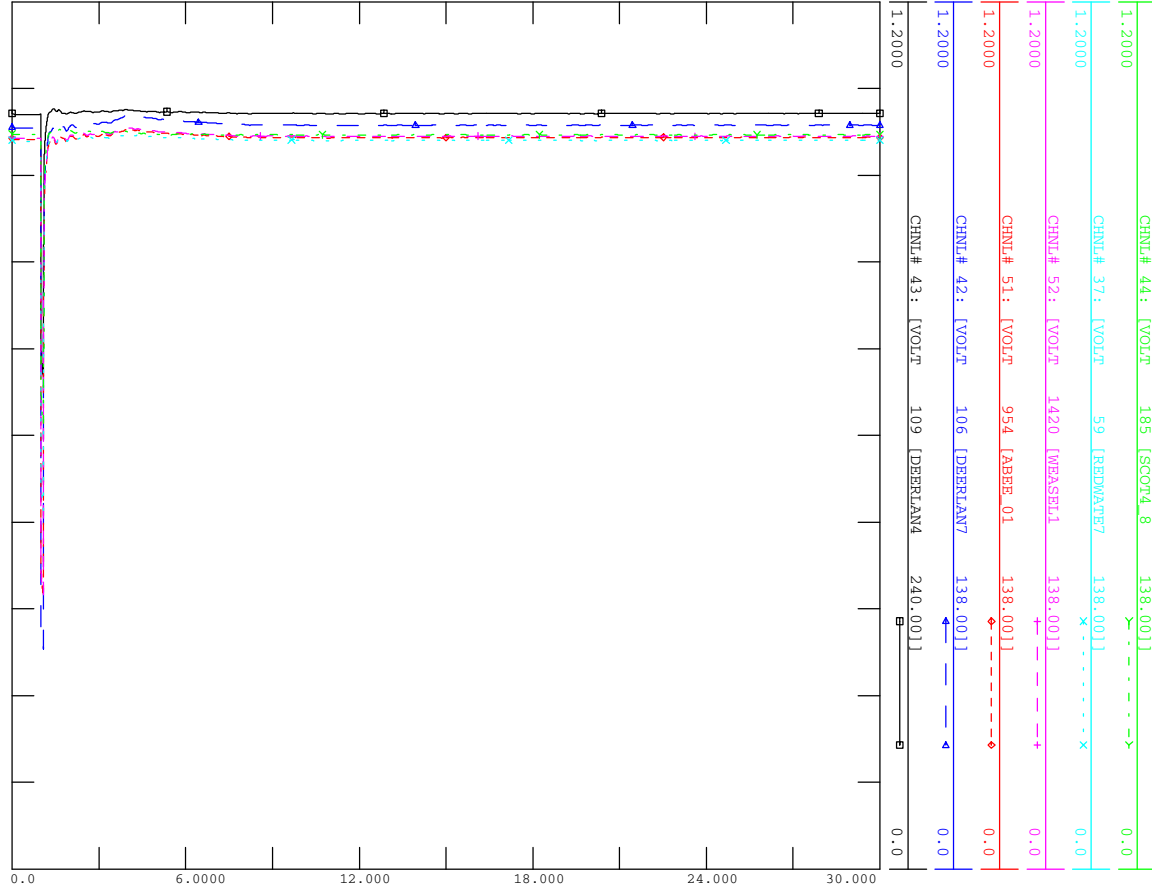


THU, JUN 19 2014 14:51  
FIG E4-8B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT



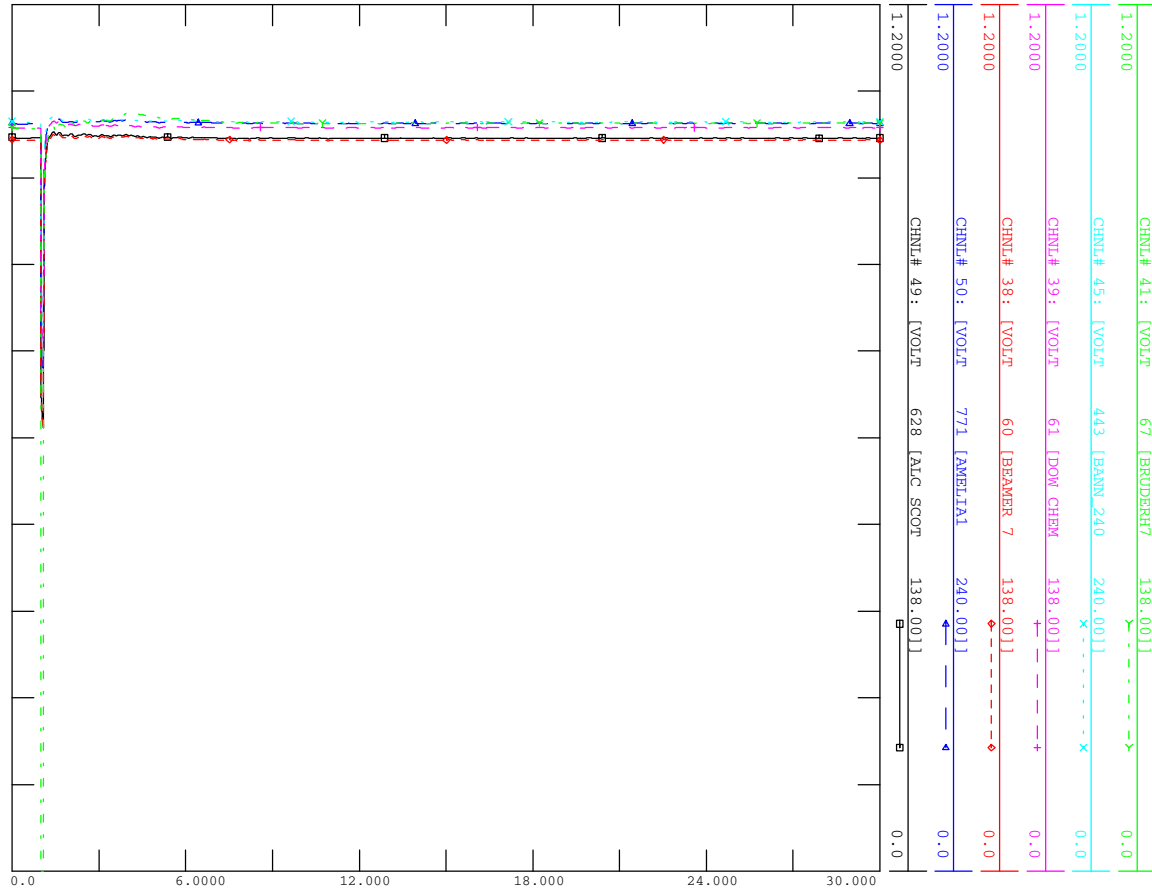
THU, JUN 19 2014 14:52

FIG E4-9



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT



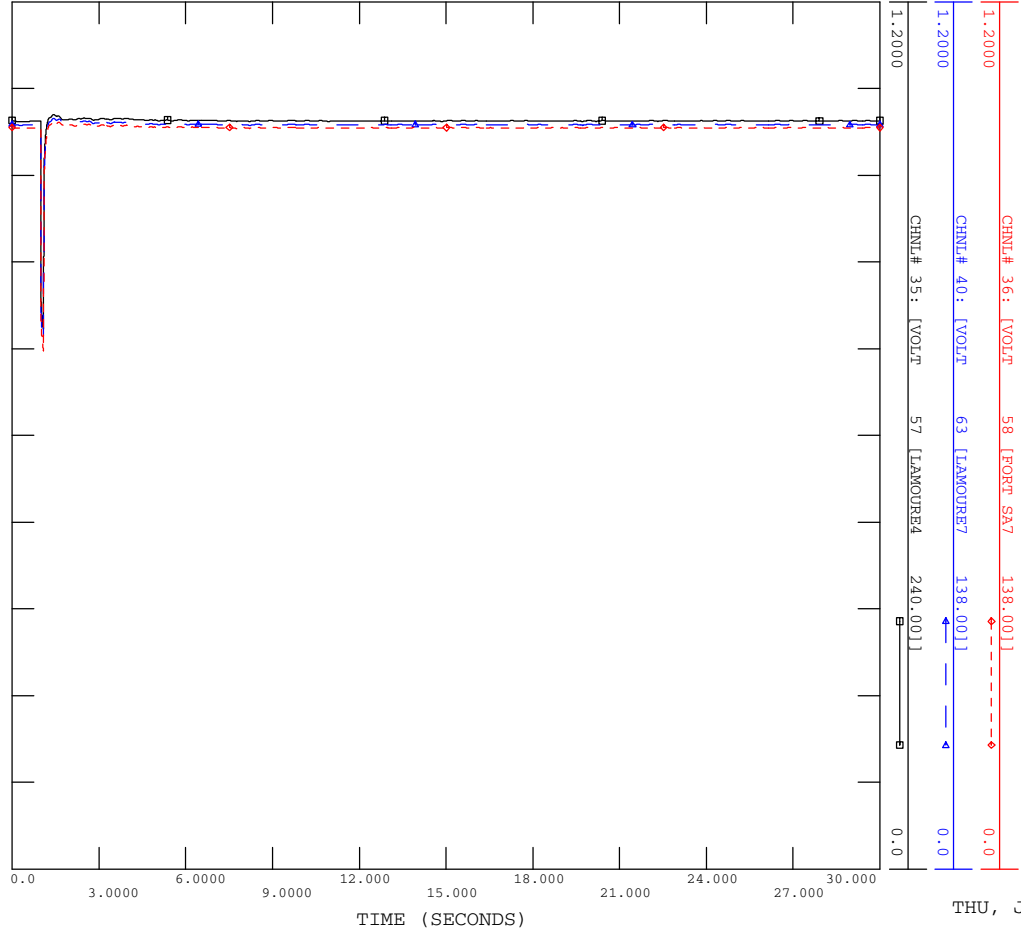
THU, JUN 19 2014 14:52

FIG E4-9A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

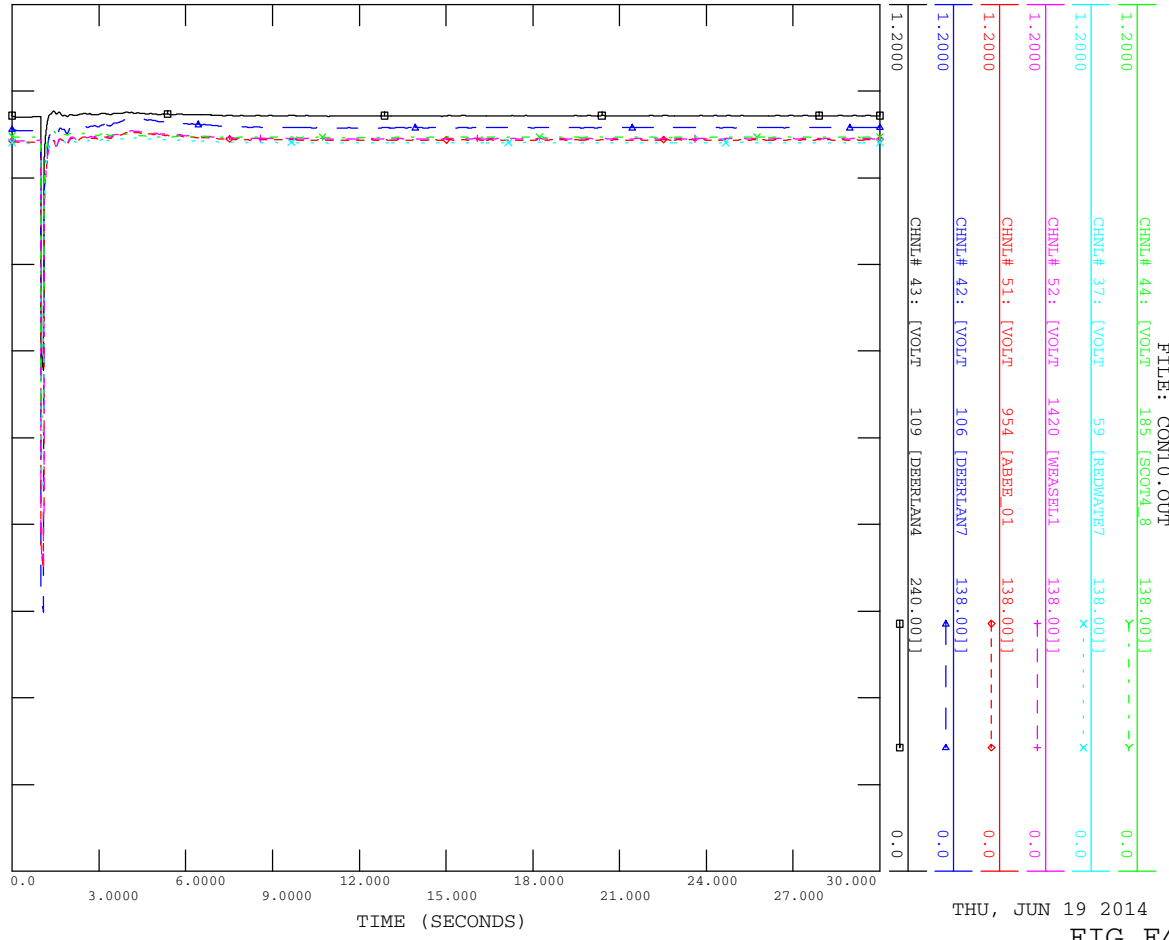


THU, JUN 19 2014 14:52  
 FIG E4-9B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT



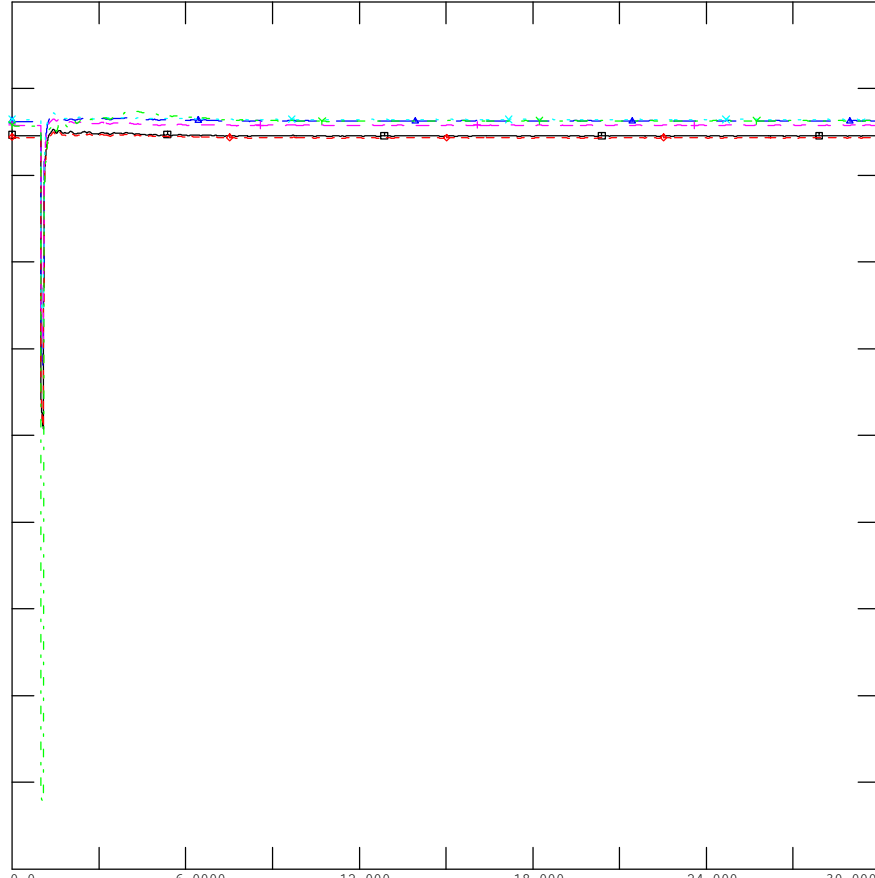
THU, JUN 19 2014 14:53  
 FIG E4-10



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

CHNL#	[VOLT]	[BRUDERH7]	[38.001]
1.2000	67	138.001	0.0
1.2000	443	[BANNV_240]	0.0
1.2000	61	[DOH_CHEM]	0.0
1.2000	60	[BEMER_7]	0.0
1.2000	771	[AMETA1]	0.0
1.2000	628	[ALC_SCORE]	0.0



TIME (SECONDS)

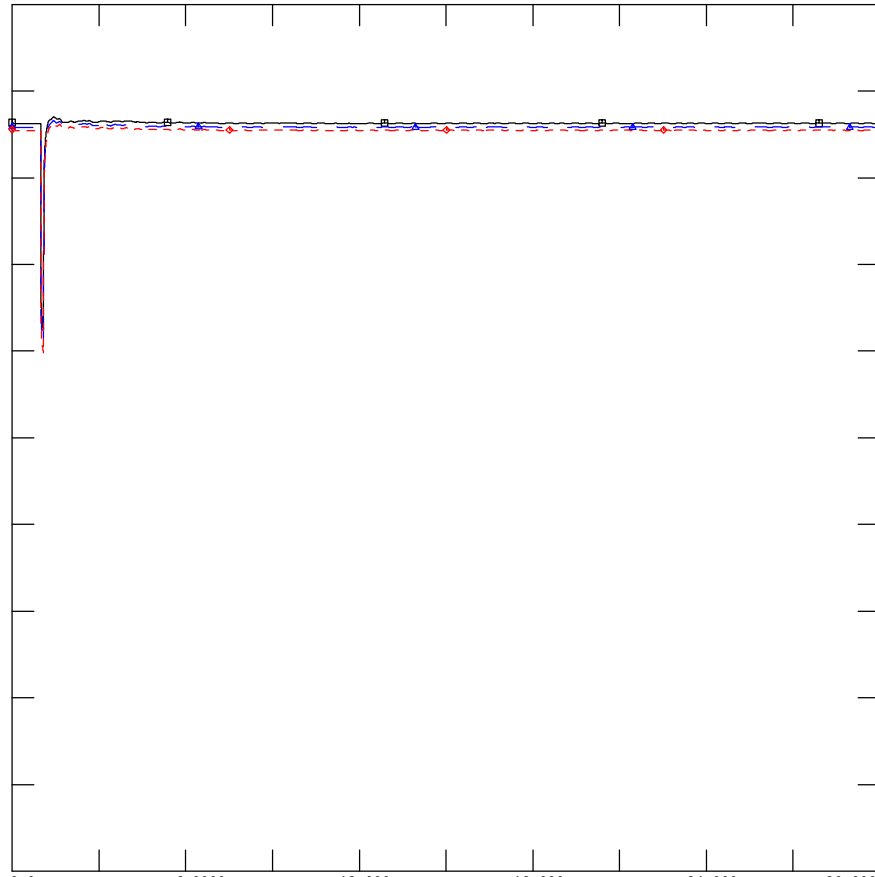
THU, JUN 19 2014 14:53  
 FIG E4-10A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

CHNL#	[VOLT]	[PORT SA7]	[138.001]
1.2000	58	138.001	0.0
1.2000	63	[LAMOURB7]	0.0
1.2000	57	[LAMOURB4]	0.0



TIME (SECONDS)

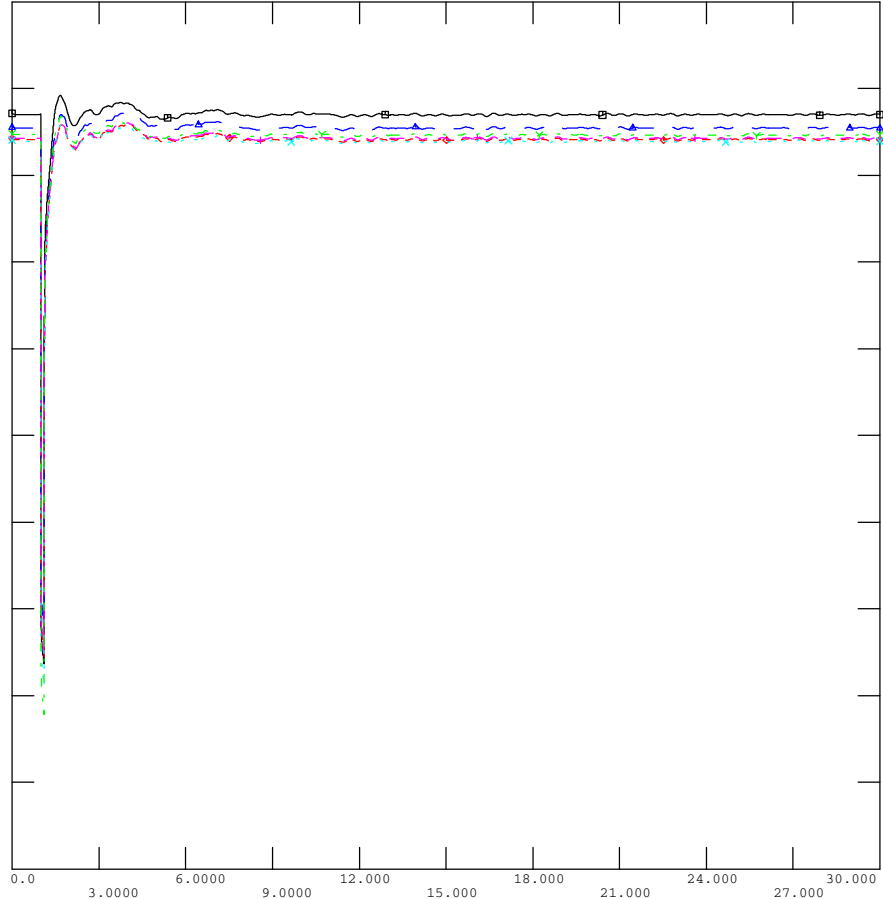
THU, JUN 19 2014 14:54  
 FIG E4-10B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.0UT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
1.2000	CHNL# 44:	189 [SCOT4 8]	138.001	0.0
1.2000	CHNL# 37:	59 [REDMATE7]	138.001	0.0
1.2000	CHNL# 52:	1420 [WEASB1]	138.001	0.0
1.2000	CHNL# 51:	954 [ABBE 01]	138.001	0.0
1.2000	CHNL# 42:	106 [DEBRLAN7]	138.001	0.0
1.2000	CHNL# 43:	109 [DEBRLAN4]	240.001	0.0



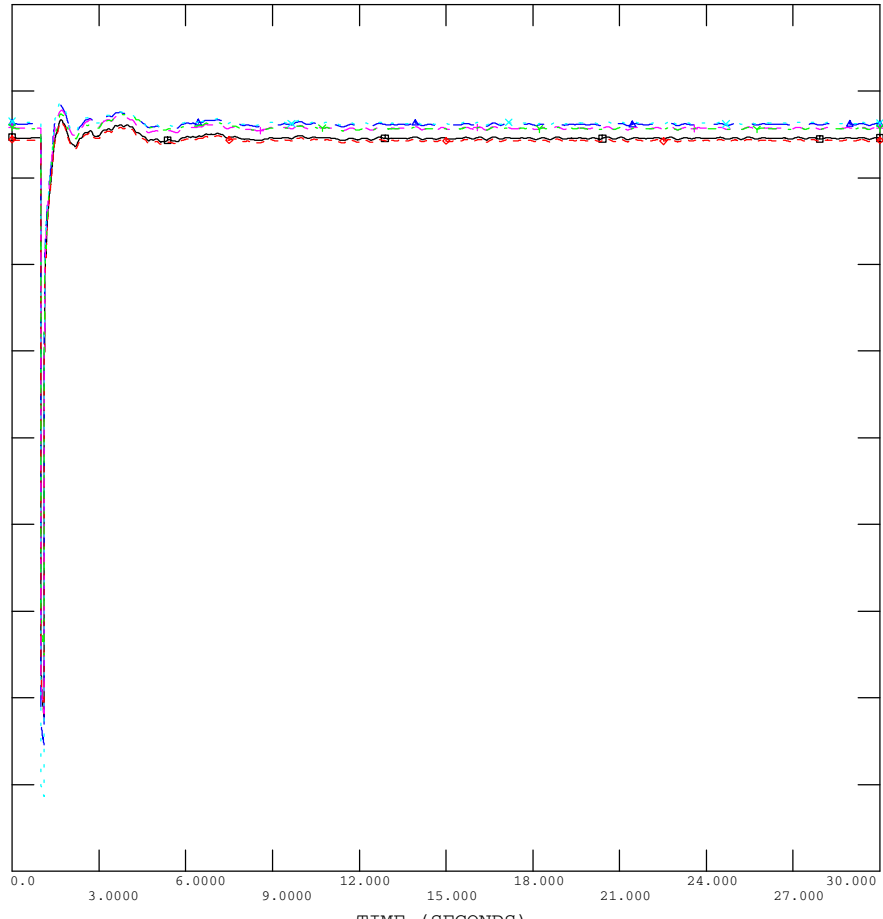
THU, JUN 19 2014 14:54  
FIG E4-11



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.0UT

CHNL#	[VOLT]	[BRDERRH7]	[138.001]	[0.0]
1.2000	CHNL# 41:	67 [BRDERRH7]	138.001	0.0
1.2000	CHNL# 45:	443 [BANN 240]	240.001	0.0
1.2000	CHNL# 39:	61 [DOW GHEM]	138.001	0.0
1.2000	CHNL# 38:	60 [BEAMER 7]	138.001	0.0
1.2000	CHNL# 50:	771 [AMELIA1]	240.001	0.0
1.2000	CHNL# 49:	628 [ALC SCOT]	138.001	0.0



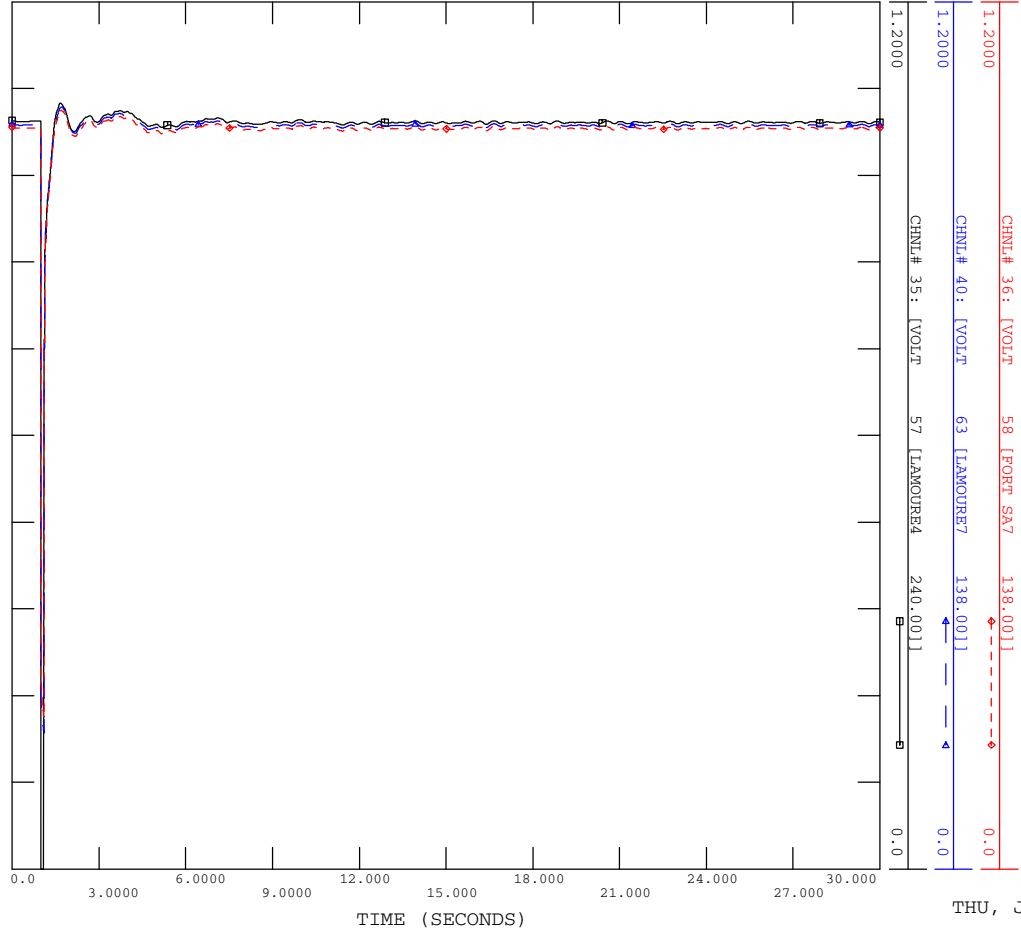
THU, JUN 19 2014 14:55  
FIG E4-11A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT

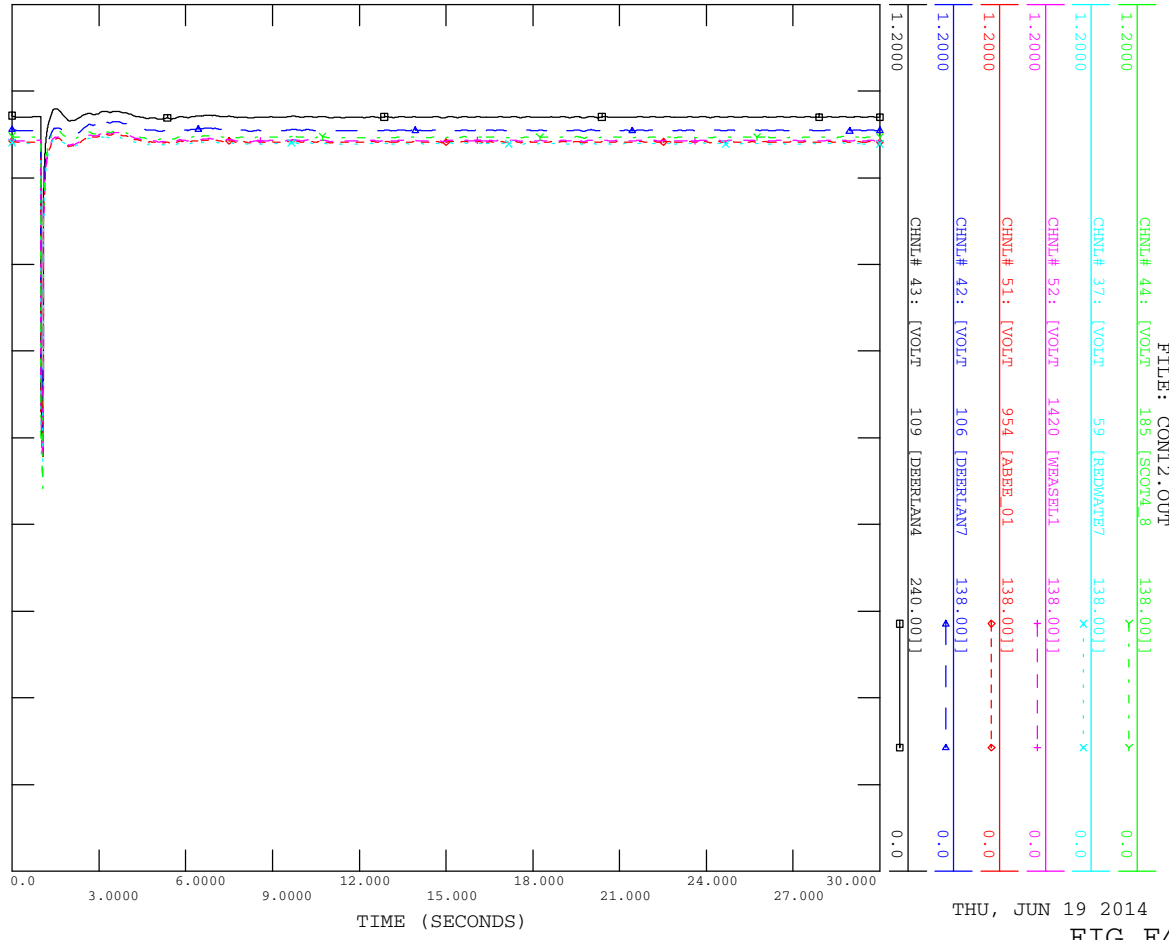


THU, JUN 19 2014 14:55  
 FIG E4-11B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 57S

FILE: CON12.OUT



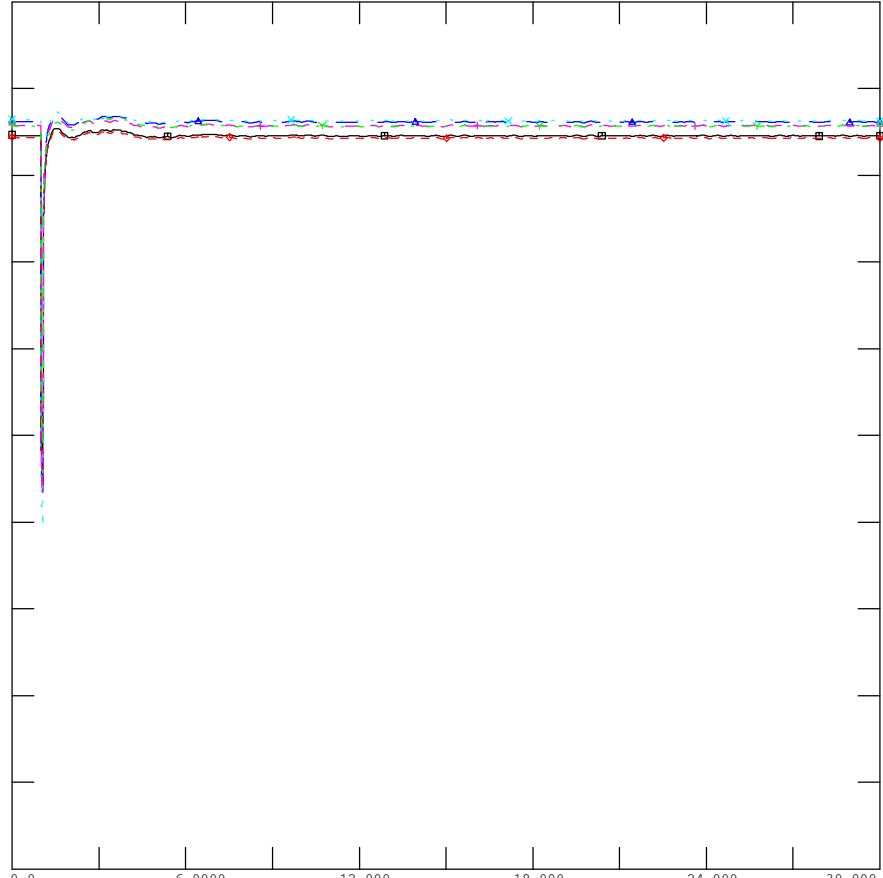
THU, JUN 19 2014 14:56  
 FIG E4-12



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT

CHNL#	[VOLT]	67 [BRUDERH7]	138.001]	0.0
1.2000	[VOLT]	443 [BANNY 240]	240.001]	0.0
1.2000	[VOLT]	61 [DOH CHRM]	138.001]	0.0
1.2000	[VOLT]	60 [BEMMER 7]	138.001]	0.0
1.2000	[VOLT]	771 [AMETAI1]	240.001]	0.0
1.2000	[VOLT]	628 [ALC SCOF]	138.001]	0.0



TIME (SECONDS)

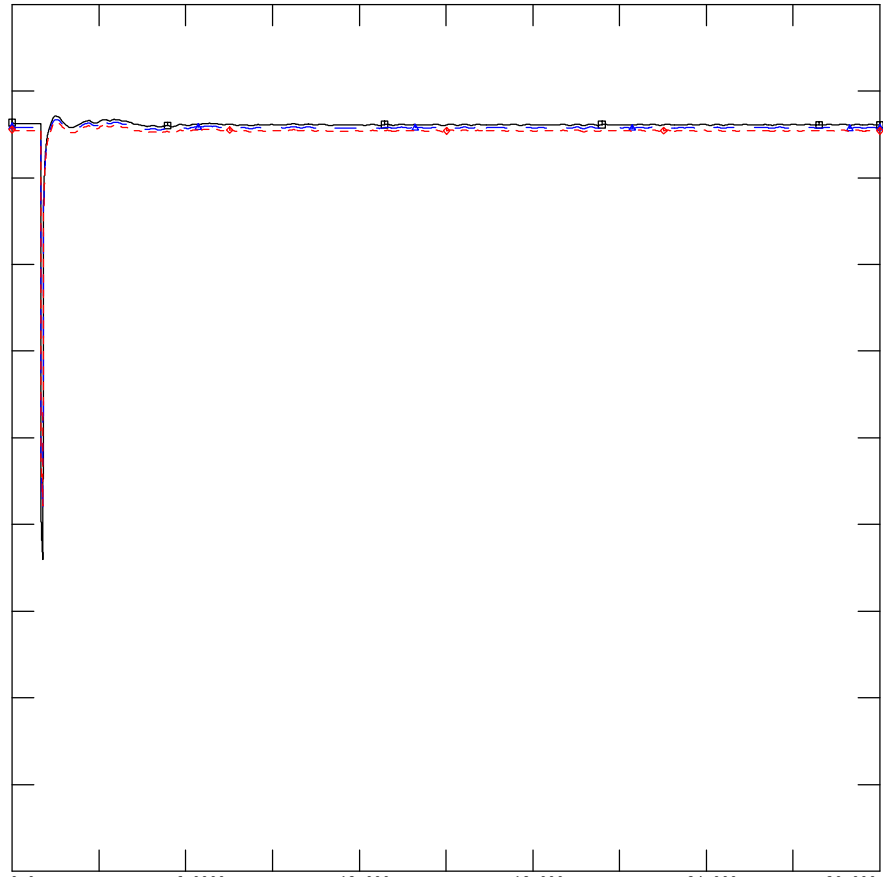
THU, JUN 19 2014 14:56  
 FIG E4-12A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT

CHNL#	[VOLT]	58 [PORT SA7]	138.001]	0.0
1.2000	[VOLT]	63 [LAMOURB7]	138.001]	0.0
1.2000	[VOLT]	57 [LAMOURB4]	240.001]	0.0



TIME (SECONDS)

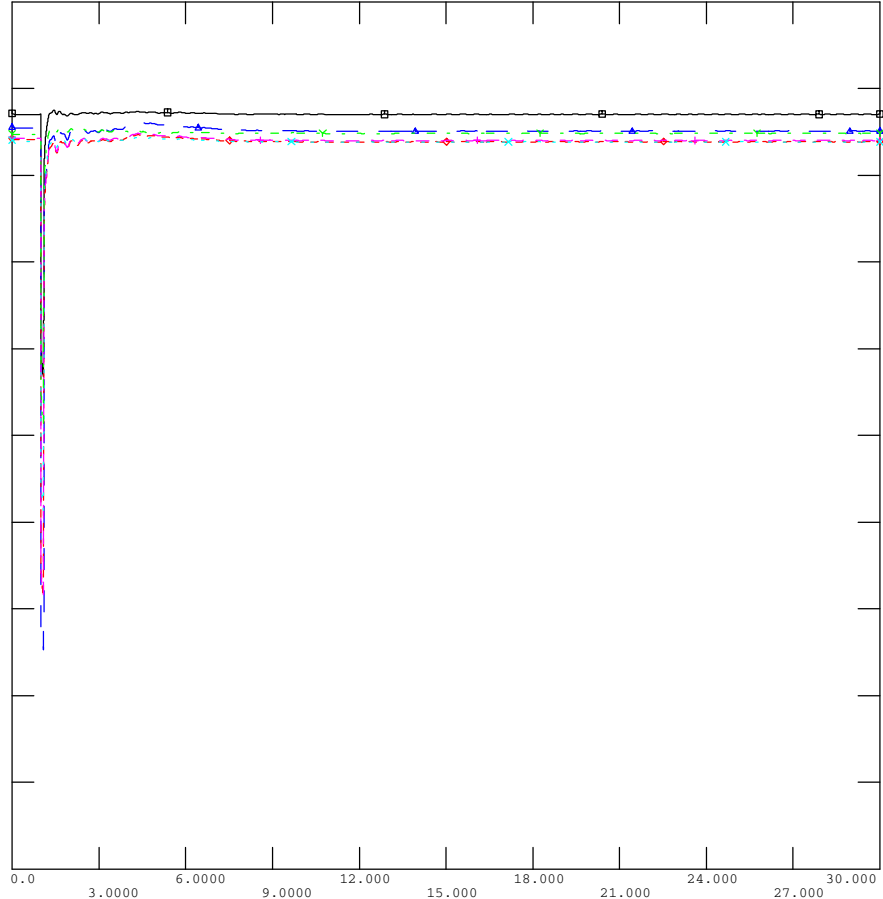
THU, JUN 19 2014 14:56  
 FIG E4-12B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
1.2000	CHNL# 44:	189 [SCOT4 8]	138.001	0.0
1.2000	CHNL# 37:	59 [REDMATE7]	138.001	0.0
1.2000	CHNL# 52:	1420 [WEASST1]	138.001	0.0
1.2000	CHNL# 51:	954 [ABBE 01]	138.001	0.0
1.2000	CHNL# 42:	106 [DEBRLAN7]	138.001	0.0
1.2000	CHNL# 43:	109 [DEBRLAN4]	240.001	0.0



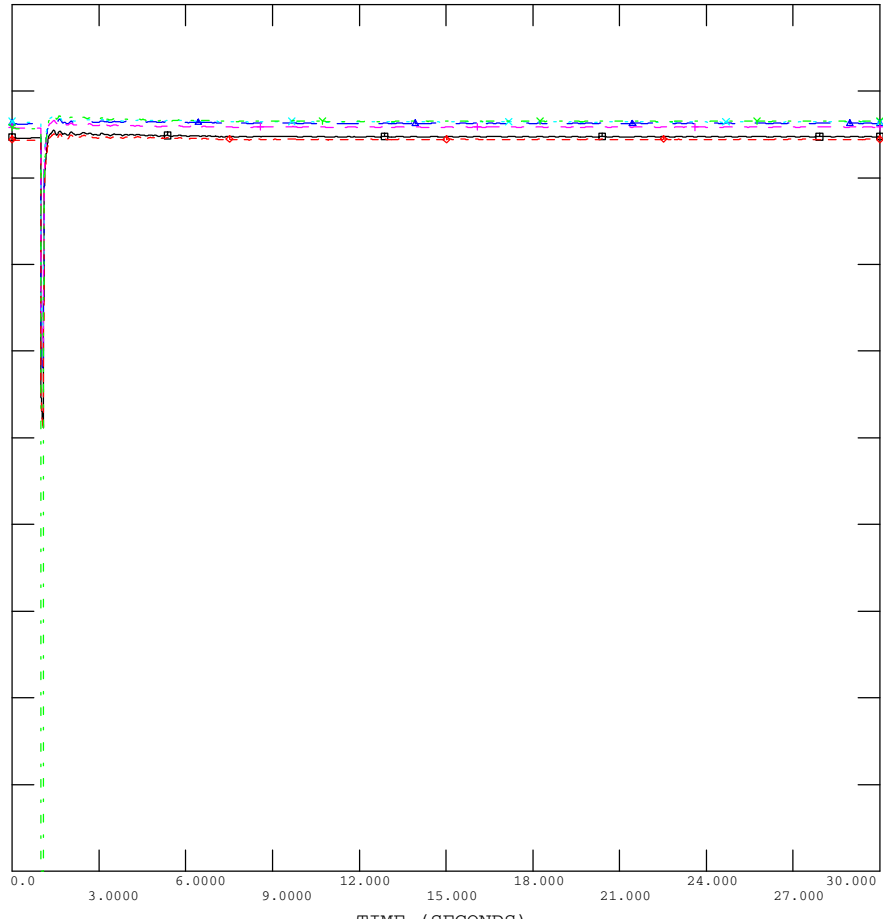
THU, JUN 19 2014 14:57  
FIG E4-13



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

CHNL#	[VOLT]	[BRDDEH7 67]	[138.001]	[0.0]
1.2000	CHNL# 41:	67 [BRDDEH7 67]	138.001	0.0
1.2000	CHNL# 45:	443 [BANN 240]	240.001	0.0
1.2000	CHNL# 39:	61 [DOW GHEM]	138.001	0.0
1.2000	CHNL# 38:	60 [BEAMER 7]	138.001	0.0
1.2000	CHNL# 50:	771 [AMELIA1]	240.001	0.0
1.2000	CHNL# 49:	628 [ALC SCOT]	138.001	0.0

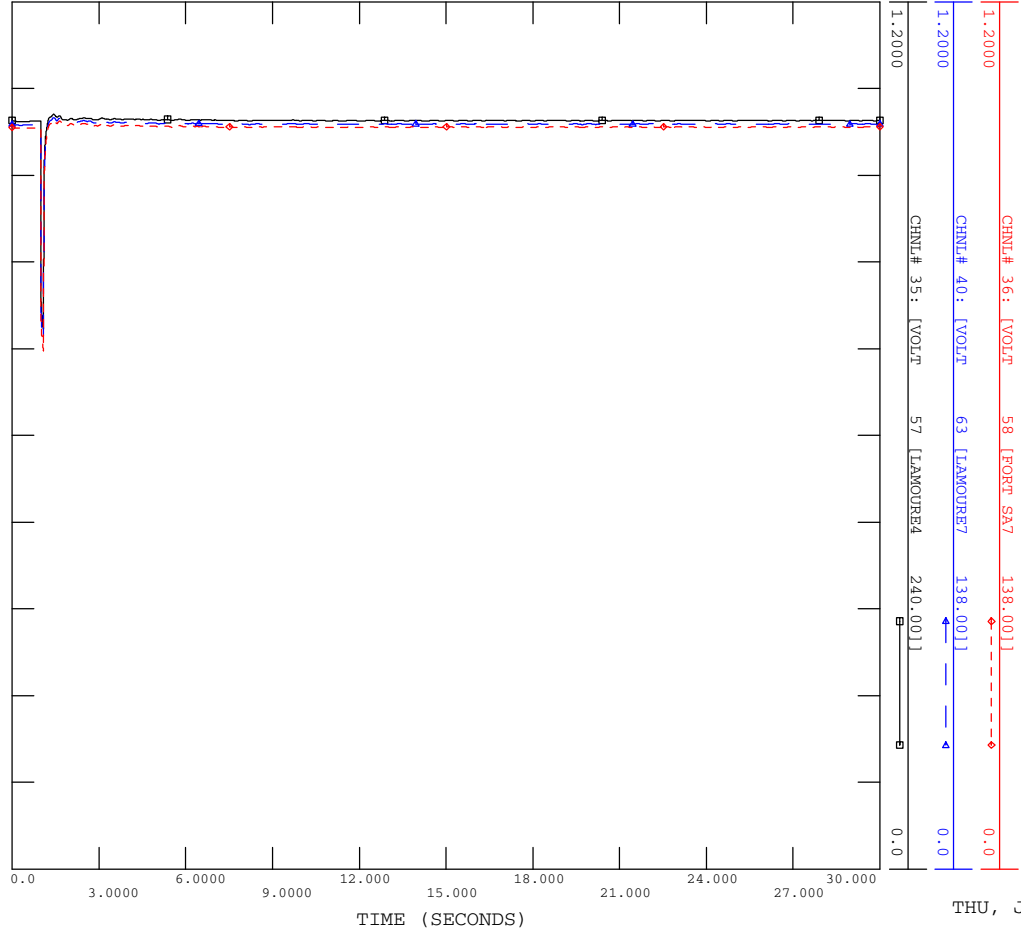


THU, JUN 19 2014 14:57  
FIG E4-13A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

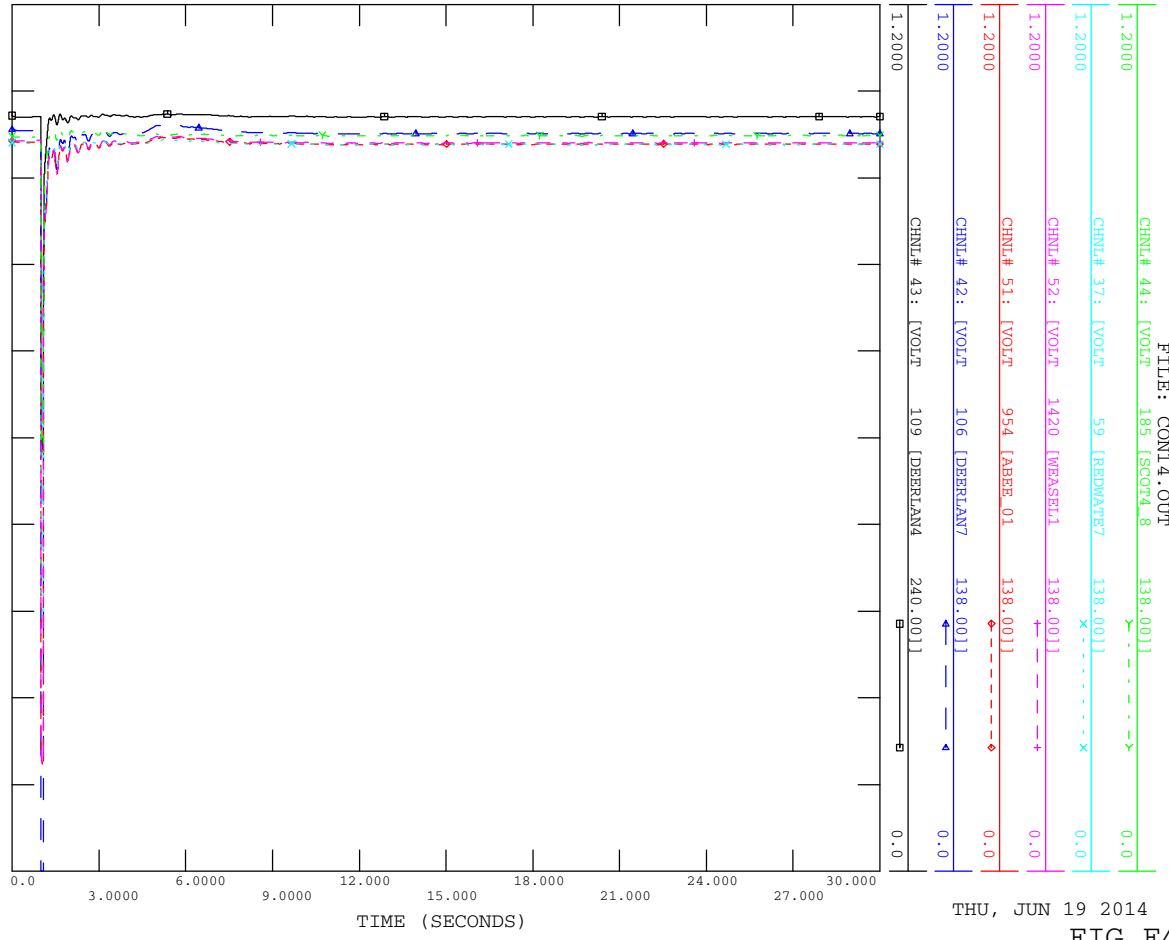


THU, JUN 19 2014 14:58  
 FIG E4-13B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

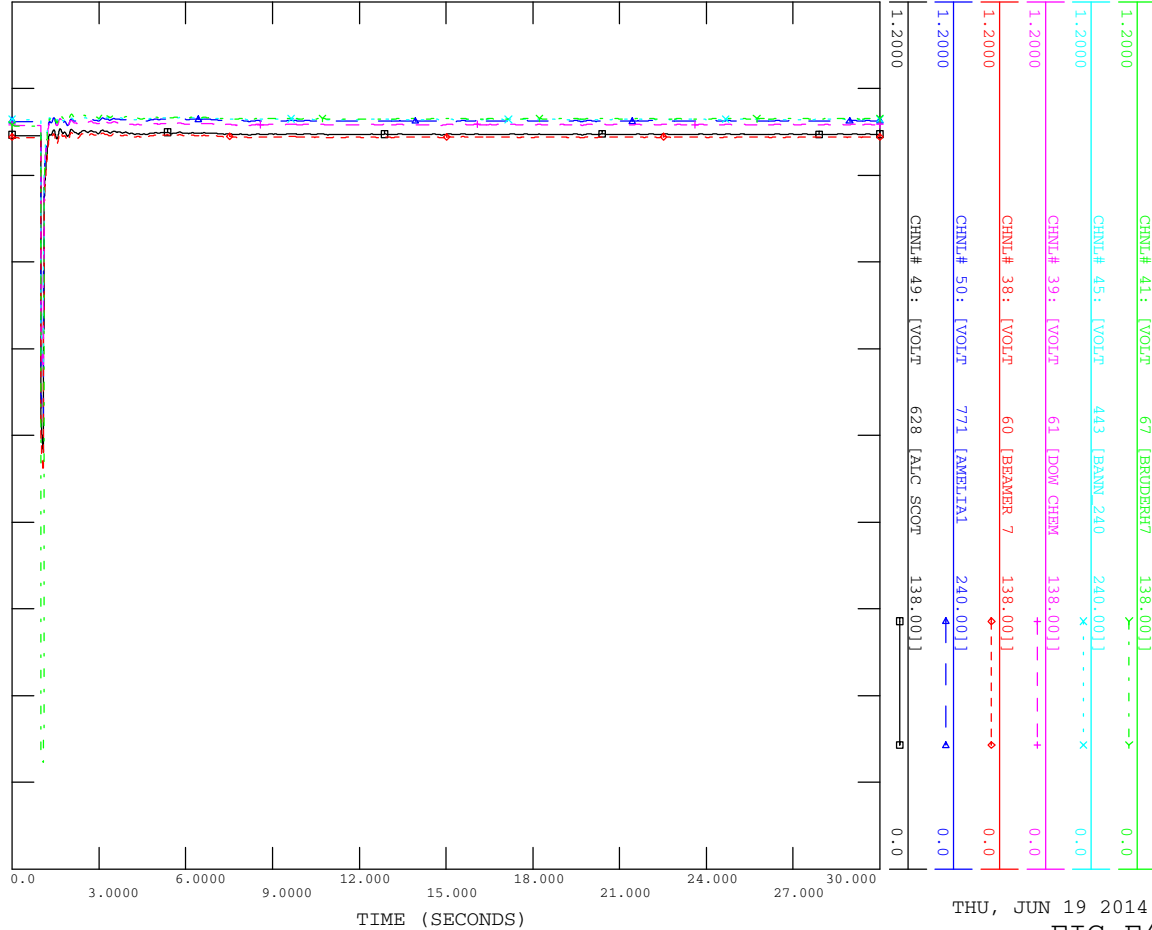


THU, JUN 19 2014 14:58  
 FIG E4-14



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

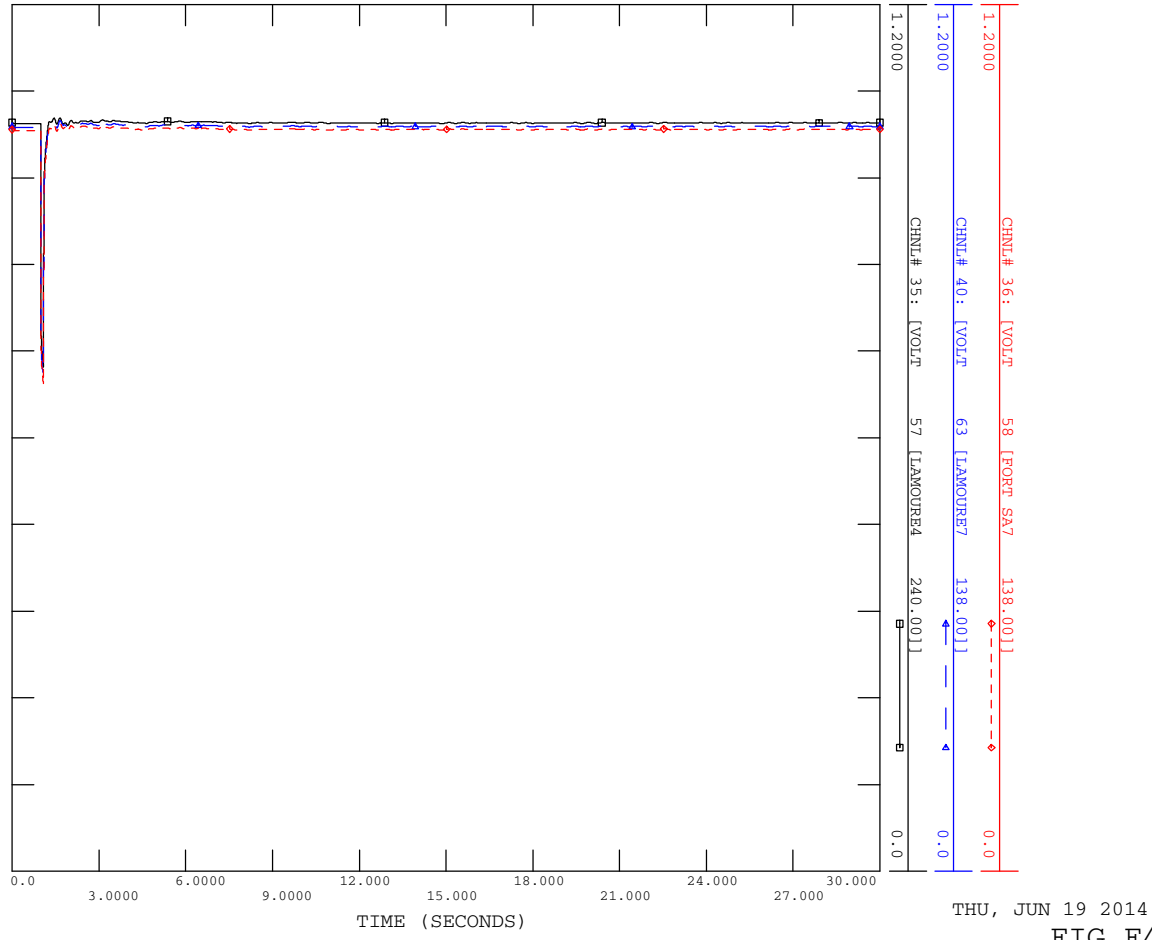


THU, JUN 19 2014 14:59  
FIG E4-14A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

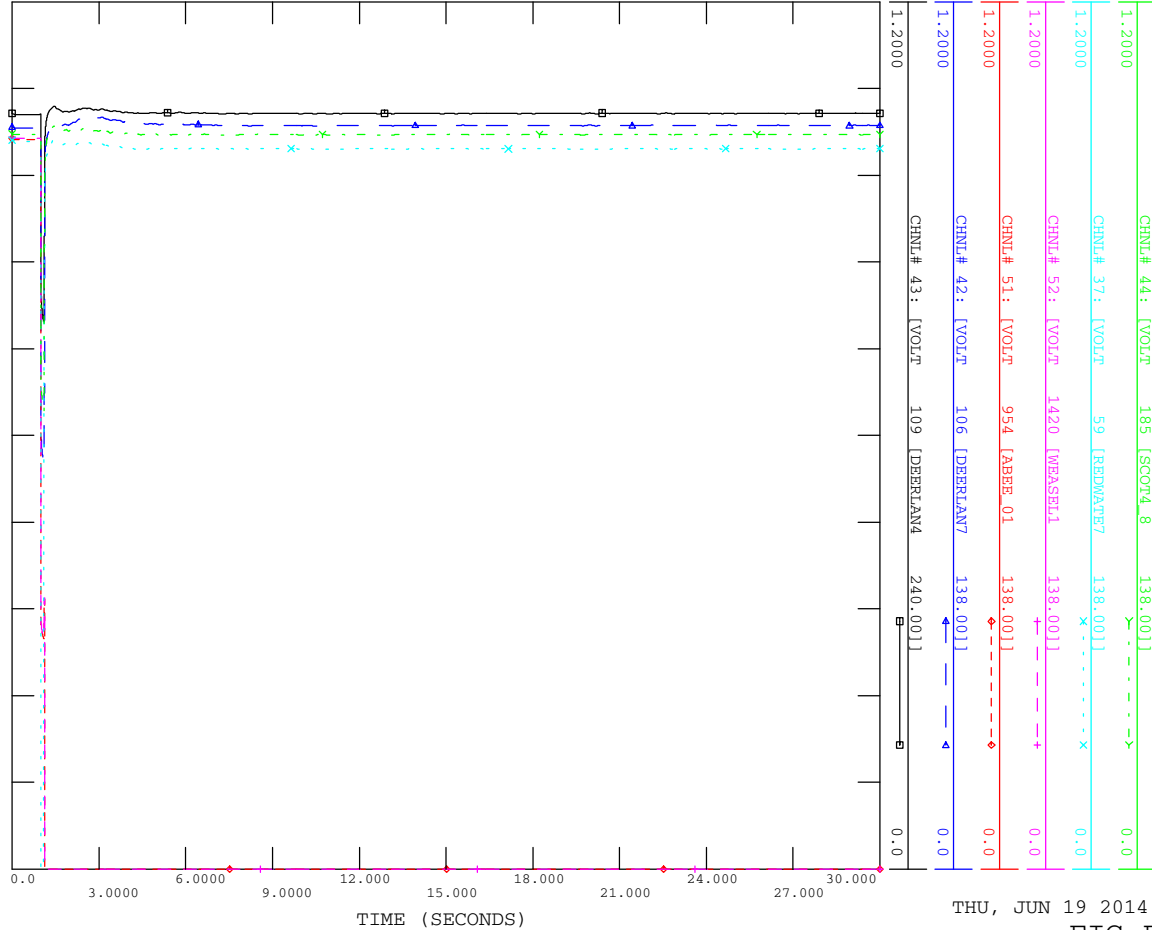


THU, JUN 19 2014 14:59  
FIG E4-14B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT



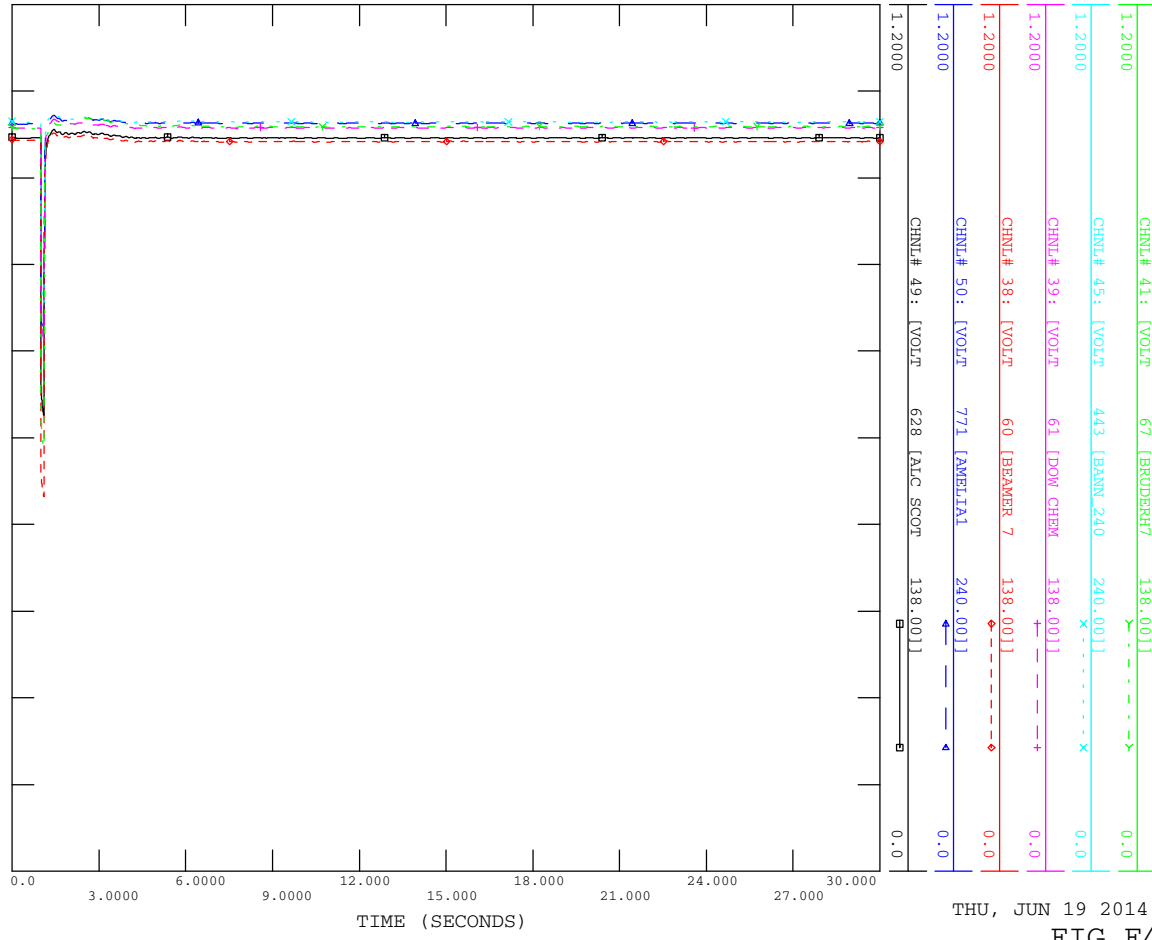
THU, JUN 19 2014 15:00

FIG E4-15



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT



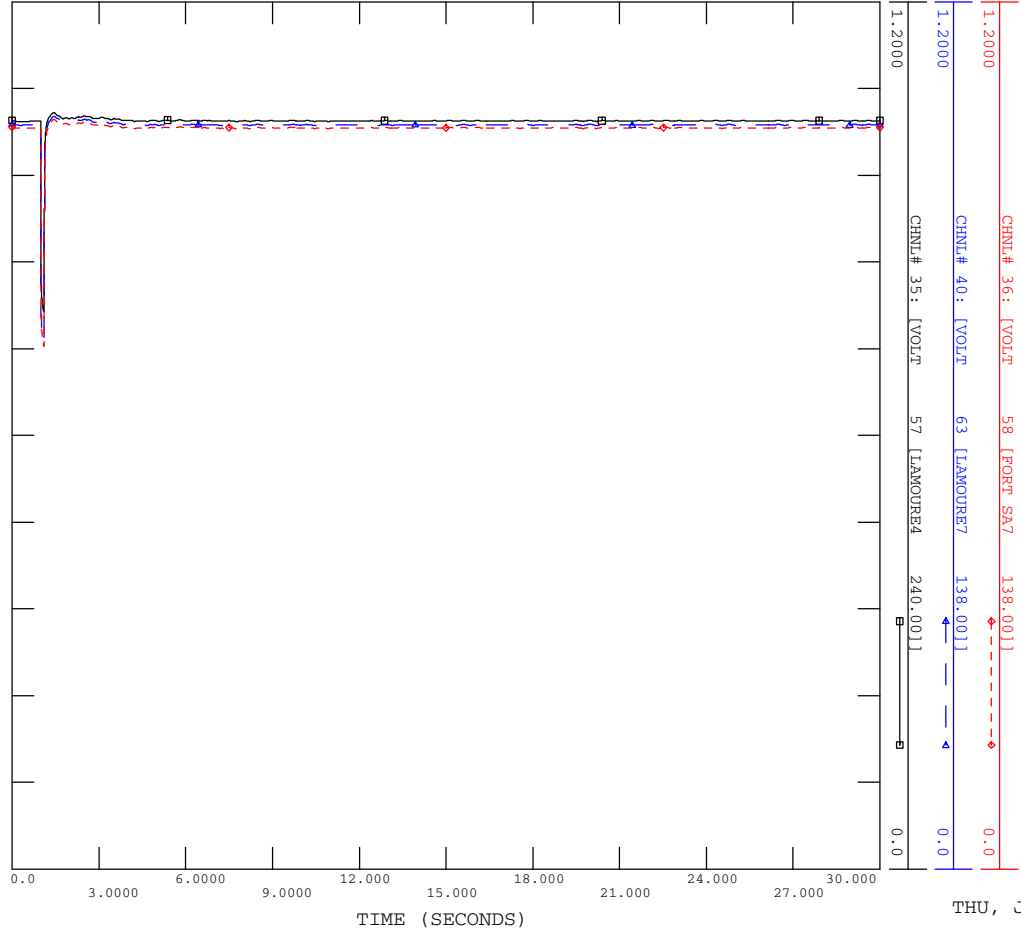
THU, JUN 19 2014 15:00

FIG E4-15A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT

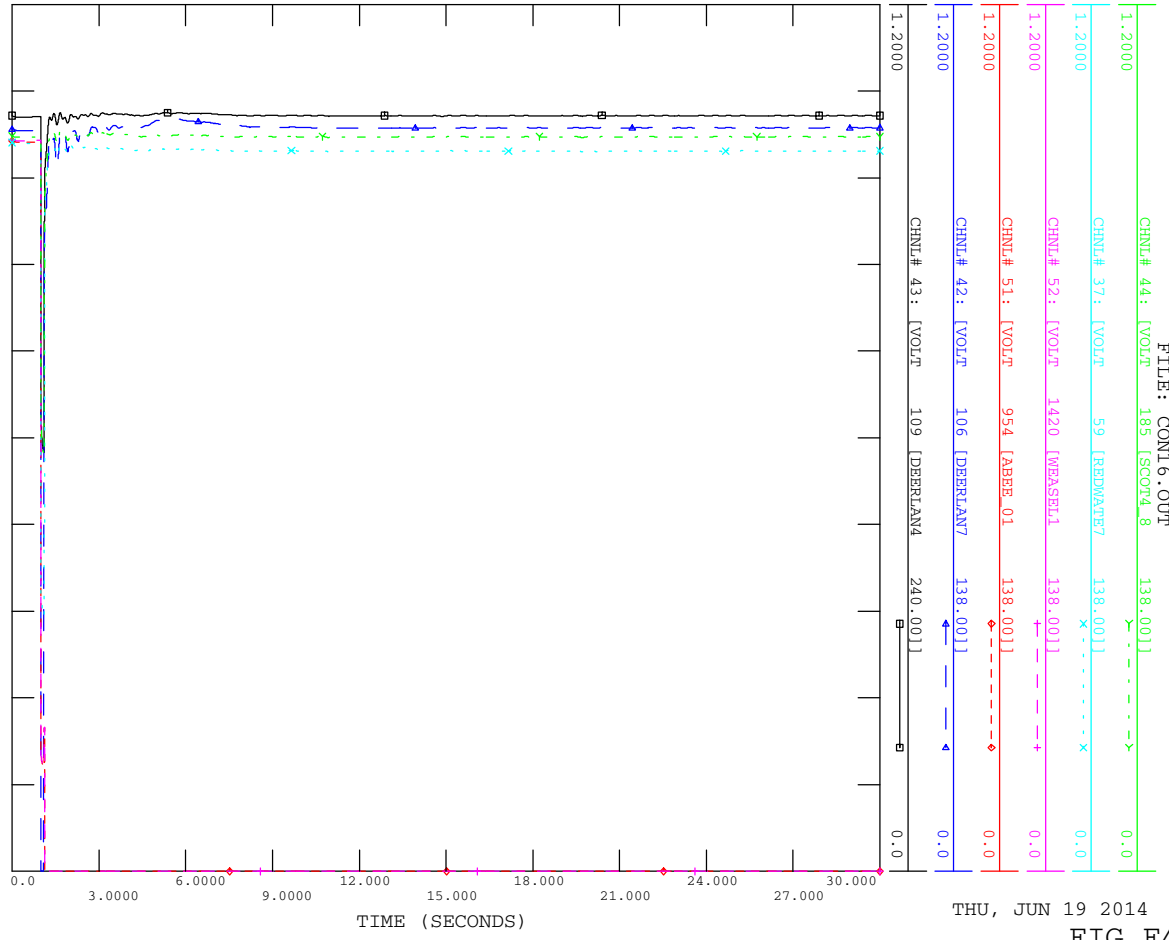


THU, JUN 19 2014 15:01  
FIG E4-15C



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

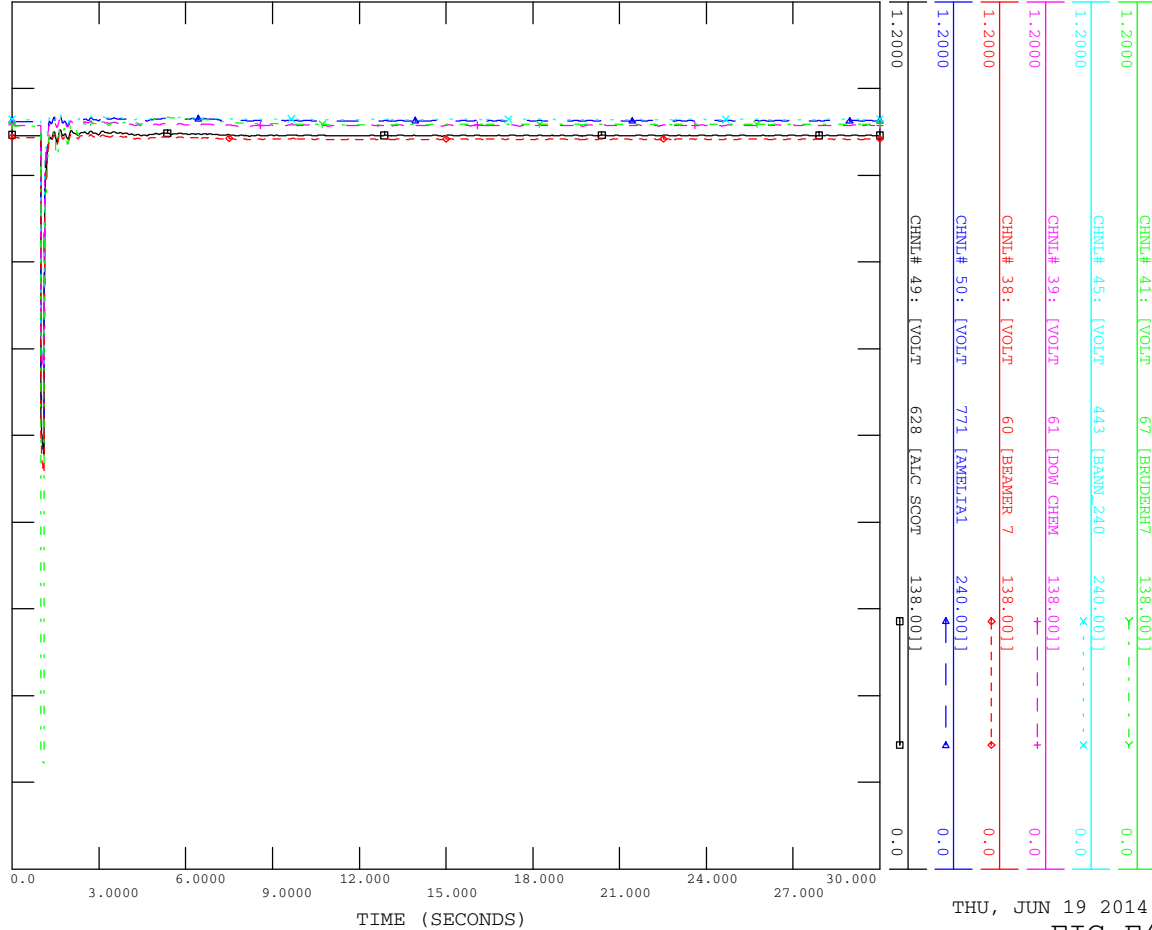


THU, JUN 19 2014 15:01  
FIG E4-16



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

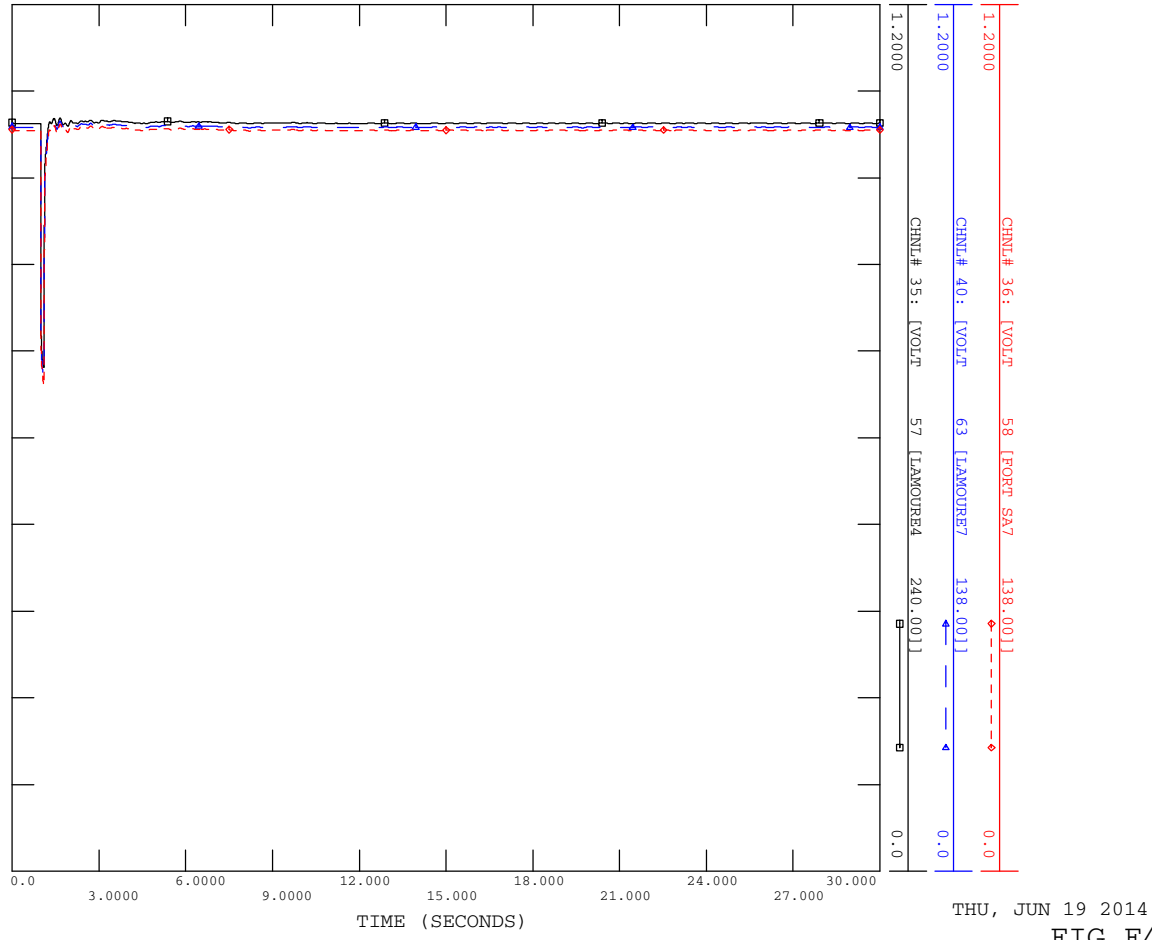


THU, JUN 19 2014 15:01  
FIG E4-16A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT



THU, JUN 19 2014 15:02  
FIG E4-16B

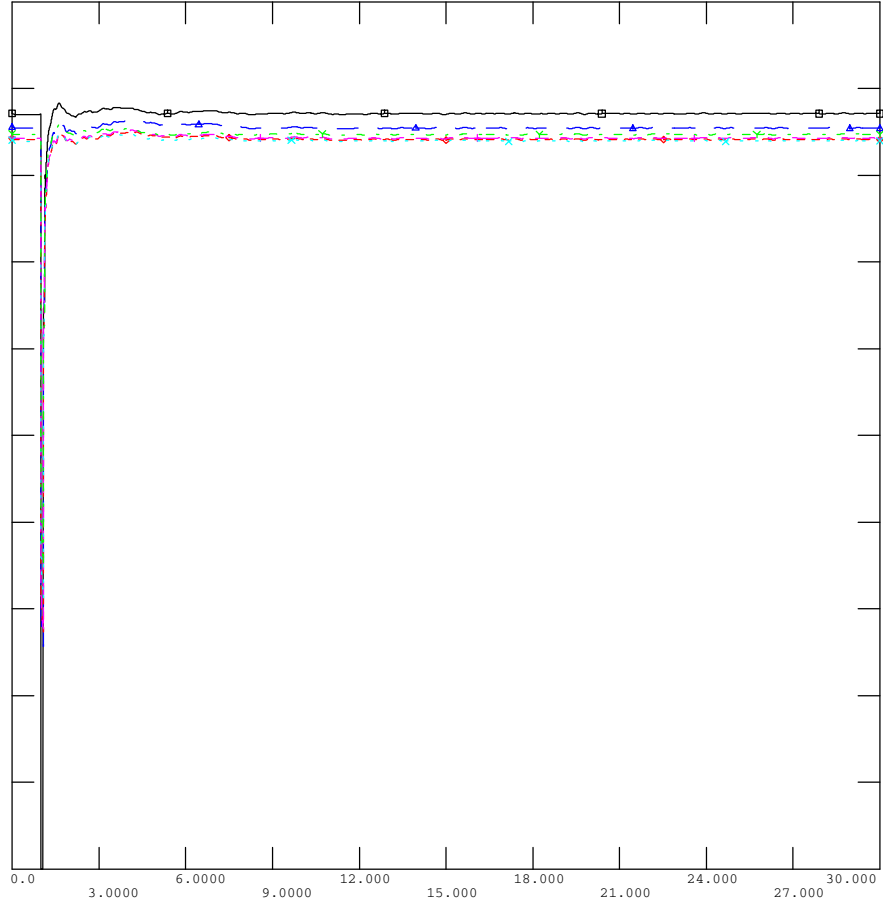




TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
1.2000	CHNL# 44:	189 [SCOT4 8]	138.001	0.0
1.2000	CHNL# 37:	59 [BRDDETH7]	138.001	0.0
1.2000	CHNL# 52:	1420 [WEASST1]	138.001	0.0
1.2000	CHNL# 51:	954 [ABBE 01]	138.001	0.0
1.2000	CHNL# 42:	106 [DBERLAN7]	138.001	0.0
1.2000	CHNL# 43:	109 [DBERLAN4]	240.001	0.0



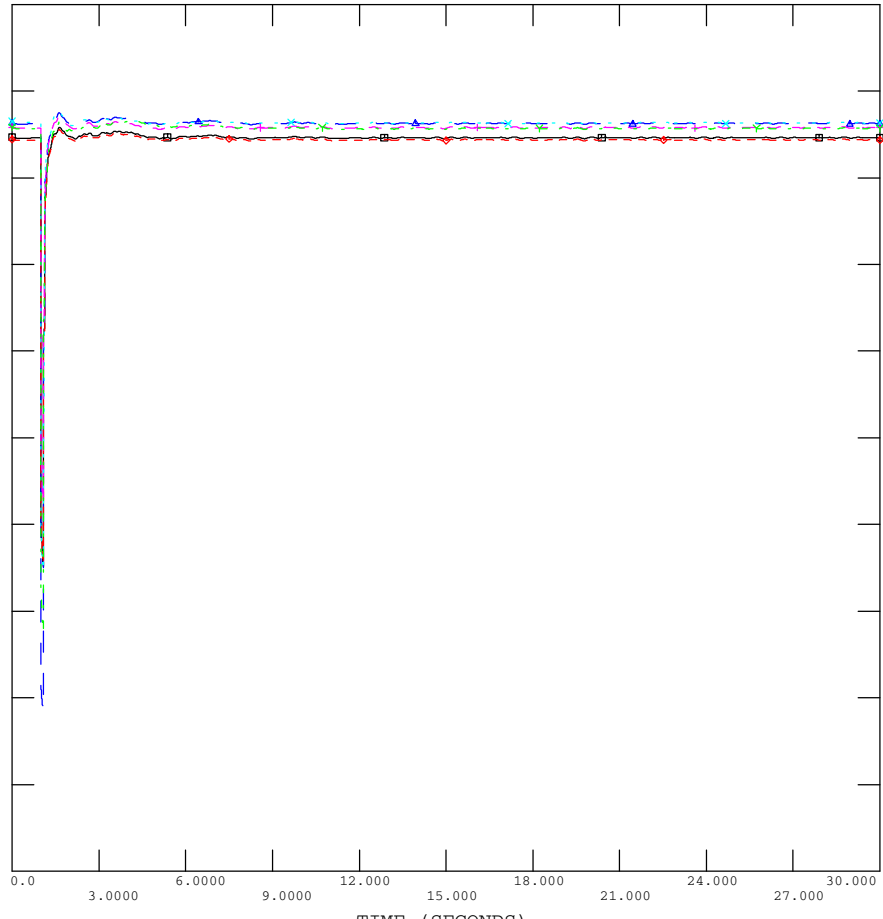
THU, JUN 19 2014 15:02  
FIG E4-17



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

CHNL#	[VOLT]	[BRDDETH7]	[138.001]	[0.0]
1.2000	CHNL# 41:	67 [BRDDETH7]	138.001	0.0
1.2000	CHNL# 45:	443 [BANN 240]	240.001	0.0
1.2000	CHNL# 39:	61 [DOW GHEM]	138.001	0.0
1.2000	CHNL# 38:	60 [BEAMER 7]	138.001	0.0
1.2000	CHNL# 50:	771 [AMELIA1]	240.001	0.0
1.2000	CHNL# 49:	628 [ALC SCOT]	138.001	0.0

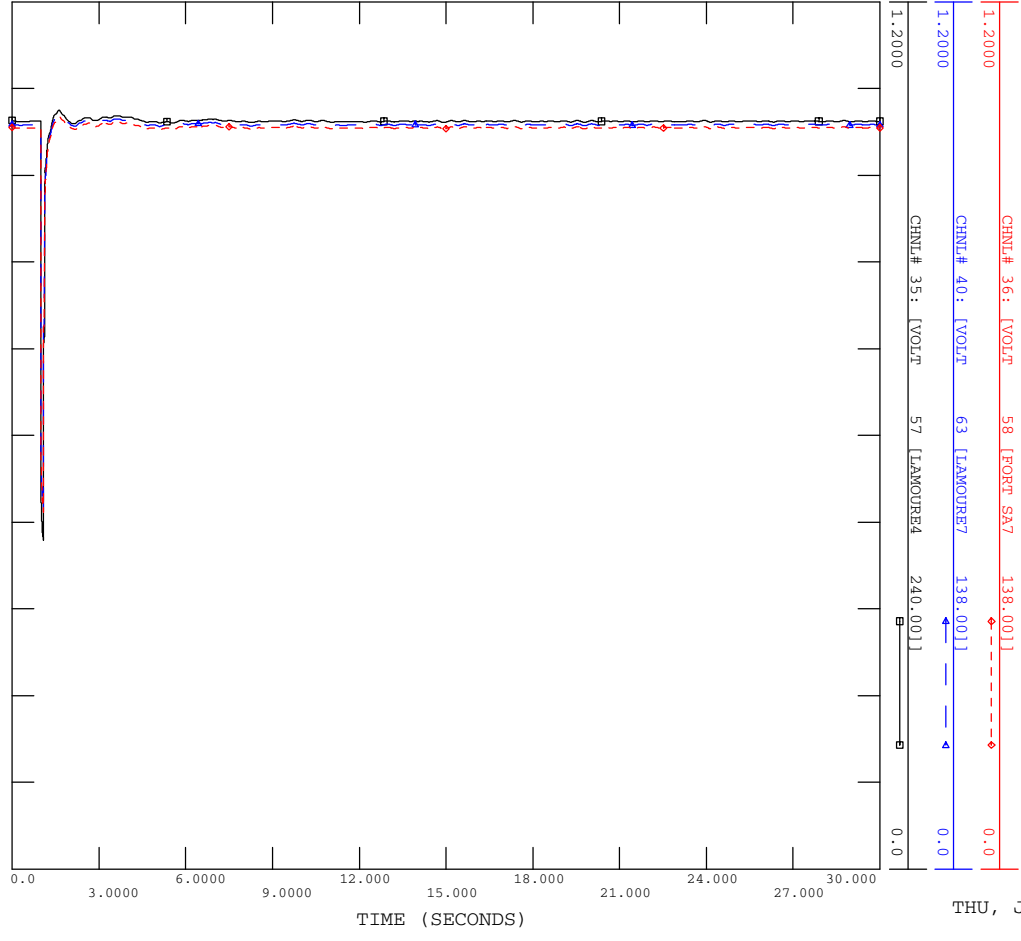


THU, JUN 19 2014 15:02  
FIG E4-17A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

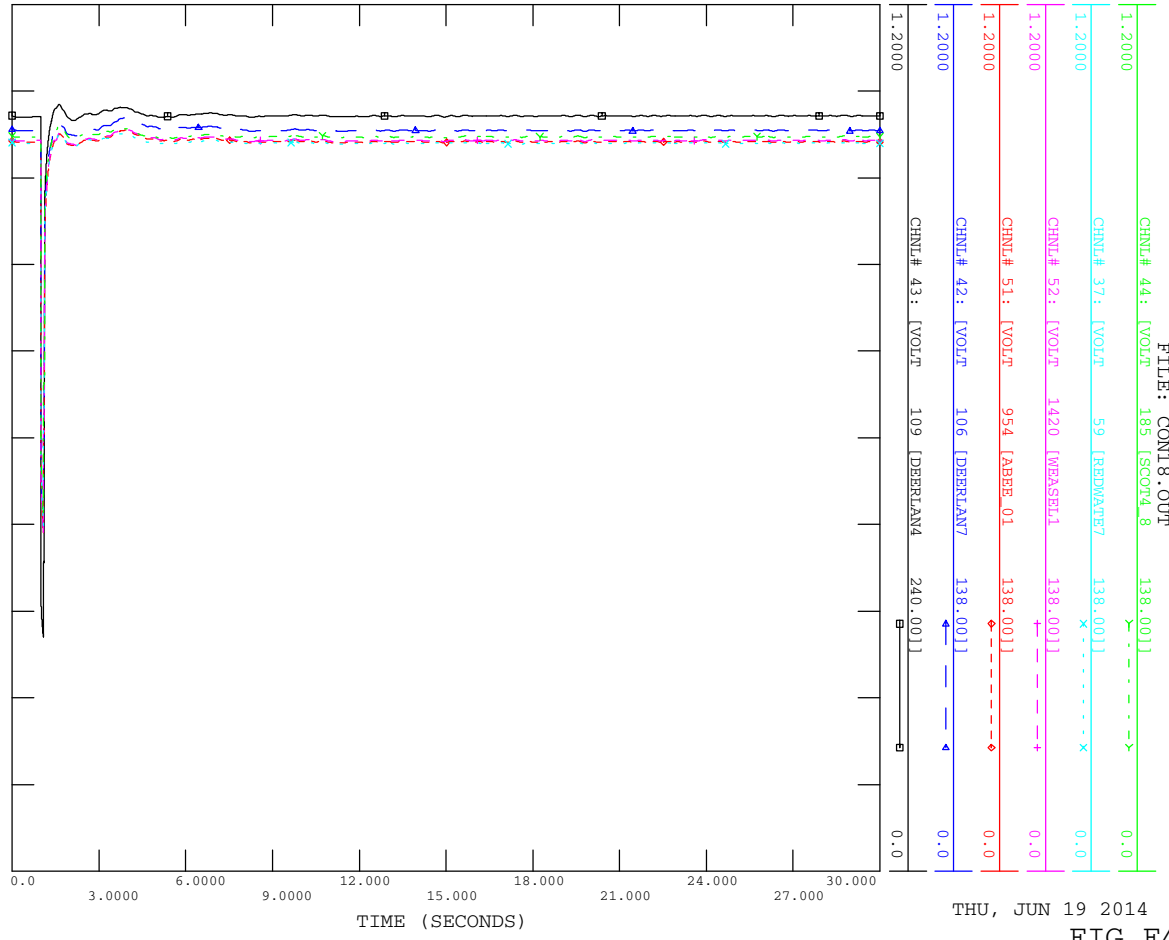


THU, JUN 19 2014 15:03  
 FIG E4-17B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT



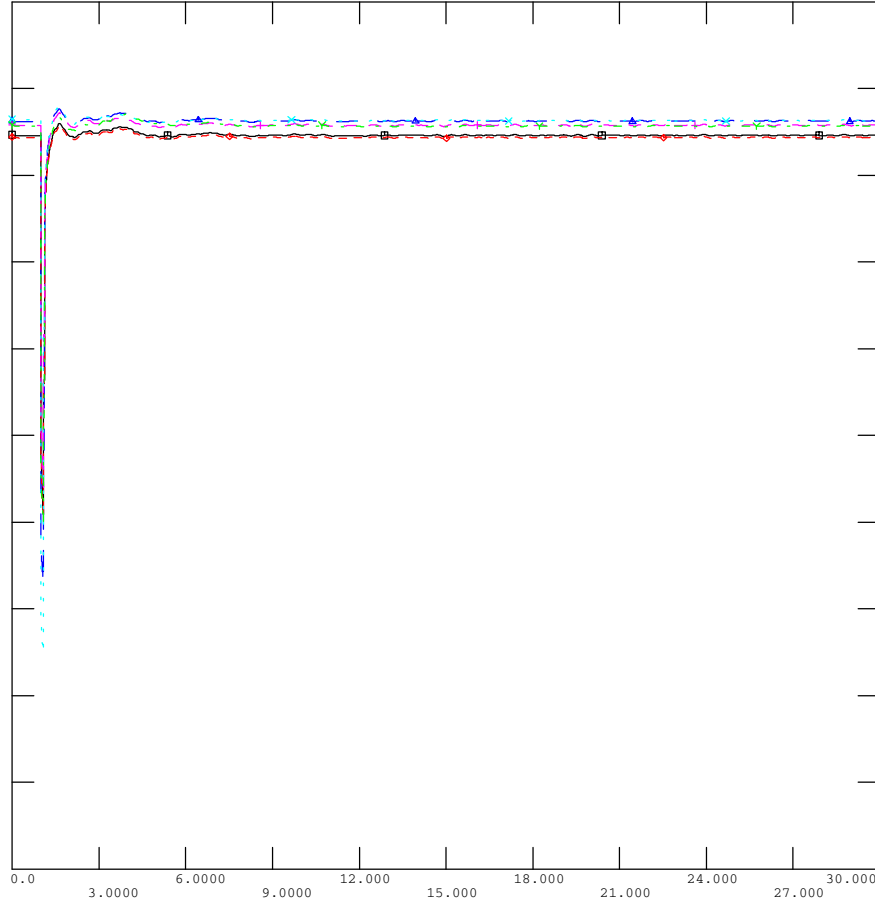
THU, JUN 19 2014 15:03  
 FIG E4-18



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

CHNL#	[VOLT]	[BRUDERH7]	[38.001]
41	67	138.001	0.0
45	443	[BANNV_240]	0.0
39	61	[DOH_CHEM]	0.0
38	60	[BEANBR_7]	0.0
50	771	[AMETA1]	0.0
49	628	[ALC_SCORE]	0.0



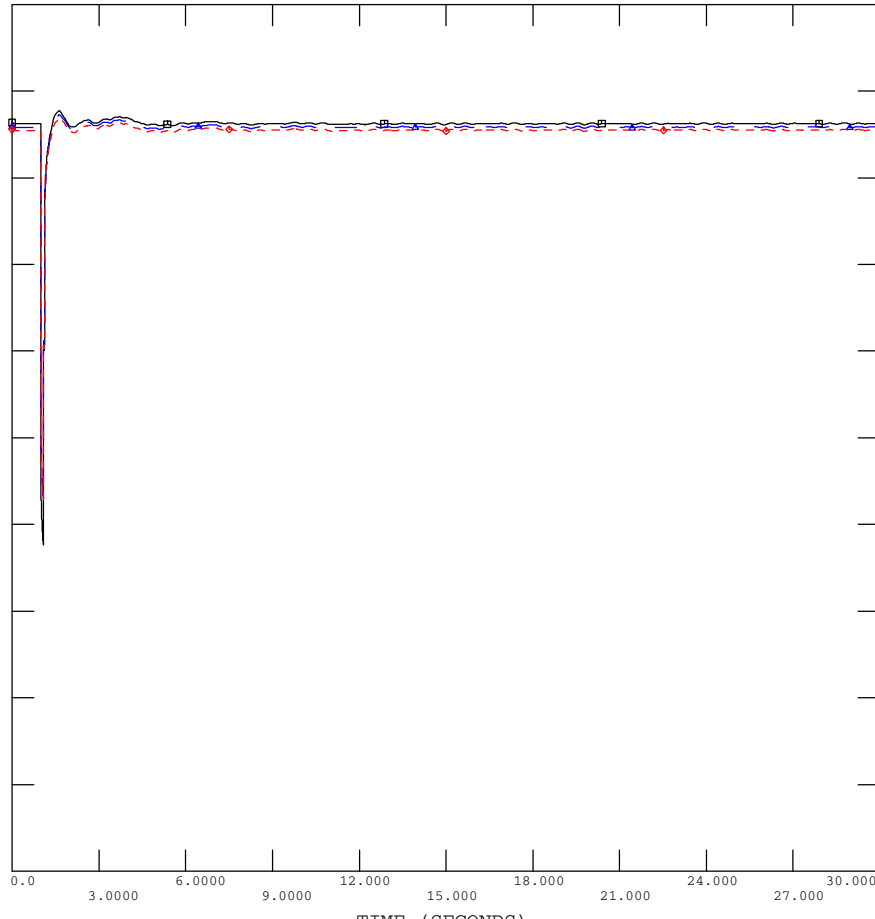
THU, JUN 19 2014 15:03  
 FIG E4-18A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

CHNL#	[VOLT]	[PORT SA7]	[138.001]
36	58	138.001	0.0
40	63	[LAMOURB7]	0.0
35	57	[LAMOURB4]	0.0



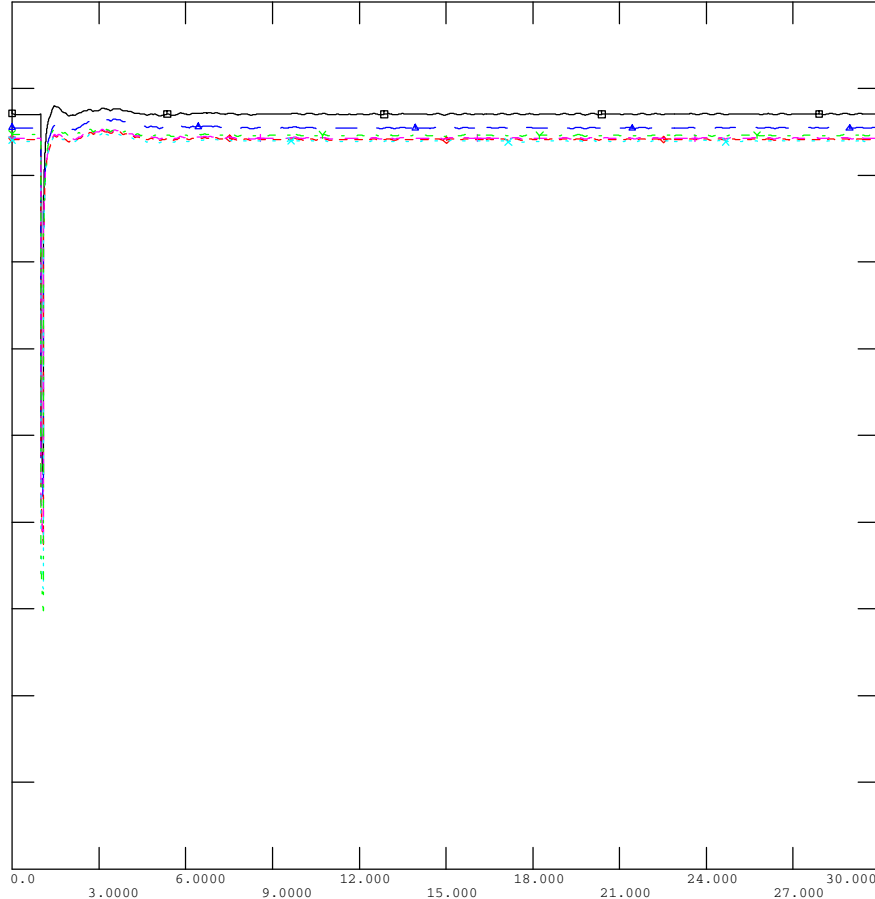
THU, JUN 19 2014 15:04  
 FIG E4-18B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
CHNL# 44:	[VOLT]	189 [SCOT4 8]	138.001	0.0
CHNL# 37:	[VOLT]	59 [REDMATE7]	138.001	0.0
CHNL# 52:	[VOLT]	1420 [WEASST1]	138.001	0.0
CHNL# 51:	[VOLT]	954 [ABBE 01]	138.001	0.0
CHNL# 42:	[VOLT]	106 [DEBRLAN7]	138.001	0.0
CHNL# 43:	[VOLT]	109 [DEBRLAN4]	240.001	0.0



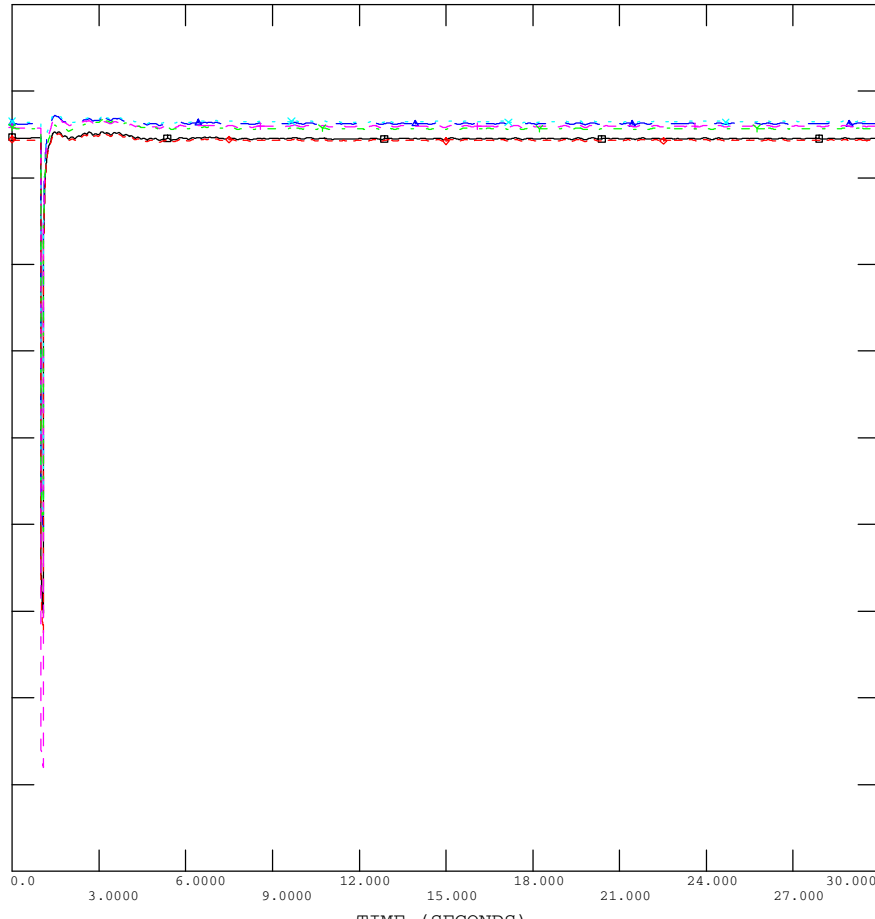
THU, JUN 19 2014 15:04  
 FIG E4-19



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

CHNL#	[VOLT]	[BRDDERH7]	[138.001]	[0.0]
CHNL# 41:	[VOLT]	67 [BRDDERH7]	138.001	0.0
CHNL# 45:	[VOLT]	443 [BANN 240]	240.001	0.0
CHNL# 39:	[VOLT]	61 [DOW GHEM]	138.001	0.0
CHNL# 38:	[VOLT]	60 [BEAMER 7]	138.001	0.0
CHNL# 50:	[VOLT]	771 [AMELIA1]	240.001	0.0
CHNL# 49:	[VOLT]	628 [ALC SCOT]	138.001	0.0

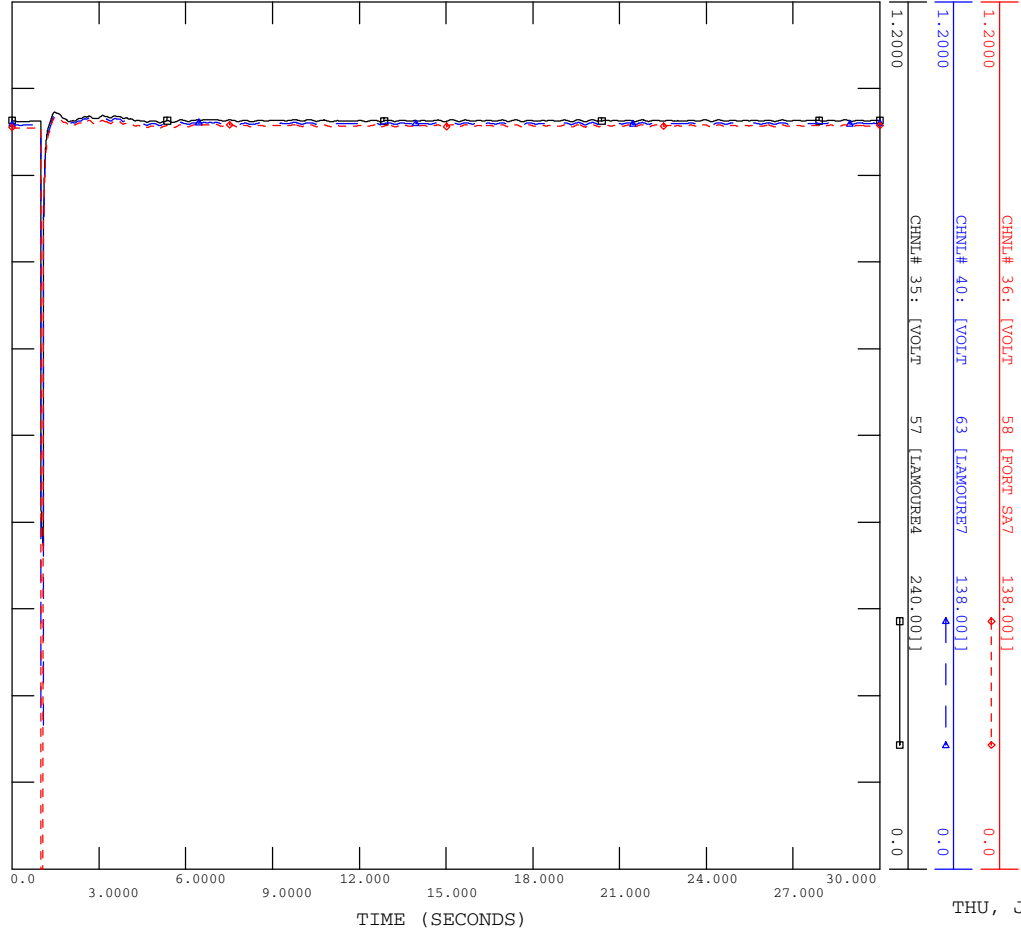


THU, JUN 19 2014 15:04  
 FIG E4-19A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

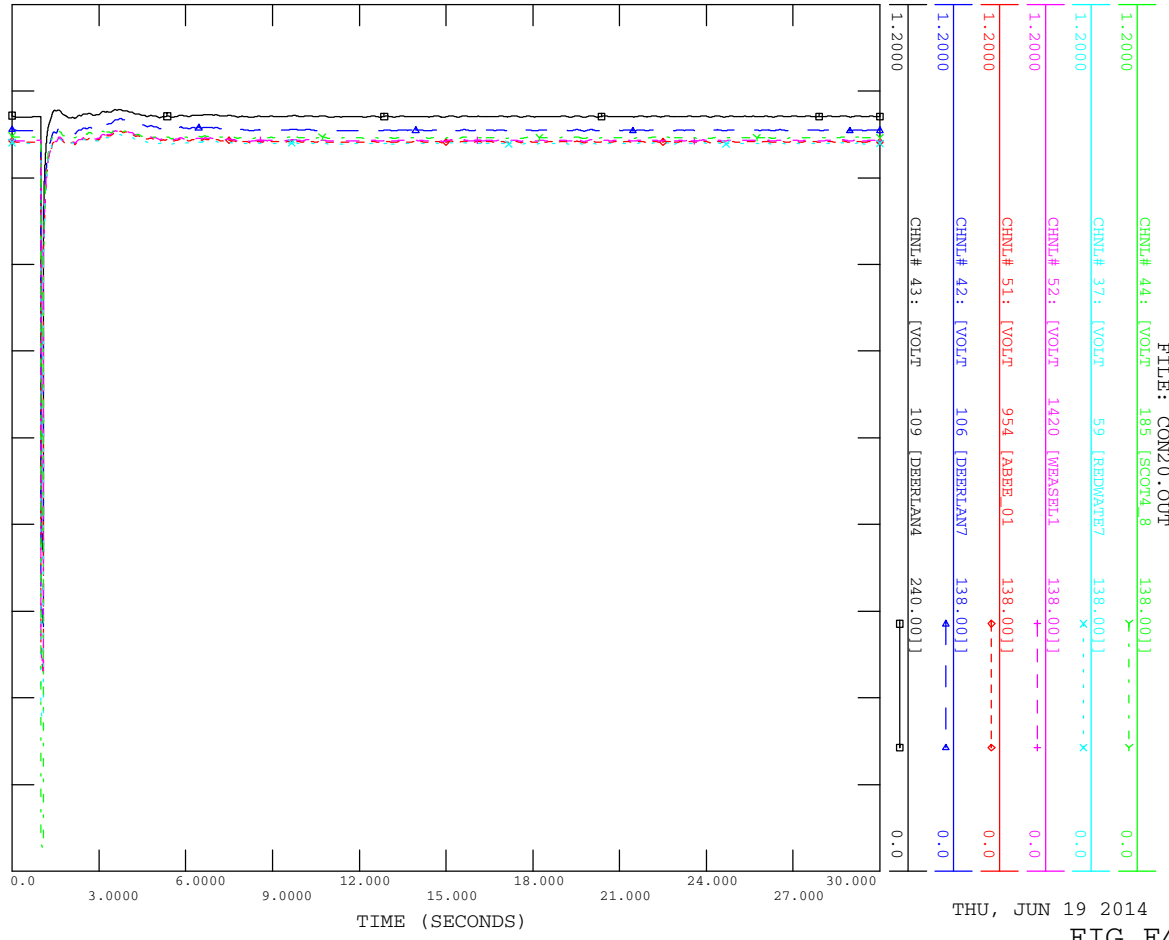


THU, JUN 19 2014 15:04  
 FIG E4-19B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

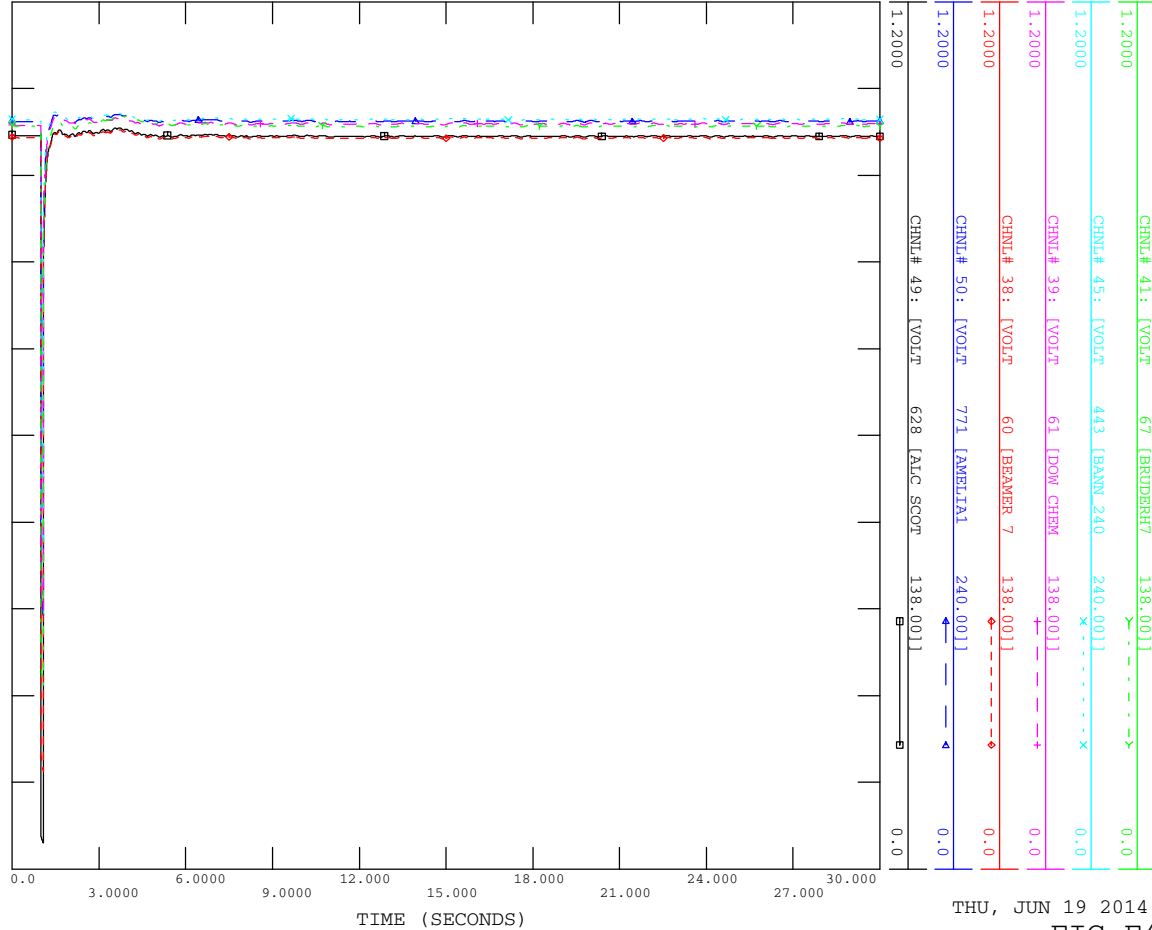


THU, JUN 19 2014 15:04  
 FIG E4-20



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

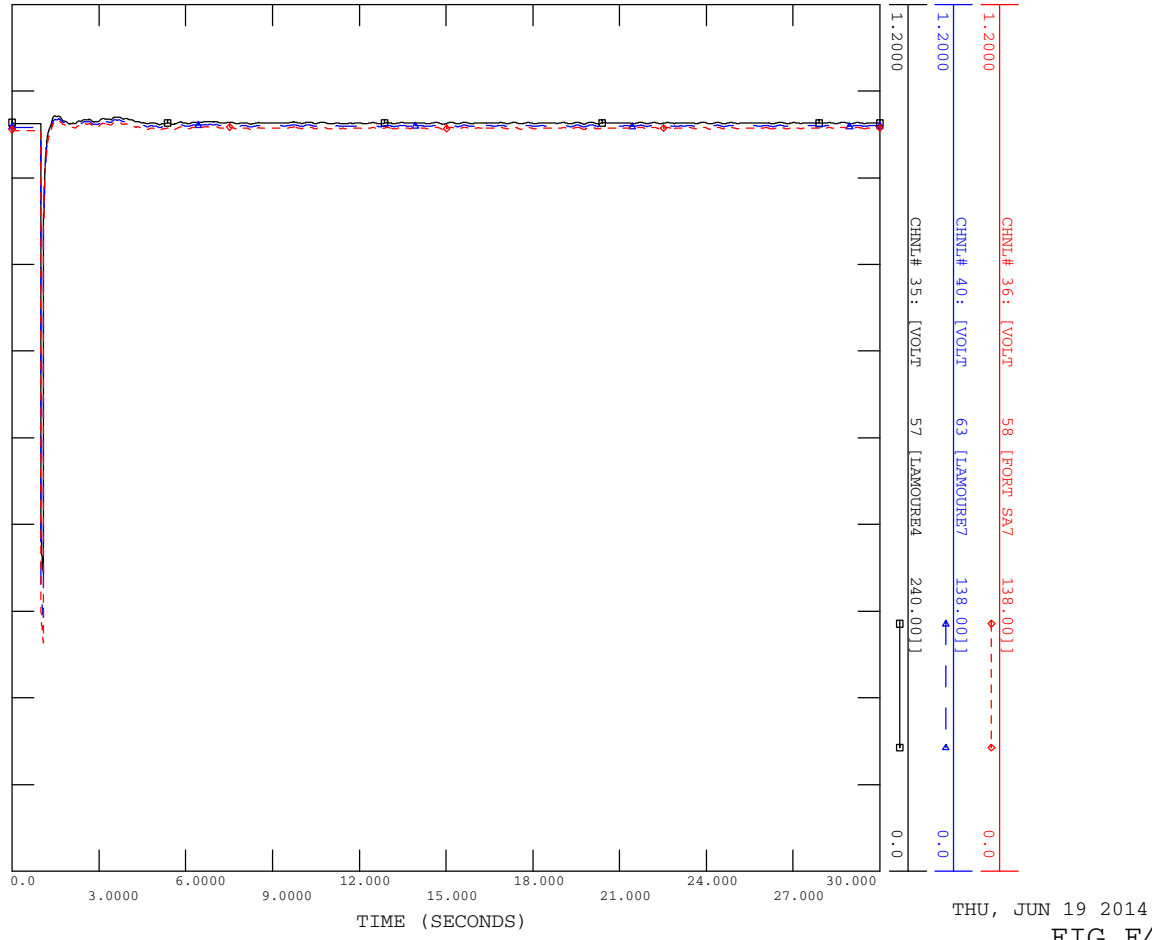


THU, JUN 19 2014 15:04  
FIG E4-20A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT



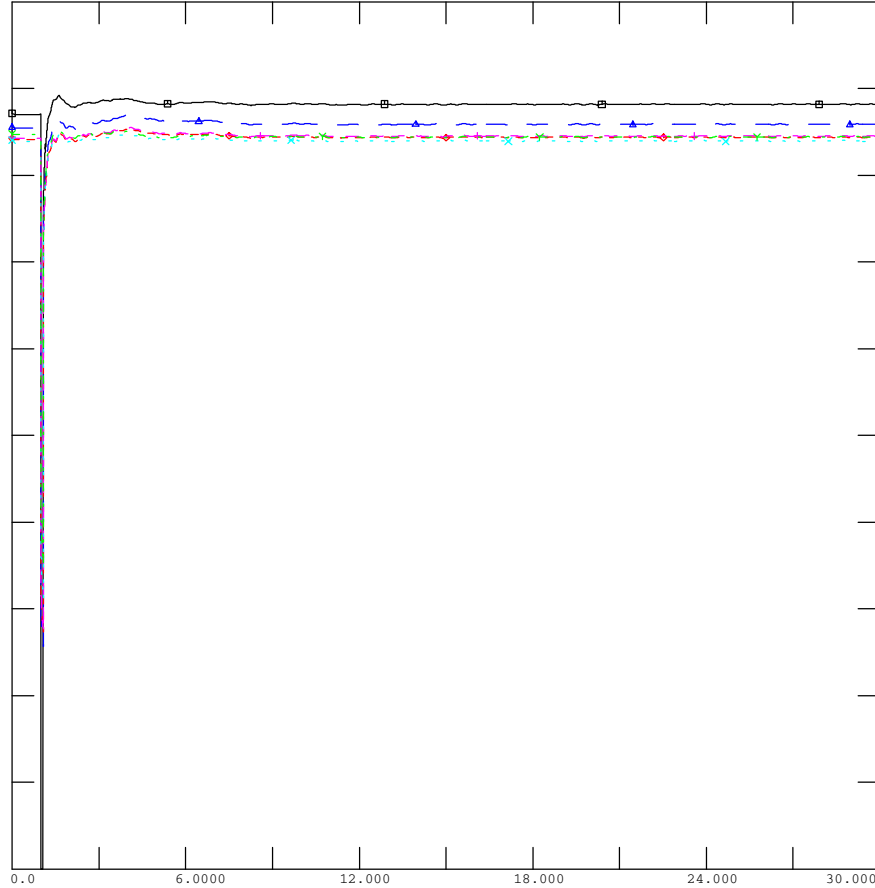
THU, JUN 19 2014 15:04  
FIG E4-20B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
1.2000	CHNL# 44:	189 [SCOT4 8]	138.001	0.0
1.2000	CHNL# 37:	59 [REDMATE7]	138.001	0.0
1.2000	CHNL# 52:	1420 [WEASSEL1]	138.001	0.0
1.2000	CHNL# 51:	954 [ABBE 01]	138.001	0.0
1.2000	CHNL# 42:	106 [DEBRLAN7]	138.001	0.0
1.2000	CHNL# 43:	109 [DEBRLAN4]	240.001	0.0



THU, JUN 19 2014 15:05

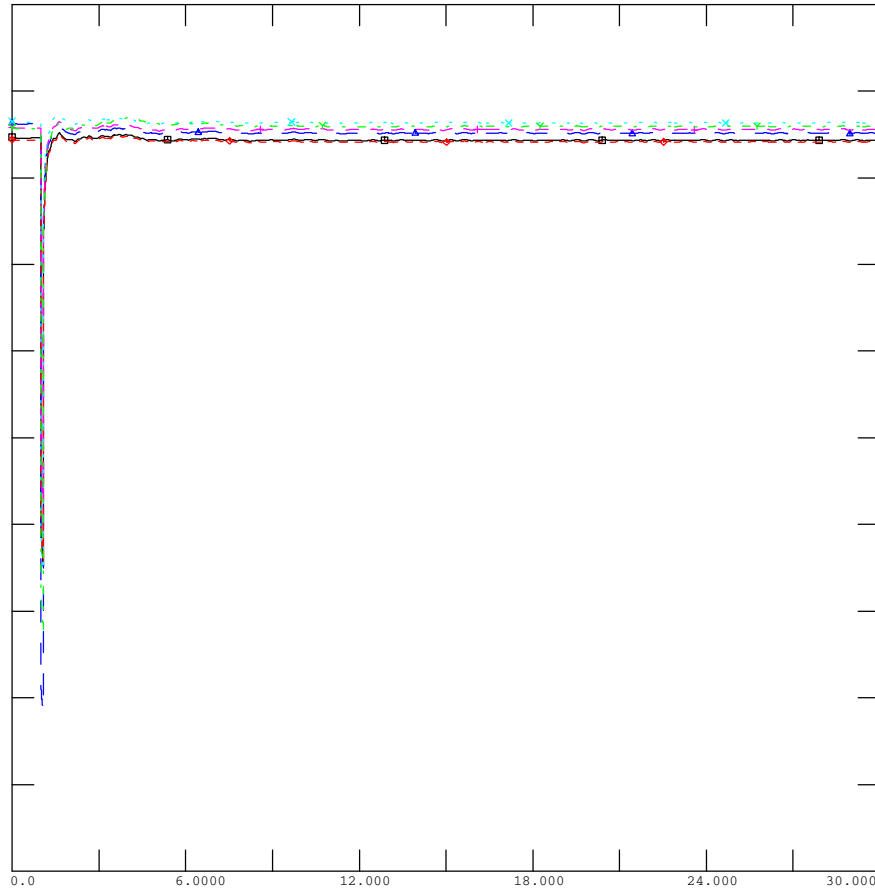
FIG E4-21



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

CHNL#	[VOLT]	[BRDERRH7]	[138.001]	[0.0]
1.2000	CHNL# 41:	67 [BRDERRH7]	138.001	0.0
1.2000	CHNL# 45:	443 [BANN 240]	240.001	0.0
1.2000	CHNL# 39:	61 [DOW GHEM]	138.001	0.0
1.2000	CHNL# 38:	60 [BEAMER 7]	138.001	0.0
1.2000	CHNL# 50:	771 [AMELIA1]	240.001	0.0
1.2000	CHNL# 49:	628 [ALC SCOT]	138.001	0.0



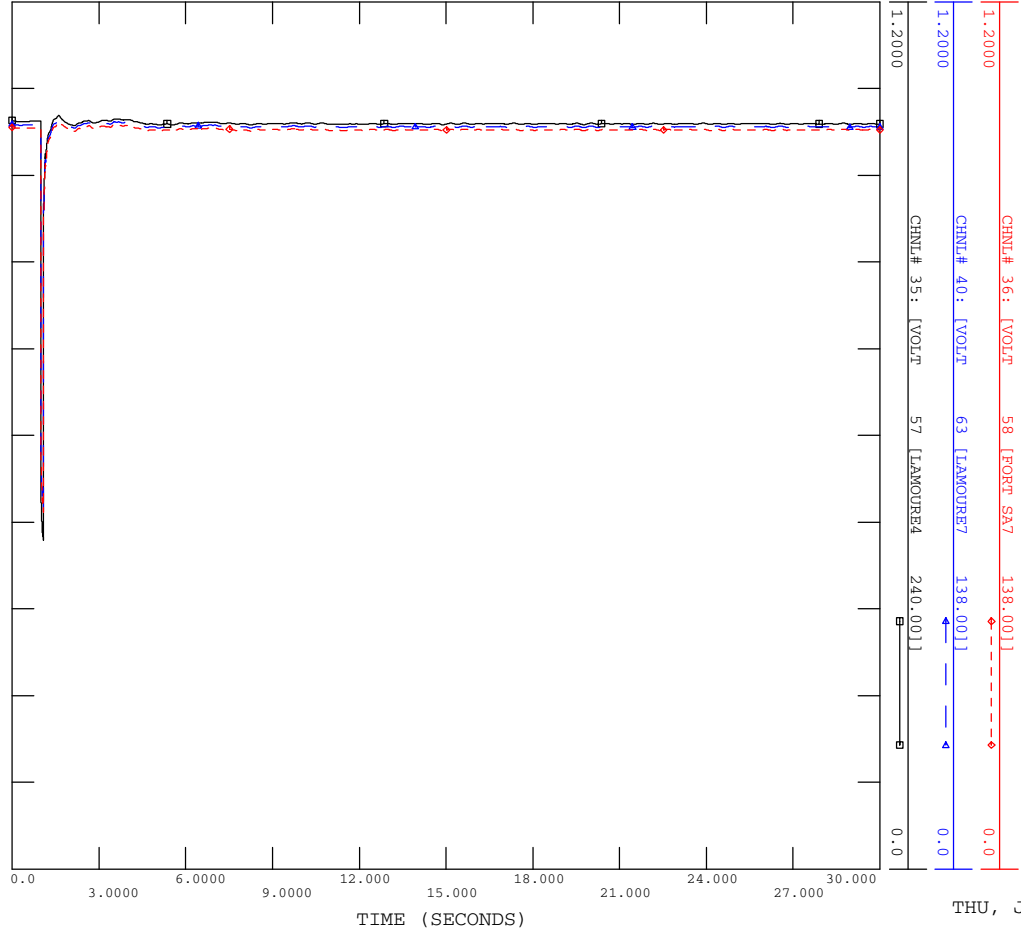
THU, JUN 19 2014 15:05

FIG E4-21A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

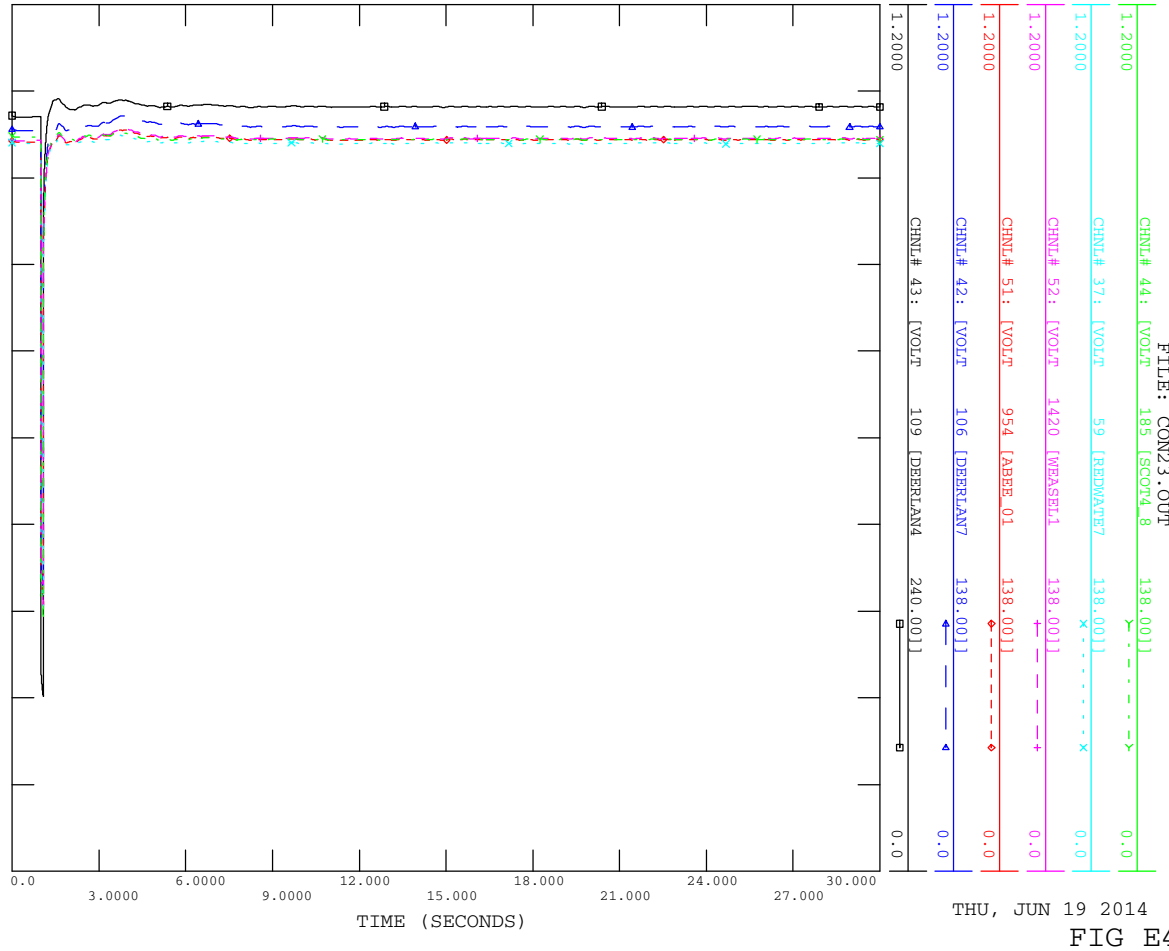


THU, JUN 19 2014 15:05  
FIG E4-21B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT



THU, JUN 19 2014 15:05  
FIG E4-22

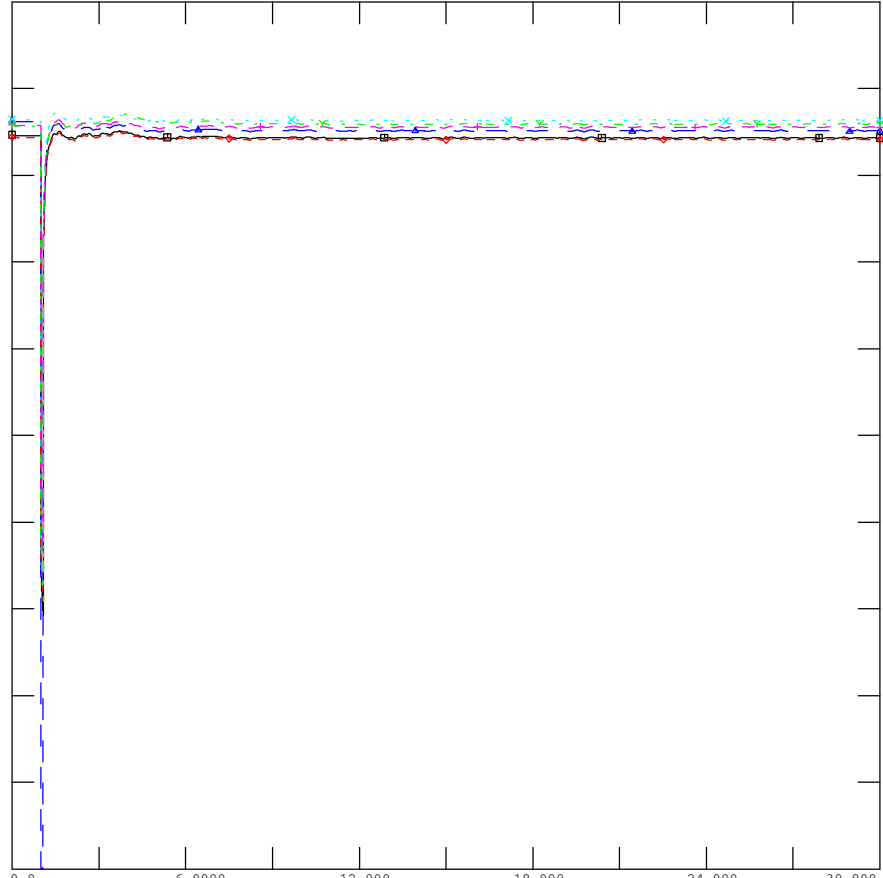




TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

CHNL#	[VOLT]	67 [BRUDERH7]	138.001]	0.0
1.2000	CHNL# 41:	[VOLT]	67 [BRUDERH7]	138.001]
1.2000	CHNL# 45:	[VOLT]	443 [BANNV_240]	240.001]
1.2000	CHNL# 39:	[VOLT]	61 [DOH CHRM]	138.001]
1.2000	CHNL# 38:	[VOLT]	60 [BEMANR 7]	138.001]
1.2000	CHNL# 50:	[VOLT]	771 [AMETA1]	240.001]
1.2000	CHNL# 49:	[VOLT]	628 [ALC SCOR]	138.001]



TIME (SECONDS)

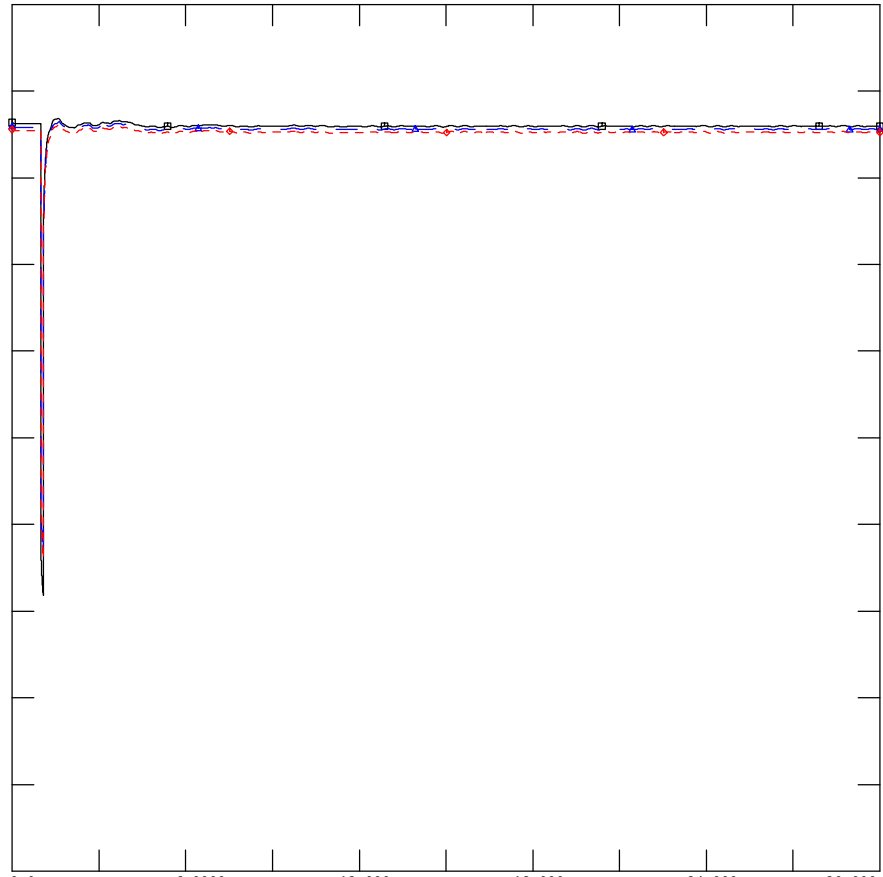
THU, JUN 19 2014 15:05  
FIG E4-22A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

CHNL#	[VOLT]	58 [PORT SA7]	138.001]	0.0
1.2000	CHNL# 36:	[VOLT]	58 [PORT SA7]	138.001]
1.2000	CHNL# 40:	[VOLT]	63 [LAMOURB7]	138.001]
1.2000	CHNL# 35:	[VOLT]	57 [LAMOURB4]	240.001]



TIME (SECONDS)

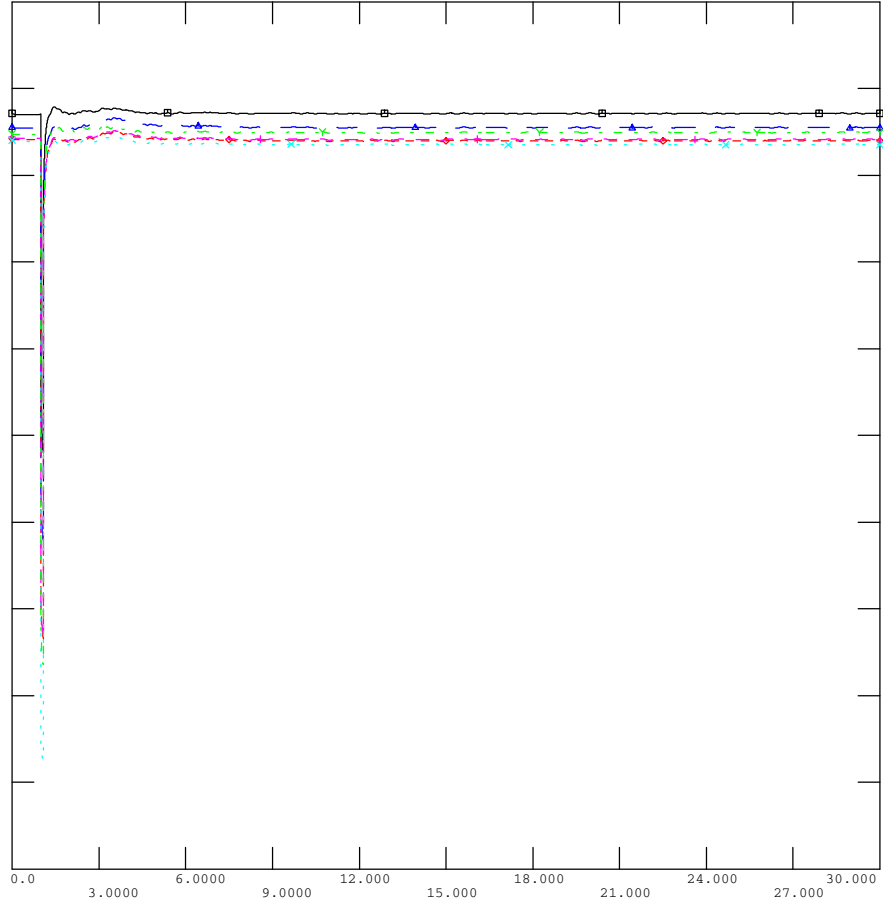
THU, JUN 19 2014 15:05  
FIG E4-22B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
1.2000	CHNL# 44:	189 [SCOT4 8]	138.001	0.0
1.2000	CHNL# 37:	59 [REBDATE7]	138.001	0.0
1.2000	CHNL# 52:	1420 [WEASST1]	138.001	0.0
1.2000	CHNL# 51:	954 [ABBE 01]	138.001	0.0
1.2000	CHNL# 42:	106 [DEBRLAN7]	138.001	0.0
1.2000	CHNL# 43:	109 [DEBRLAN4]	240.001	0.0



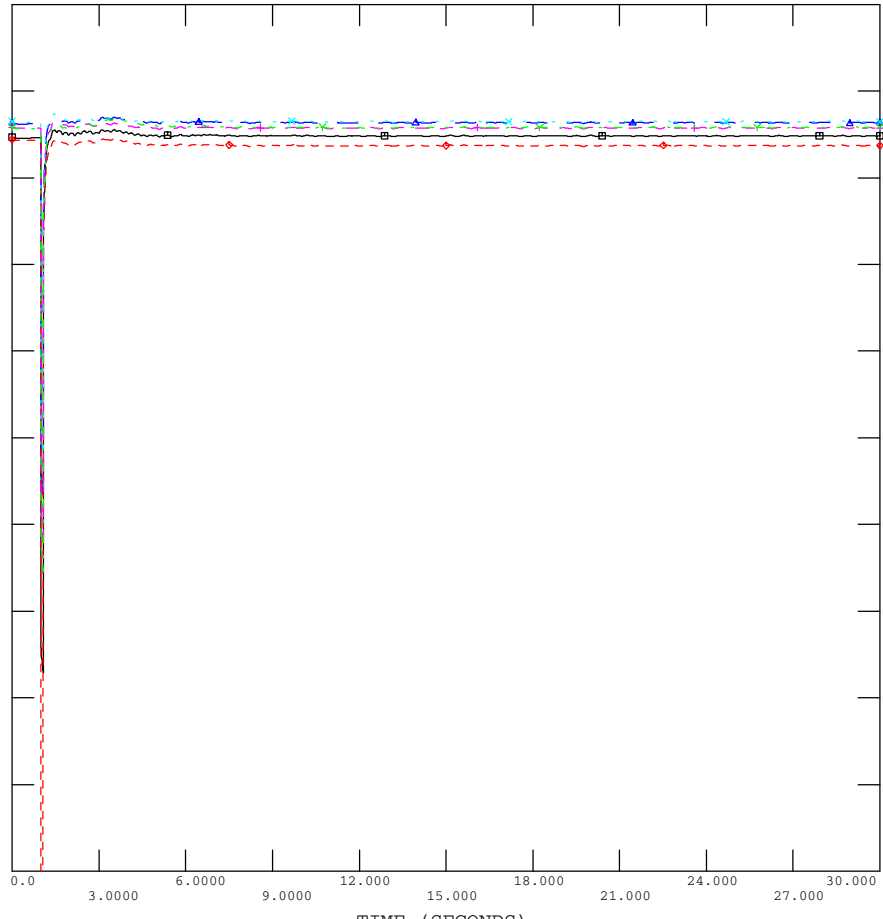
THU, JUN 19 2014 15:05  
FIG E4-23



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

CHNL#	[VOLT]	[BRDERRH7]	[138.001]	[0.0]
1.2000	CHNL# 41:	67 [BRDERRH7]	138.001	0.0
1.2000	CHNL# 45:	443 [BANN 240]	240.001	0.0
1.2000	CHNL# 39:	61 [DOW CHDM]	138.001	0.0
1.2000	CHNL# 38:	60 [BEAMER 7]	138.001	0.0
1.2000	CHNL# 50:	771 [AMELIA1]	240.001	0.0
1.2000	CHNL# 49:	628 [ALC SCOT]	138.001	0.0

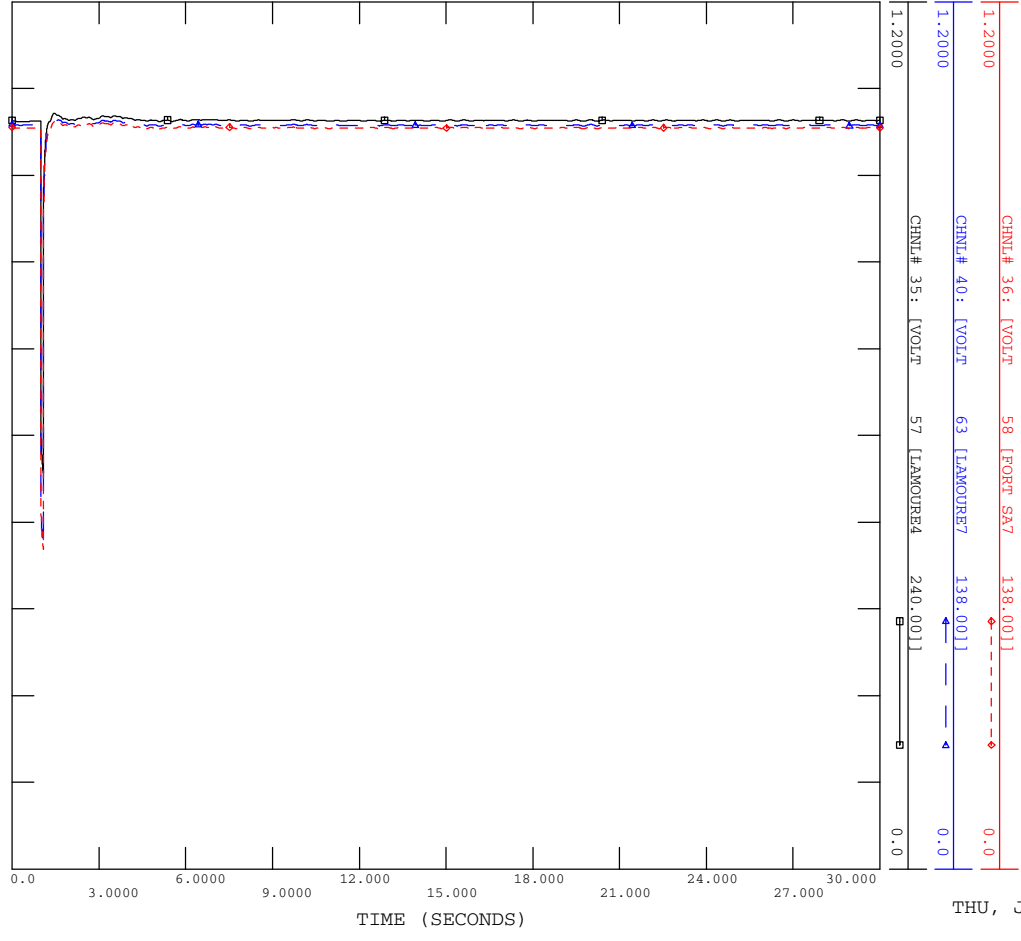


THU, JUN 19 2014 15:05  
FIG E4-23A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

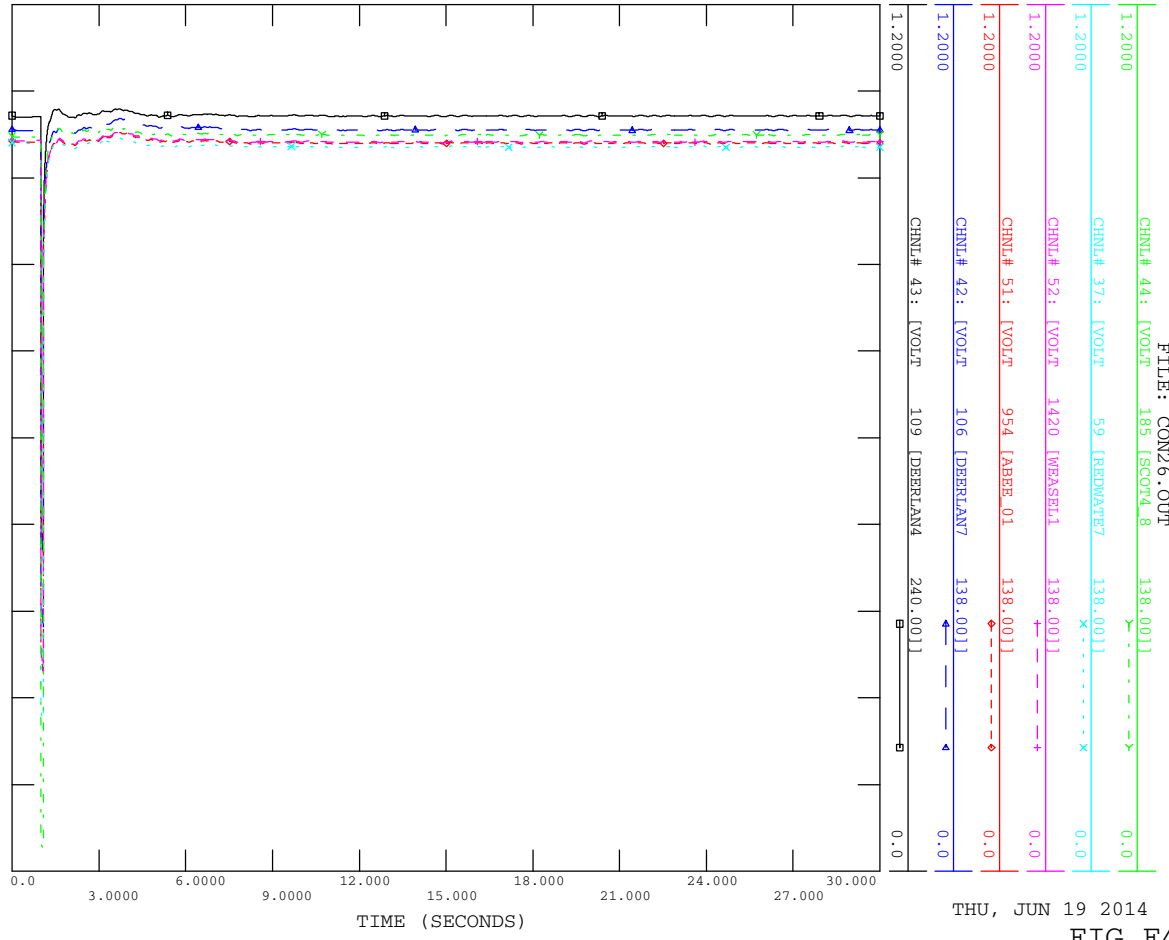


THU, JUN 19 2014 15:06  
FIG E4-23B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

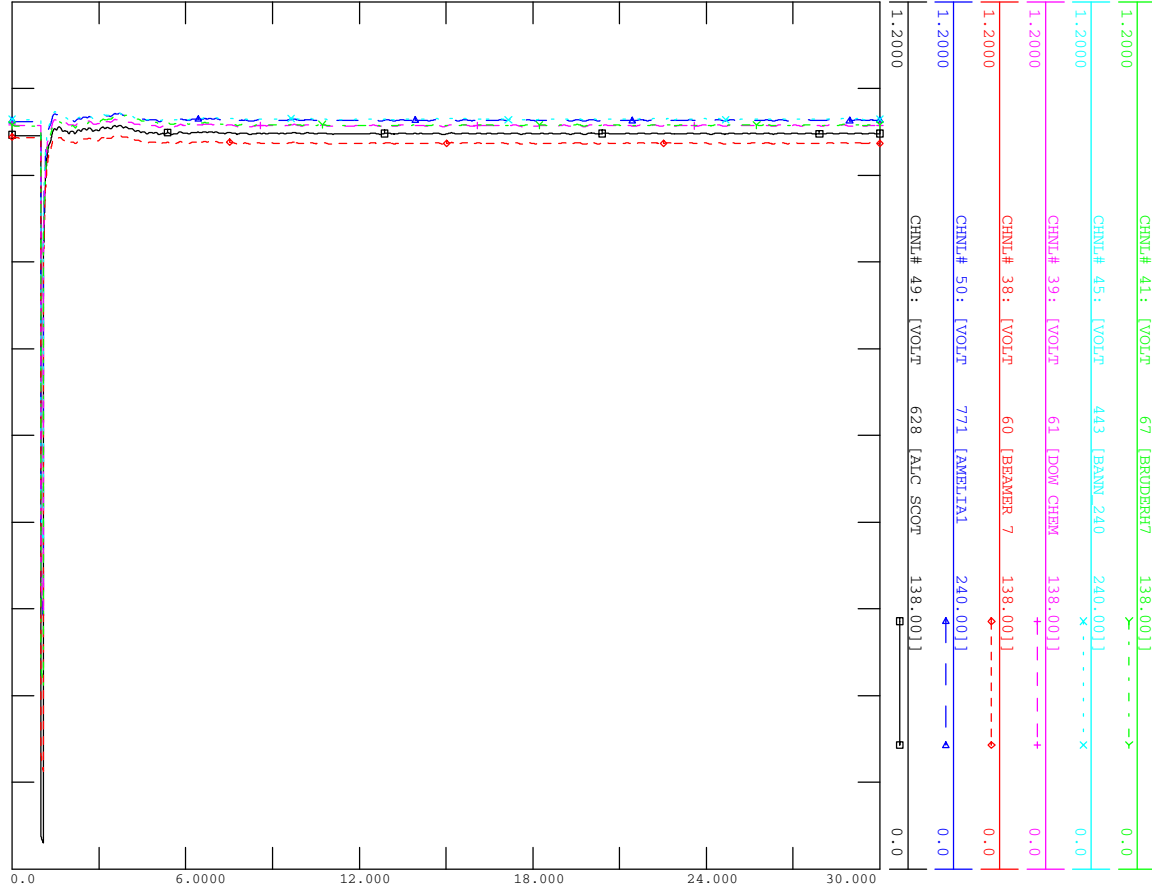


THU, JUN 19 2014 15:06  
FIG E4-24



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT



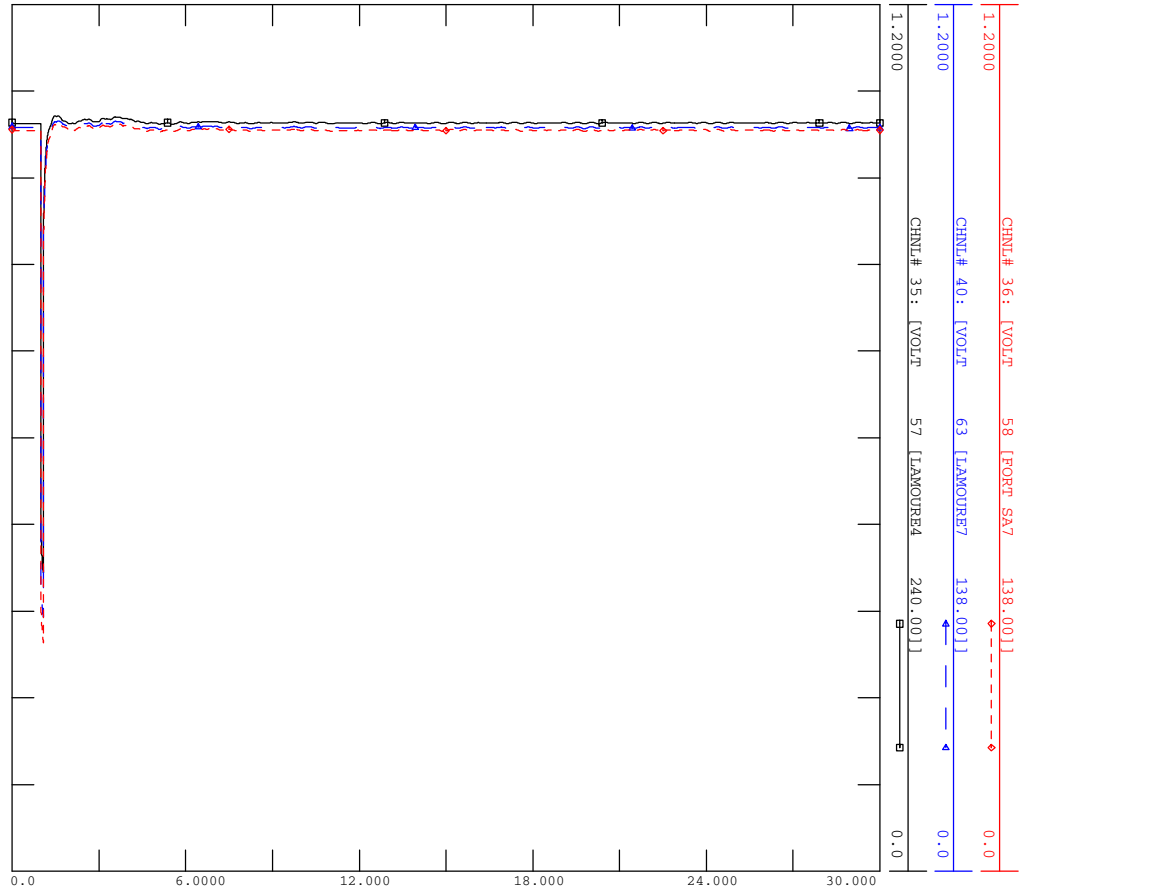
THU, JUN 19 2014 15:06

FIG E4-24A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT



THU, JUN 19 2014 15:06

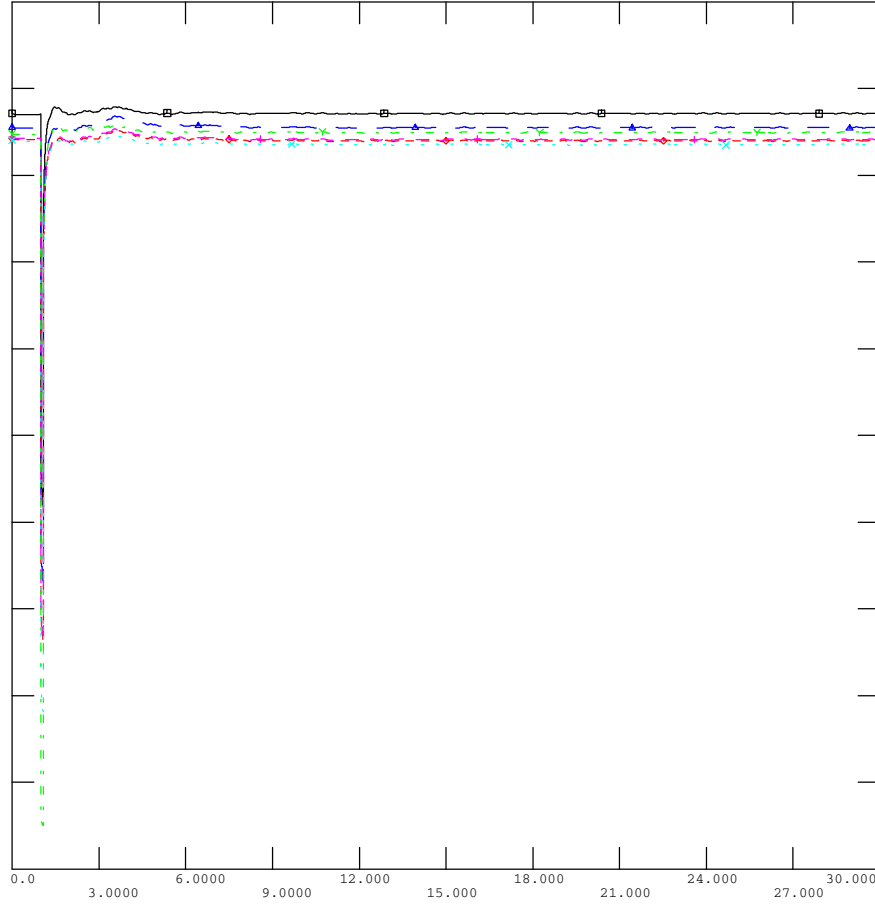
FIG E4-24B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
1.2000	CHNL# 44:	189 [SCOT4 8]	138.001	0.0
1.2000	CHNL# 37:	59 [BRDDEHH7]	138.001	0.0
1.2000	CHNL# 52:	1420 [WEASBE1]	138.001	0.0
1.2000	CHNL# 51:	954 [ABBE 01]	138.001	0.0
1.2000	CHNL# 42:	106 [DBERLAN7]	138.001	0.0
1.2000	CHNL# 43:	109 [DBERLAN4]	240.001	0.0



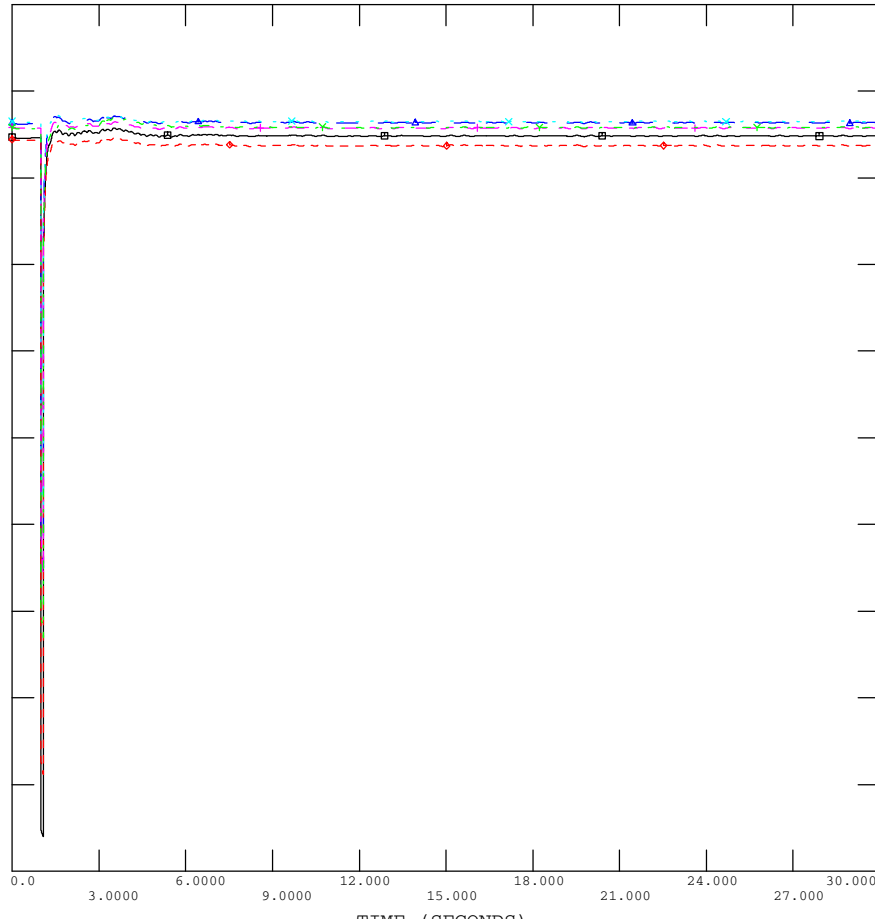
THU, JUN 19 2014 15:06  
FIG E4-25



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

CHNL#	[VOLT]	[BRDDEHH7]	[138.001]	[0.0]
1.2000	CHNL# 41:	67 [BRDDEHH7]	138.001	0.0
1.2000	CHNL# 45:	443 [BANN 240]	240.001	0.0
1.2000	CHNL# 39:	61 [DOW GHEM]	138.001	0.0
1.2000	CHNL# 38:	60 [BEAMER 7]	138.001	0.0
1.2000	CHNL# 50:	771 [AMELIA1]	240.001	0.0
1.2000	CHNL# 49:	628 [ALC SCOT]	138.001	0.0

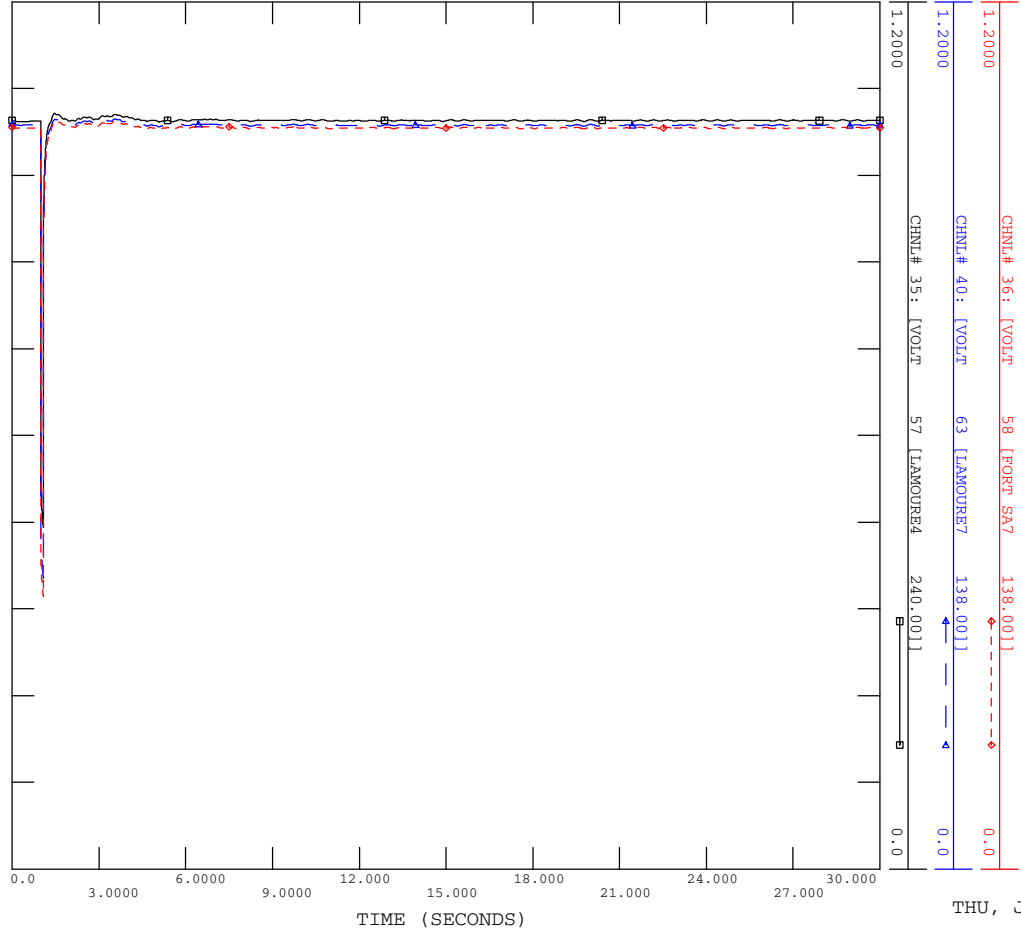


THU, JUN 19 2014 15:06  
FIG E4-25A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

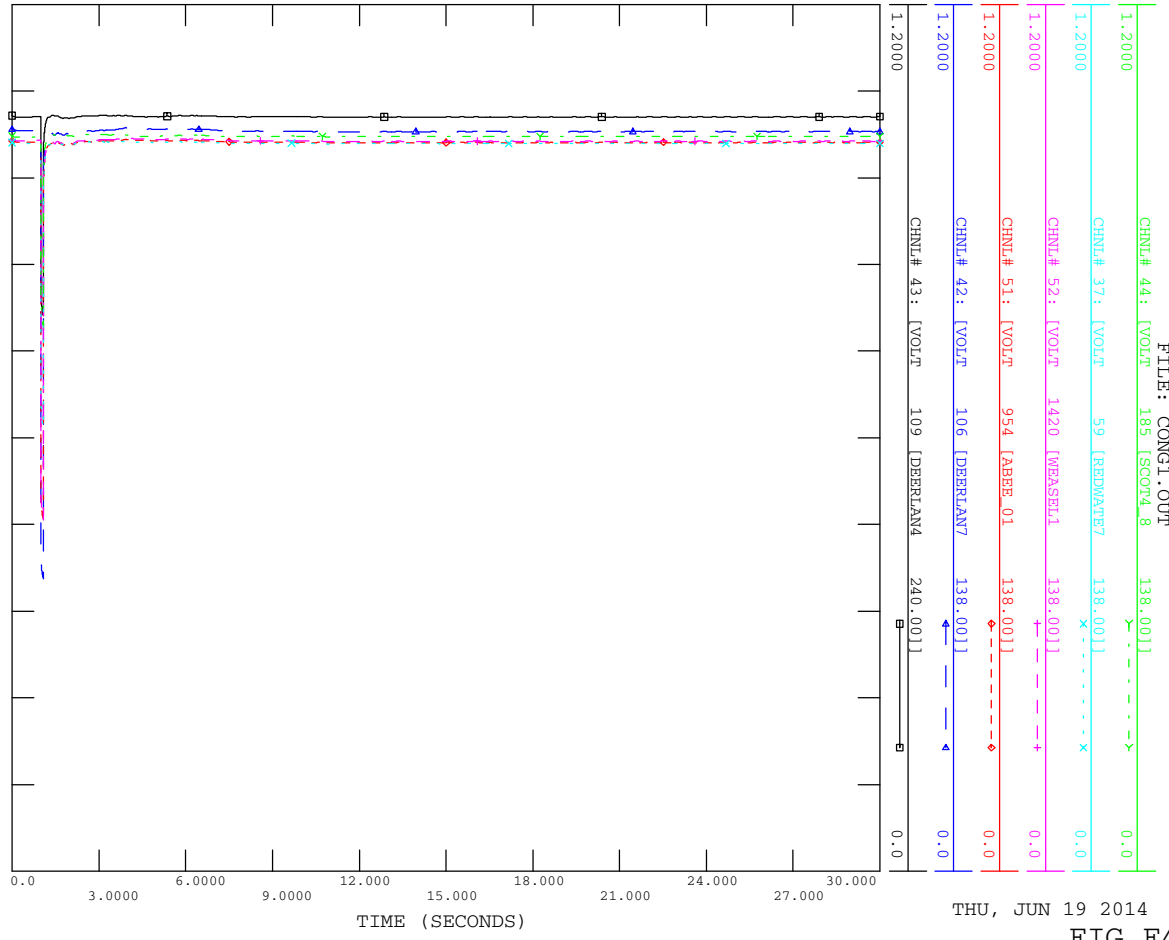


THU, JUN 19 2014 15:06  
 FIG E4-25B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT



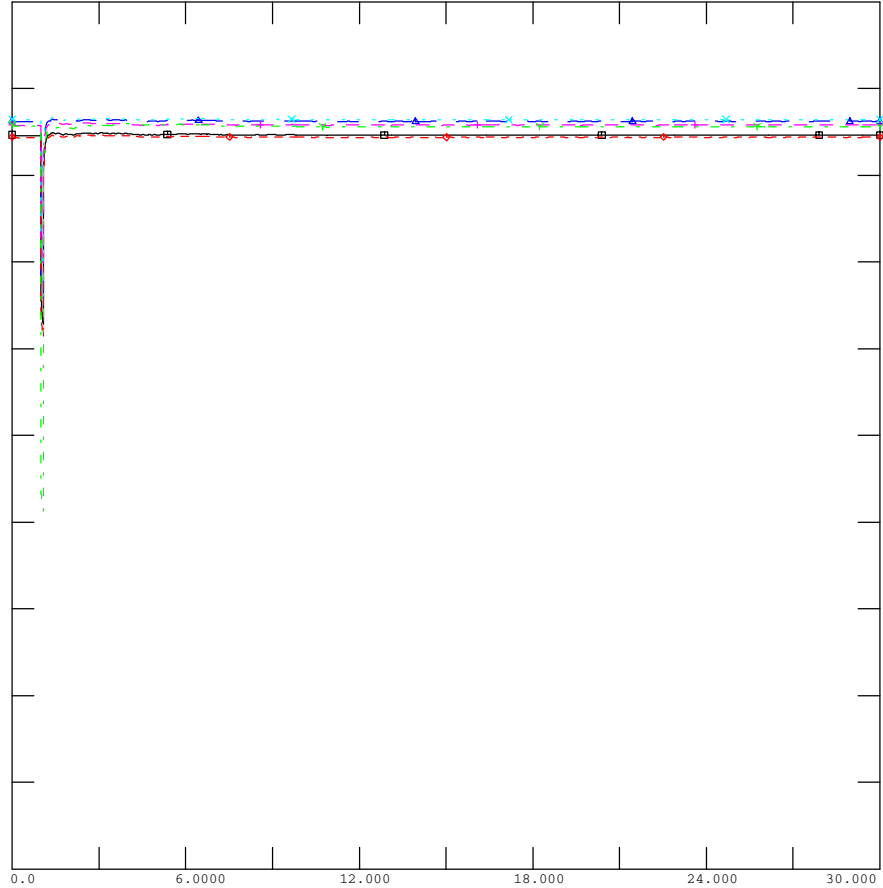
THU, JUN 19 2014 15:06  
 FIG E4-26



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT

CHNL#	[VOLT]	[BRUDBRHT]	[138.001]
41	[VOLT]	67	[138.001]
45	[VOLT]	443	[240.001]
39	[VOLT]	61	[138.001]
38	[VOLT]	60	[138.001]
50	[VOLT]	771	[240.001]
49	[VOLT]	628	[138.001]



TIME (SECONDS)

THU, JUN 19 2014 15:06

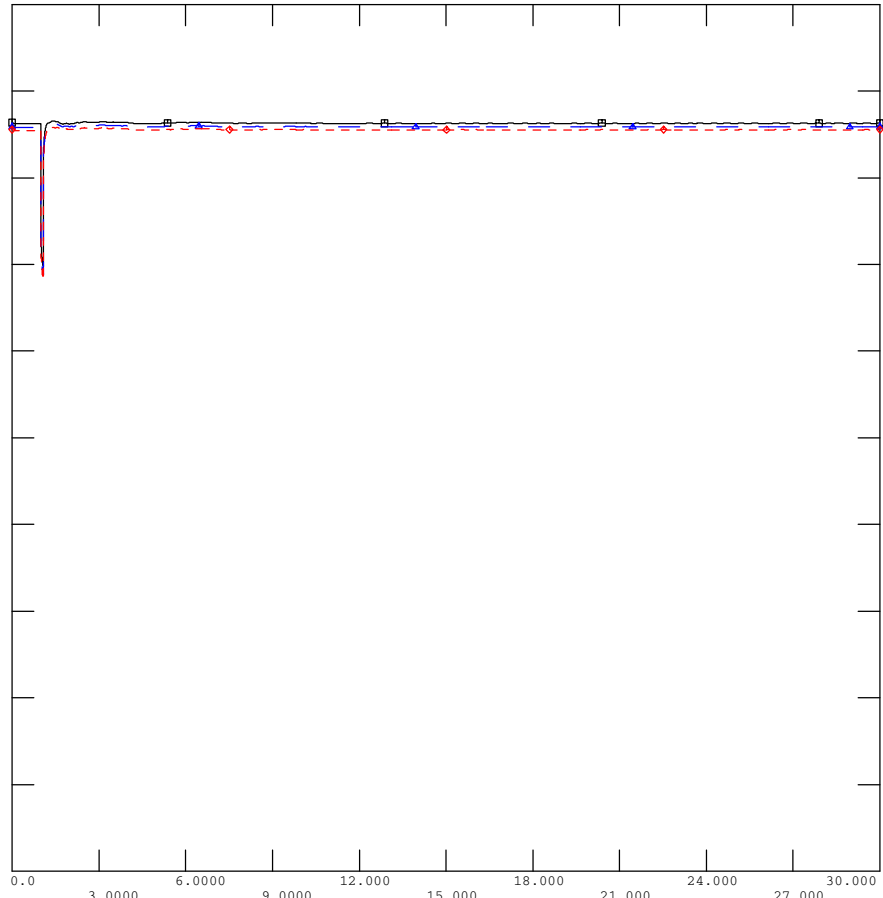
FIG E4-26A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT

CHNL#	[VOLT]	[PORT SA7]	[138.001]
36	[VOLT]	58	[138.001]
40	[VOLT]	63	[138.001]
35	[VOLT]	57	[240.001]



TIME (SECONDS)

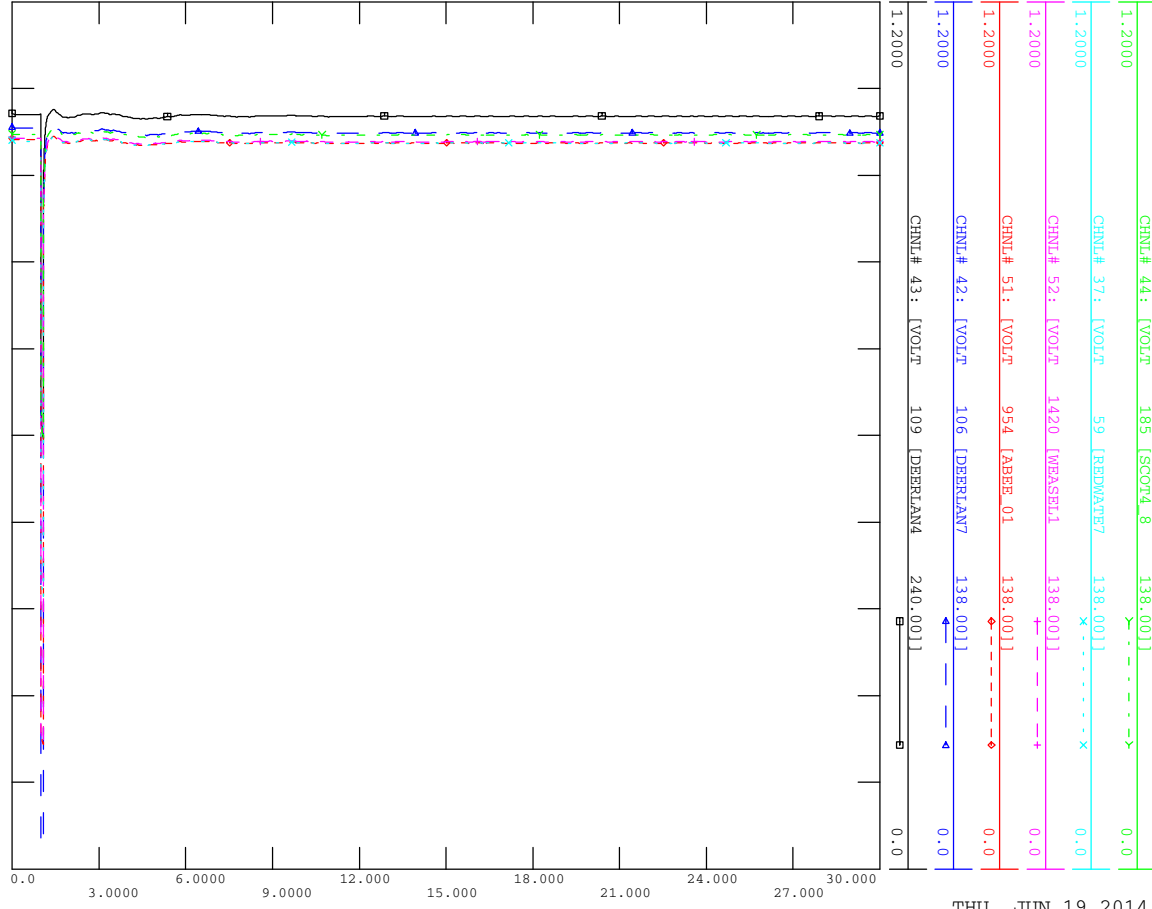
THU, JUN 19 2014 15:06

FIG E4-26B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

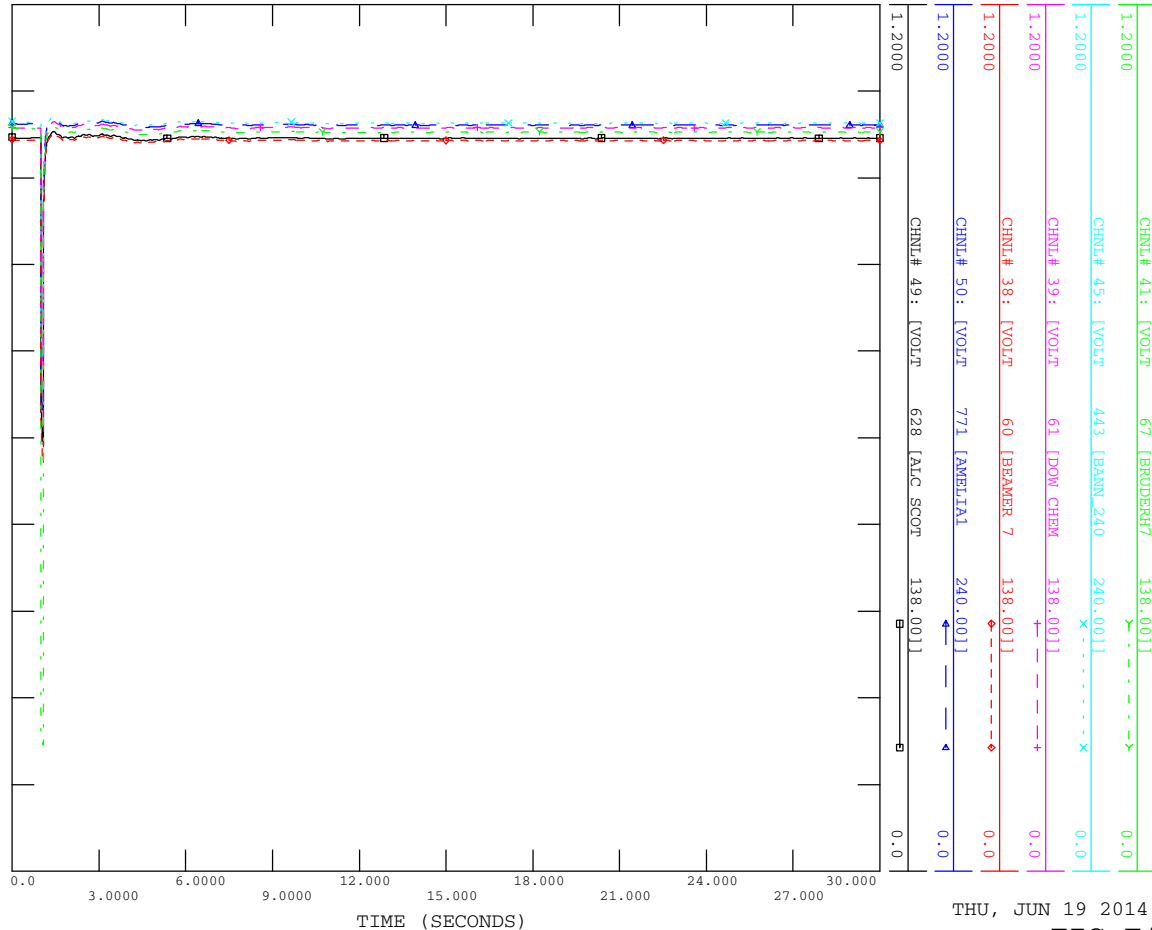


THU, JUN 19 2014 15:07  
FIG E4-27



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
CAP B - 480L 3PH FAULT

FILE: CONG2.OUT



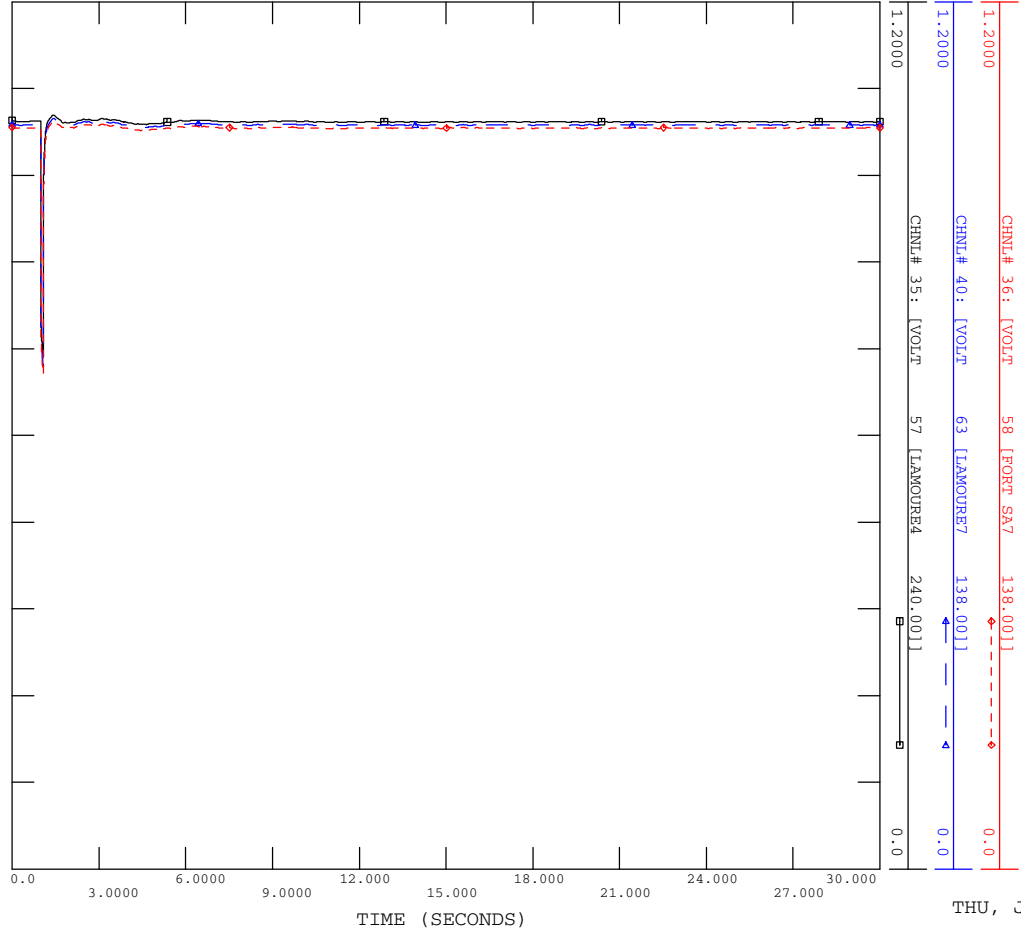
THU, JUN 19 2014 15:07  
FIG E4-27A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

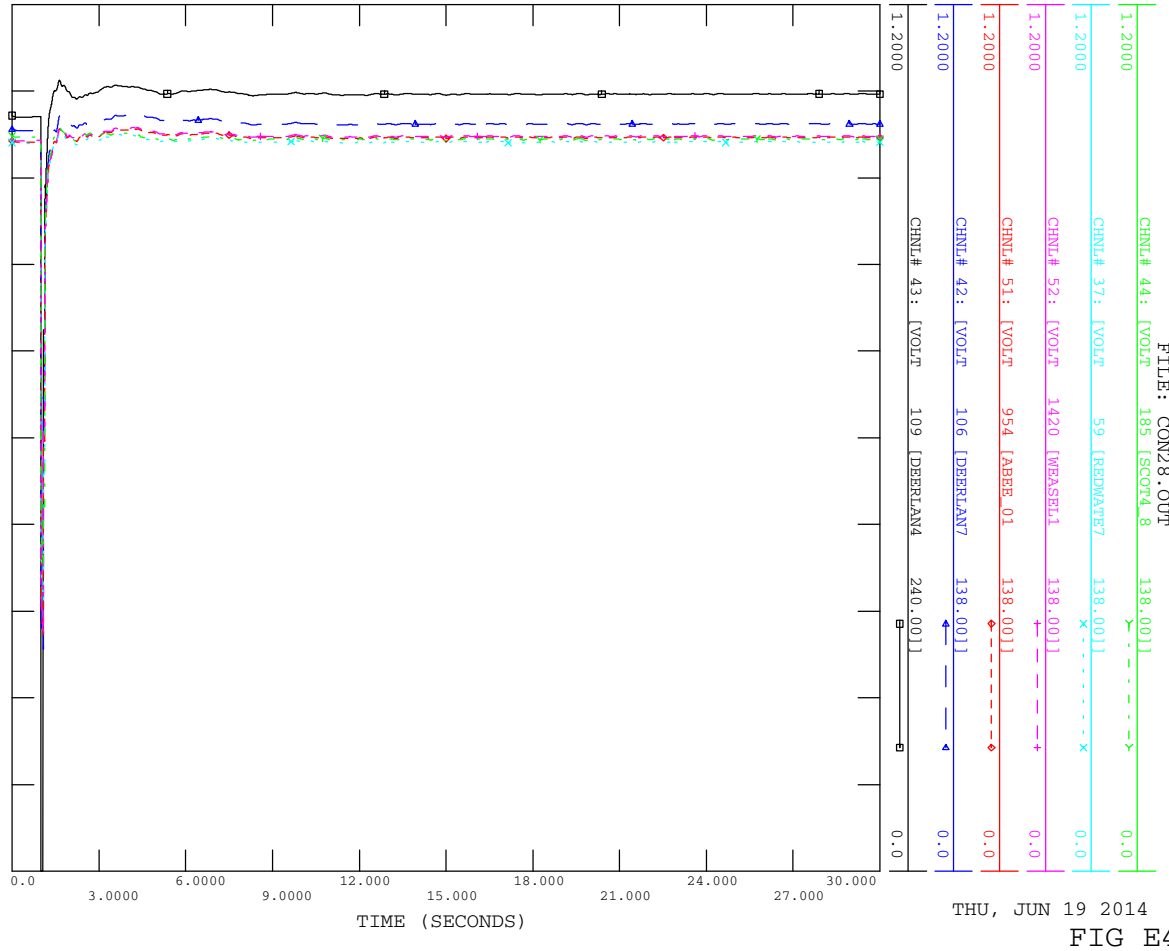


THU, JUN 19 2014 15:07  
 FIG E4-27B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT



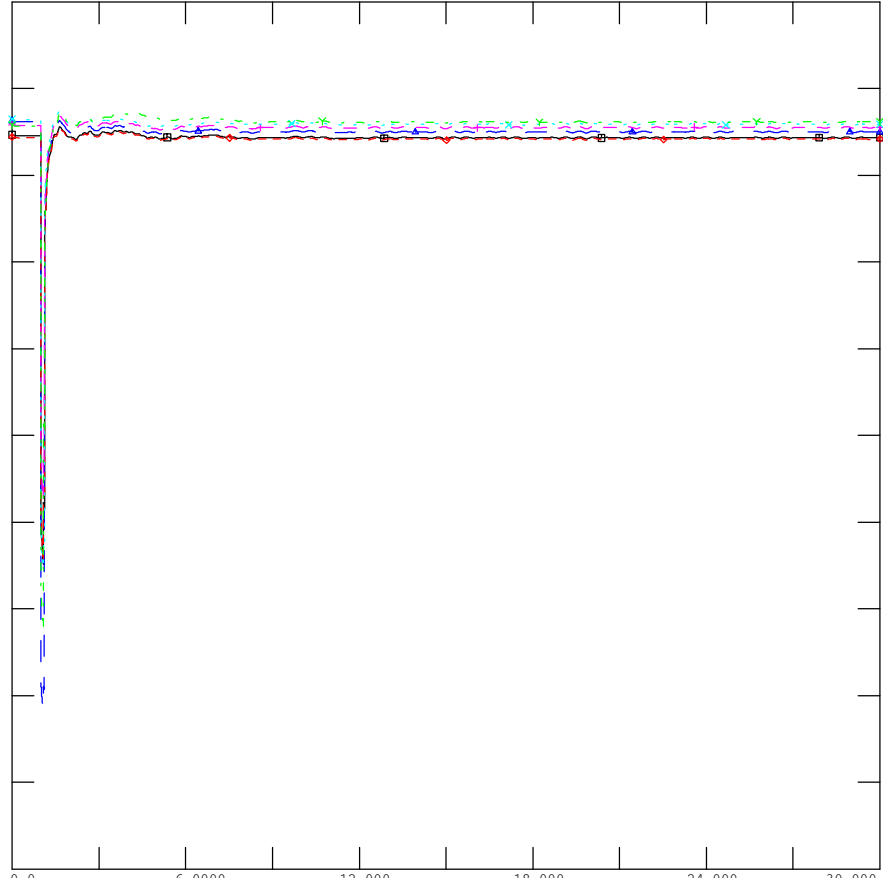
THU, JUN 19 2014 15:07  
 FIG E4-28



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT

CHNL#	[VOLT]	[BRUDERH7]	[38.001]
1.2000	41	67	138.001
1.2000	45	443	[BANNV_240]
1.2000	39	61	[DOH_CHEM]
1.2000	38	60	[BEMER_7]
1.2000	50	771	[AMETA1]
1.2000	49	628	[ALG_SCOR]



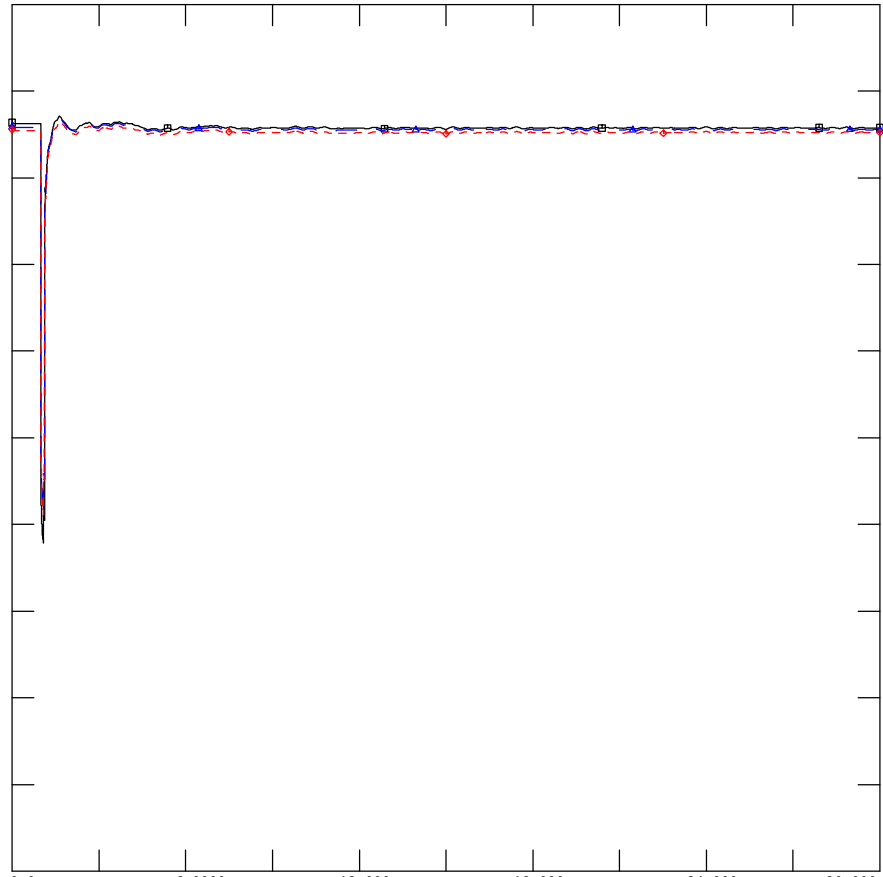
THU, JUN 19 2014 15:07  
 FIG E4-28A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:26:26  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:18:32--1-0-0-0  
 CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT

CHNL#	[VOLT]	[PORT SA7]	[38.001]
1.2000	36	58	138.001
1.2000	40	63	[LAMOURB7]
1.2000	35	57	[LAMOURB4]



THU, JUN 19 2014 15:07  
 FIG E4-28B

## **Attachment F**

### **Scenario 6 Transient Stability Analysis Results**

Attachment F-1: Machine Rotor Angle

Attachment F-2: Machine Real Power

Attachment F-3: Machine Reactive Power

Attachment F-4: Monitored Area Bus Voltages

### Scenario 6 (2014 SL) Transient Response Plot Key

Category	Line Element	Substation Terminals			Faulted End	FIGURE NO.			
						ANGLES	POWER	VAR	VOLTAGE
A	n/a	Flat Start			n/a	F1-1 F1-1a	F2-1 F2-1a	F3-1 F3-1a	F4-1 F4-1a F4-1b
B	9L961	Deerland 13S	Whitefish Lake 825S	n/a	13S	F1-2 F1-2a	F2-2 F2-2a	F3-2 F3-2a	F4-2 F4-2a F4-2b
					825S	F1-3 F1-3a	F2-3 F2-3a	F3-3 F3-3a	F4-3 F4-3a F4-3b
B	735L	Redwater 171S	Beamer 238S	n/a	171S	F1-4 F1-4a	F2-4 F2-4a	F3-4 F3-4a	F4-4 F4-4a F4-4b
					238S	F1-5 F1-5a	F2-5 F2-5a	F3-5 F3-5a	F4-5 F4-5a F4-5b
B	T2	Deerland 240kV	Deerland 138kV	n/a	T2	F1-6 F1-6a	F2-6 F2-6a	F3-6 F3-6a	F4-6 F4-6a F4-6b
B	776L	Josephburg 410S	Beaverhill Ck 308S	n/a	410S	F1-7 F1-7a	F2-7 F2-7a	F3-7 F3-7a	F4-7 F4-7a F4-7b
					308S	F1-8 F1-8a	F2-8 F2-8a	F3-8 F3-8a	F4-8 F4-8a F4-8b
B	773L	Bruderheim 127S	Beaverhill Ck 308S	n/a	127S	F1-9 F1-9a	F2-9 F2-9a	F3-9 F3-9a	F4-9 F4-9a F4-9b
					308S	F1-10 F1-10a	F2-10 F2-10a	F3-10 F3-10a	F4-10 F4-10a F4-10b

### Scenario 6 (2014 SL) Transient Response Plot Key (continued)

Category	Line Element	Substation Terminals			Faulted End	FIGURE NO.			
B	920L	Lamoureux 71S	Castle Downs 557S	n/a	71S	F1-11 F1-11a	F2-11 F2-11a	F3-11 F3-11a	F4-11 F4-11a F4-11b
					557S	F1-12 F1-12a	F2-12 F2-12a	F3-12 F3-12a	F4-12 F4-12a F4-12b
B	815L	Bruderheim 127S	Deerland 13S	n/a	127S	F1-13 F1-13a	F2-13 F2-13a	F3-13 F3-13a	F4-13 F4-13a F4-13b
					13S	F1-14 F1-14a	F2-14 F2-14a	F3-14 F3-14a	F4-14 F4-14a F4-14b
B	808L	Redwater 171S	Deerland 13S	n/a	171S	F1-15 F1-15a	F2-15 F2-15a	F3-15 F3-15a	F4-15 F4-15a F4-15b
					13S	F1-16 F1-16a	F2-16 F2-16a	F3-16 F3-16a	F4-16 F4-16a F4-16b
B	1054L	Deerland 13S	Heartland 12S	n/a	13S	F1-17 F1-17a	F2-17 F2-17a	F3-17 F3-17a	F4-17 F4-17a F4-17b
					12S	F1-18 F1-18a	F2-18 F2-18a	F3-18 F3-18a	F4-18 F4-18a F4-18b
B	706L	Ft. Sask 54S	Josephburg 410S	Bf Goodrich 452S	54S	F1-19 F1-19a	F2-19 F2-19a	F3-19 F3-19a	F4-19 F4-19a F4-19b
					410S	F1-20 F1-20a	F2-20 F2-20a	F3-20 F3-20a	F4-20 F4-20a F4-20b

### Scenario 6 (2014 SL) Transient Response Plot Key (continued)

Category	Line Element	Substation Terminals			Faulted End	FIGURE NO.			
B	943L	Deerland 13S	Amelia 108S	n/a	410S	F1-21 F1-21a	F2-21 F2-21a	F3-21 F3-21a	F4-21 F4-21a F4-21b
					108S	F1-22 F1-22a	F2-22 F2-22a	F3-22 F3-22a	F4-22 F4-22a F4-22b
B	807L	Beamer 233S	Josephburg 410S	AOSP1 402S	233S	F1-23 F1-23a	F2-23 F2-23a	F3-23 F3-23a	F4-23 F4-23a F4-23b
					410S	F1-24 F1-24a	F2-24 F2-24a	F3-24 F3-24a	F4-24 F4-24a F4-24b
					402S	F1-25 F1-25a	F2-25 F2-25a	F3-25 F3-25a	F4-25 F4-25a F4-25b
B-2	109S T1	Skaro 109s transformer		n/a	109S T1	F1-26 F1-26a	F2-26 F2-26a	F3-26 F3-26a	F4-26 F4-26a F4-26b
B-2	480L	Deerland 13S	Skaro 109S	n/a	Skaro 109S	F1-27 F1-27a	F2-27 F2-27a	F3-27 F3-27a	F4-27 F4-27a F4-27b
C	1054L / 943L	Deerland 13S	Heartland 12S	n/a	13S	F1-26 F1-26a	F2-26 F2-26a	F3-26 F3-26a	F4-26 F4-26a F4-26b
		Deerland 13S	Amelia 108S	n/a					

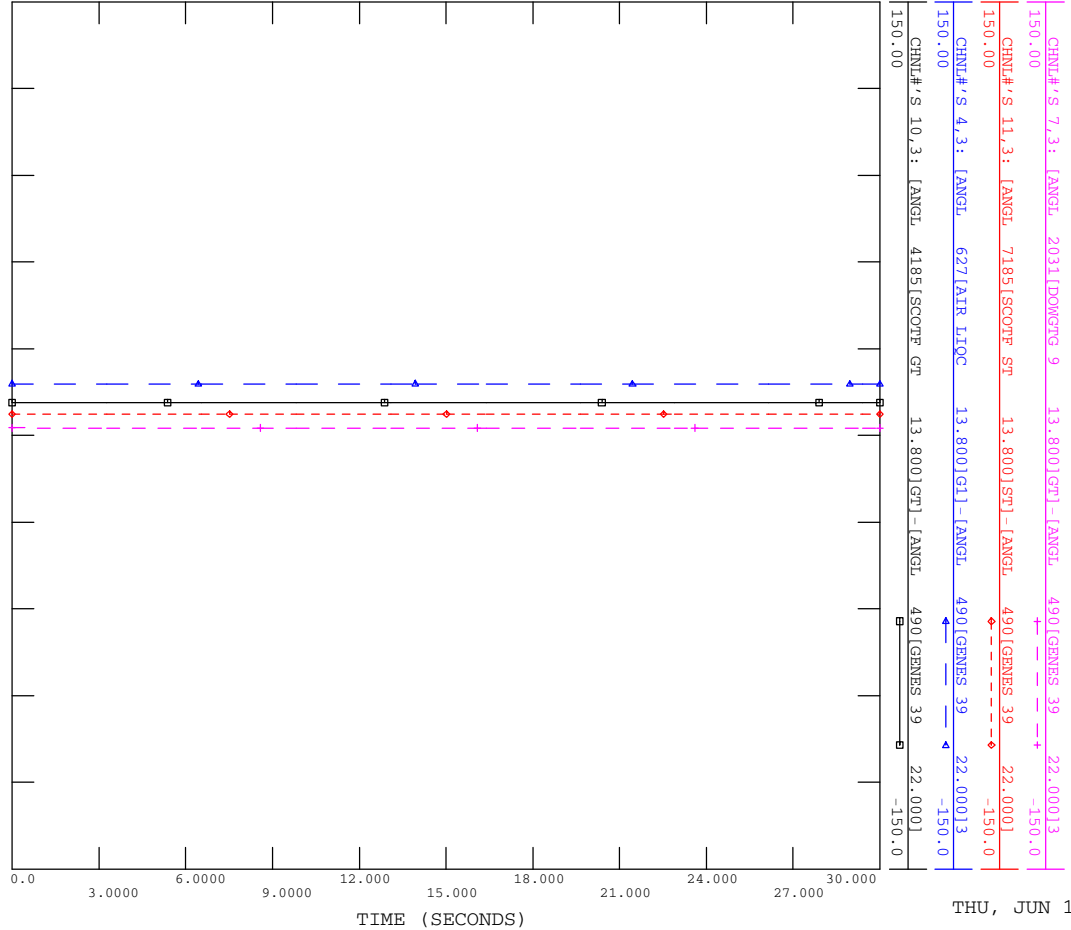
## **Attachment F-1**

### **Scenario 6 Transient Stability Plots Machine Rotor Angles**



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP A - FLAT START

FILE: CON0.OUT

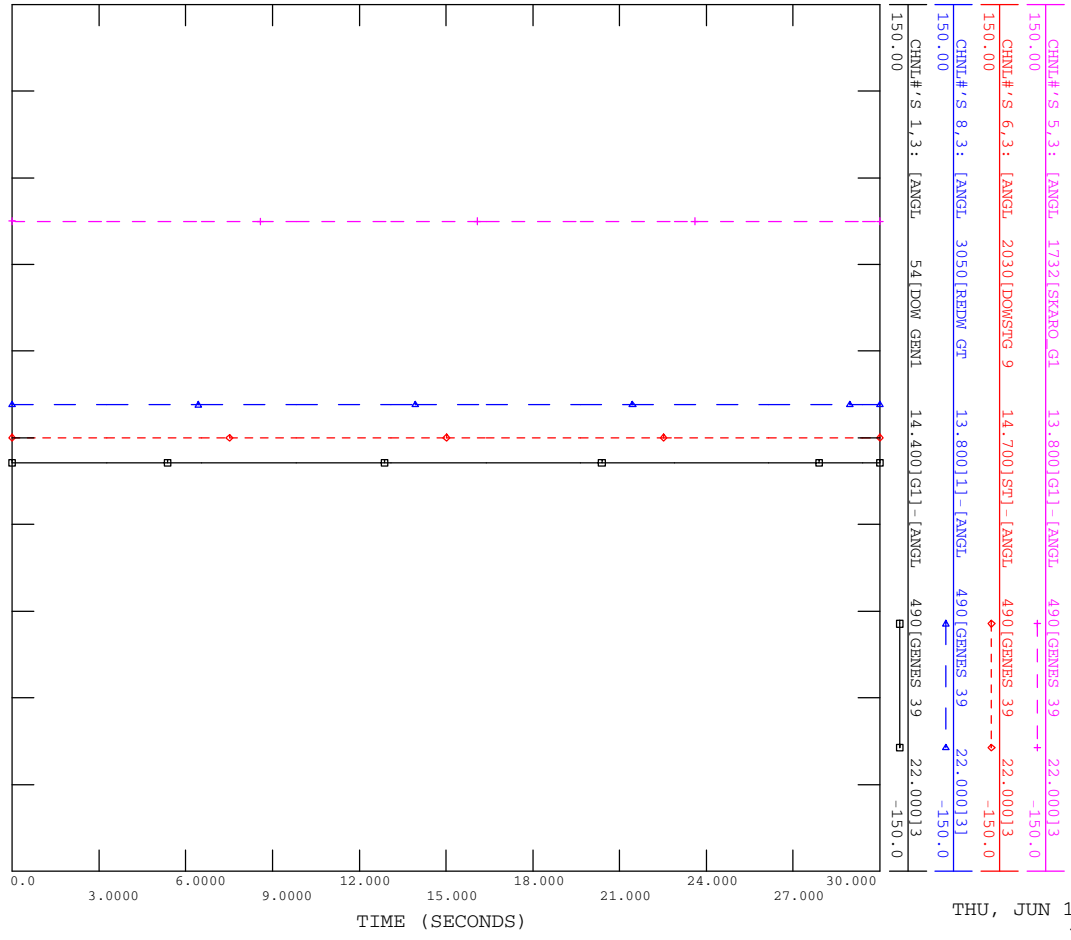


THU, JUN 19 2014 14:39  
 FIG F1-1



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP A - FLAT START

FILE: CON0.OUT



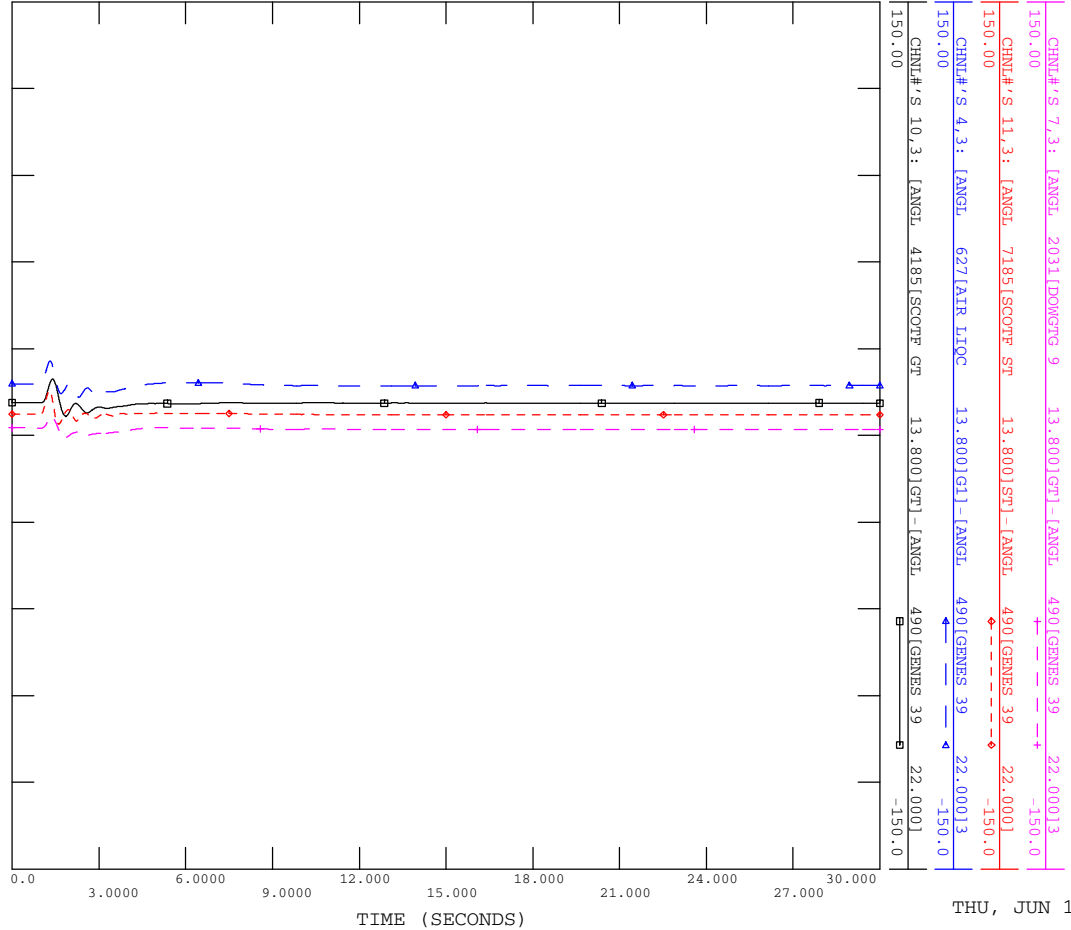
THU, JUN 19 2014 14:39  
 FIG F1-1A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

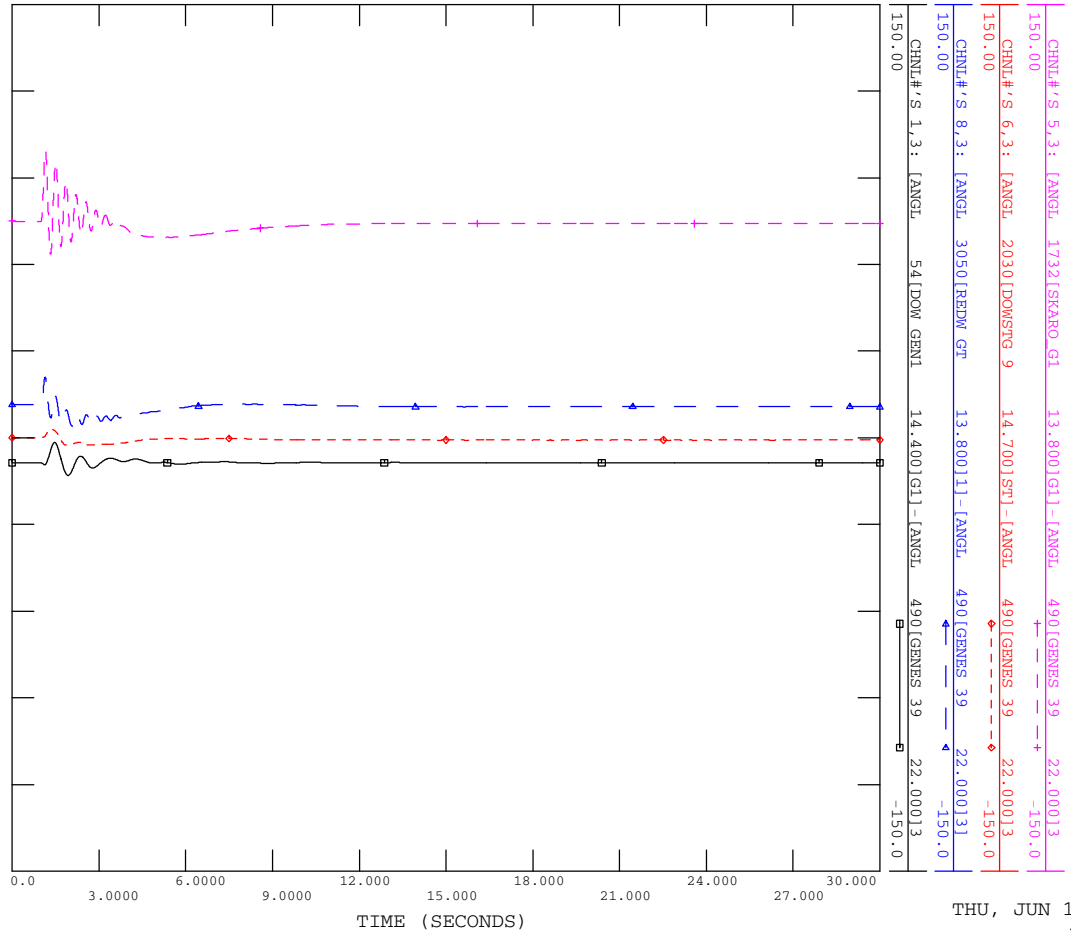


THU, JUN 19 2014 14:39  
 FIG F1-2



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT



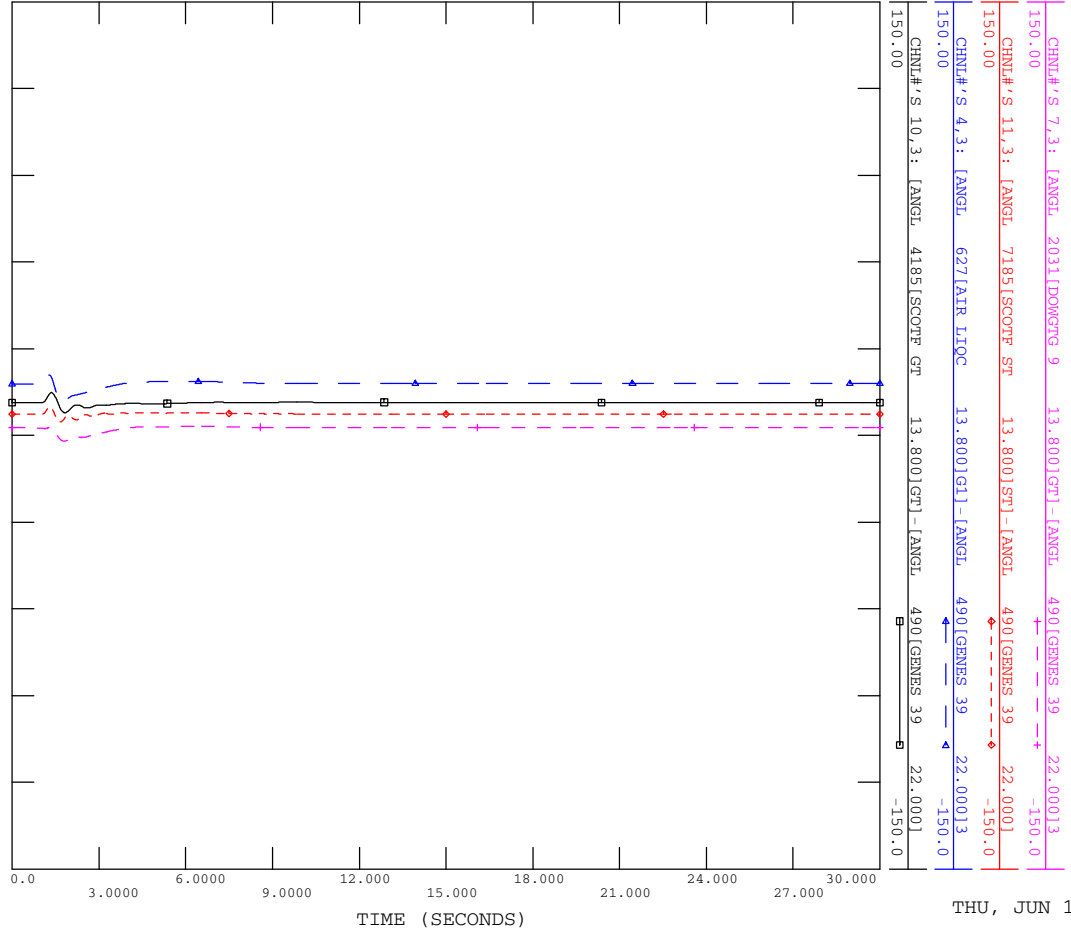
THU, JUN 19 2014 14:39  
 FIG F1-2A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

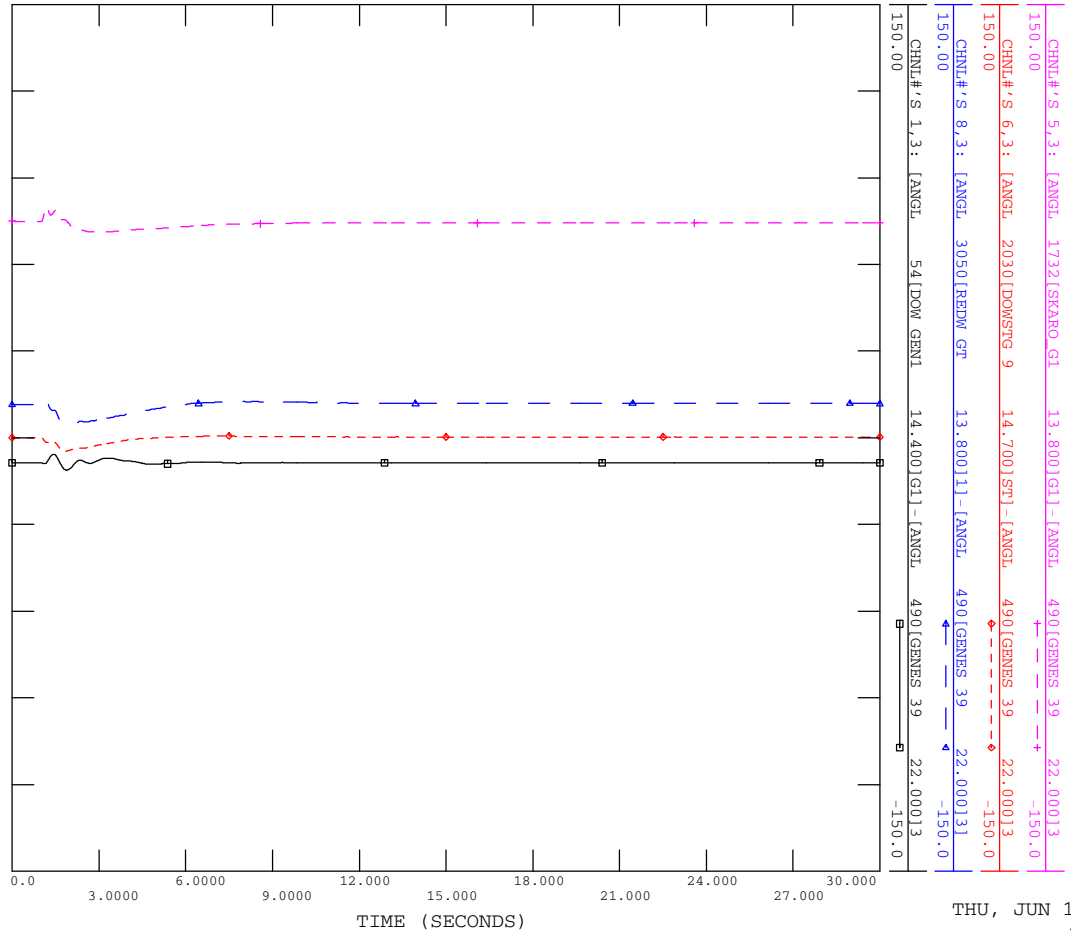


THU, JUN 19 2014 14:40  
 FIG F1-4



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

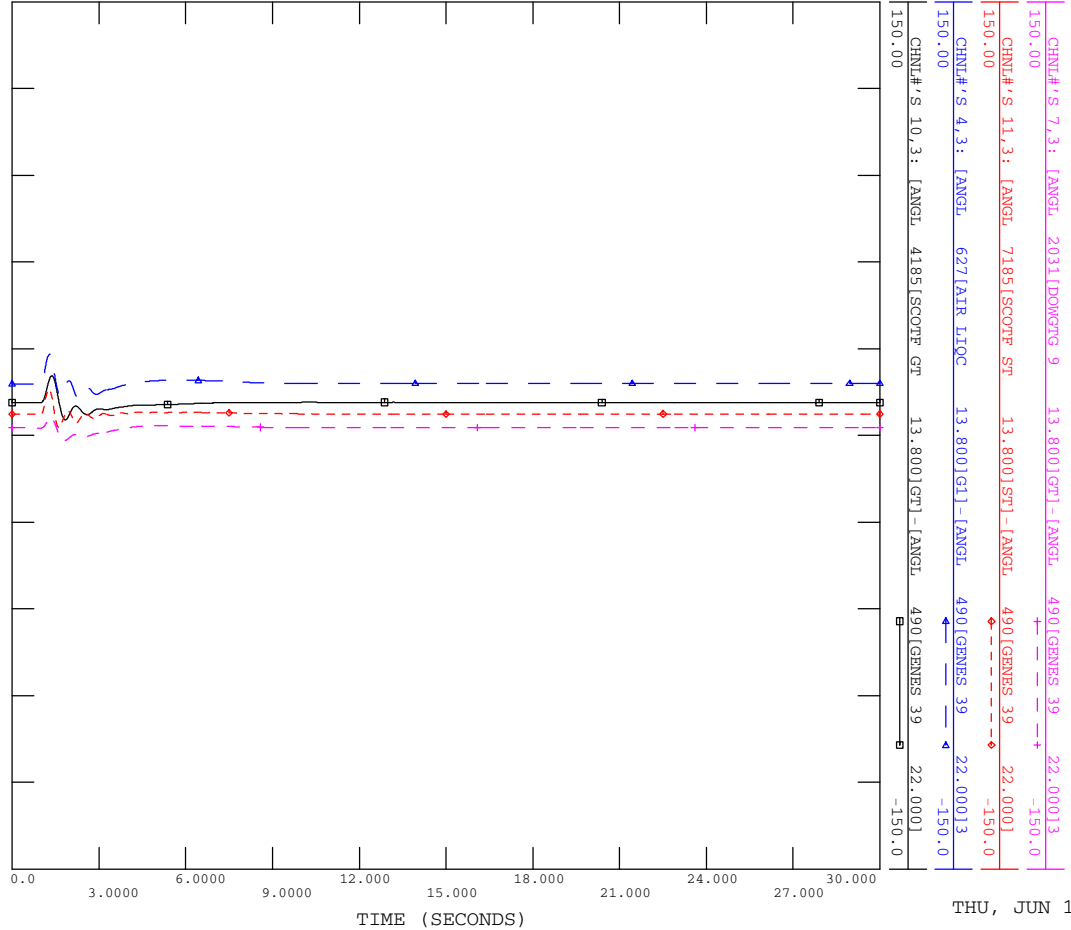


THU, JUN 19 2014 14:40  
 FIG F1-4A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

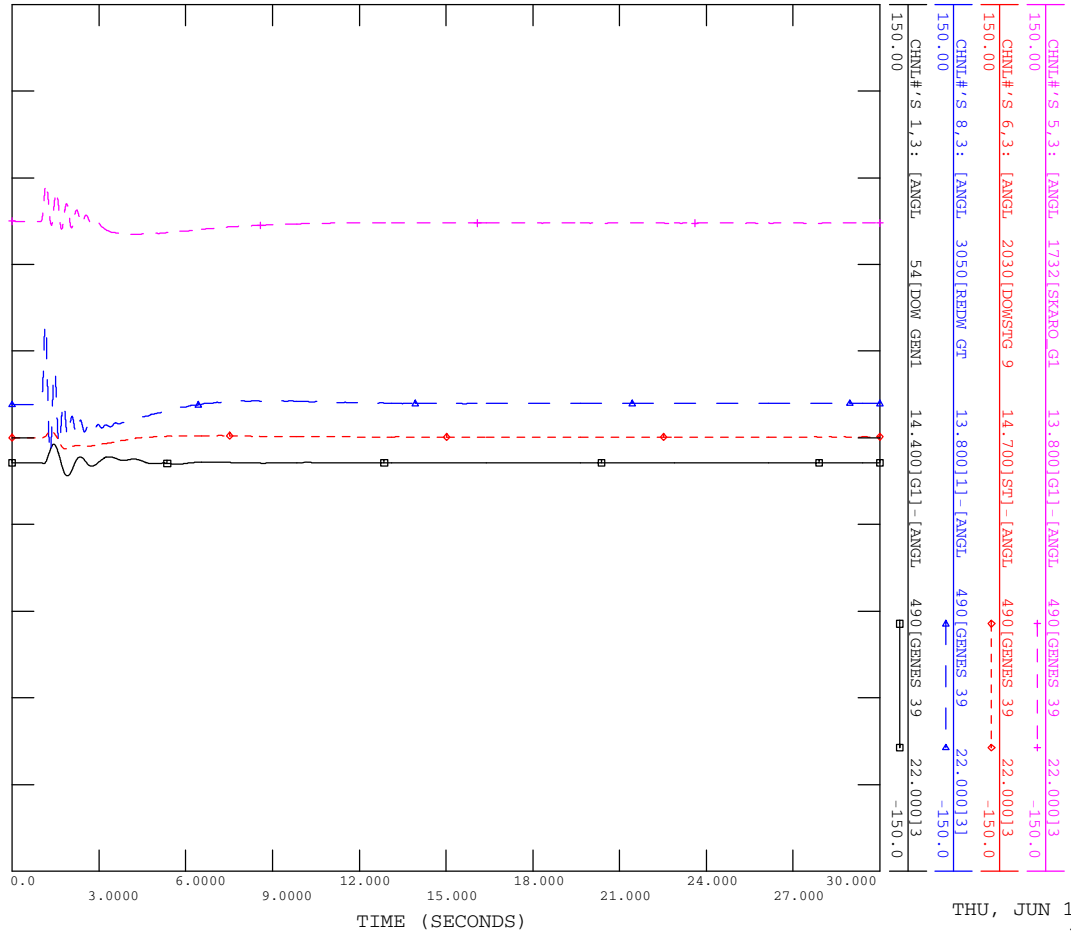


THU, JUN 19 2014 14:40  
 FIG F1-5



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

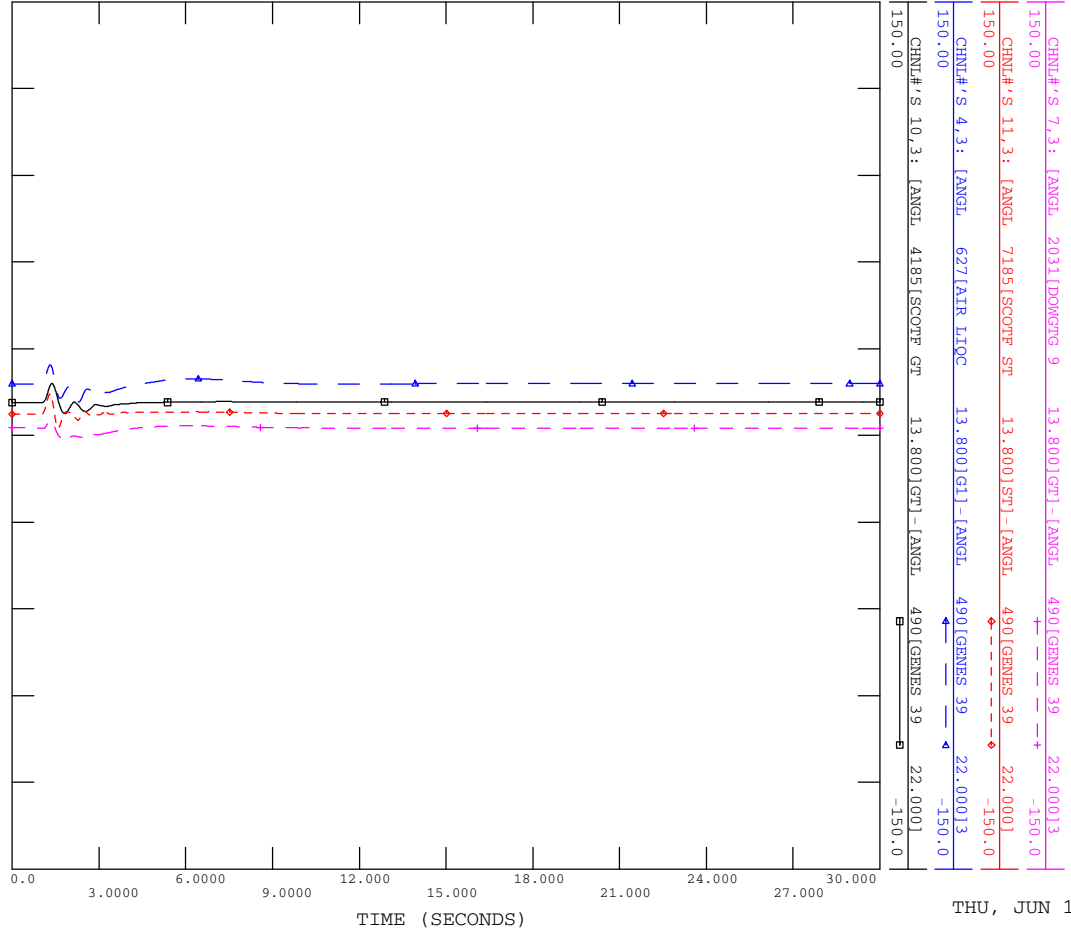


THU, JUN 19 2014 14:40  
 FIG F1-5A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

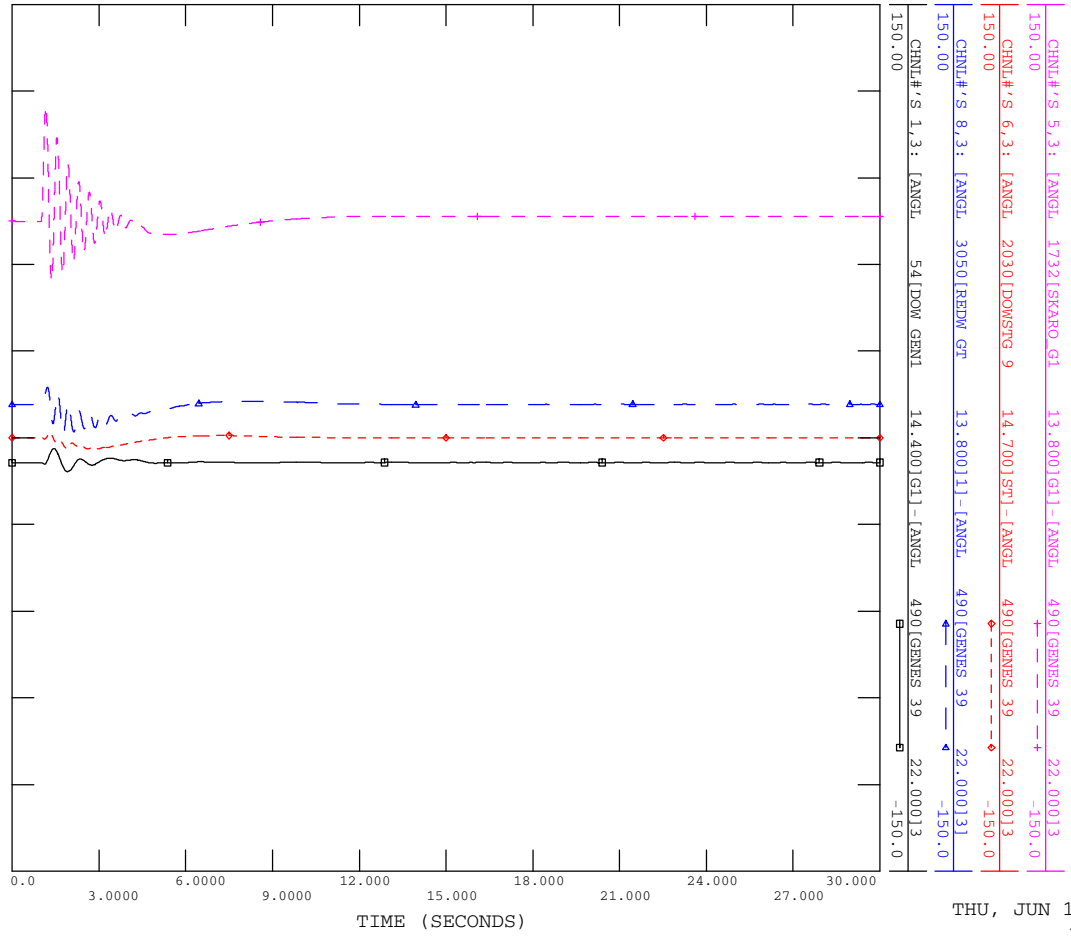


THU, JUN 19 2014 14:41  
 FIG F1-6



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

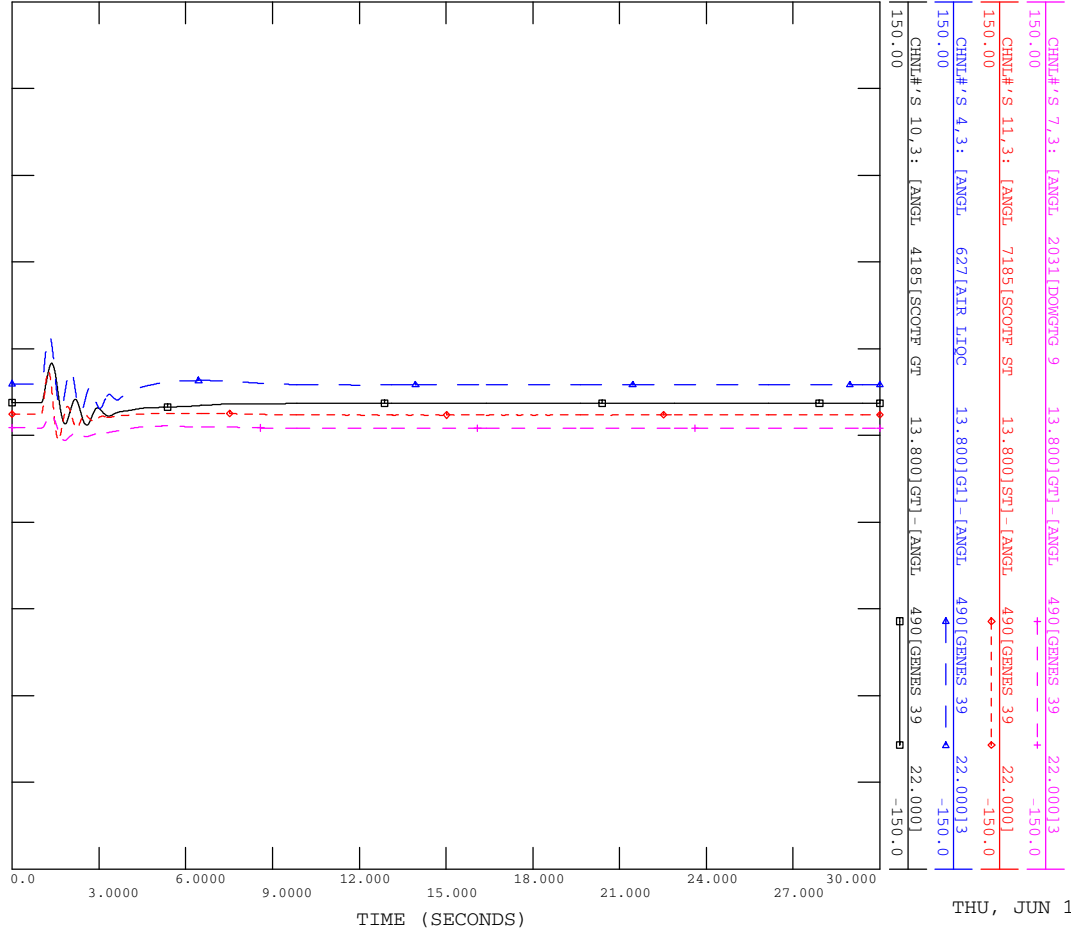


THU, JUN 19 2014 14:41  
 FIG F1-6A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 410S

FILE: CONT.OUTP

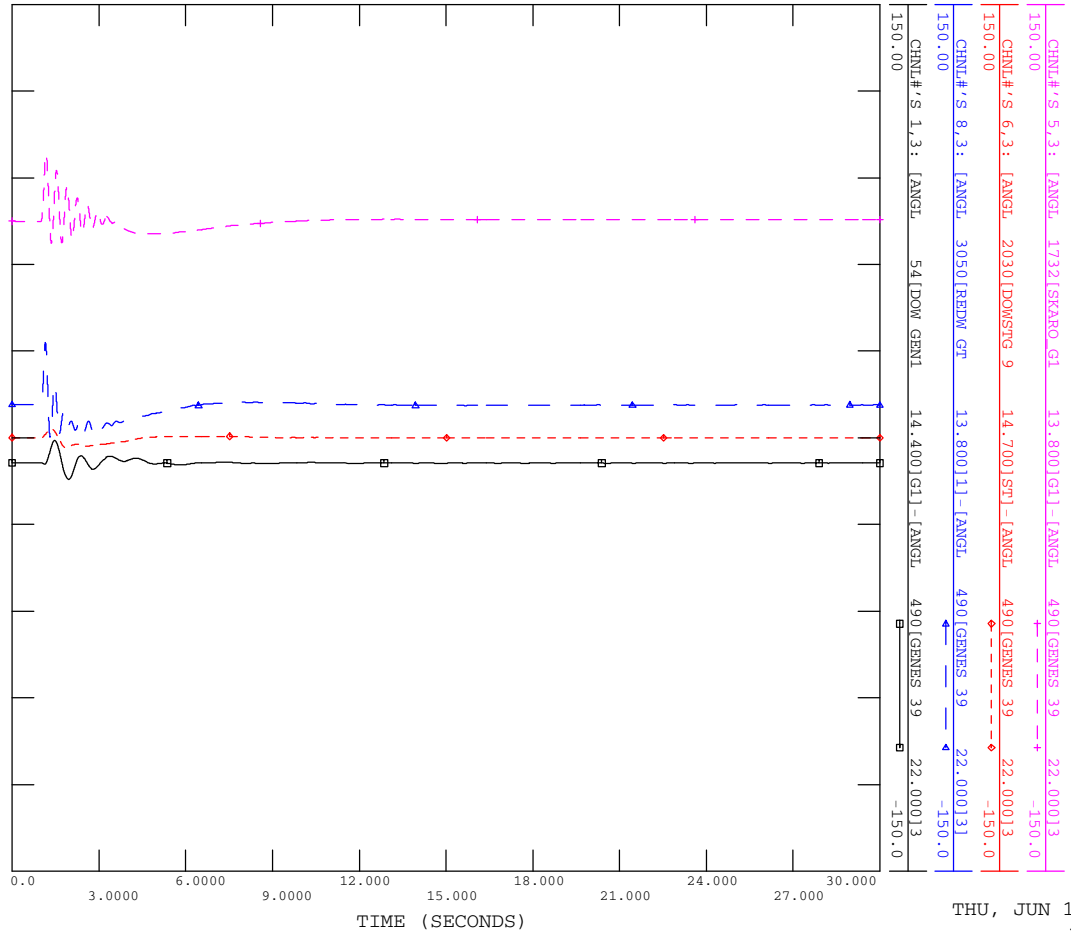


THU, JUN 19 2014 14:42  
 FIG F1-7



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 410S

FILE: CONT.OUTP

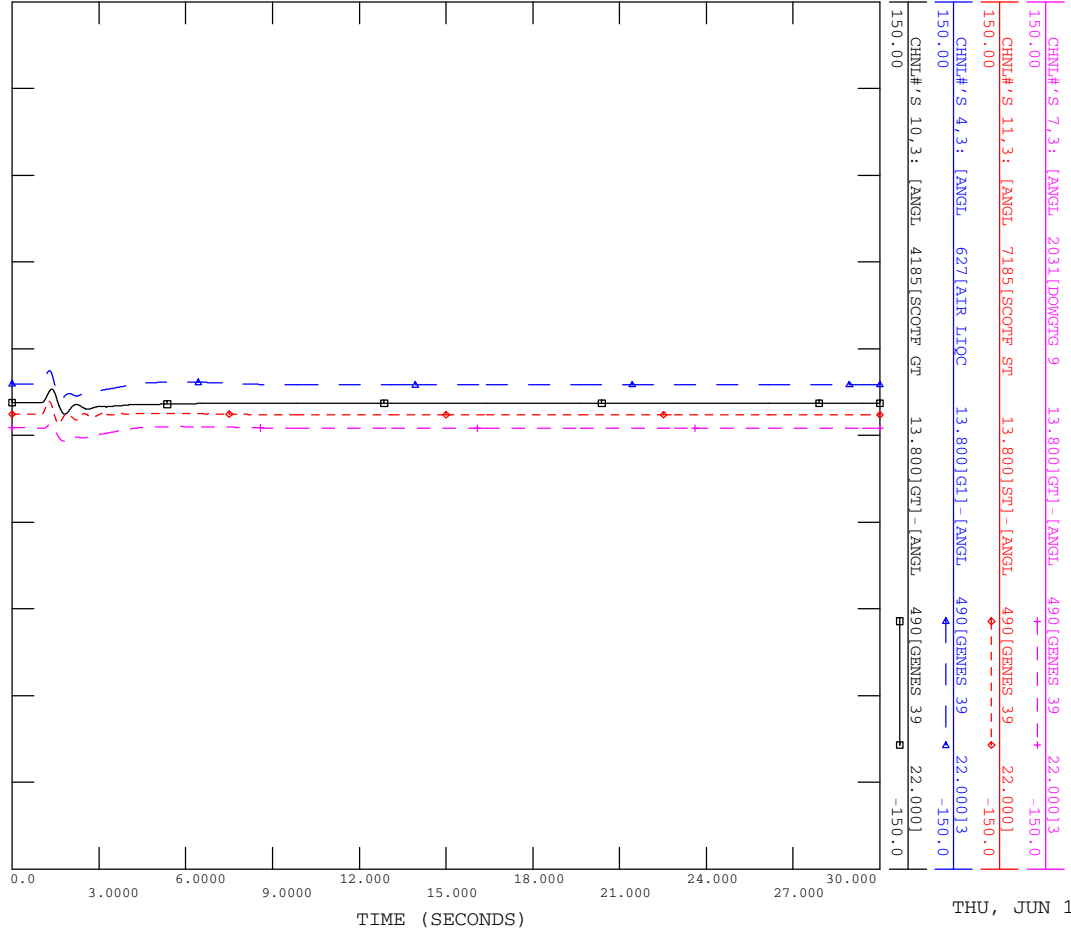


THU, JUN 19 2014 14:42  
 FIG F1-7A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

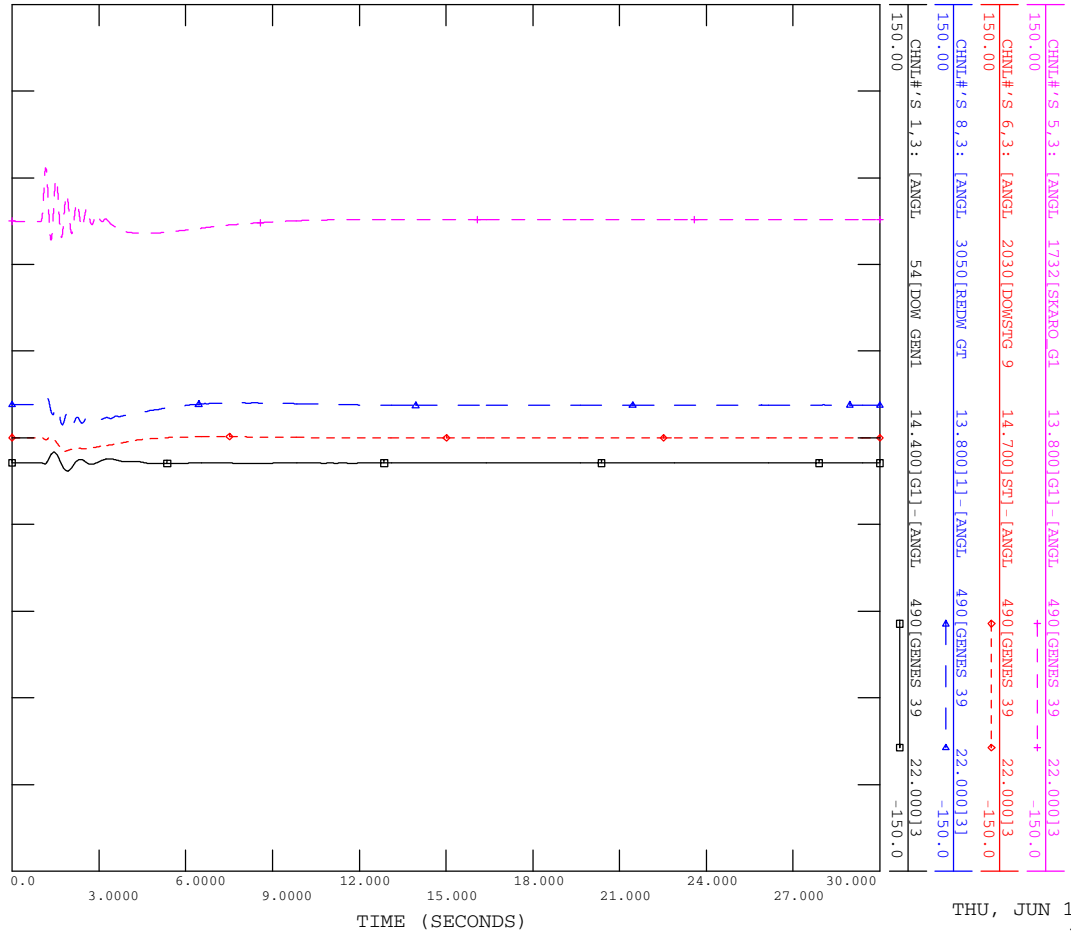


THU, JUN 19 2014 14:42  
 FIG F1-8



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

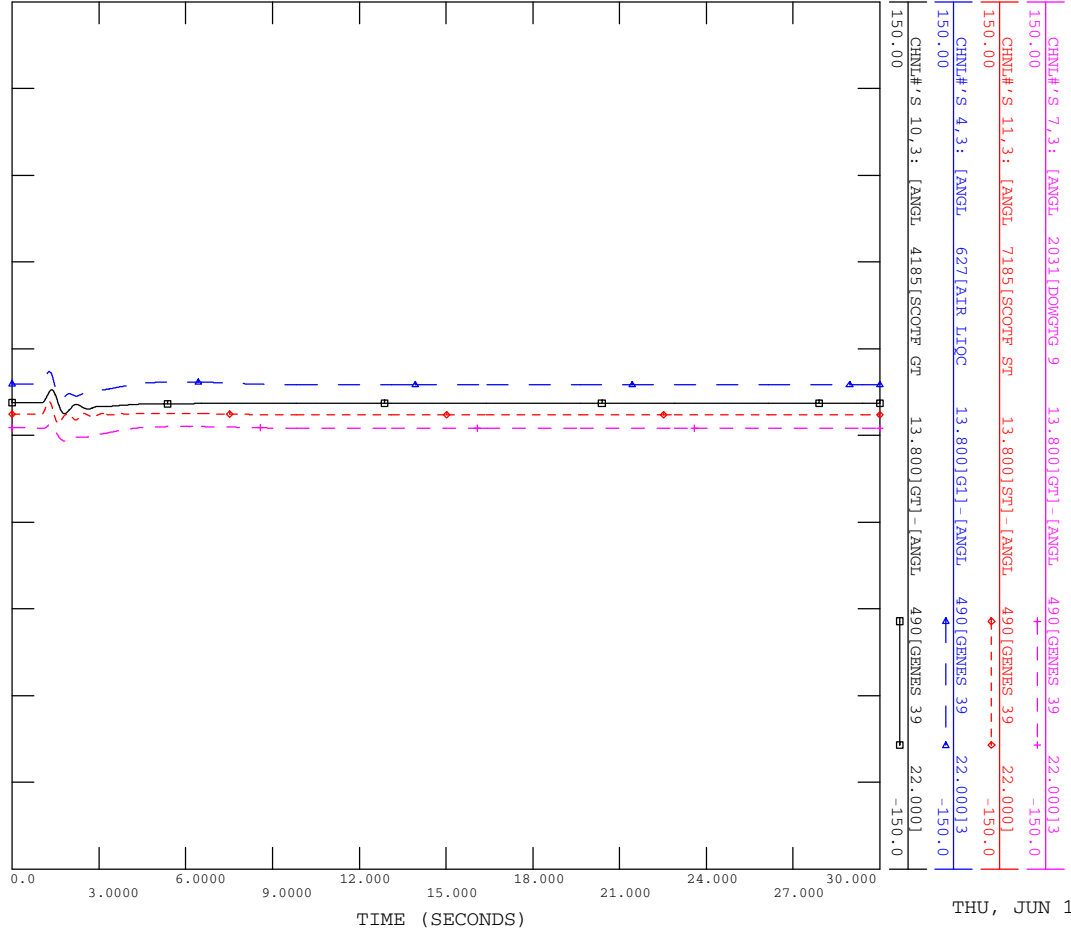


THU, JUN 19 2014 14:43  
 FIG F1-8A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

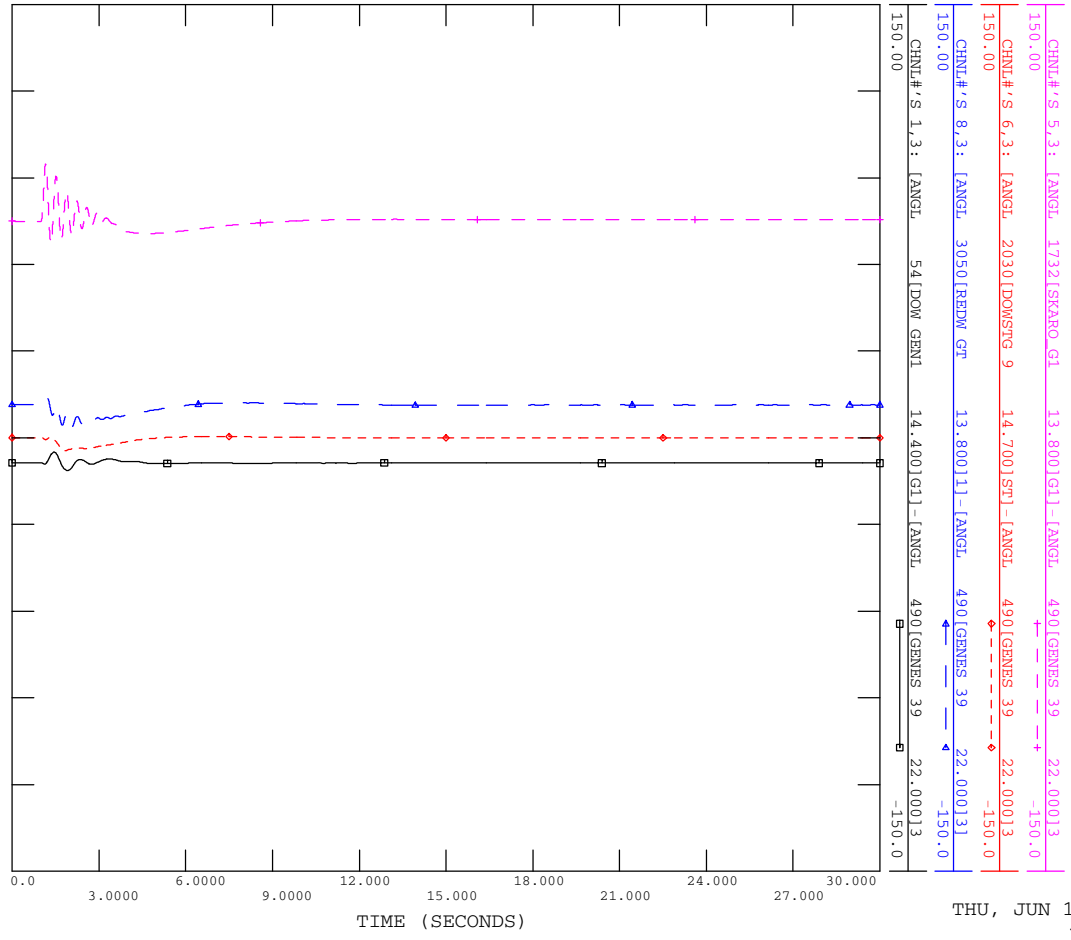


THU, JUN 19 2014 14:43  
 FIG F1-9



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT



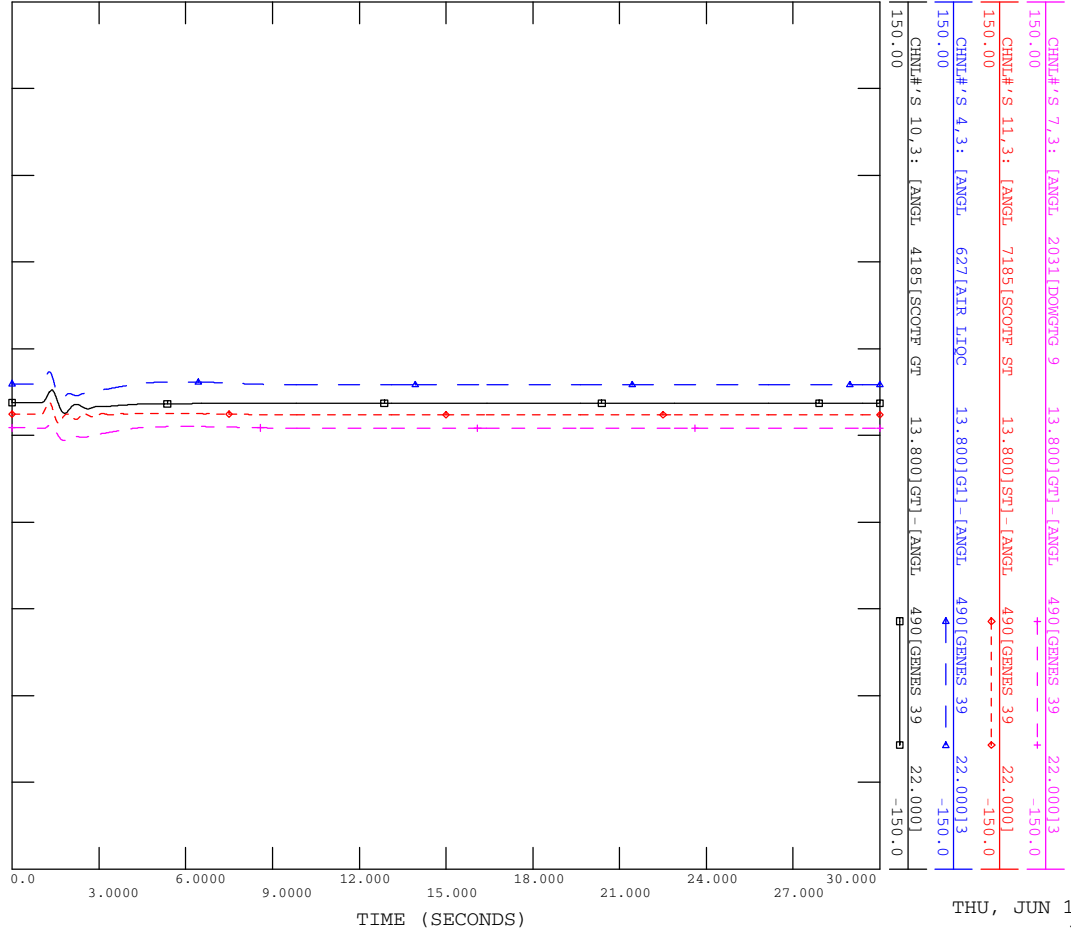
THU, JUN 19 2014 14:44  
 FIG F1-9A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

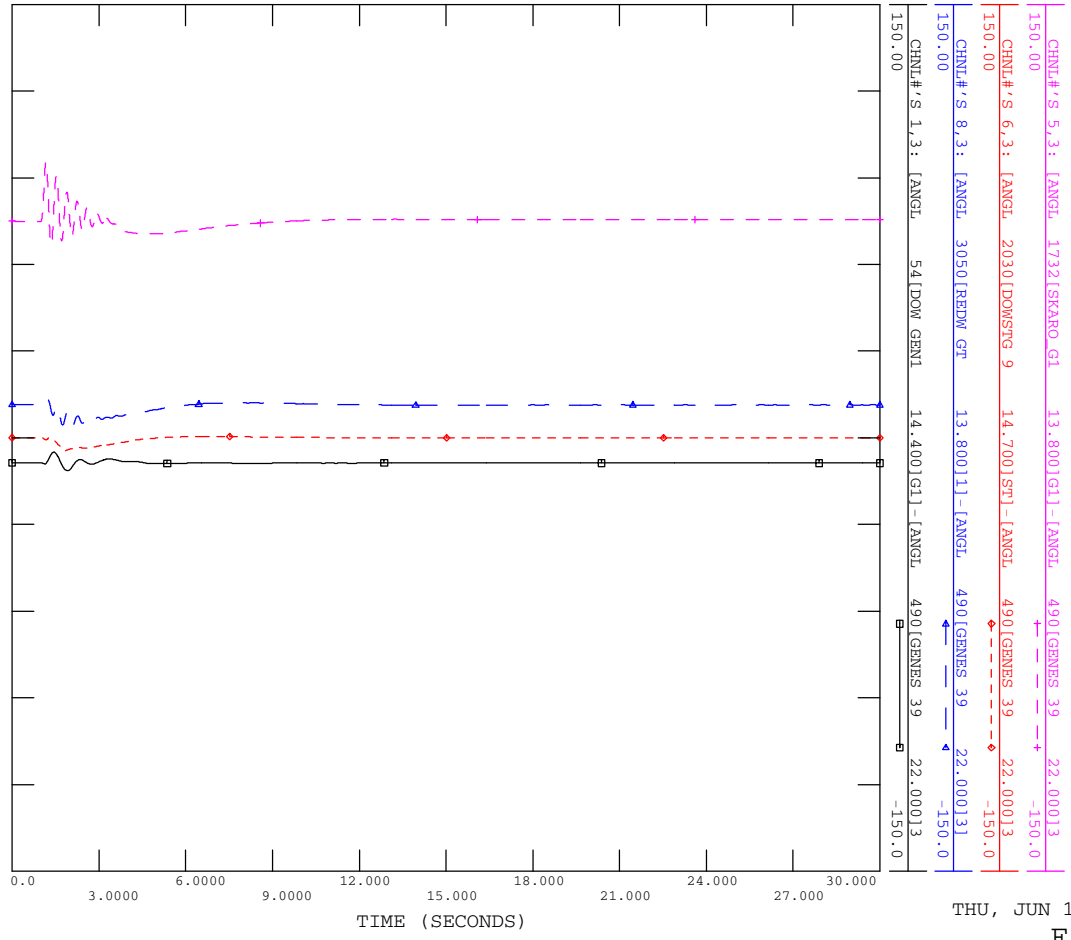


THU, JUN 19 2014 14:44  
 FIG F1-10



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

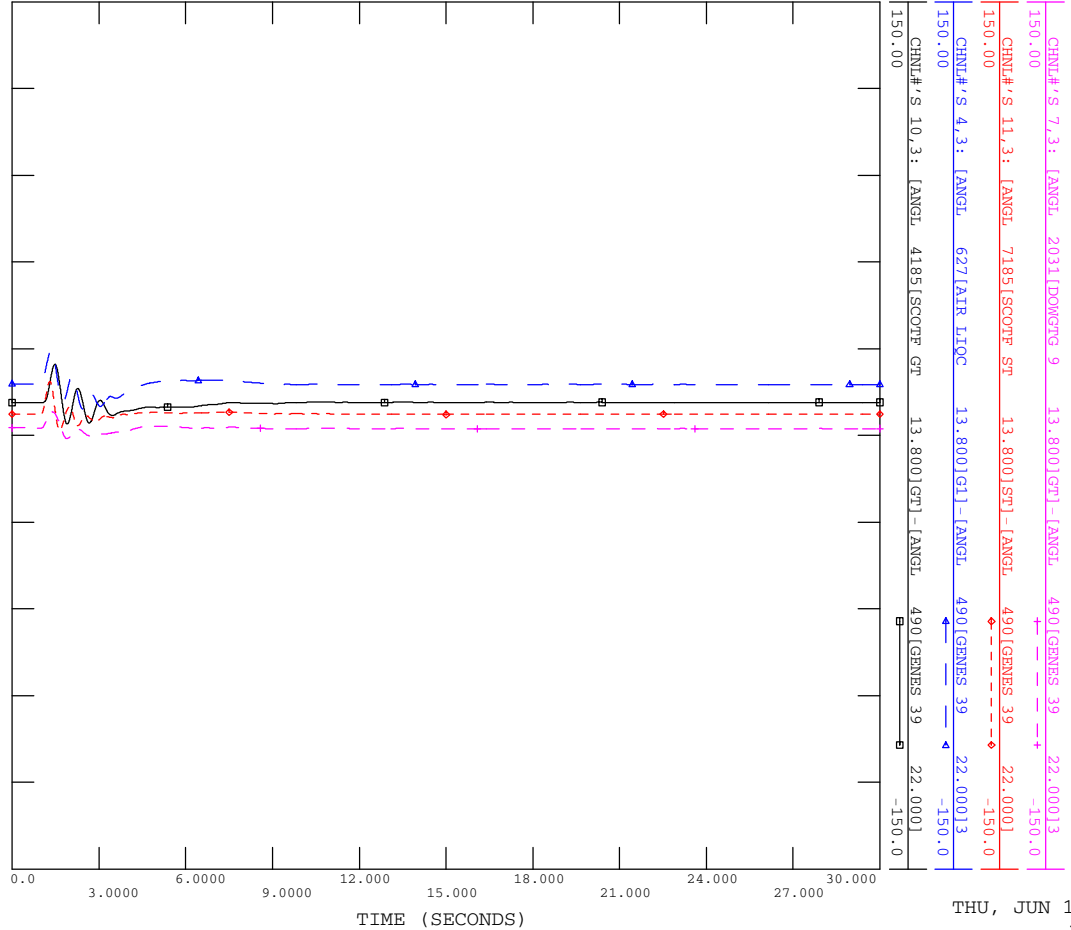


THU, JUN 19 2014 14:45  
 FIG F1-10A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT

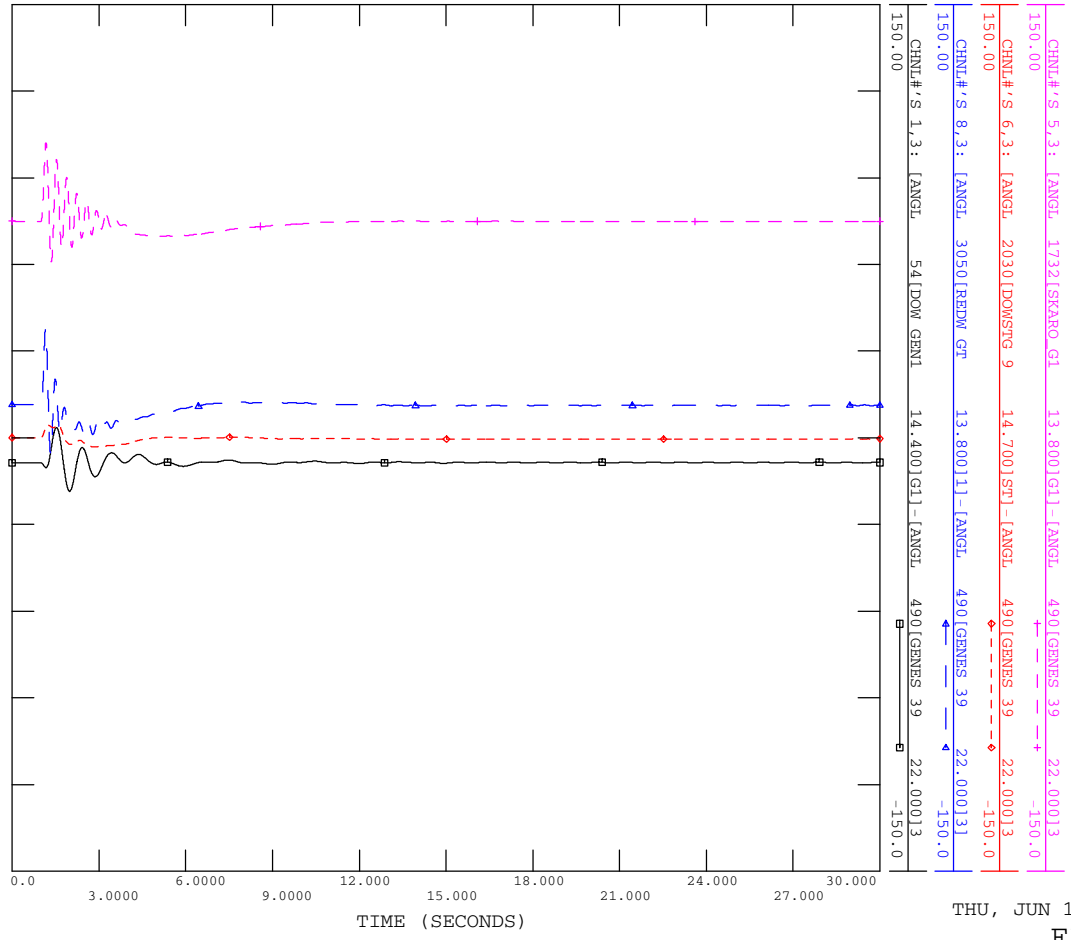


THU, JUN 19 2014 14:45  
 FIG F1-11



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT

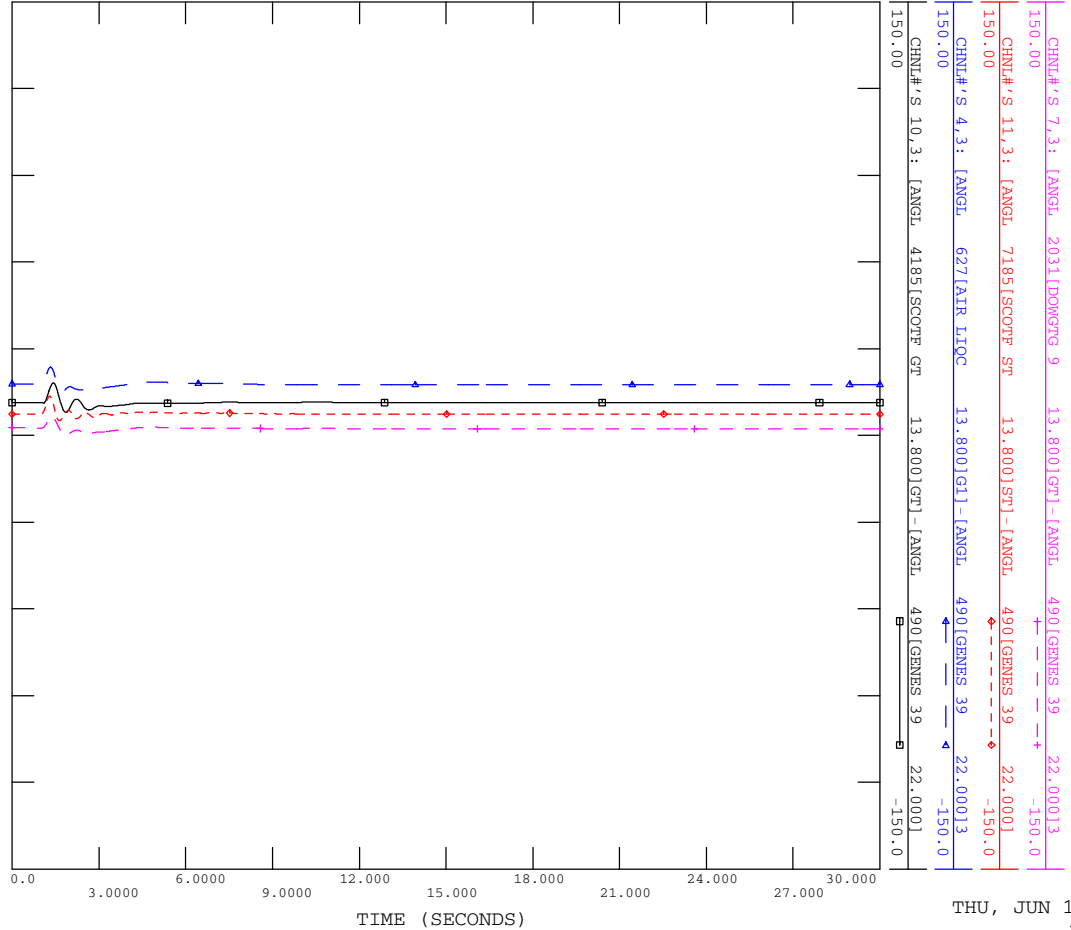


THU, JUN 19 2014 14:46  
 FIG F1-11A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT

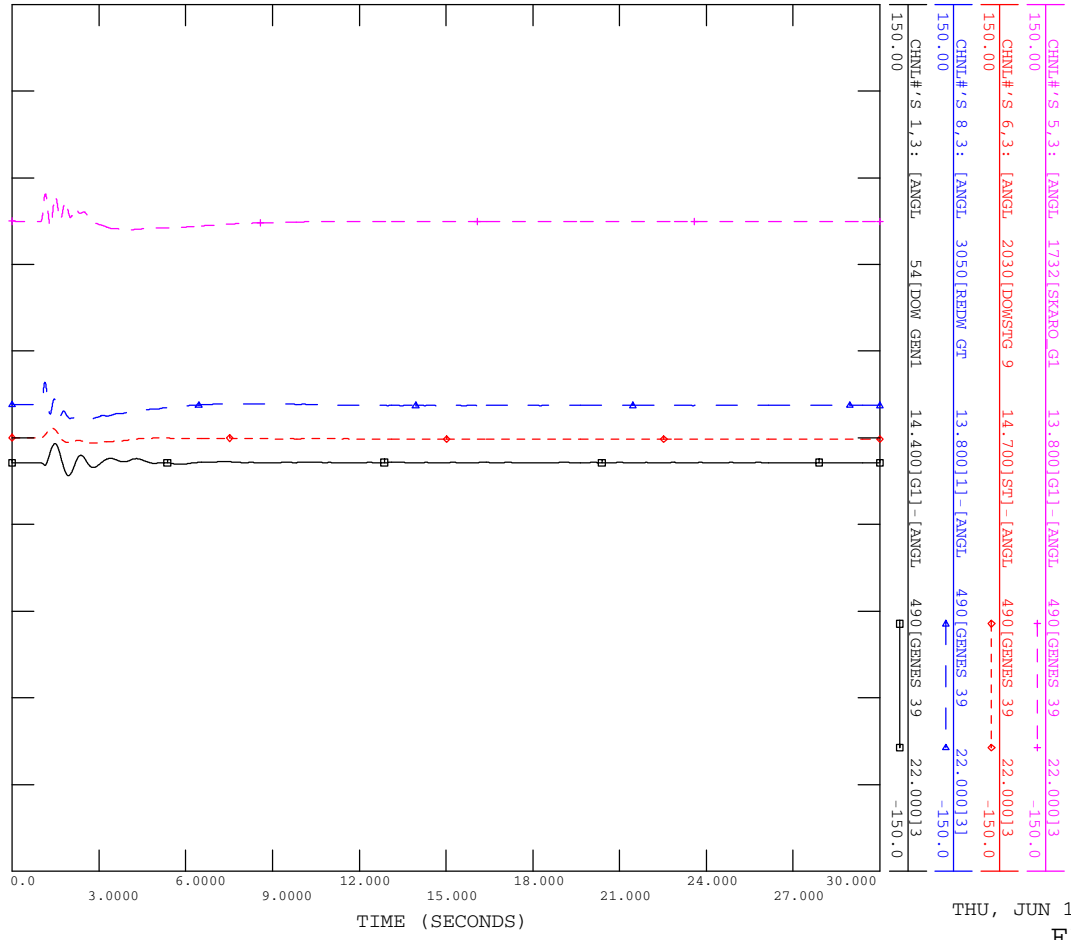


THU, JUN 19 2014 14:46  
 FIG F1-12



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT

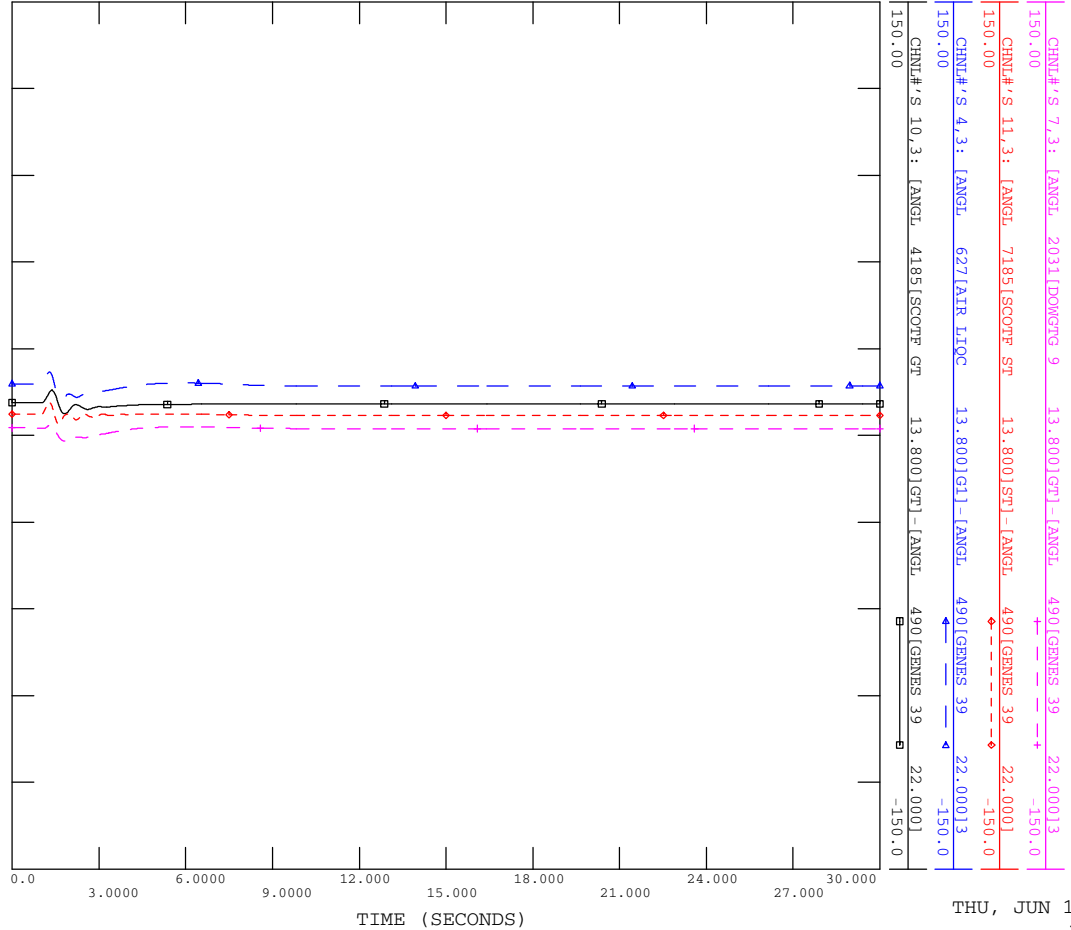


THU, JUN 19 2014 14:47  
 FIG F1-12A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

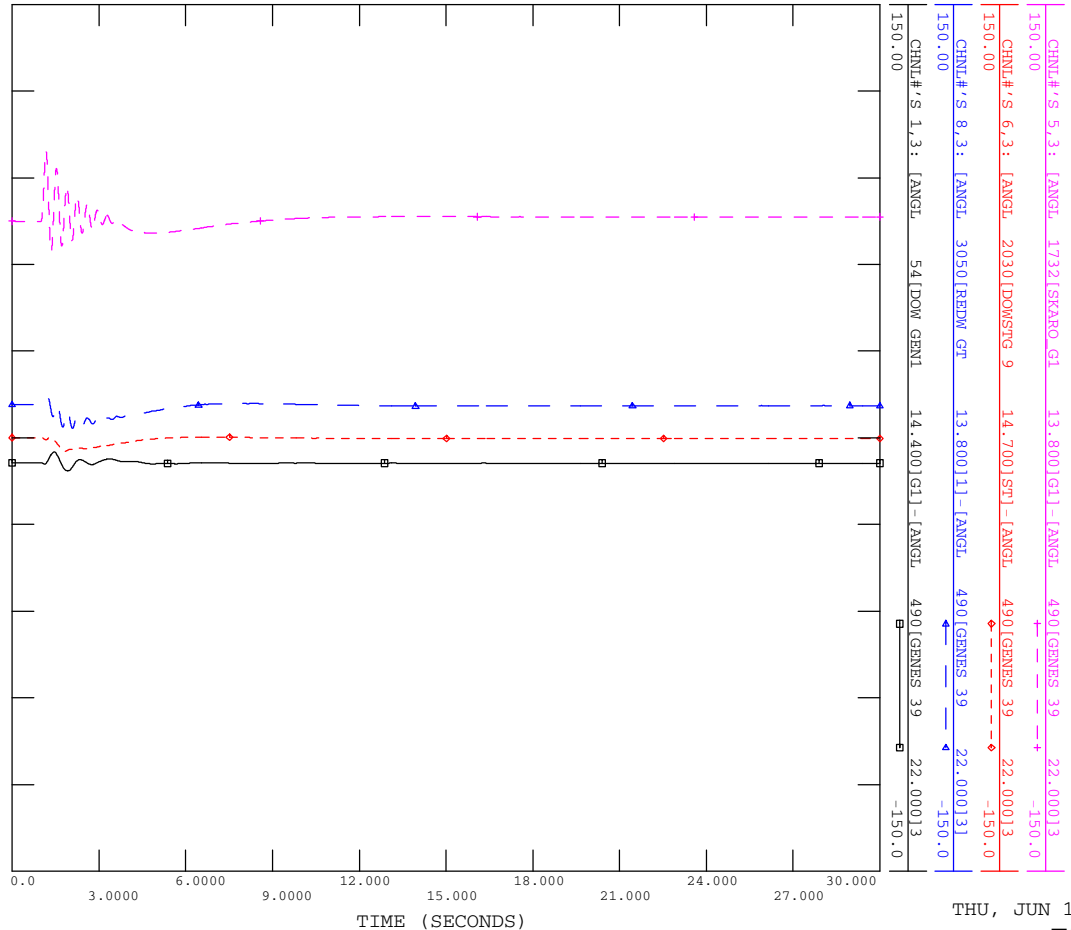


THU, JUN 19 2014 14:47  
 FIG F1-13



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

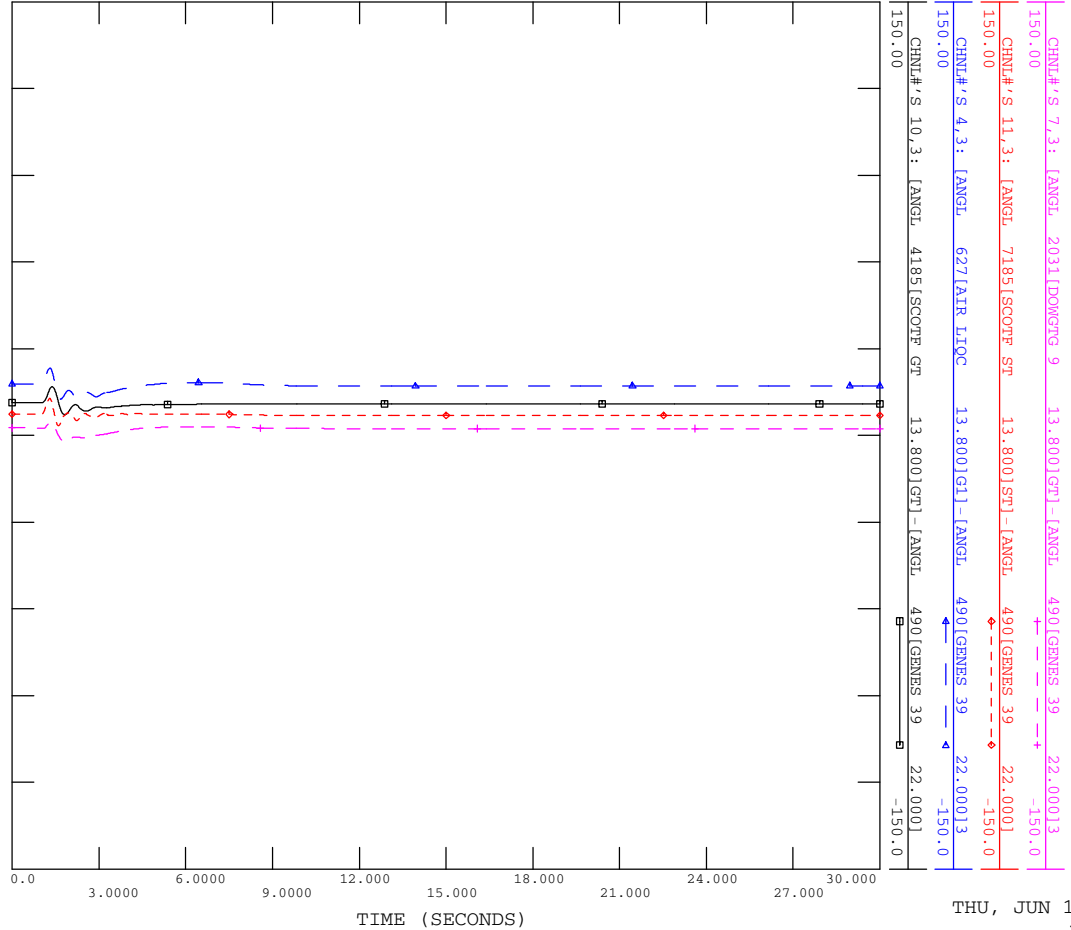


THU, JUN 19 2014 14:47  
 FIG F1-13A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

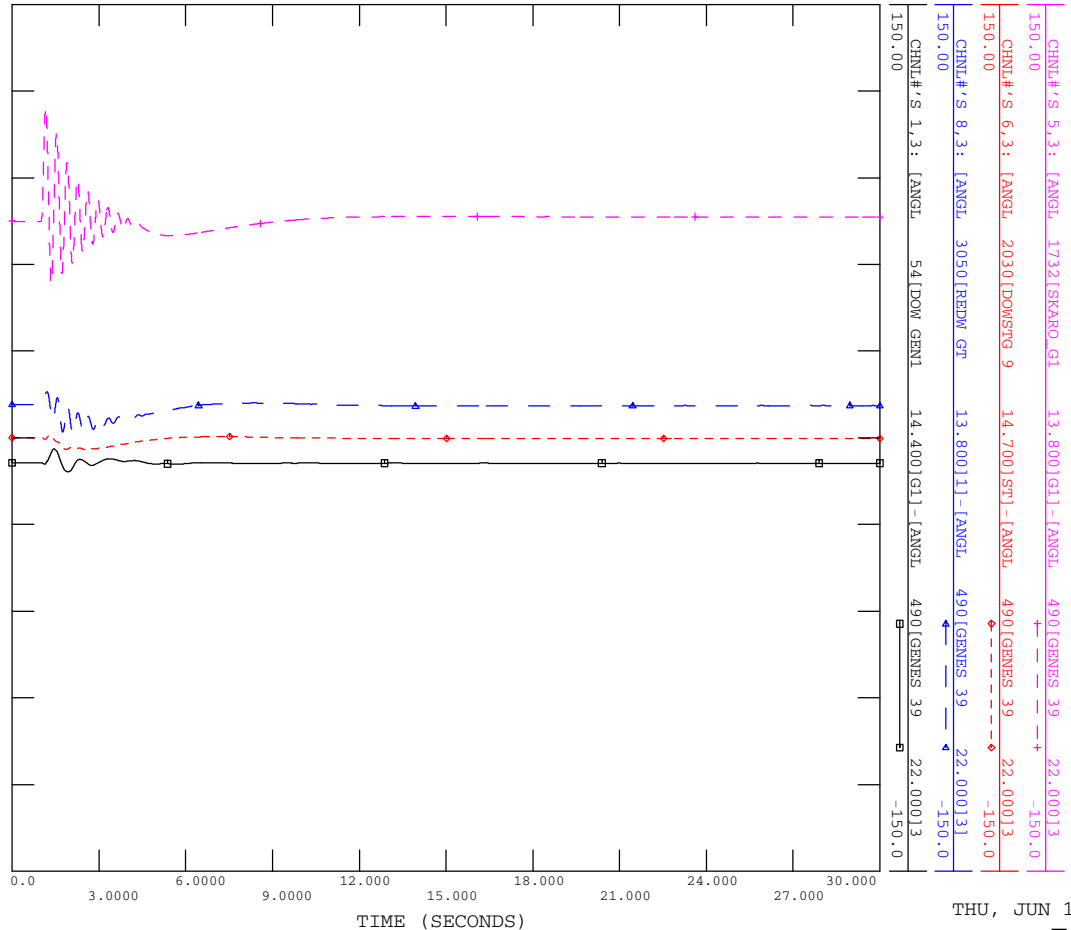


THU, JUN 19 2014 14:48  
 FIG F1-14



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

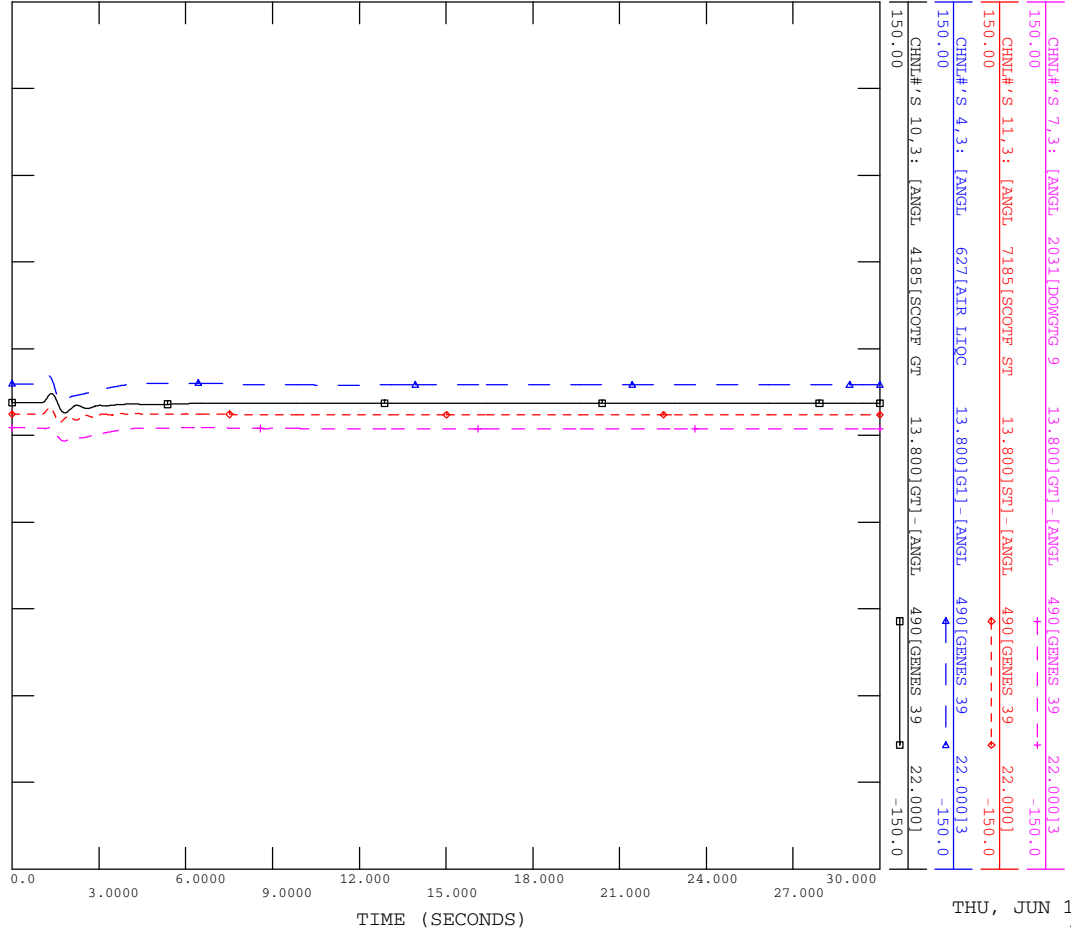


THU, JUN 19 2014 14:48  
 FIG F1-14A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT

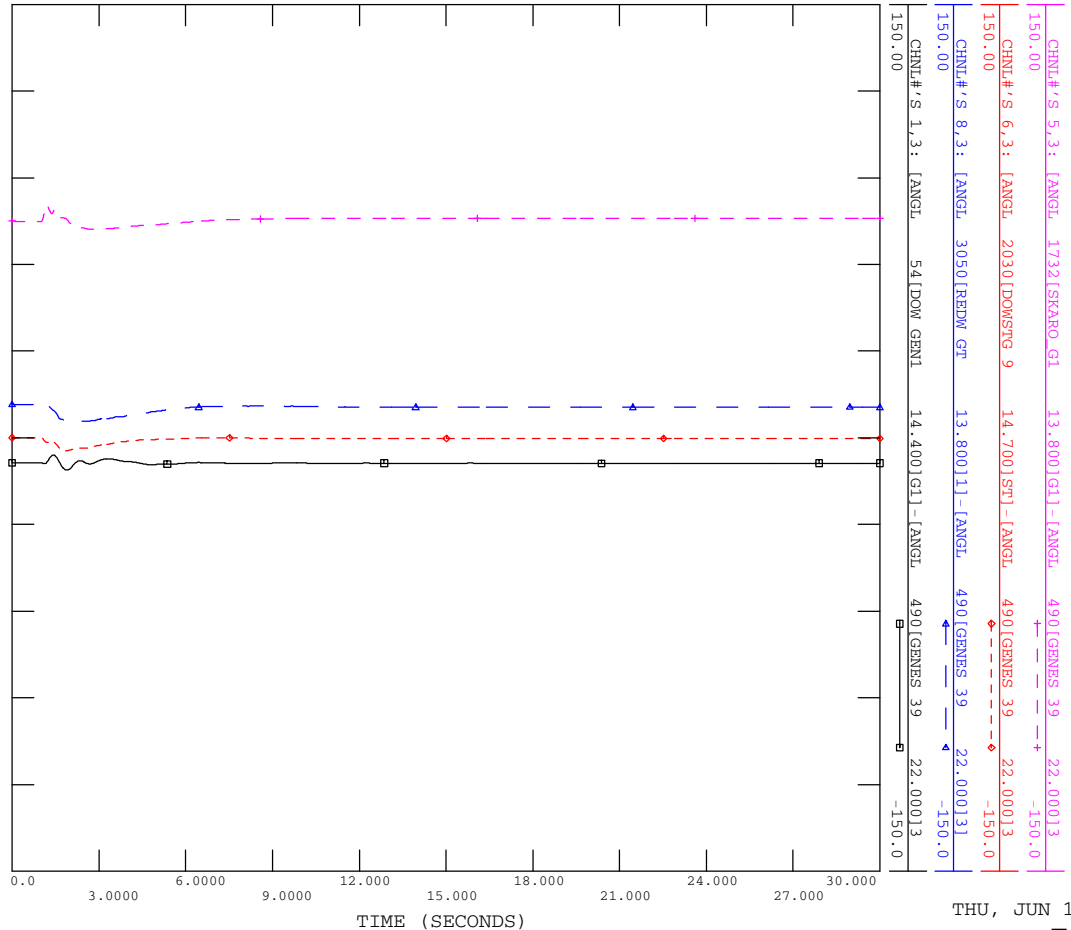


THU, JUN 19 2014 14:49  
 FIG F1-15



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT

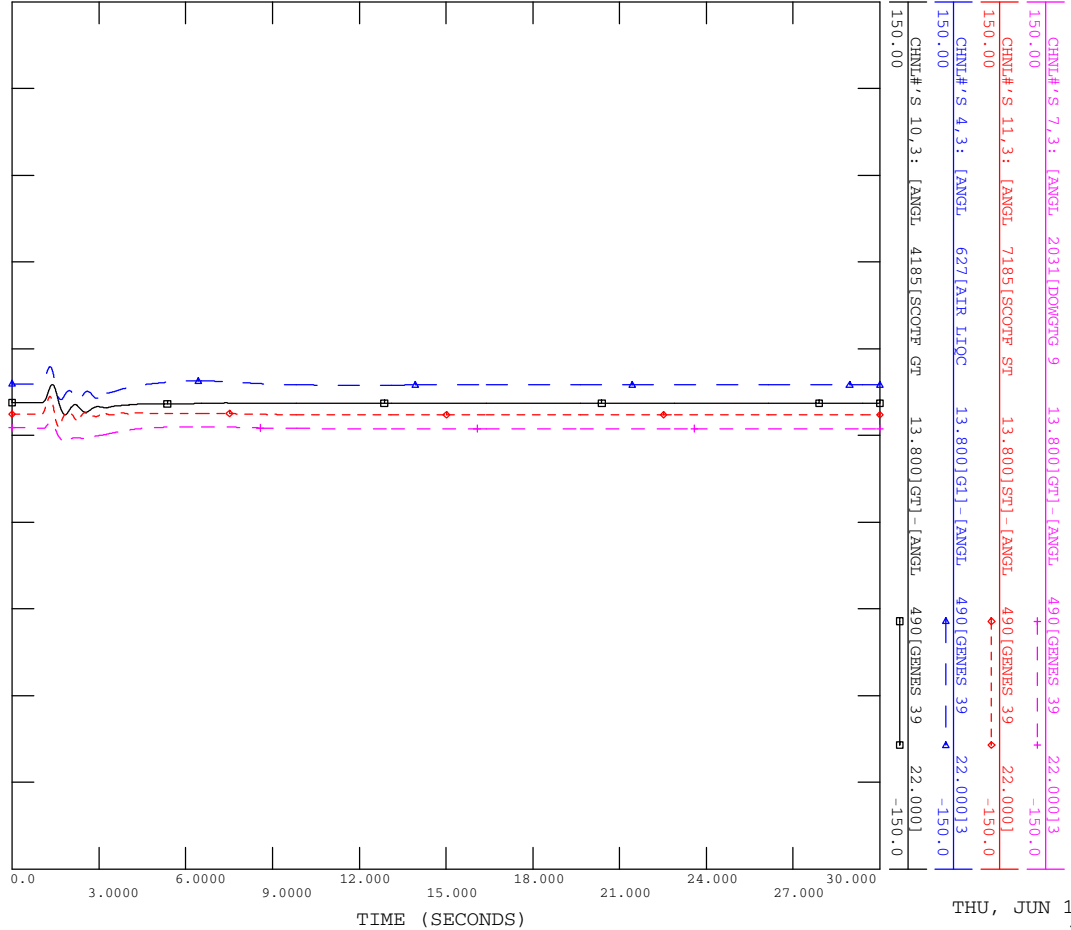


THU, JUN 19 2014 14:49  
 FIG F1-15A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

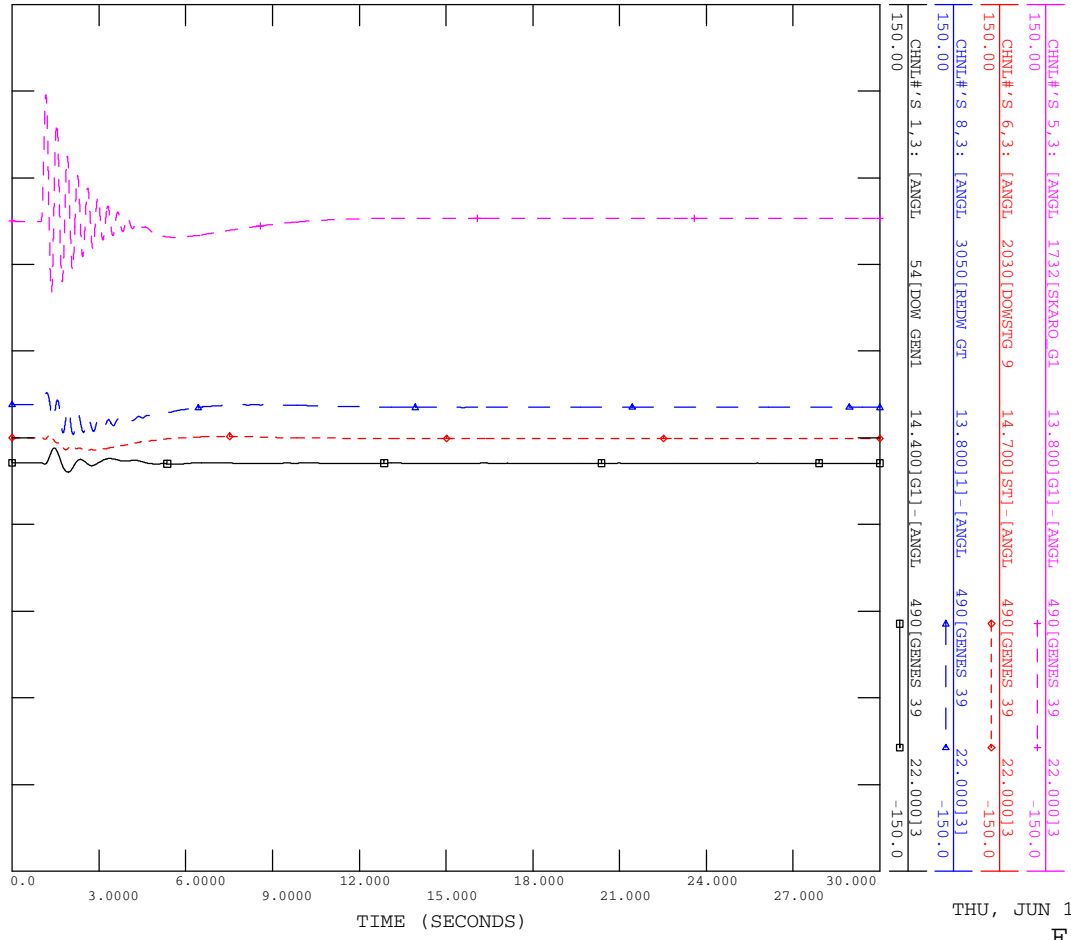


THU, JUN 19 2014 14:50  
 FIG F1-16



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

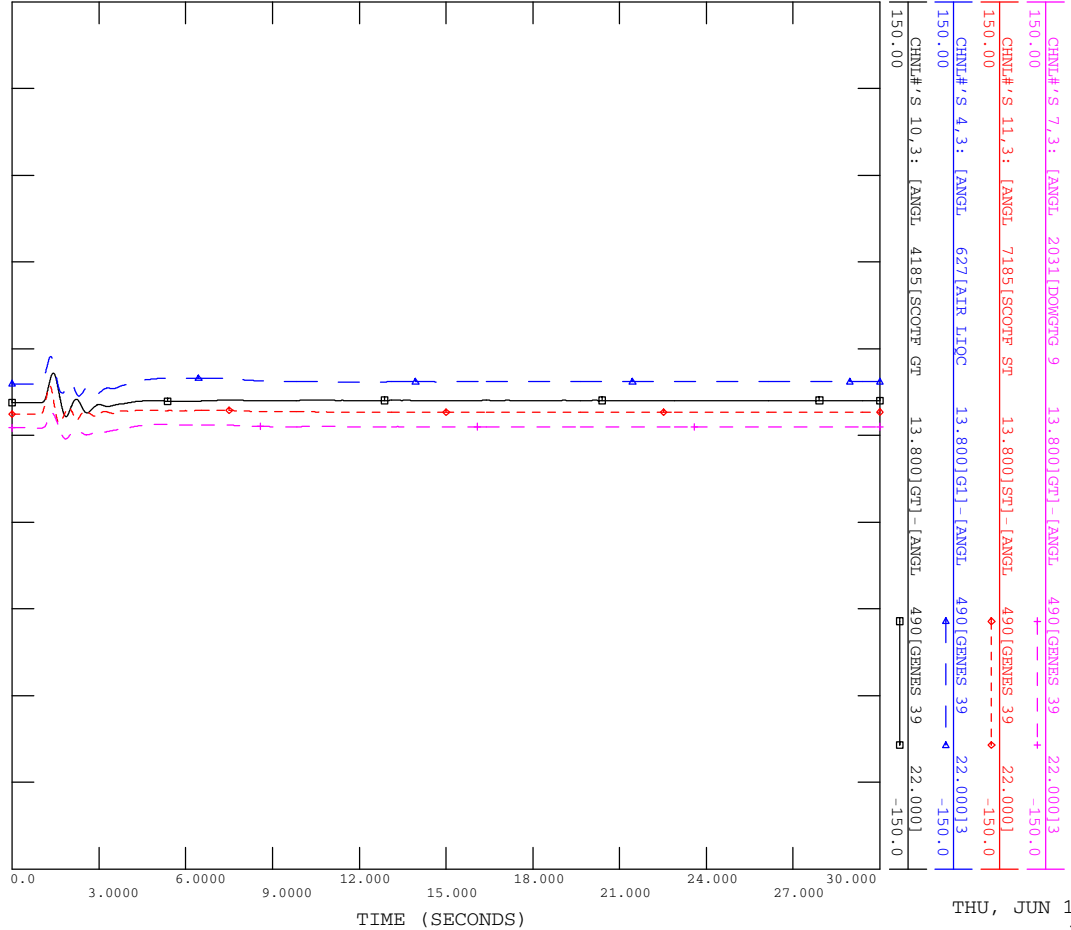


THU, JUN 19 2014 14:50  
 FIG F1-16A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

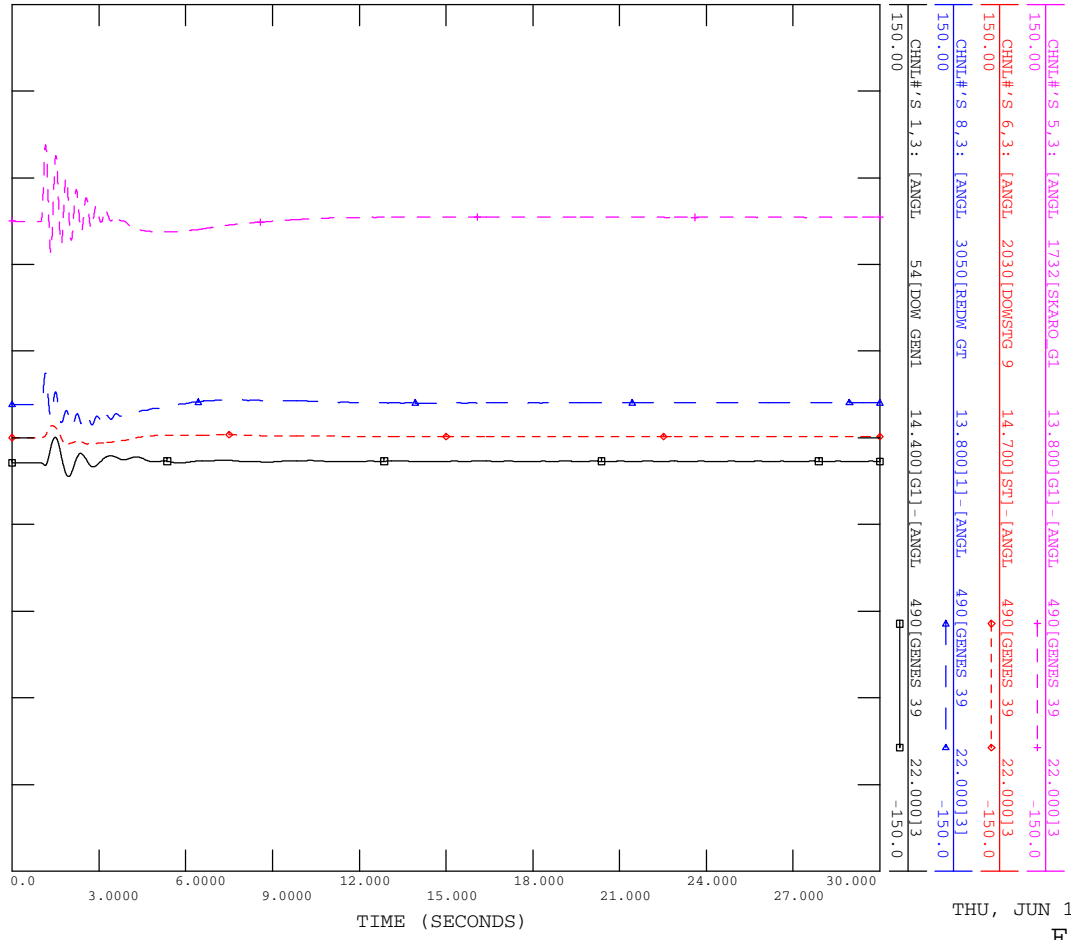


THU, JUN 19 2014 14:51  
 FIG F1-17



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT



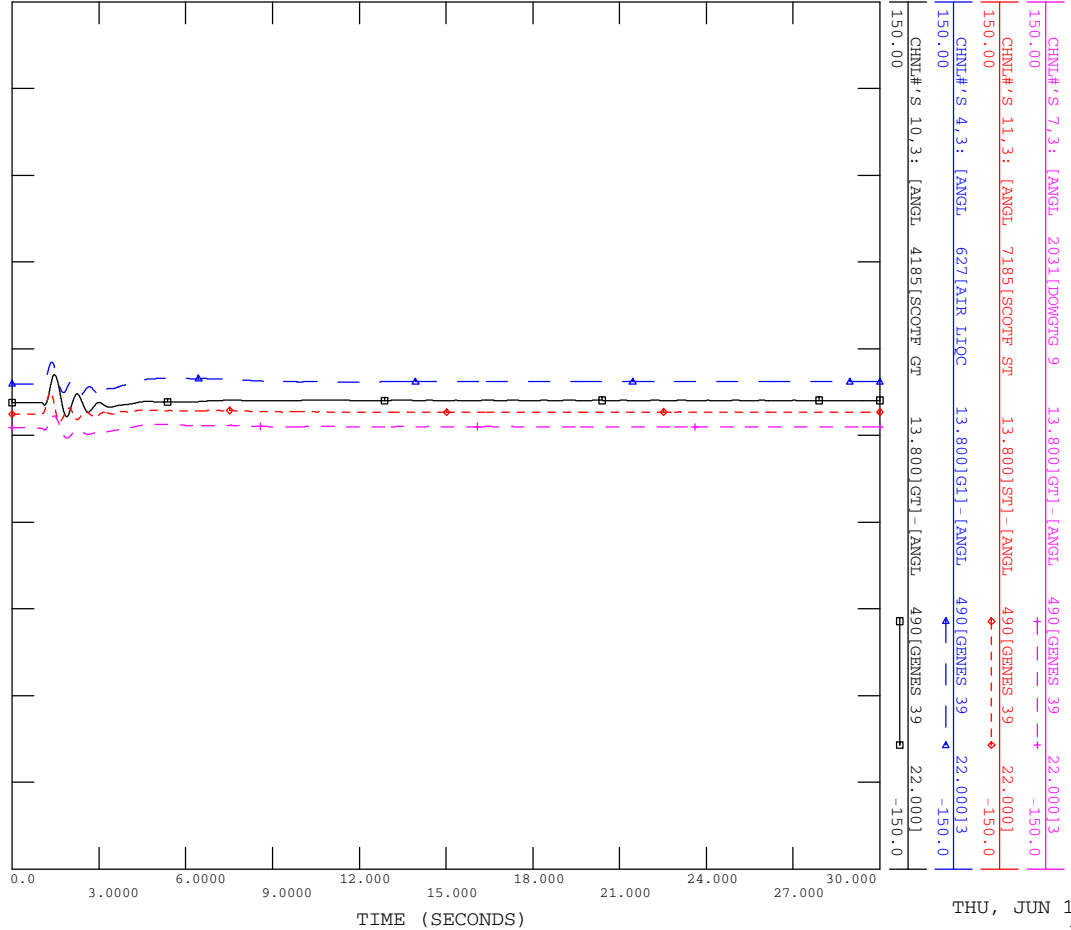
THU, JUN 19 2014 14:51  
 FIG F1-17A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

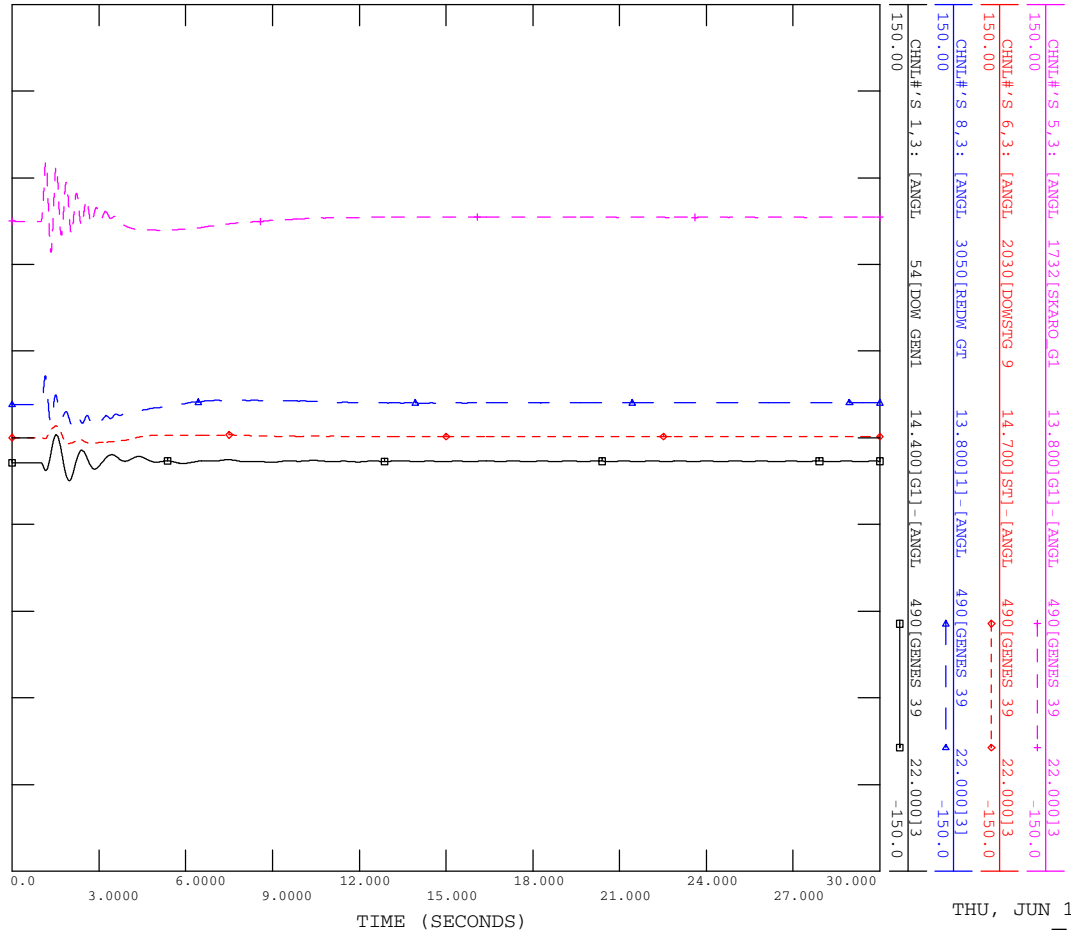


THU, JUN 19 2014 14:52  
 FIG F1-18



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

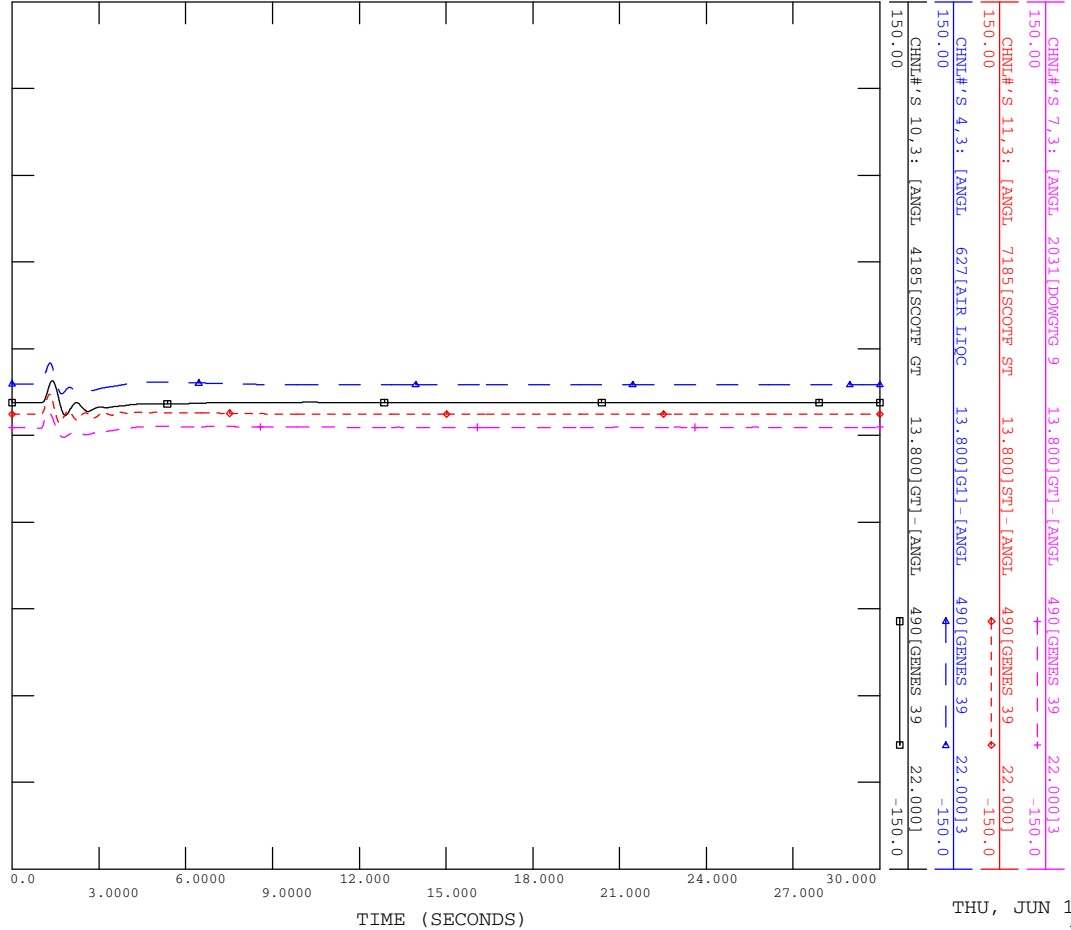


THU, JUN 19 2014 14:52  
 FIG F1-18A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

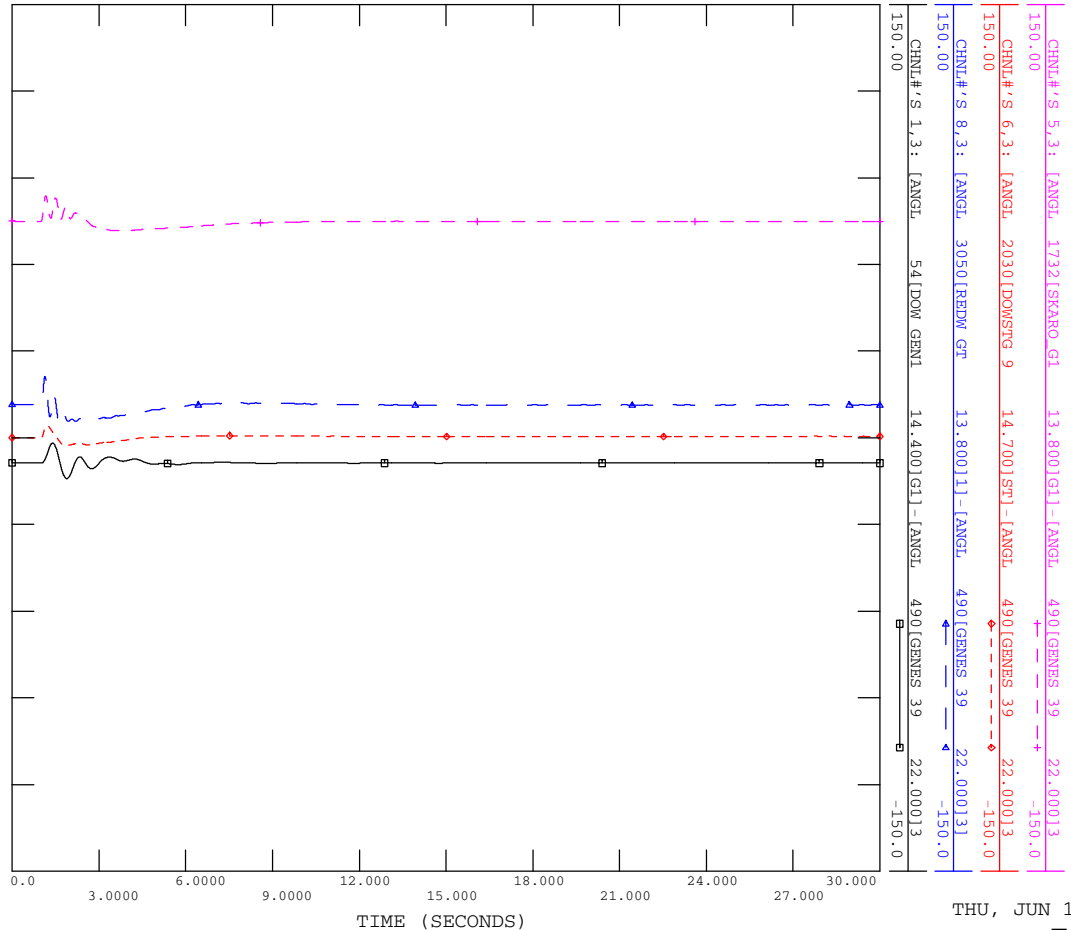


THU, JUN 19 2014 14:52  
 FIG F1-19



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

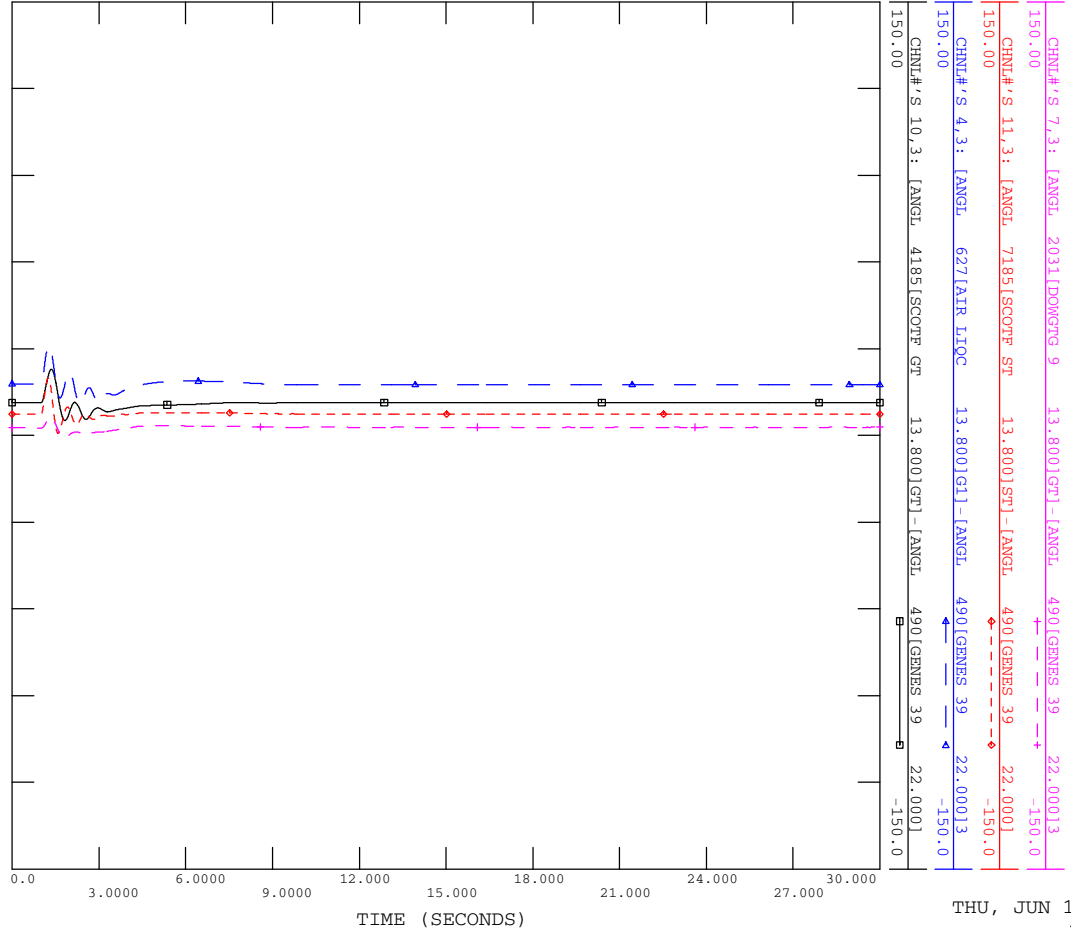


THU, JUN 19 2014 14:53  
 FIG F1-19A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

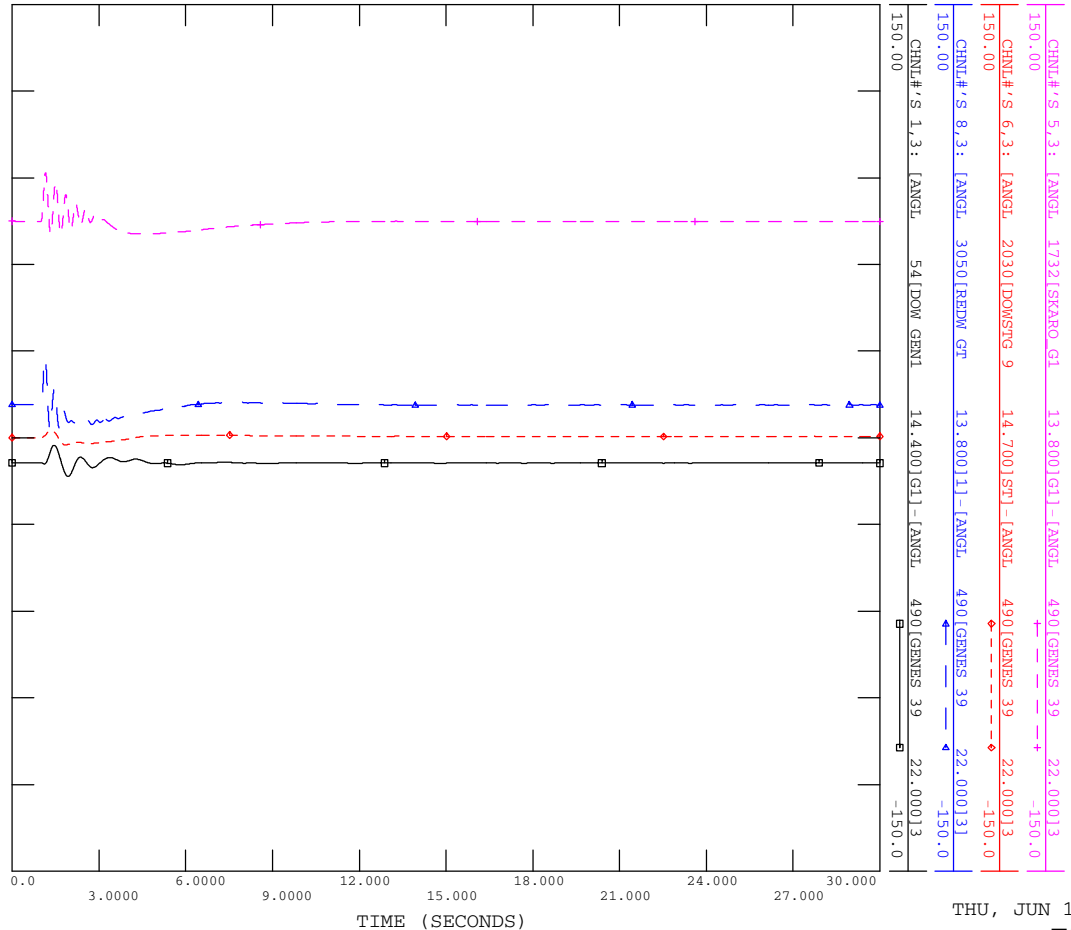


THU, JUN 19 2014 14:53  
 FIG F1-20



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

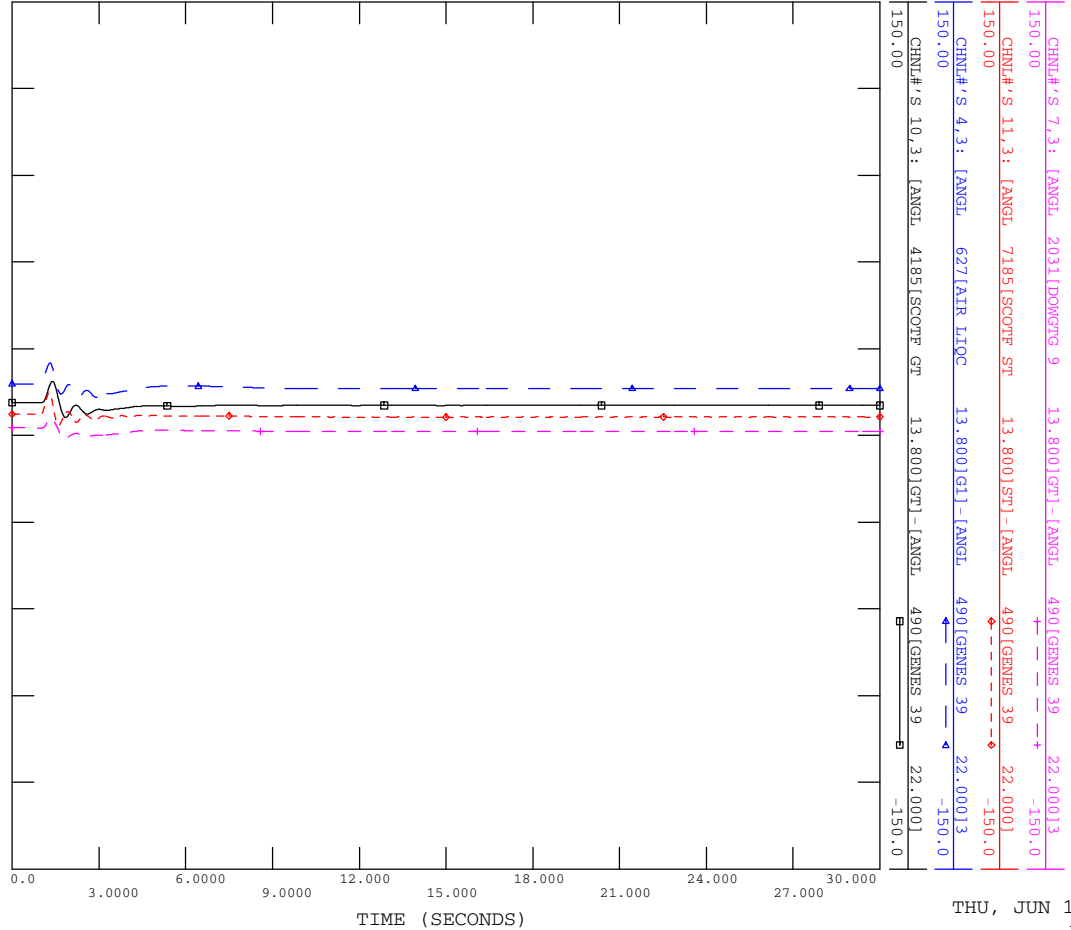


THU, JUN 19 2014 14:54  
 FIG F1-20A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

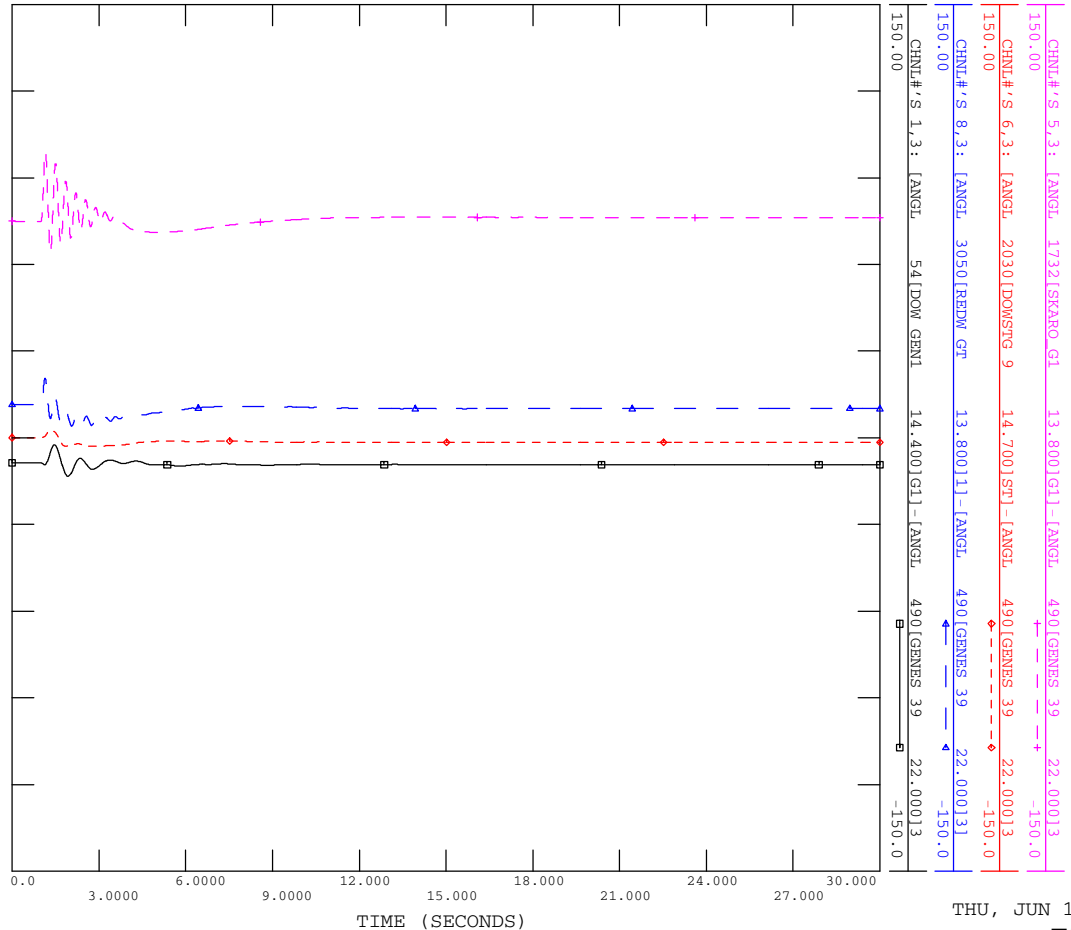


THU, JUN 19 2014 14:54  
 FIG F1-21



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

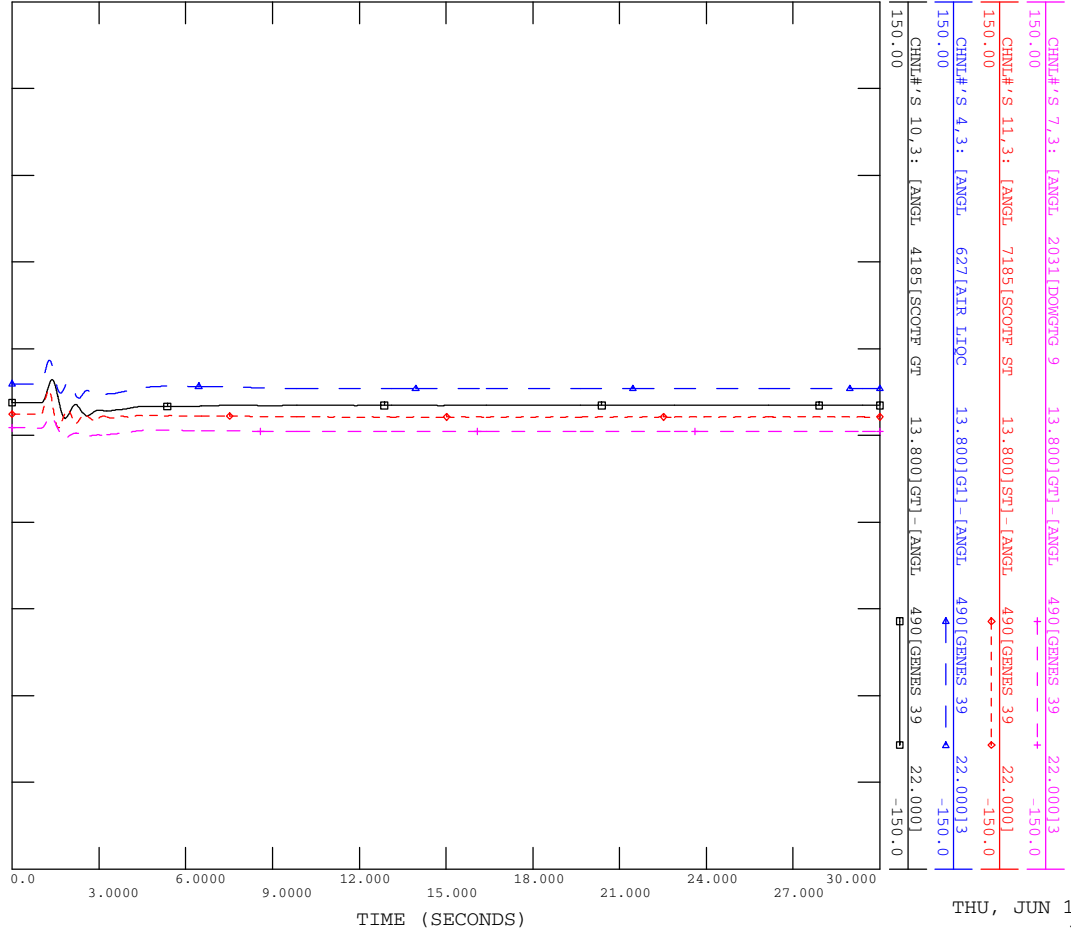


THU, JUN 19 2014 14:55  
 FIG F1-21A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

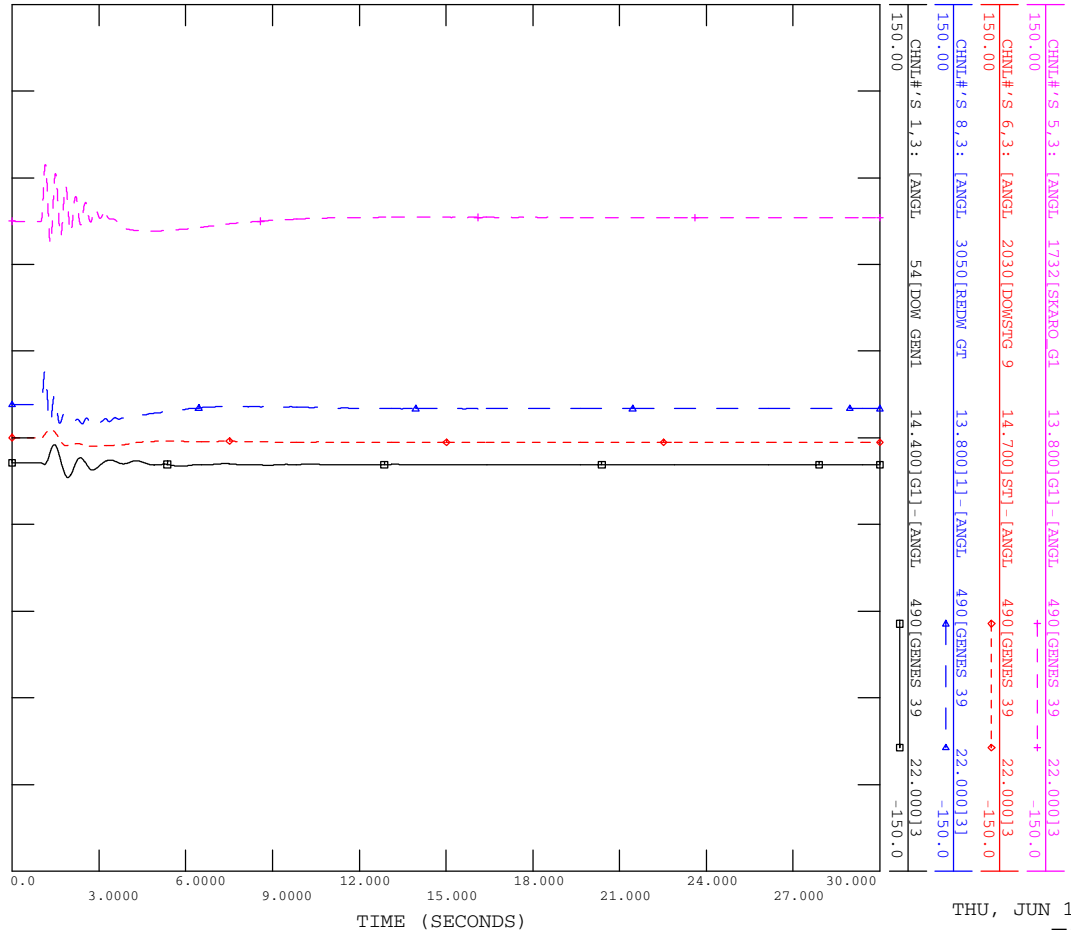


THU, JUN 19 2014 14:55  
 FIG F1-22



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

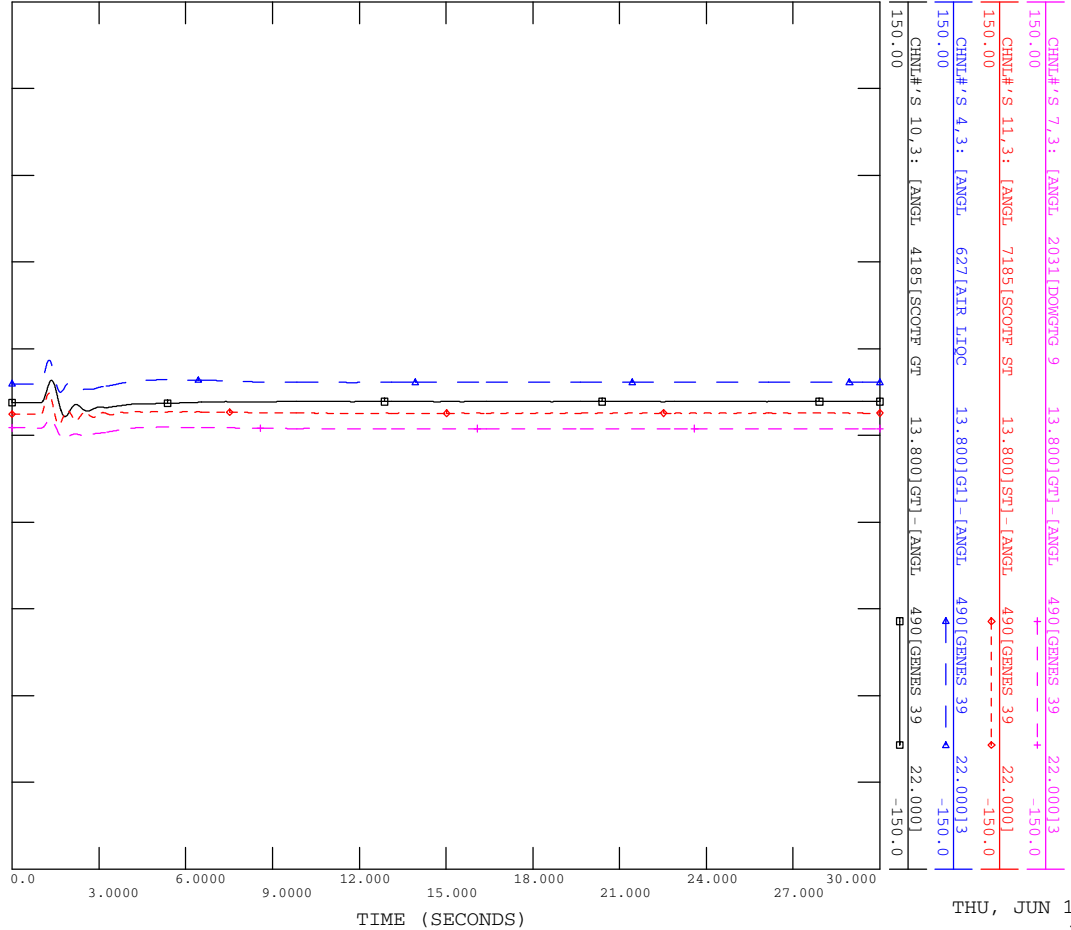


THU, JUN 19 2014 14:56  
 FIG F1-22A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

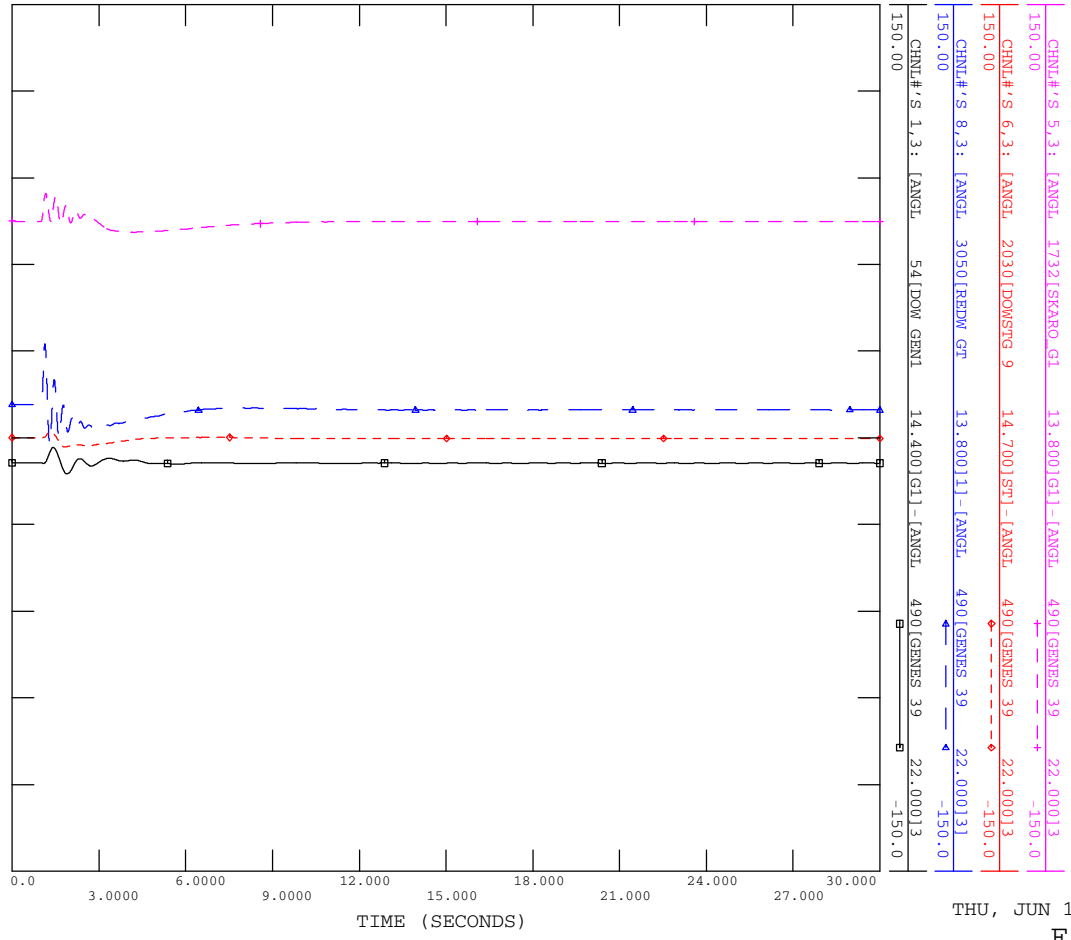


THU, JUN 19 2014 14:56  
 FIG F1-23



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

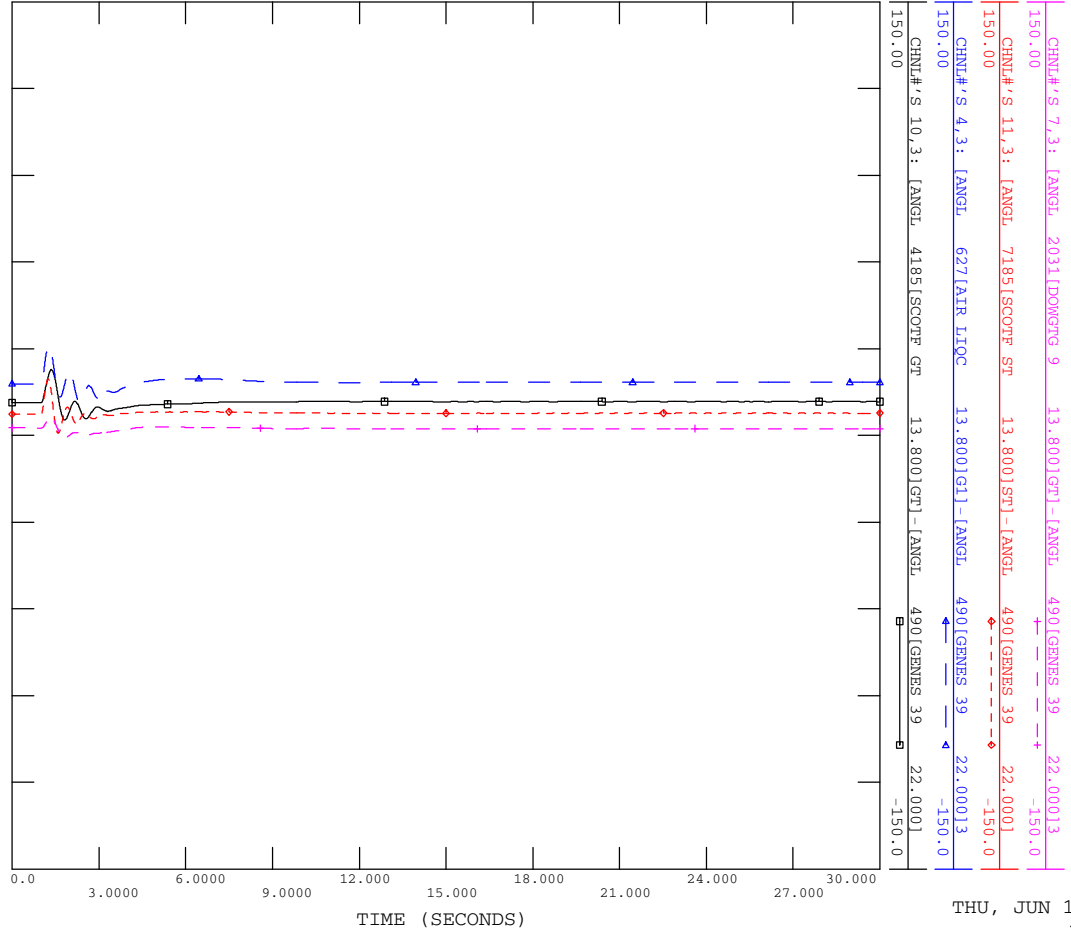


THU, JUN 19 2014 14:57  
 FIG F1-23A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

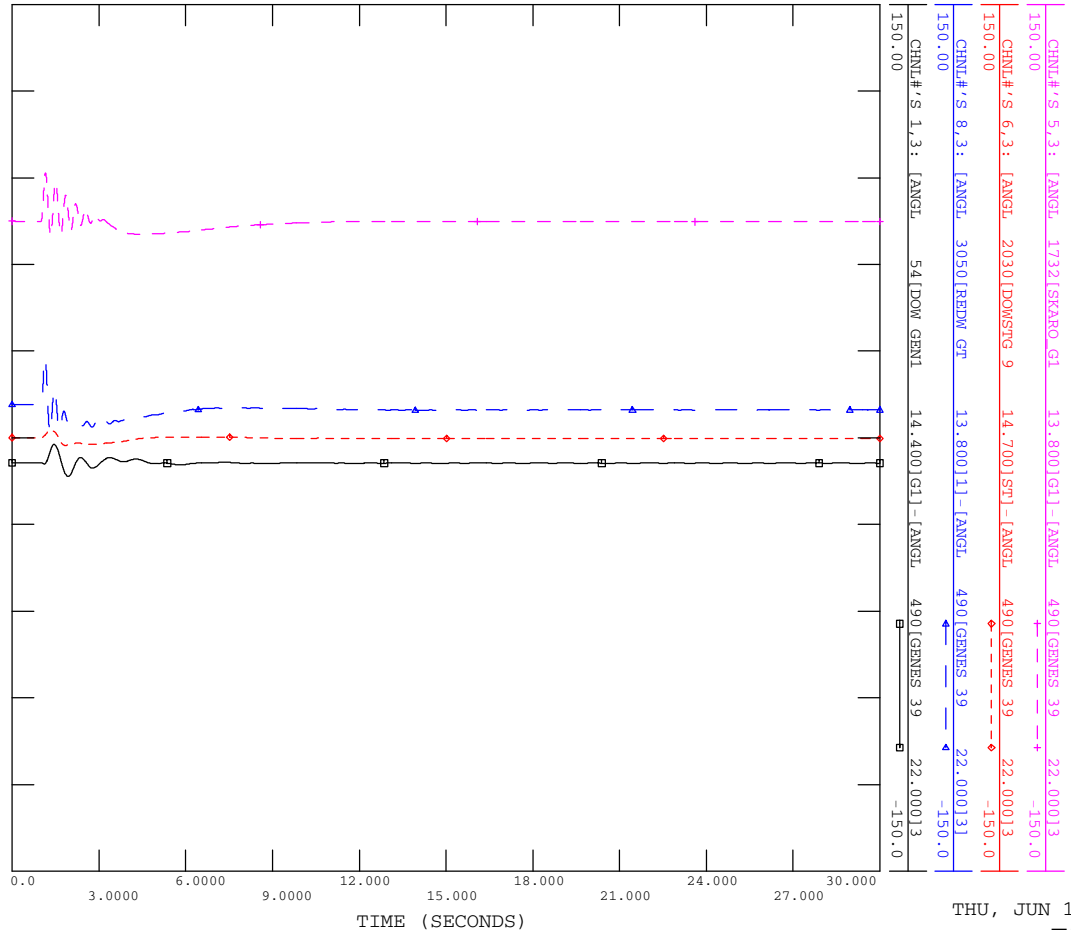


THU, JUN 19 2014 14:57  
 FIG F1-24



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

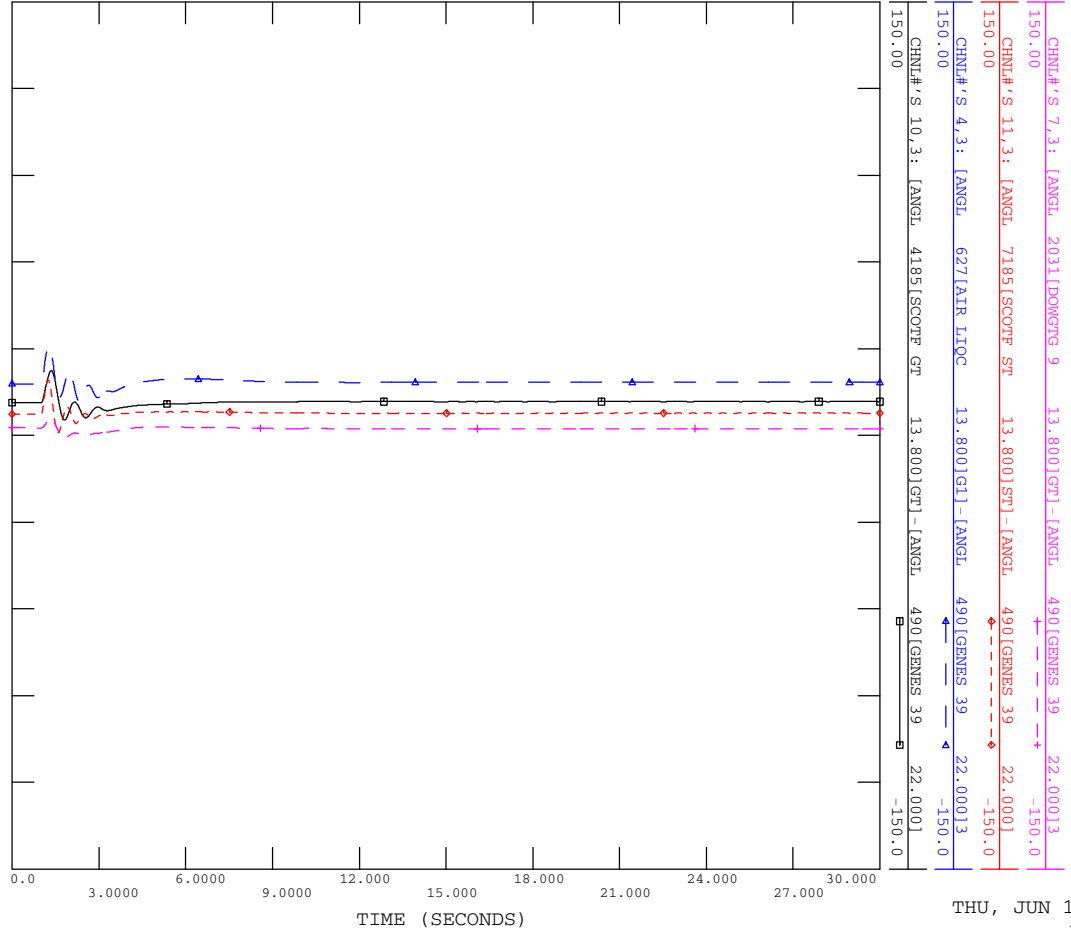


THU, JUN 19 2014 14:57  
 FIG F1-24A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

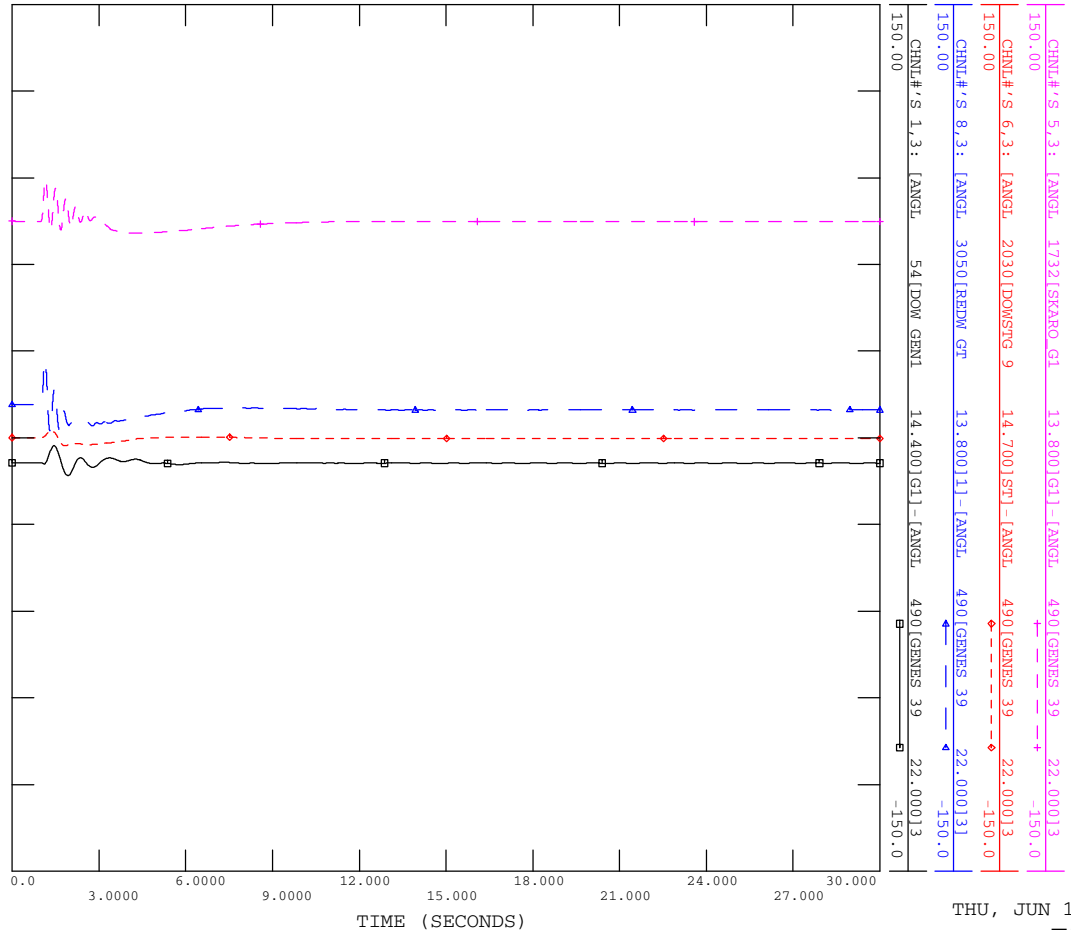


THU, JUN 19 2014 14:58  
 FIG F1-25



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT



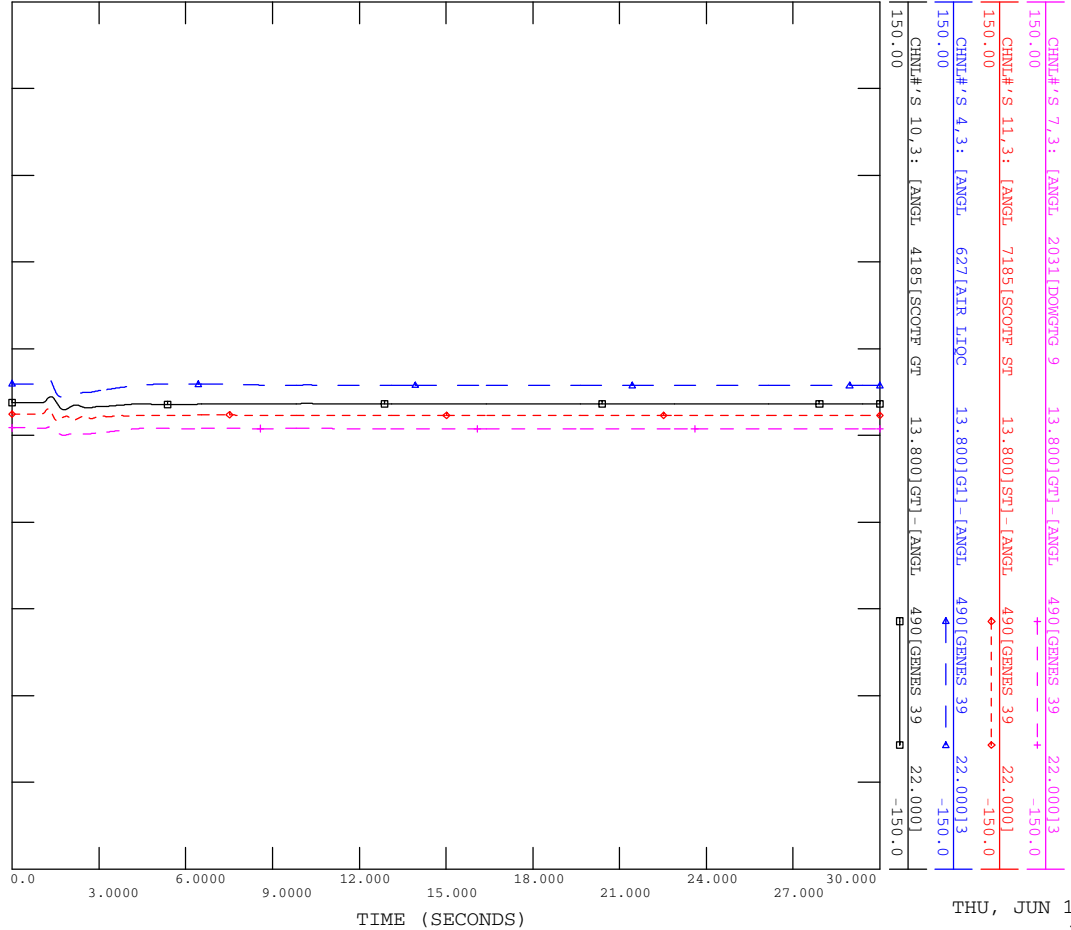
THU, JUN 19 2014 14:58  
 FIG F1-25A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT

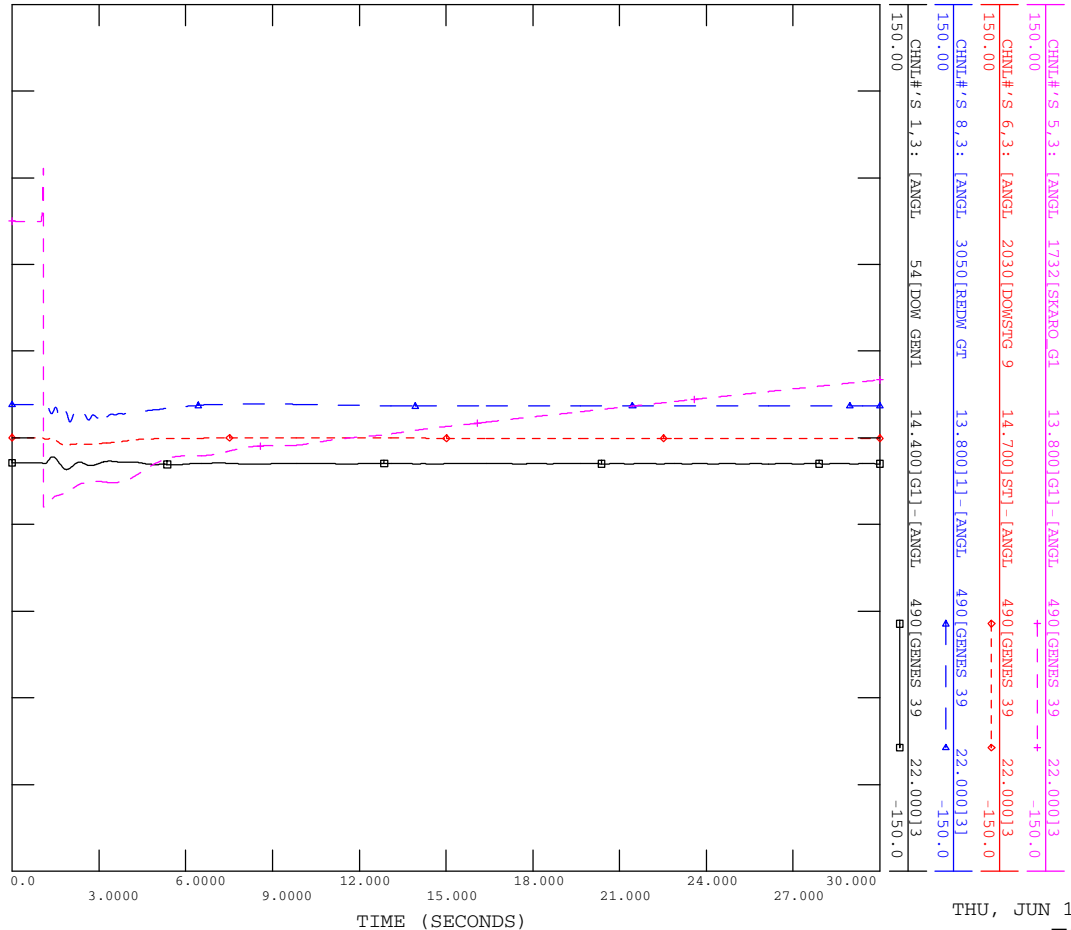


THU, JUN 19 2014 14:59  
 FIG F1-26



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT

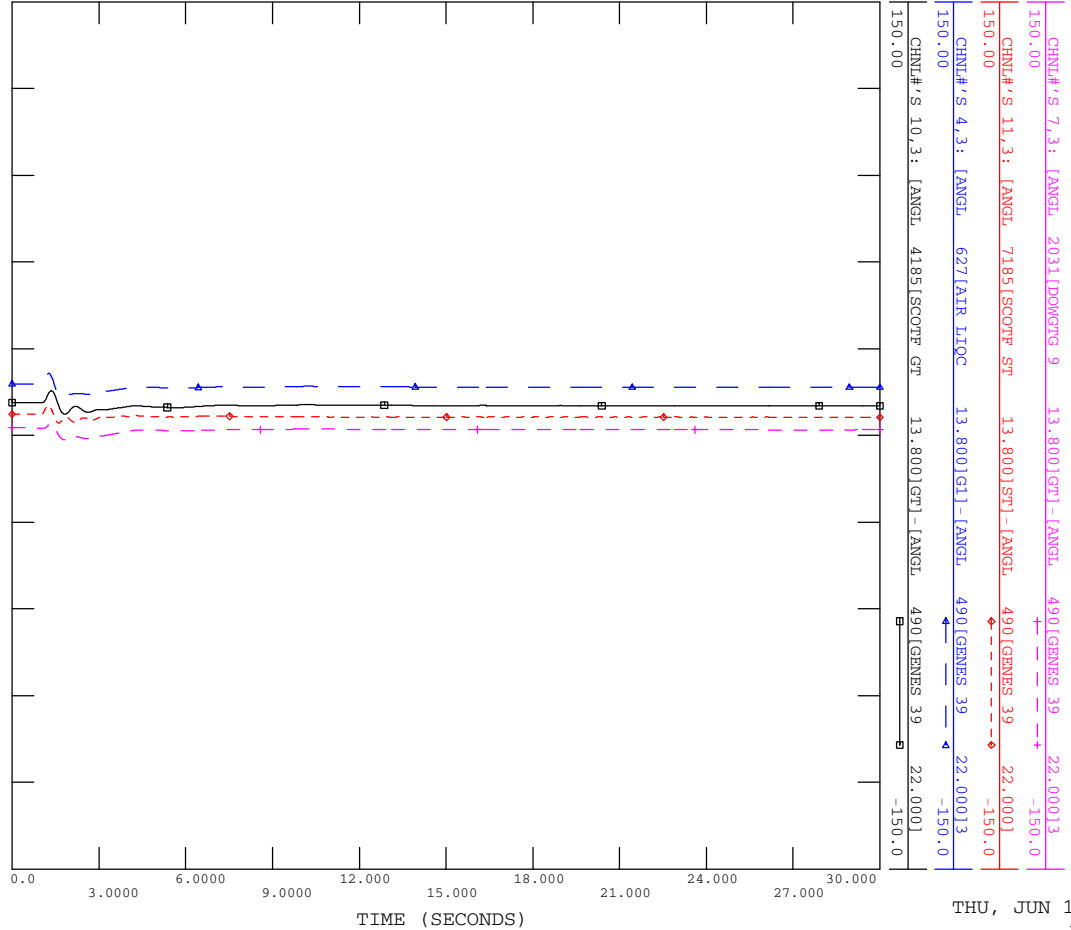


THU, JUN 19 2014 14:59  
 FIG F1-26A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

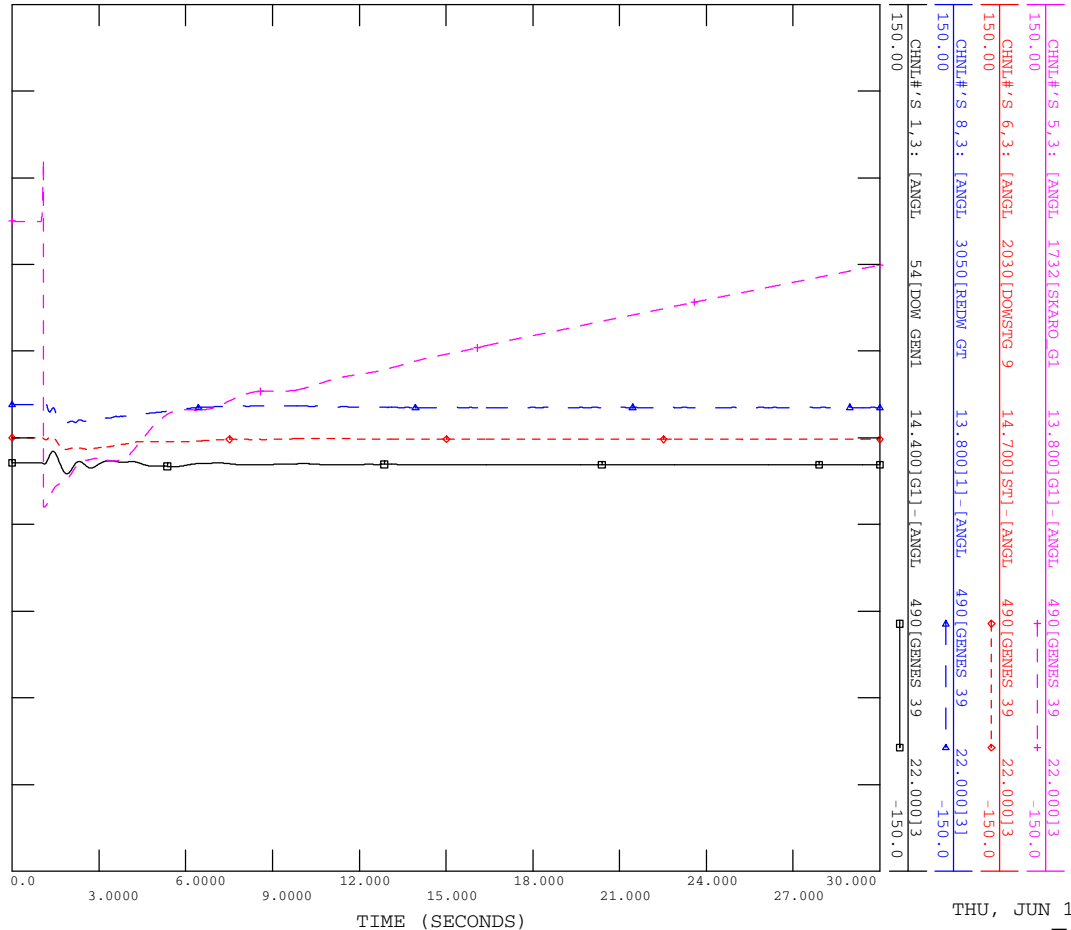


THU, JUN 19 2014 15:00  
 FIG F1-27



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT



THU, JUN 19 2014 15:00  
 FIG F1-27A



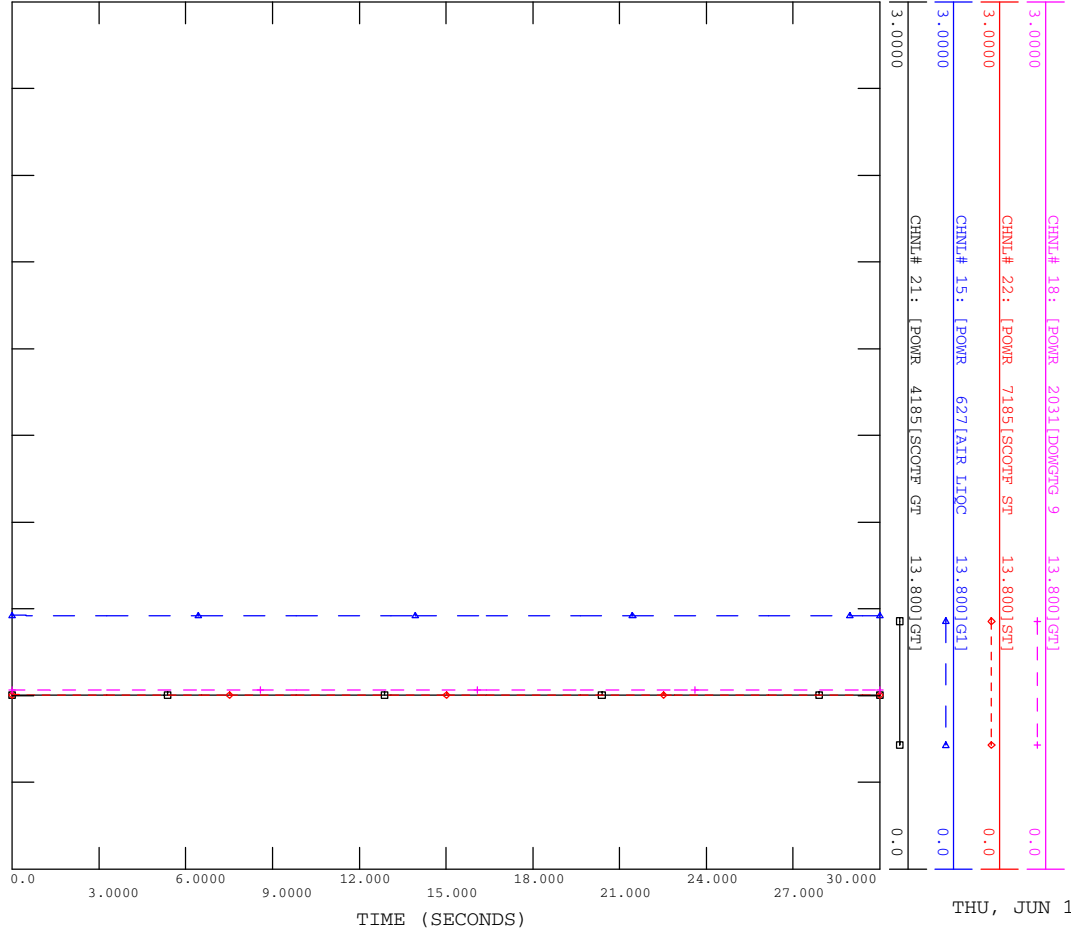
## **Attachment F-2**

### **Scenario 6 Transient Stability Plots Machine Power**



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP A - FLAT START

FILE: CON0.OUT

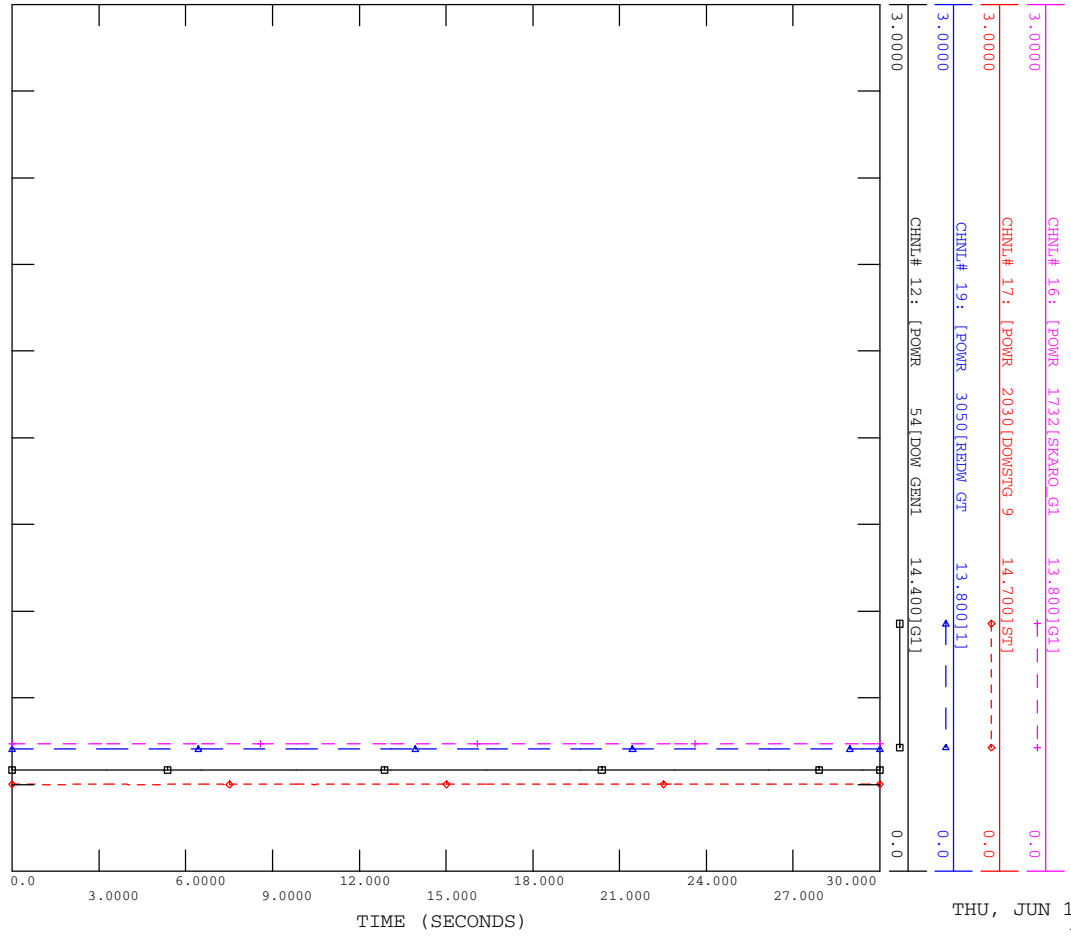


THU, JUN 19 2014 14:39  
FIG F2-1



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP A - FLAT START

FILE: CON0.OUT

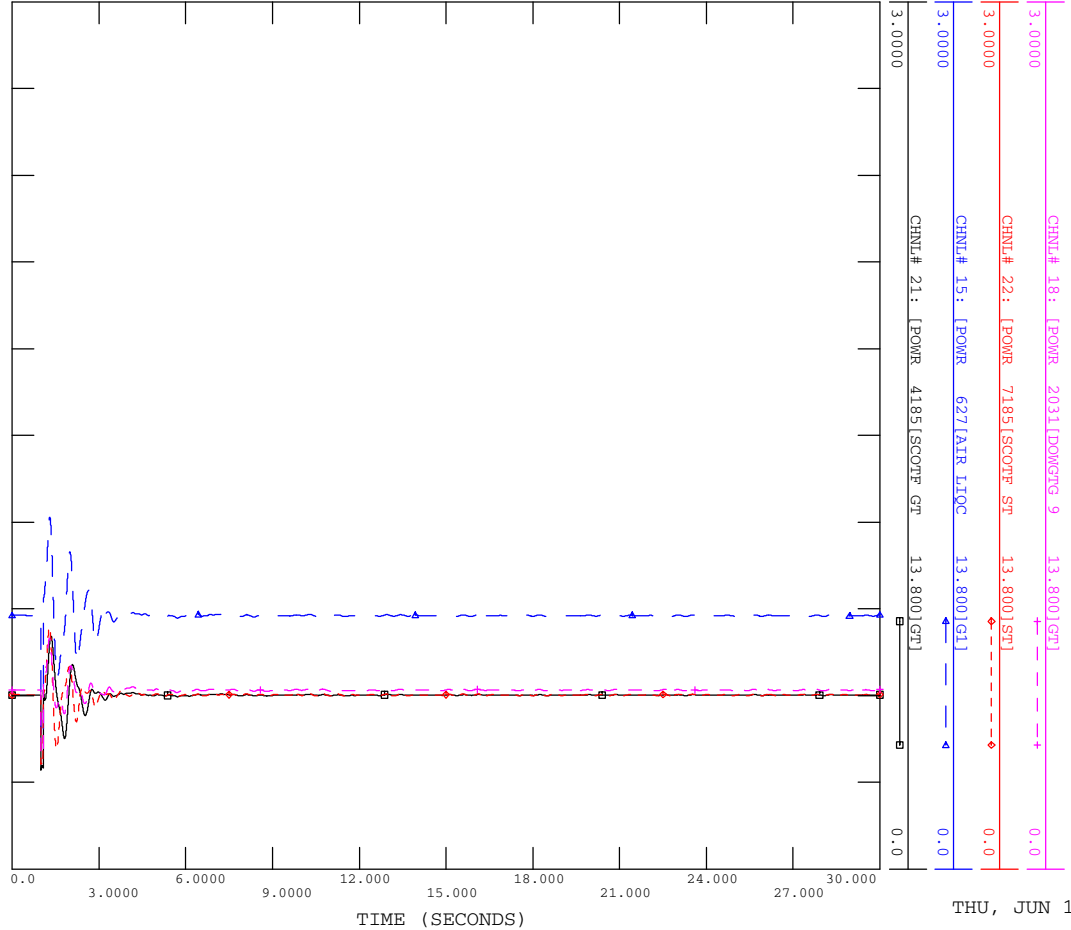


THU, JUN 19 2014 14:39  
FIG F2-1A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

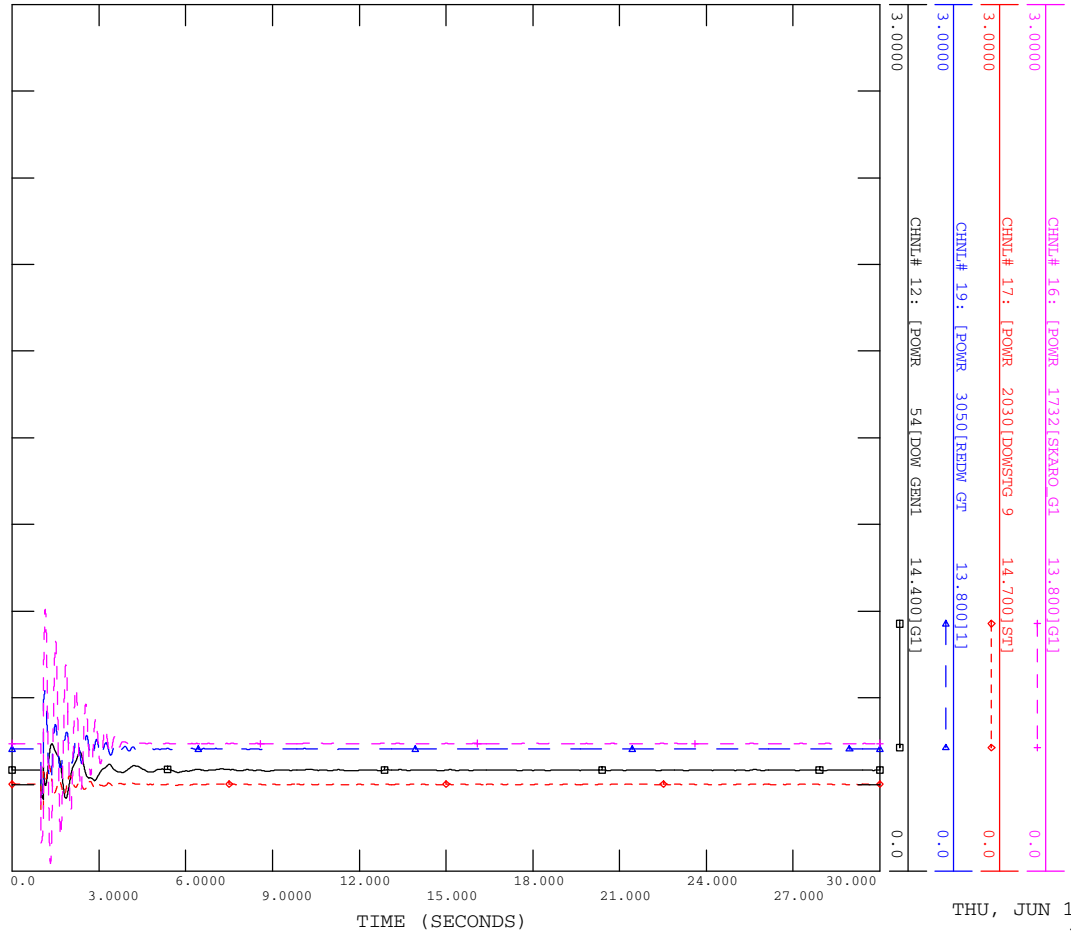


THU, JUN 19 2014 14:39  
FIG F2-2



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

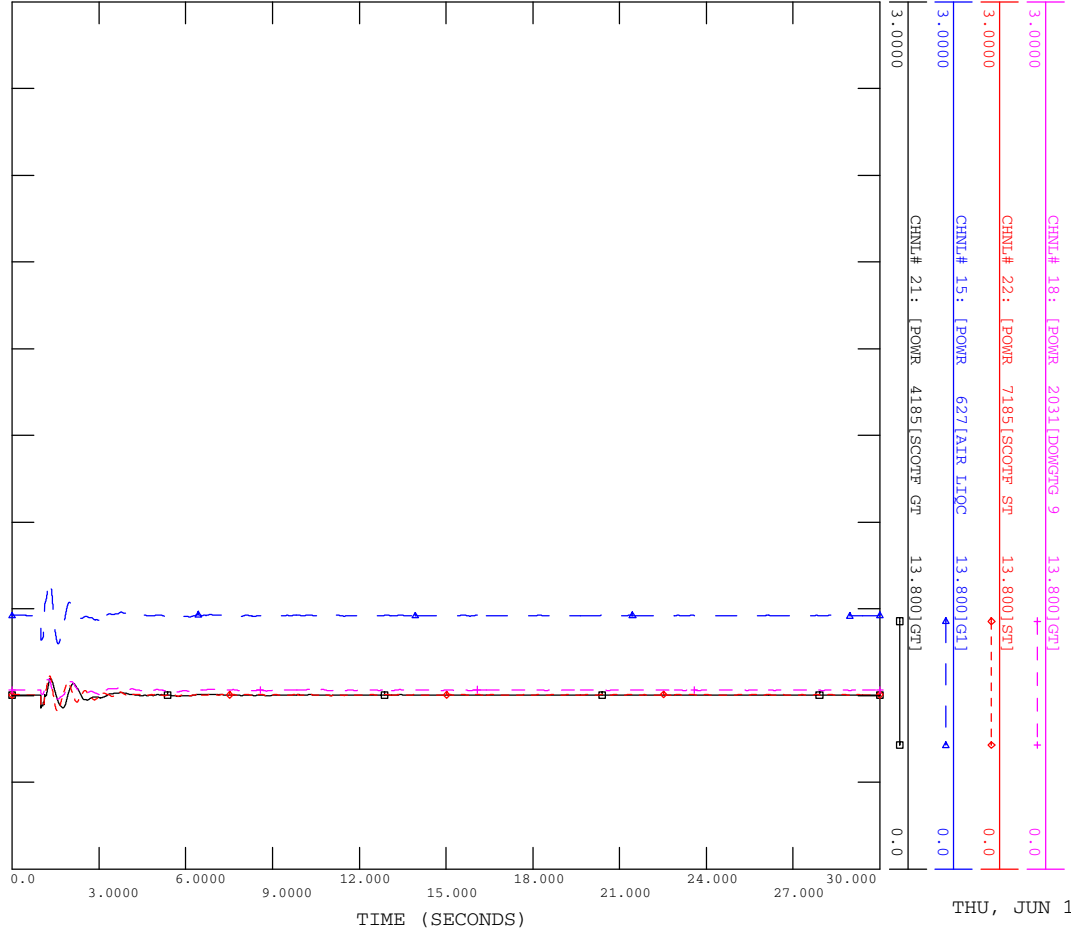


THU, JUN 19 2014 14:39  
FIG F2-2A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

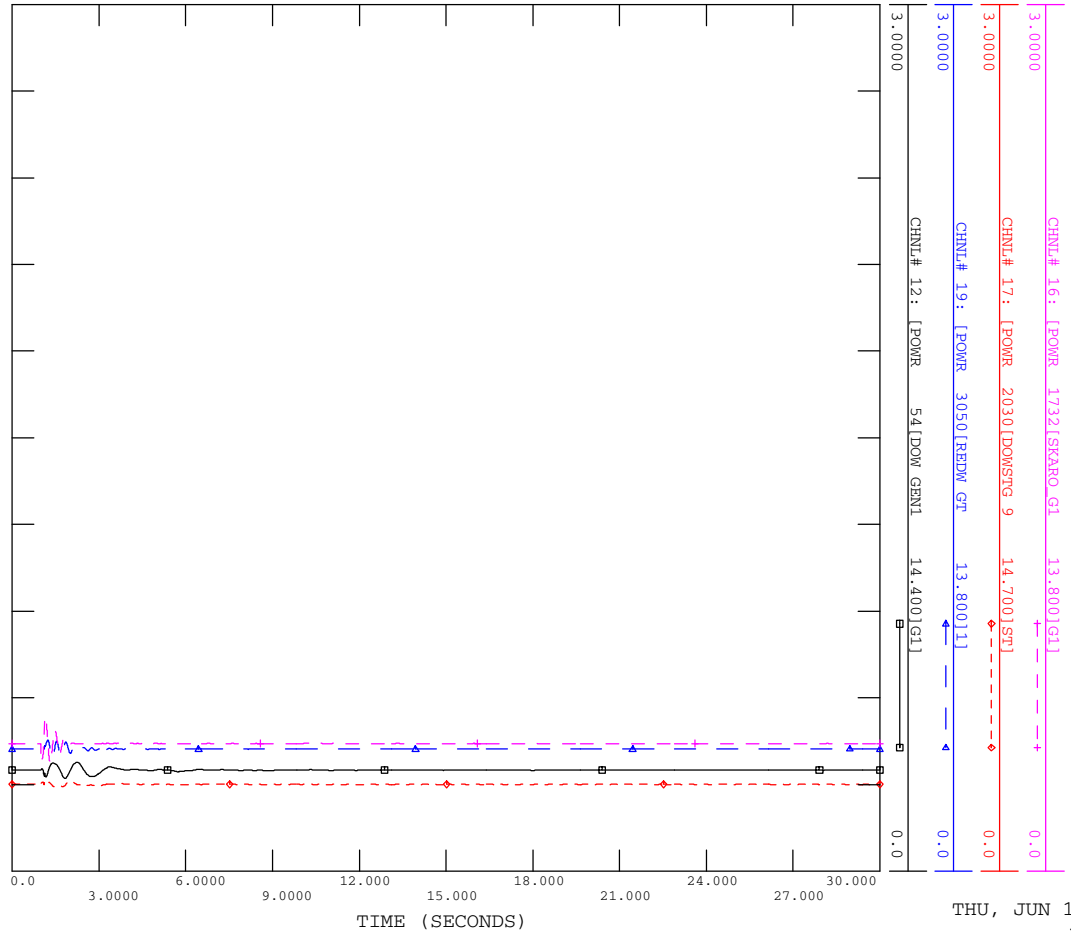


THU, JUN 19 2014 14:39  
FIG F2-3



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

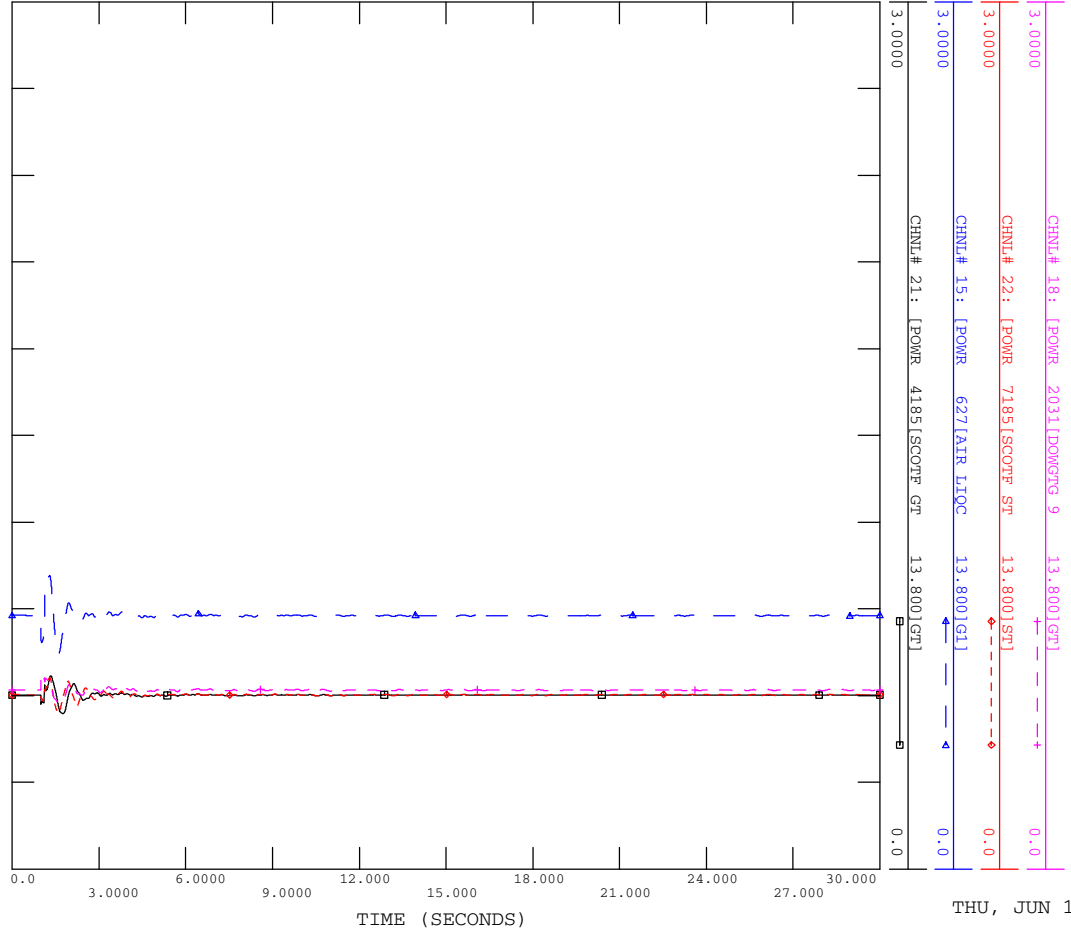


THU, JUN 19 2014 14:39  
FIG F2-3A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

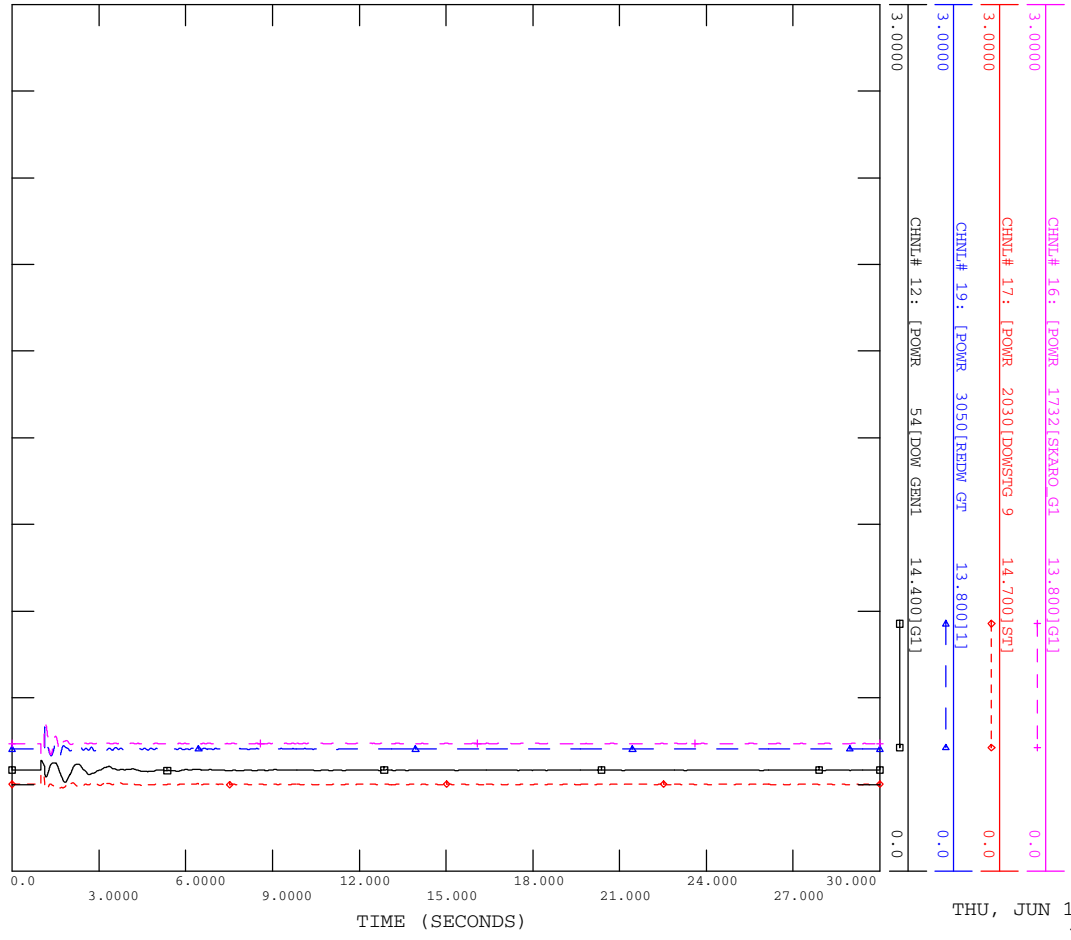


THU, JUN 19 2014 14:40  
FIG F2-4



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT



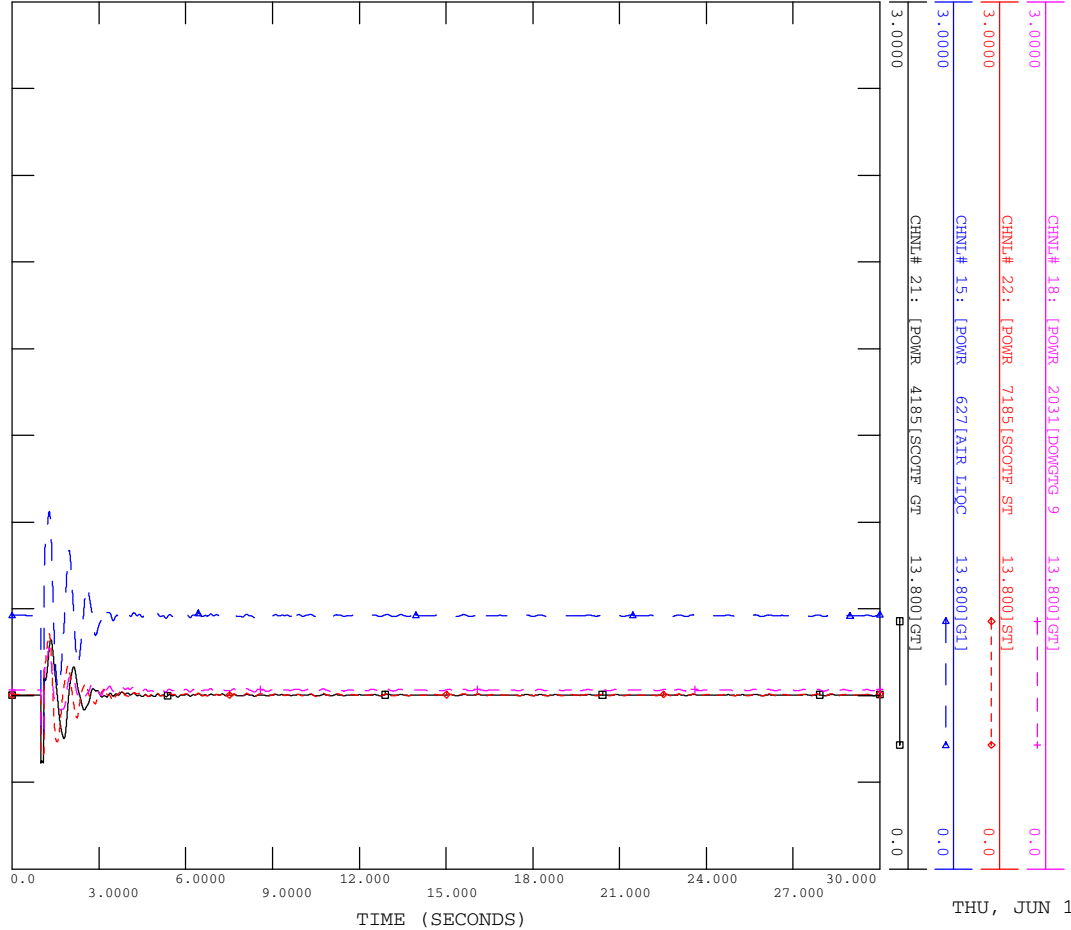
THU, JUN 19 2014 14:40  
FIG F2-4A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

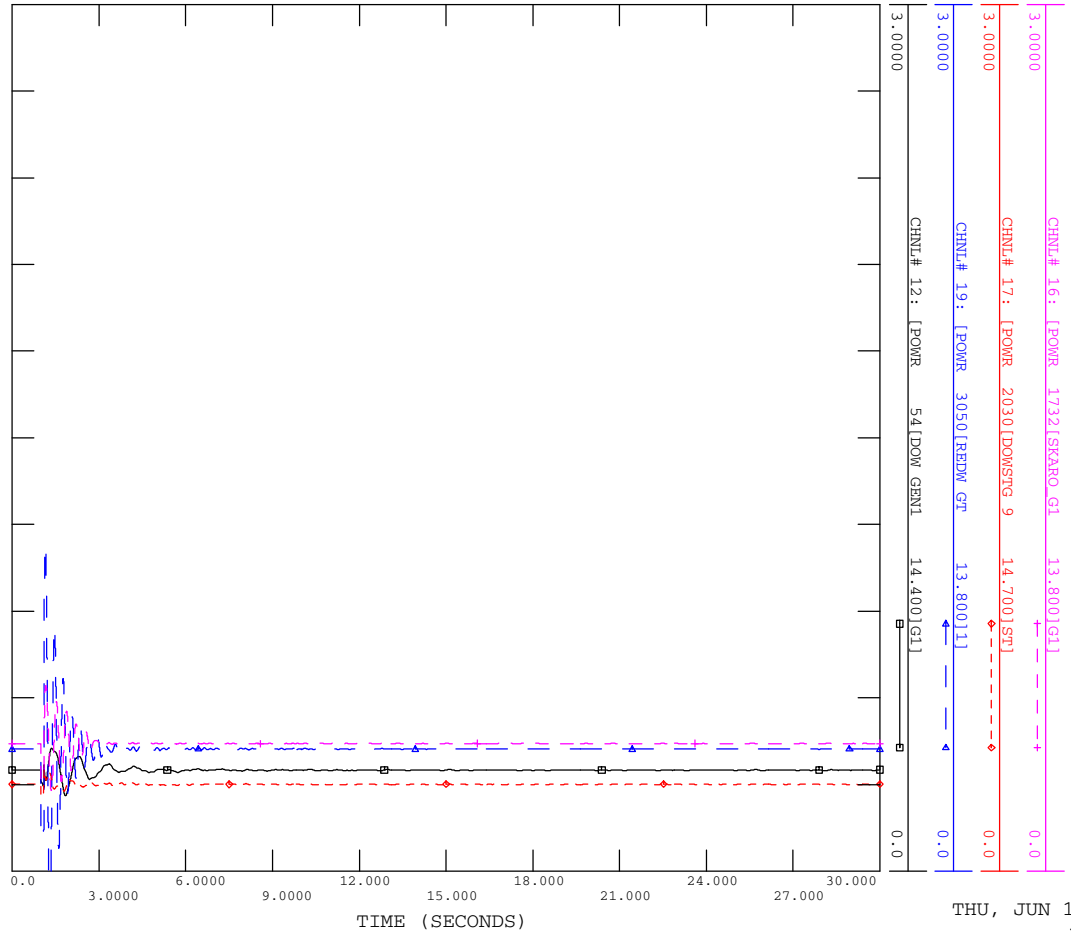


THU, JUN 19 2014 14:40  
FIG F2-5



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

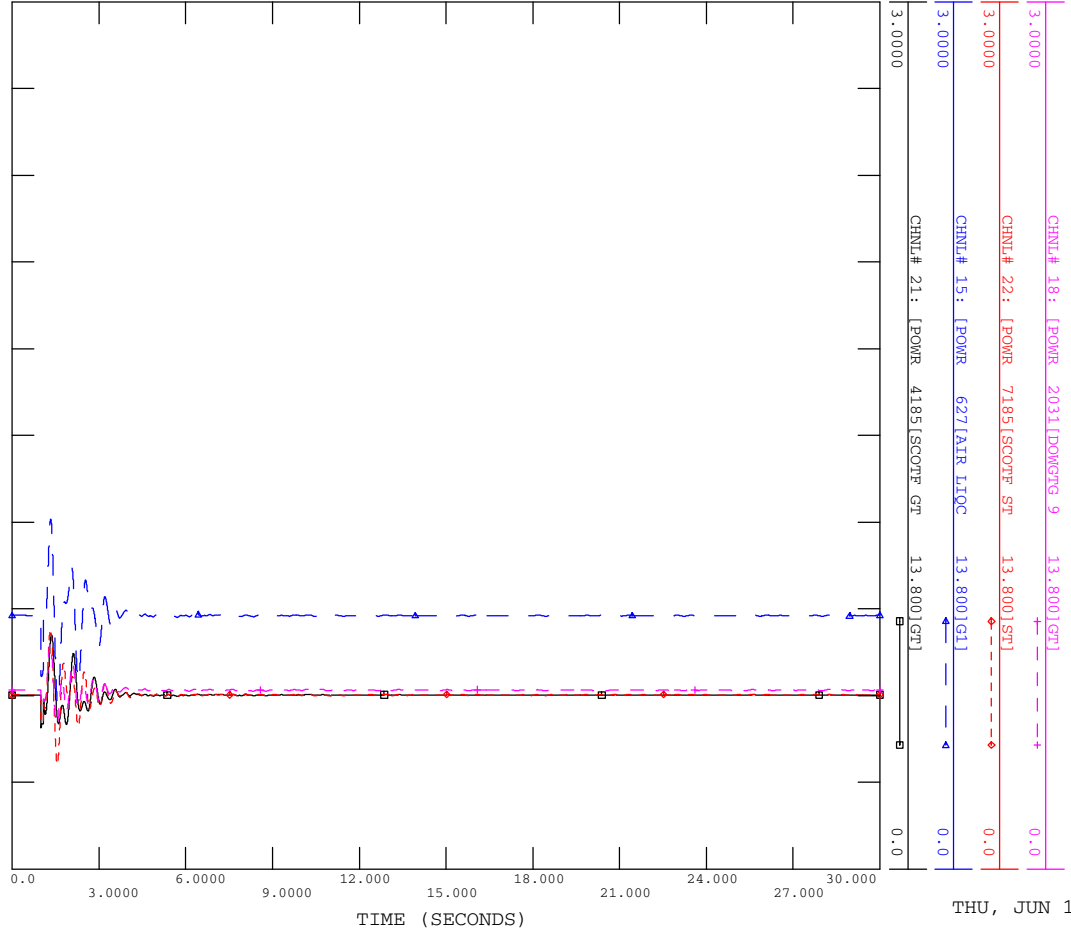


THU, JUN 19 2014 14:40  
FIG F2-5A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

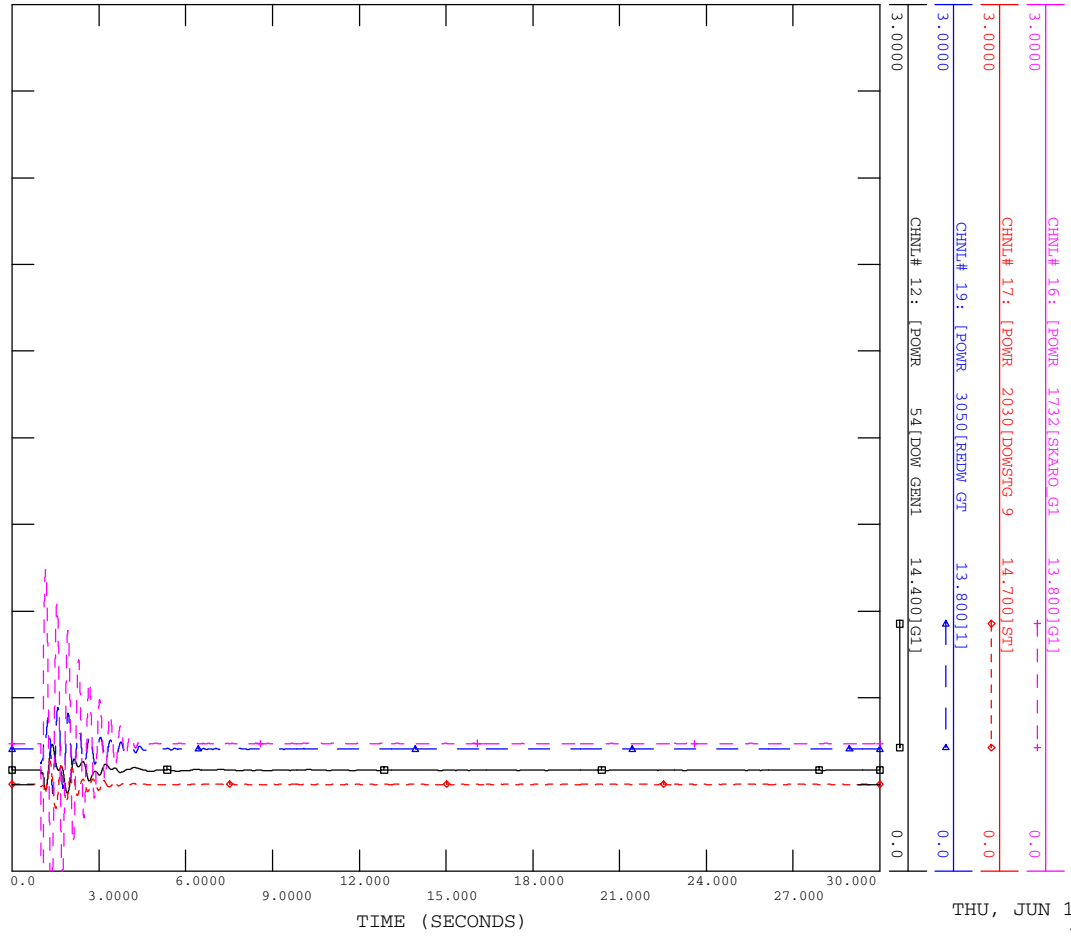


THU, JUN 19 2014 14:41  
FIG F2-6



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

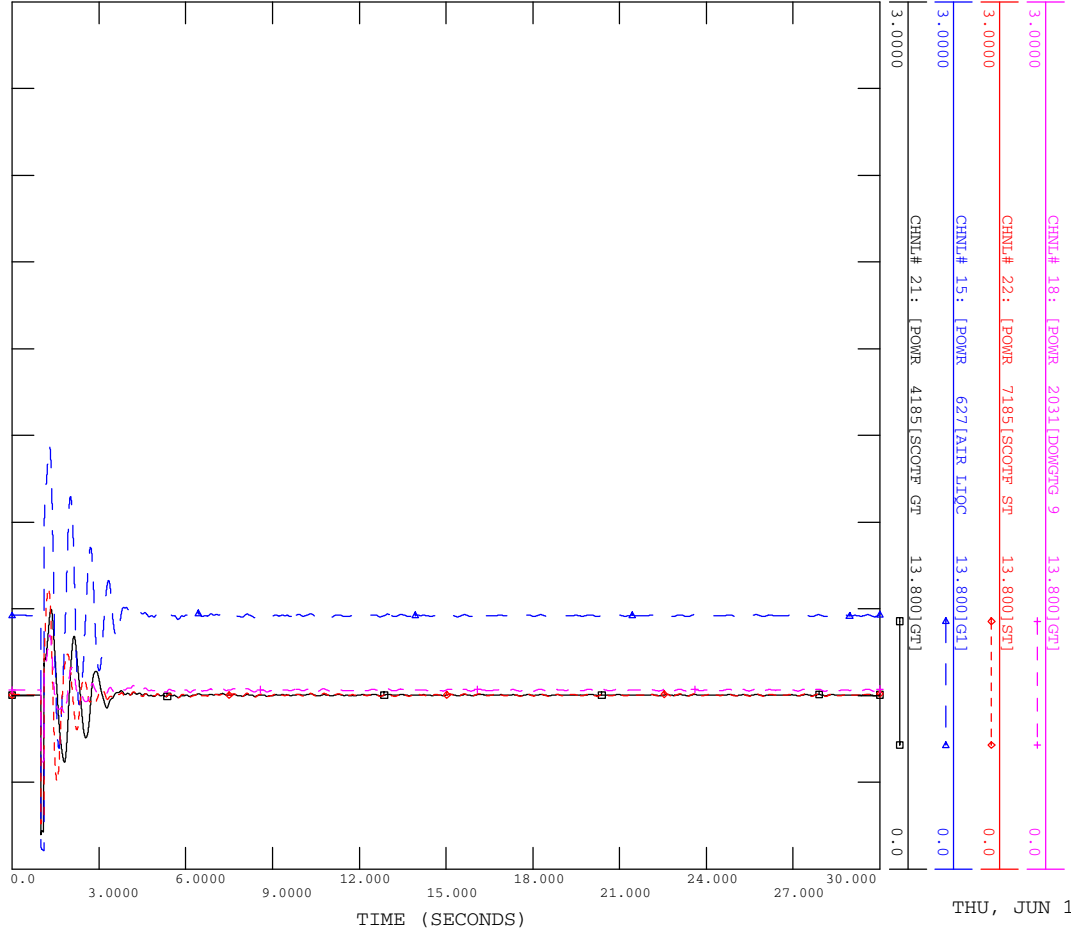


THU, JUN 19 2014 14:41  
FIG F2-6A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 776L 3PH FAULT AT 410S

FILE: CON7.OUT

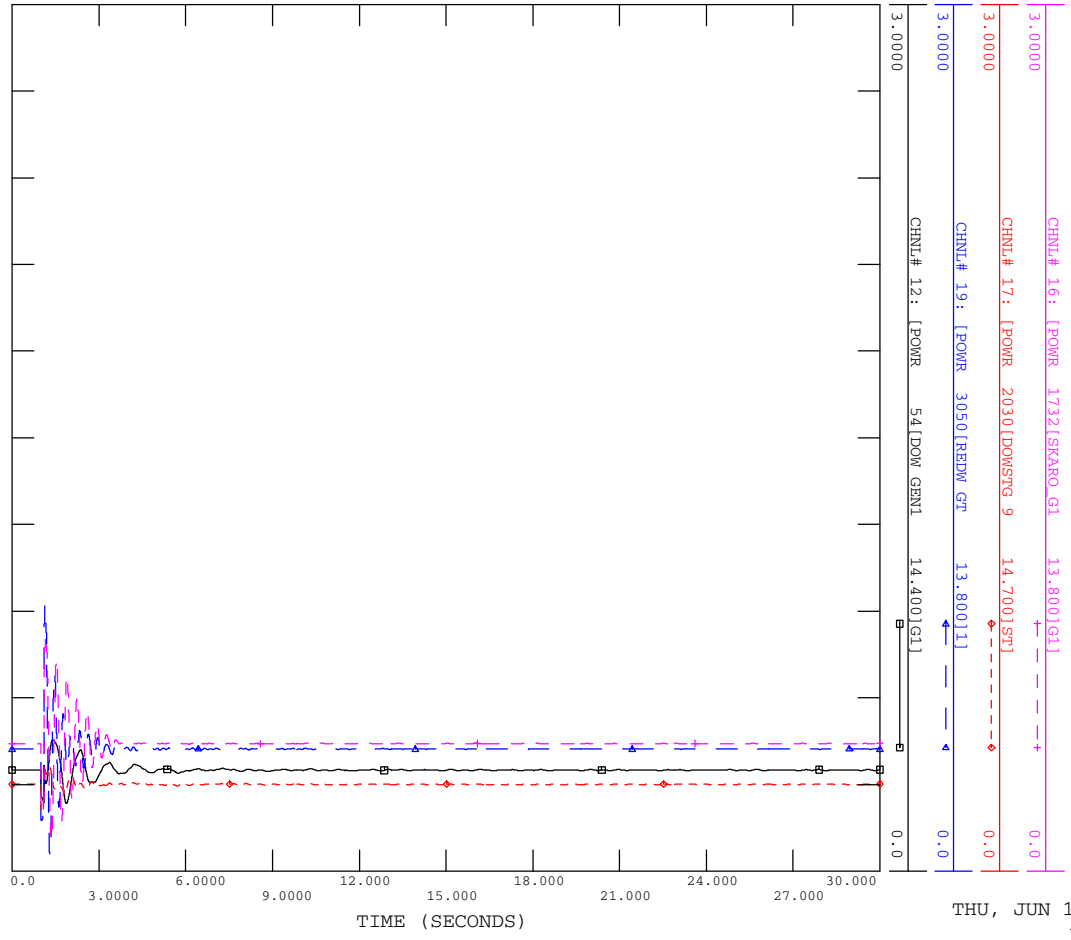


THU, JUN 19 2014 14:42  
FIG F2-7



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 776L 3PH FAULT AT 410S

FILE: CON7.OUT

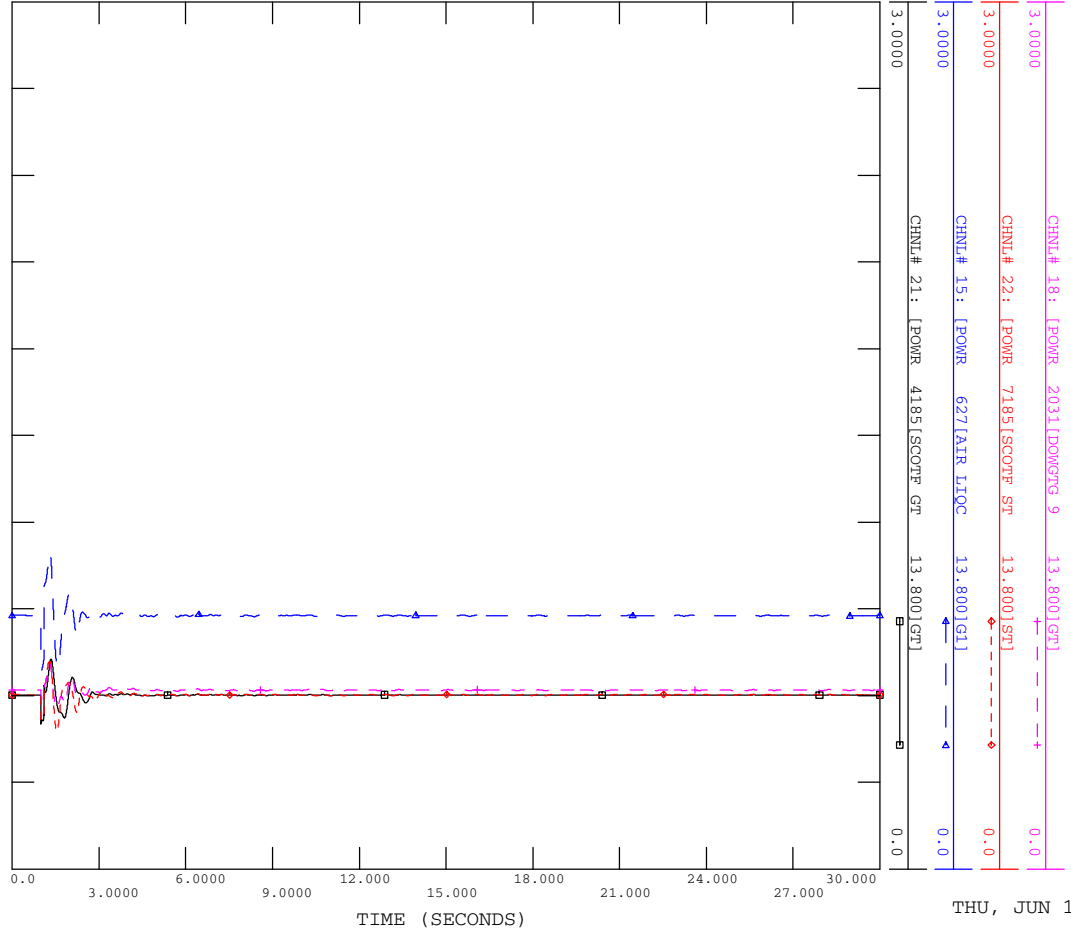


THU, JUN 19 2014 14:42  
FIG F2-7A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

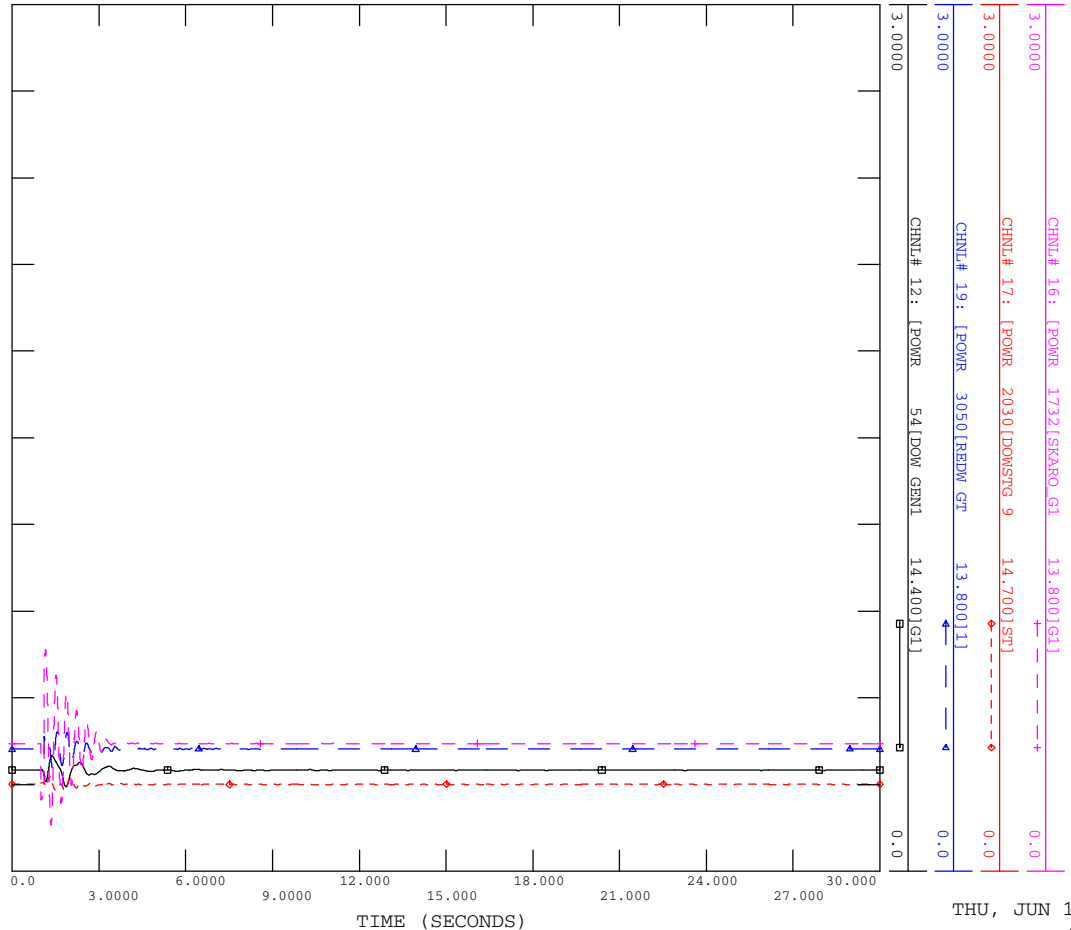


THU, JUN 19 2014 14:42  
FIG F2-8



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

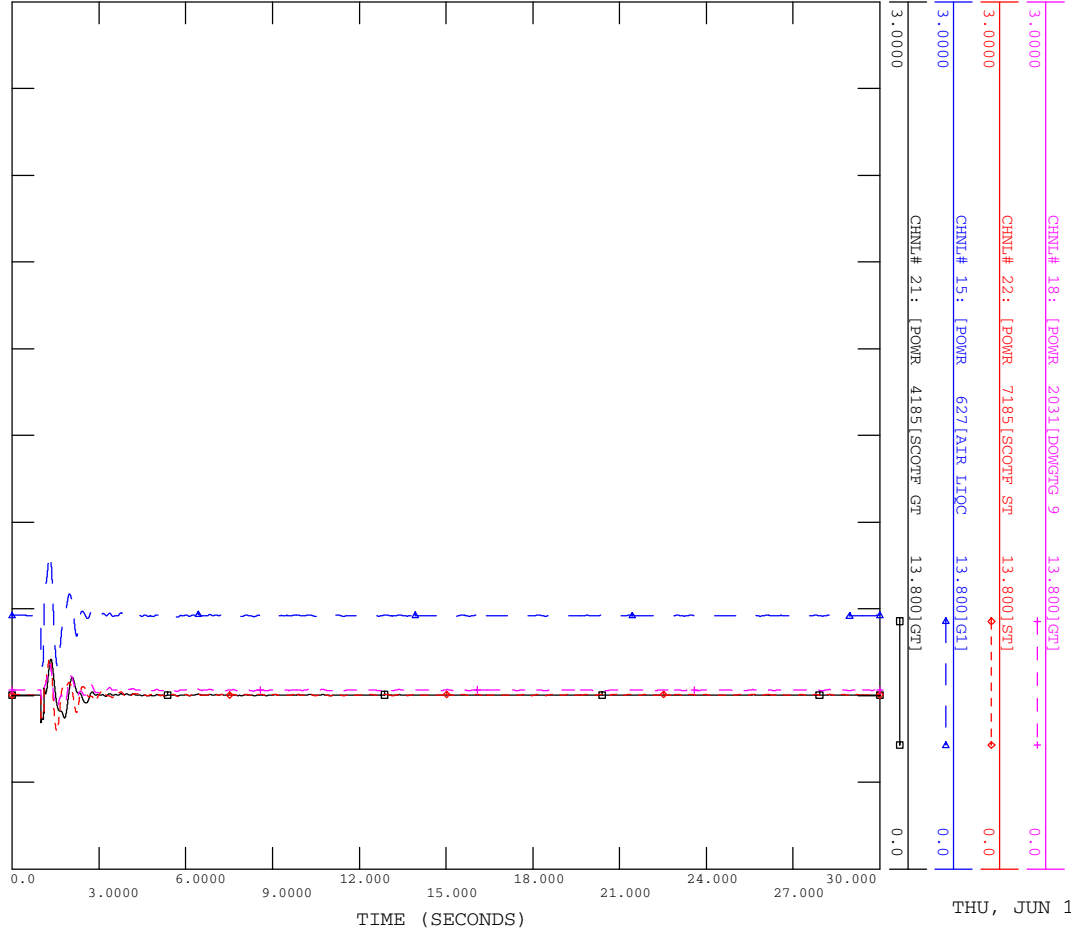


THU, JUN 19 2014 14:43  
FIG F2-8A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

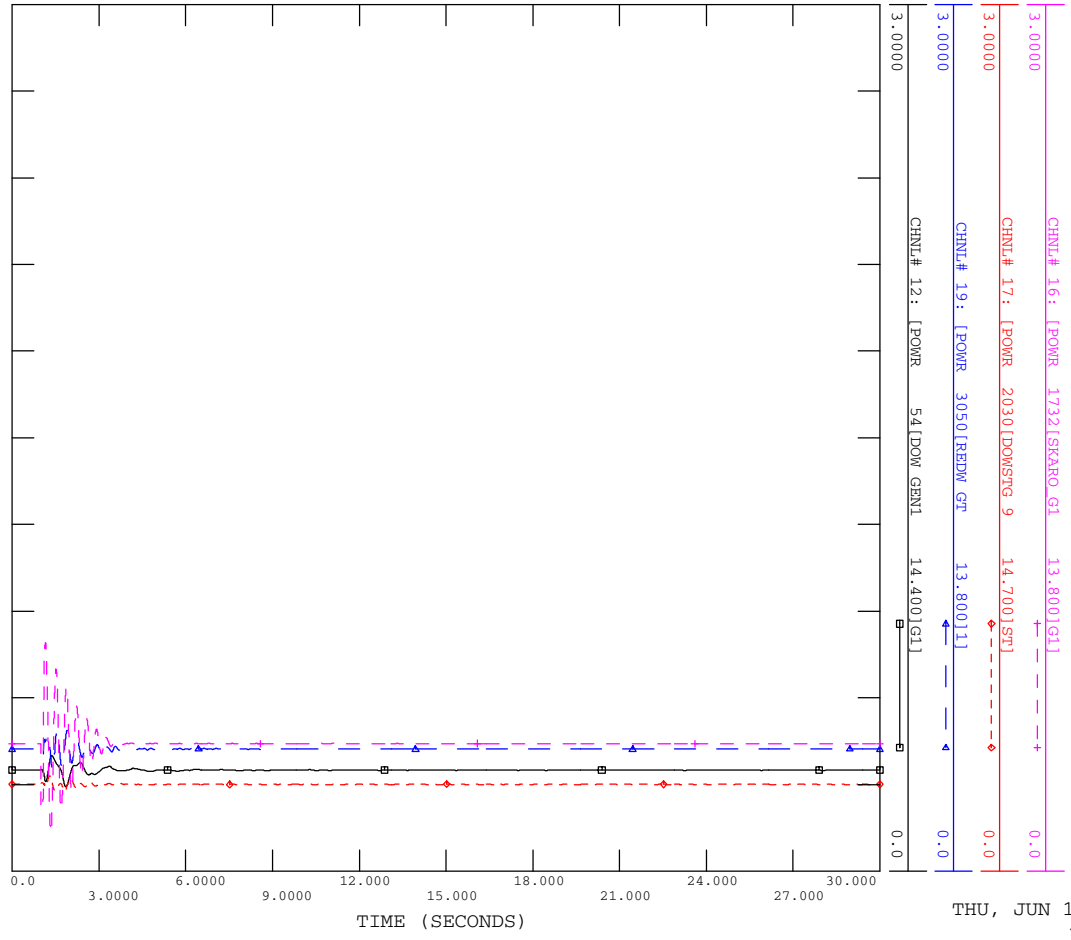


THU, JUN 19 2014 14:43  
FIG F2-9



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

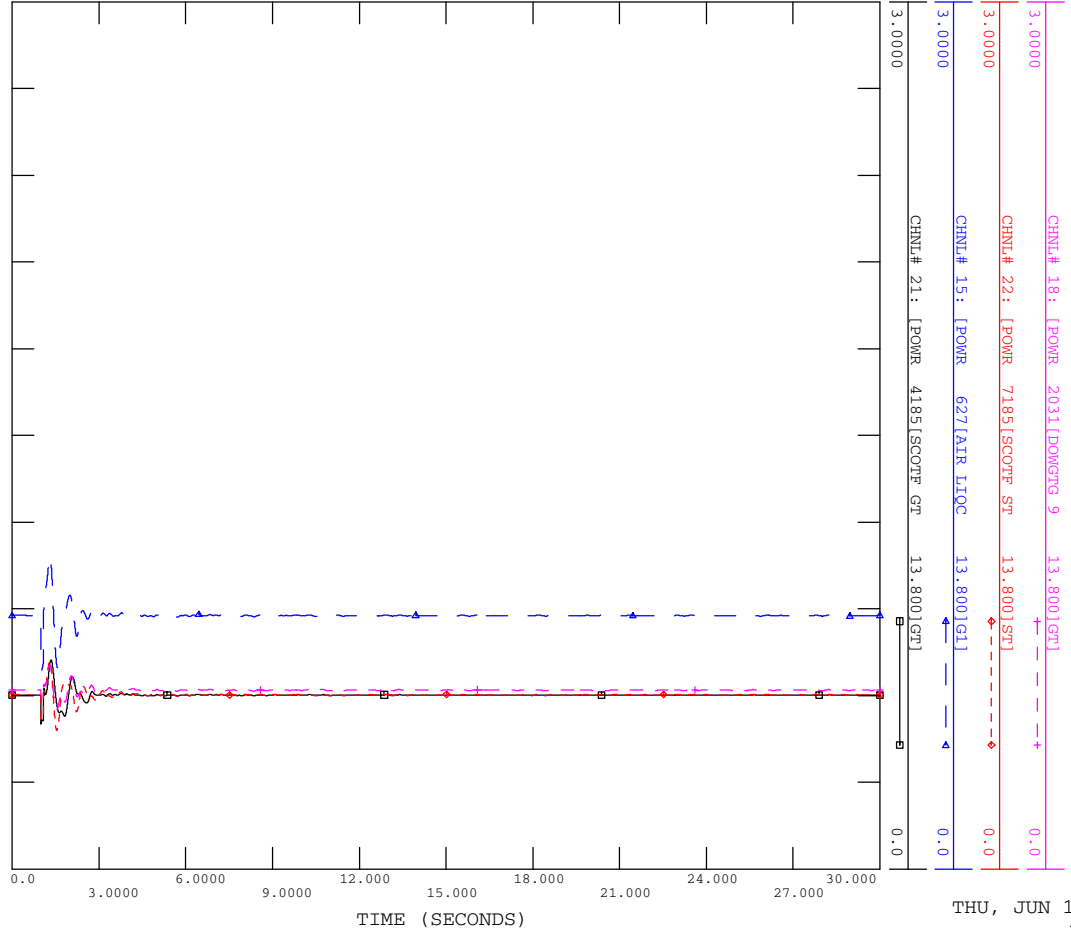


THU, JUN 19 2014 14:44  
FIG F2-9A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

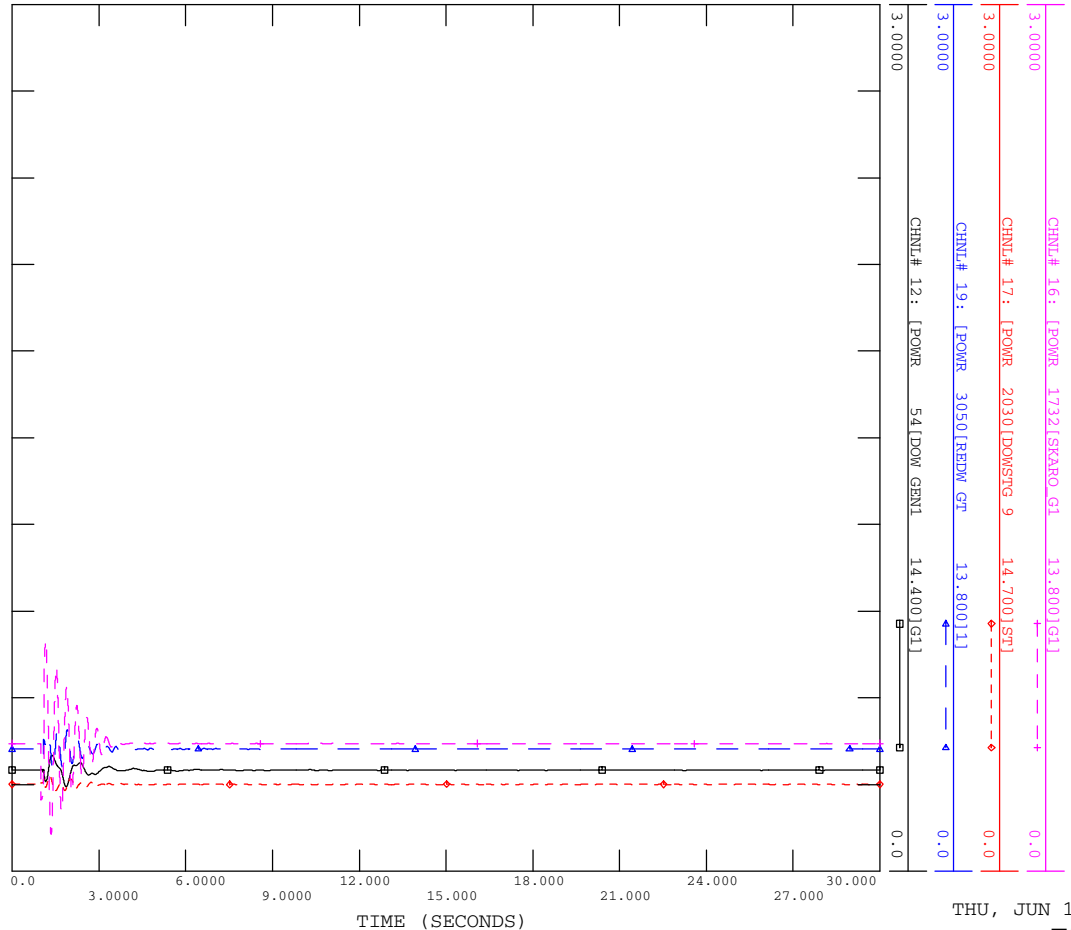


THU, JUN 19 2014 14:44  
FIG F2-10



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

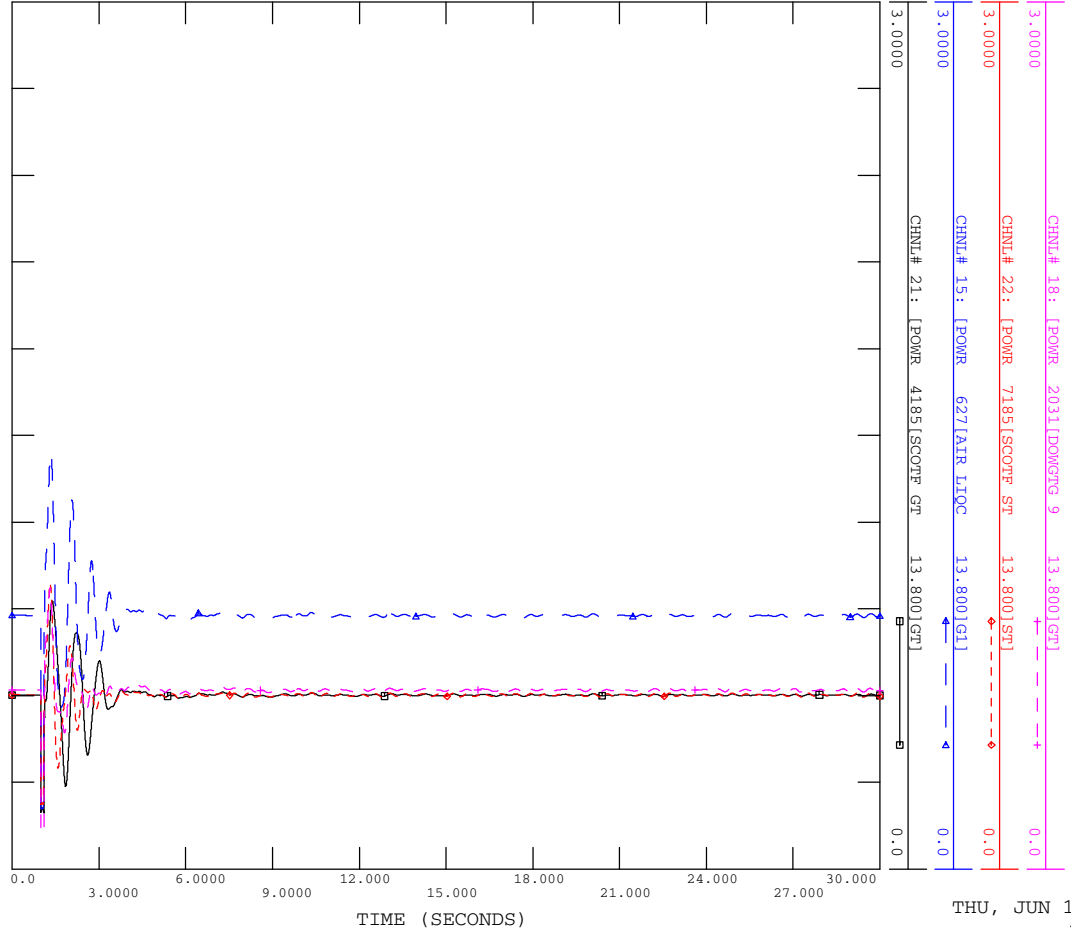


THU, JUN 19 2014 14:45  
FIG F2-10A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT

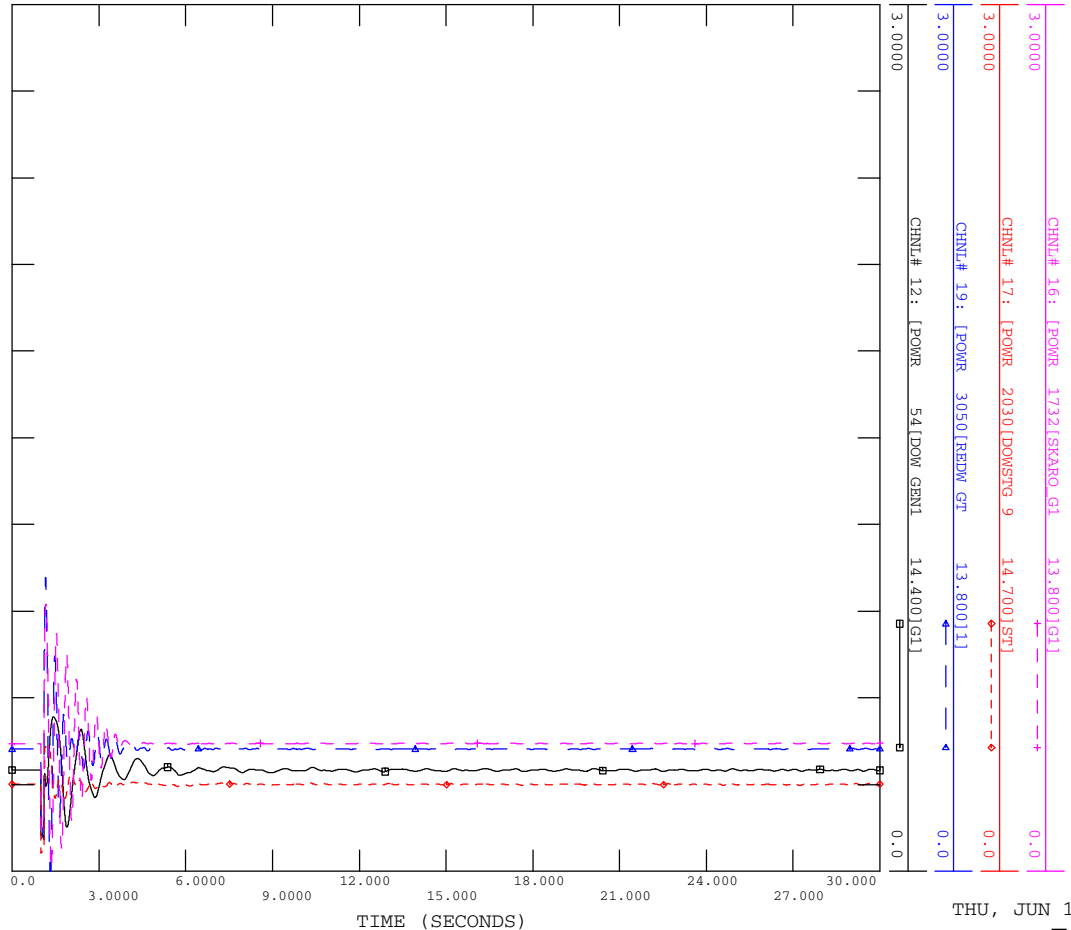


THU, JUN 19 2014 14:45  
FIG F2-11



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT

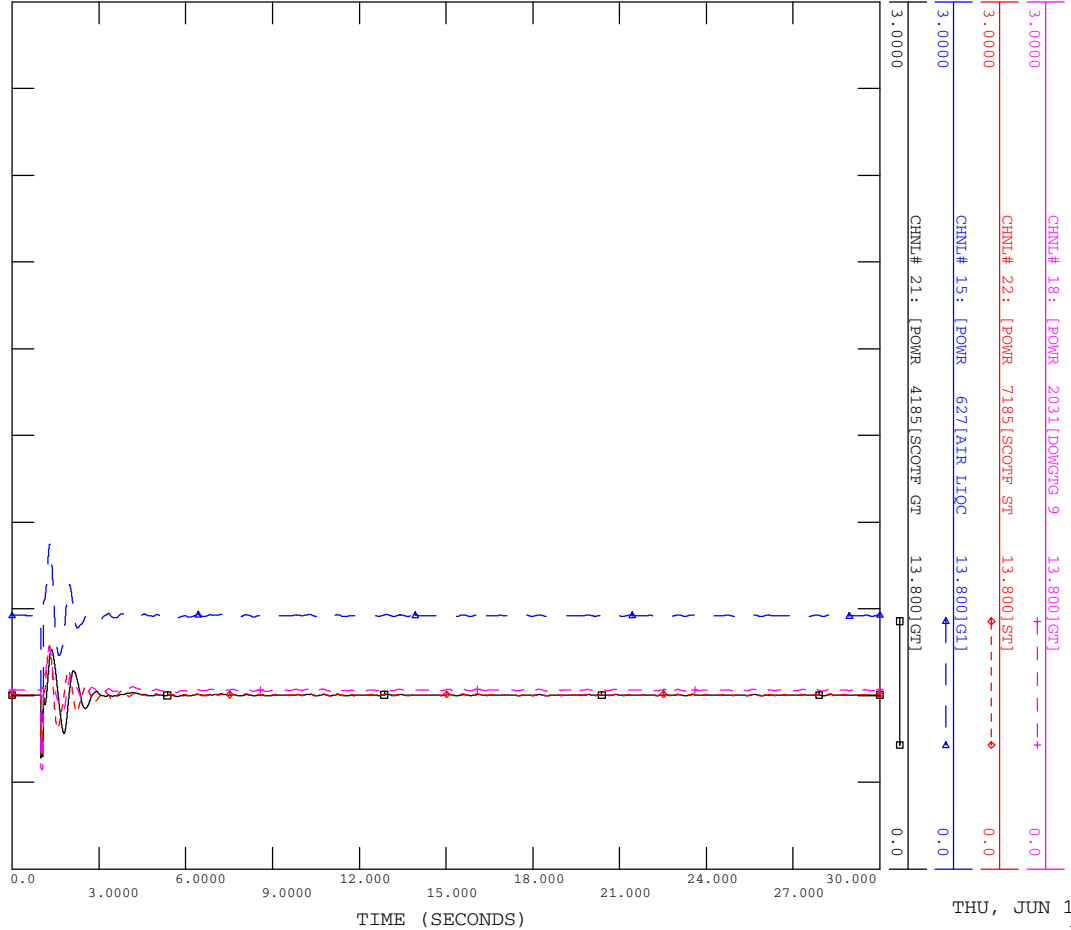


THU, JUN 19 2014 14:46  
FIG F2-11A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT

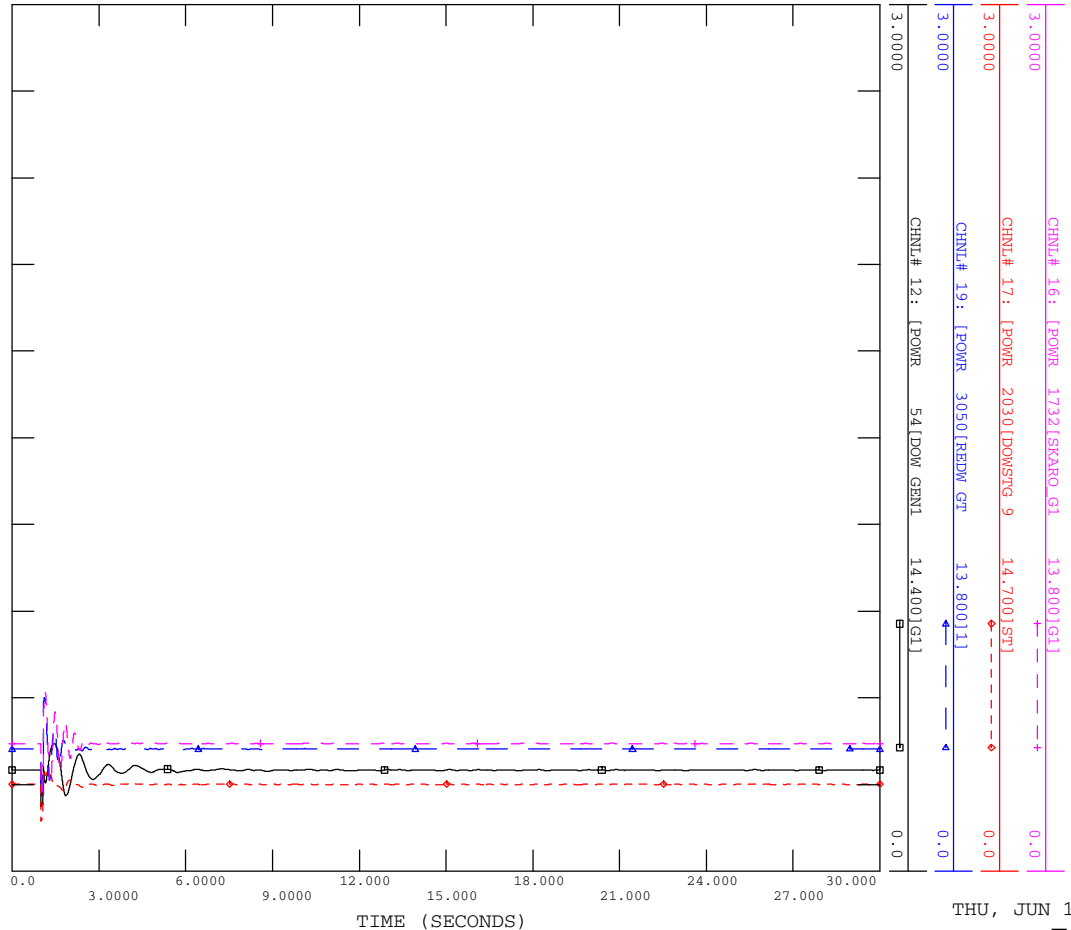


THU, JUN 19 2014 14:46  
FIG F2-12



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT



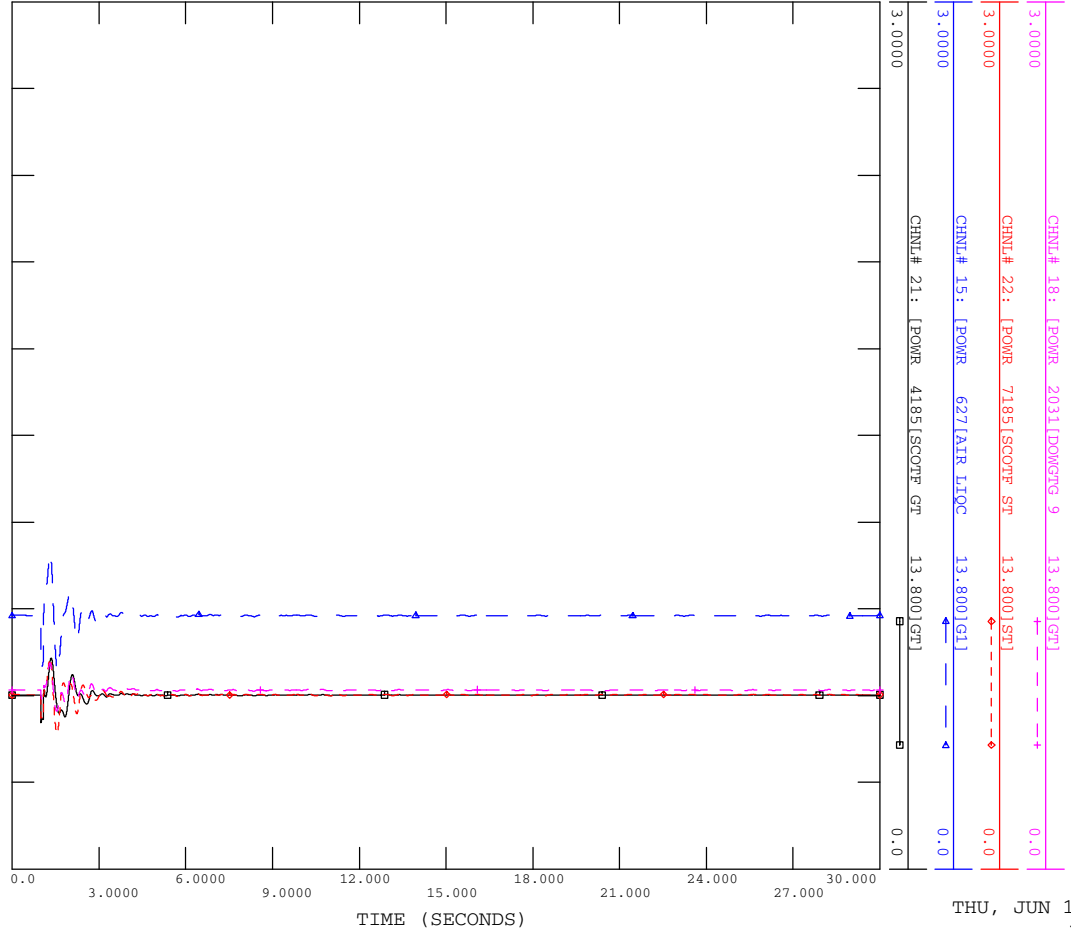
THU, JUN 19 2014 14:47  
FIG F2-12A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

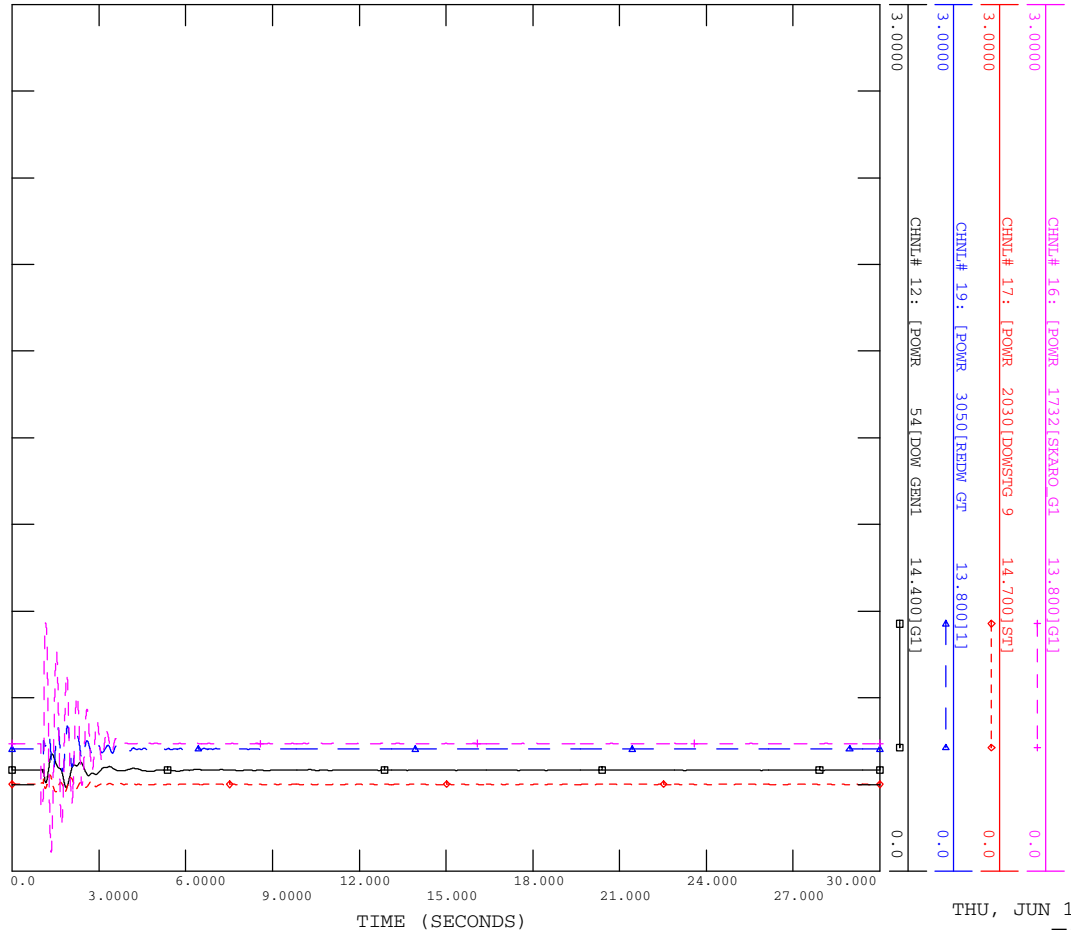


THU, JUN 19 2014 14:47  
FIG F2-13



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

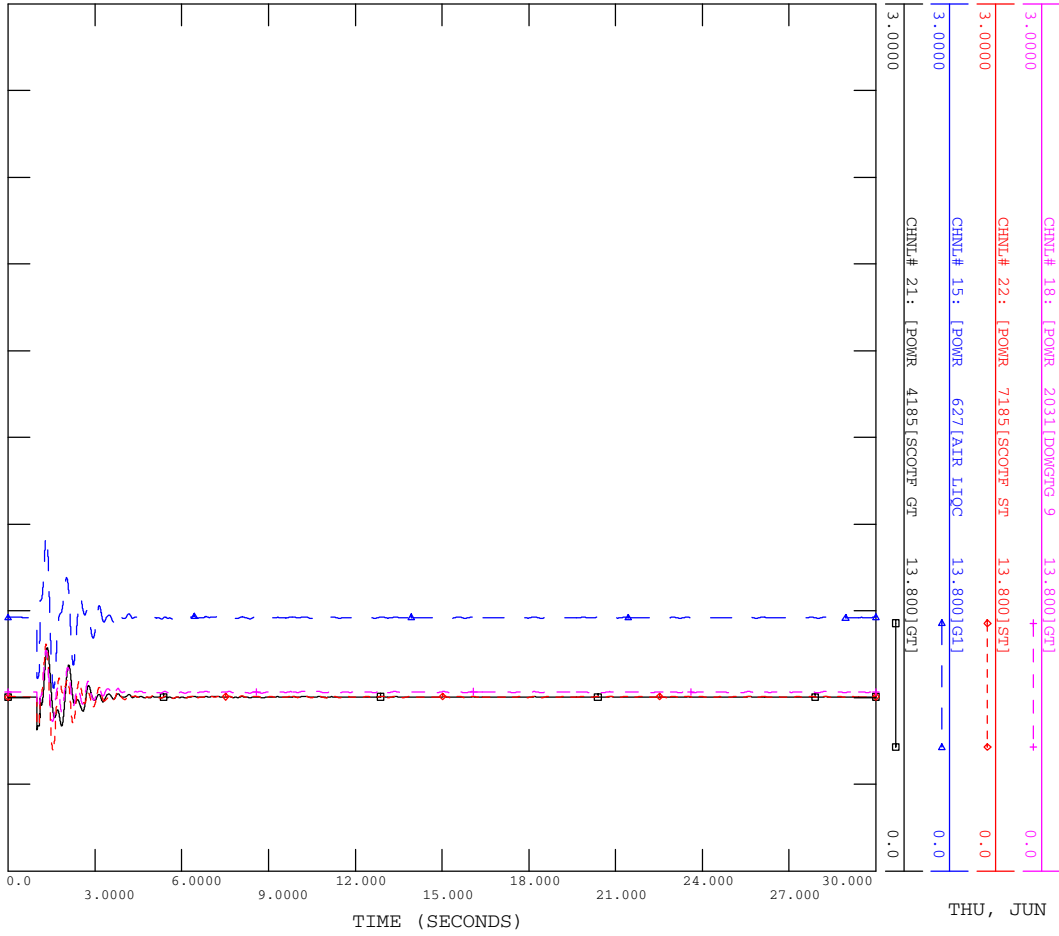


THU, JUN 19 2014 14:47  
FIG F2-13A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT



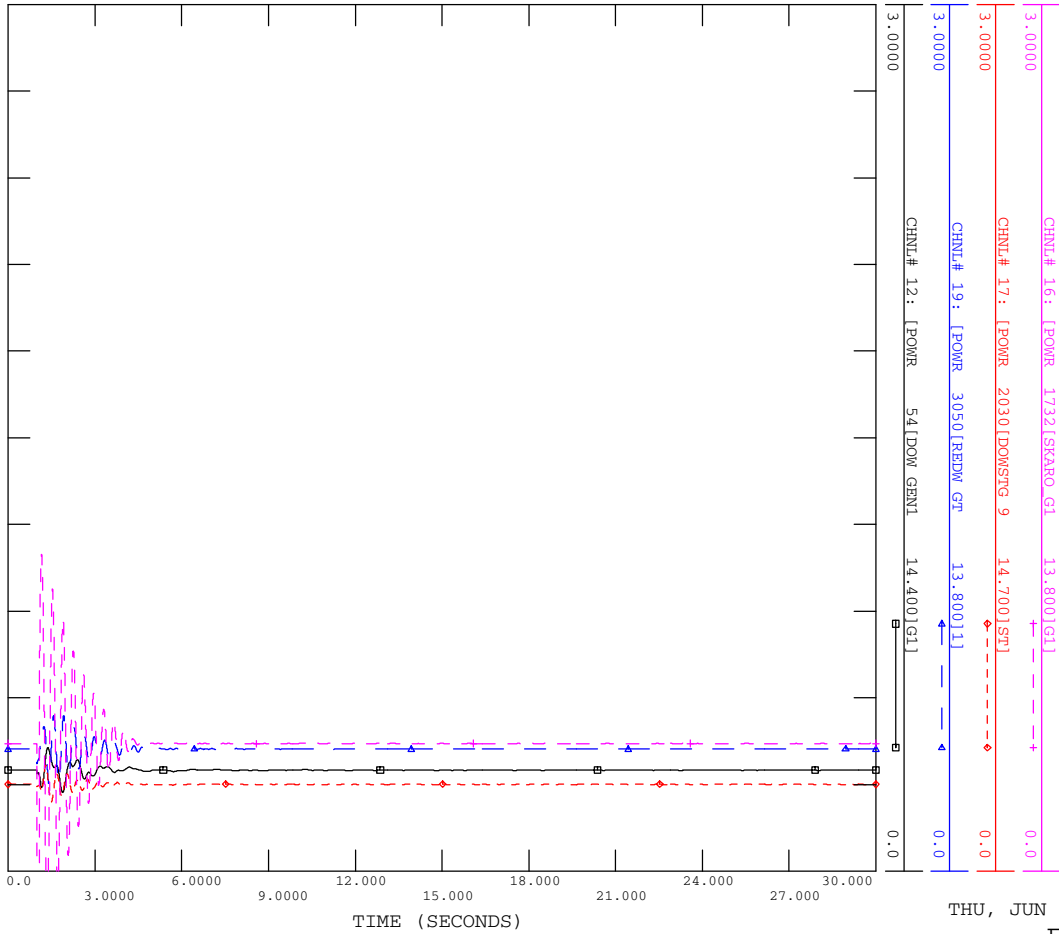
THU, JUN 19 2014 14:48

FIG F2-14



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT



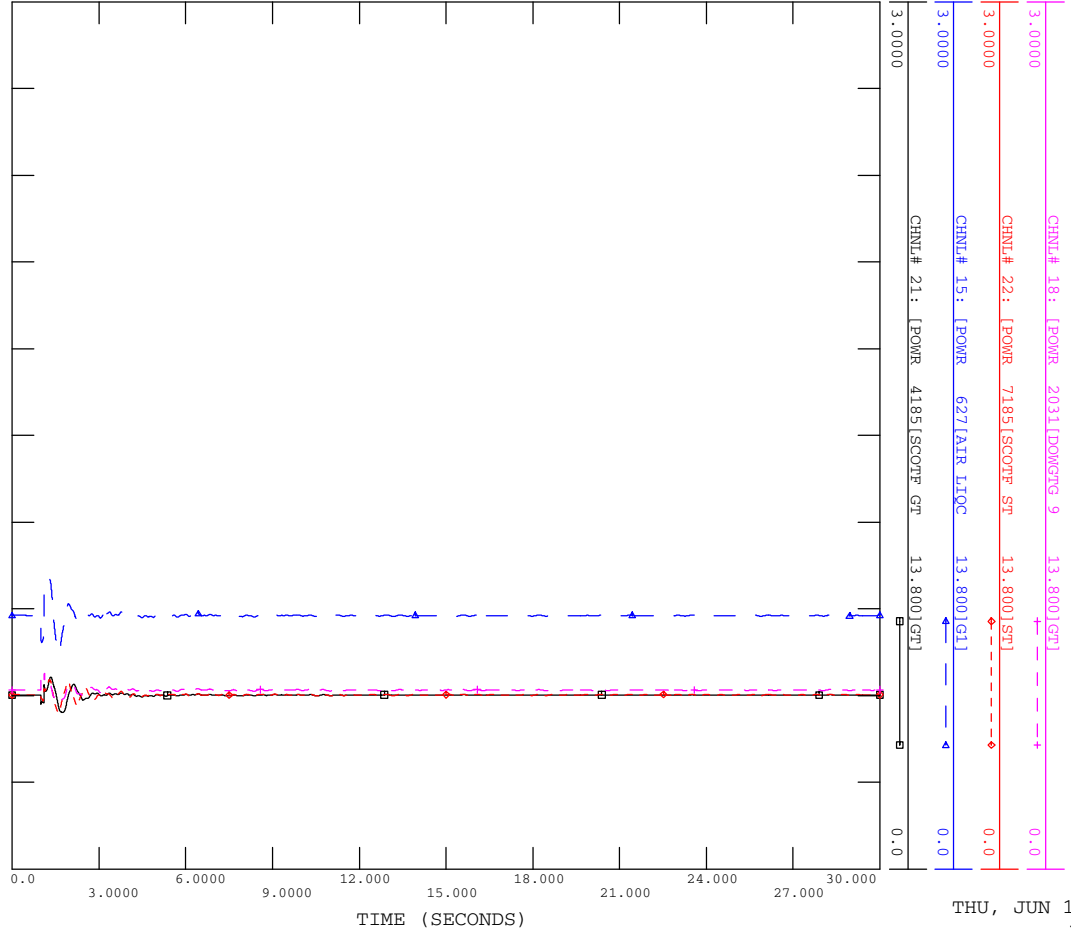
THU, JUN 19 2014 14:48

FIG F2-14A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT

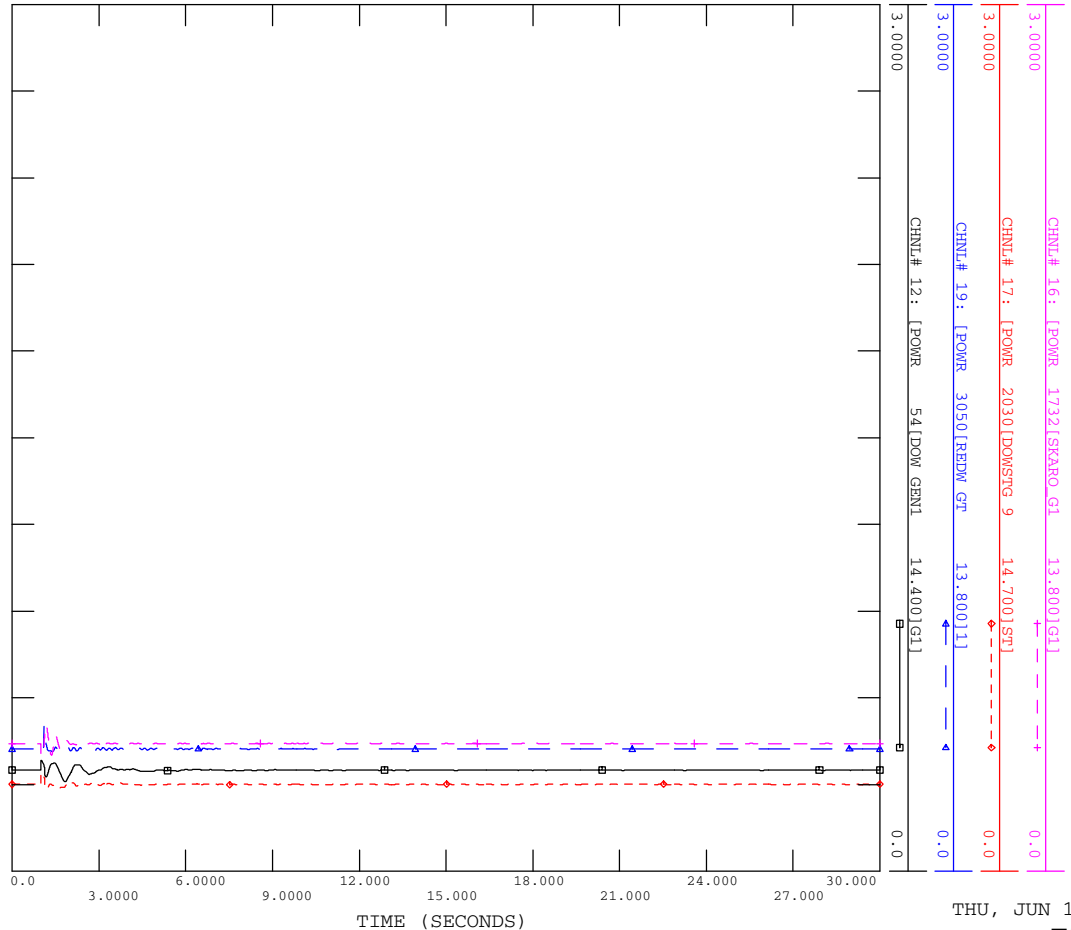


THU, JUN 19 2014 14:49  
 FIG F2-15



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT

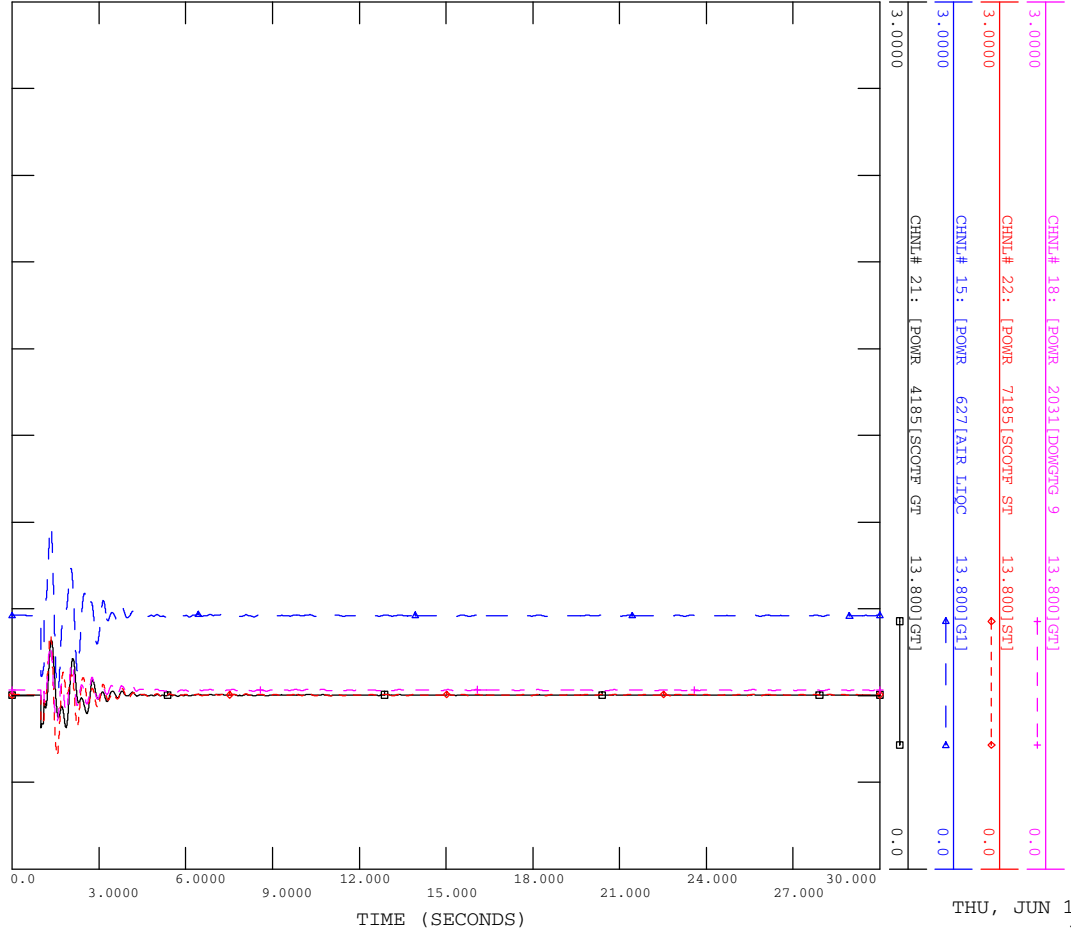


THU, JUN 19 2014 14:49  
 FIG F2-15A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

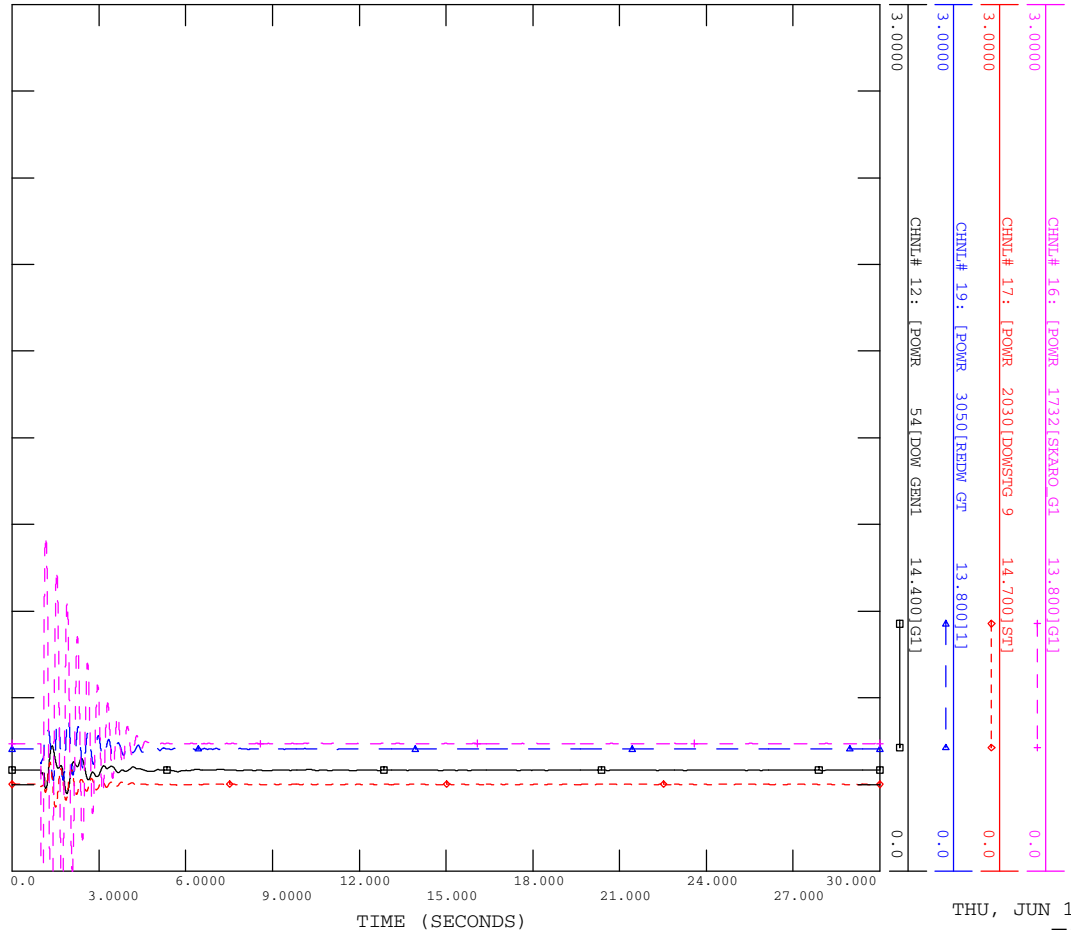


THU, JUN 19 2014 14:50  
FIG F2-16



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

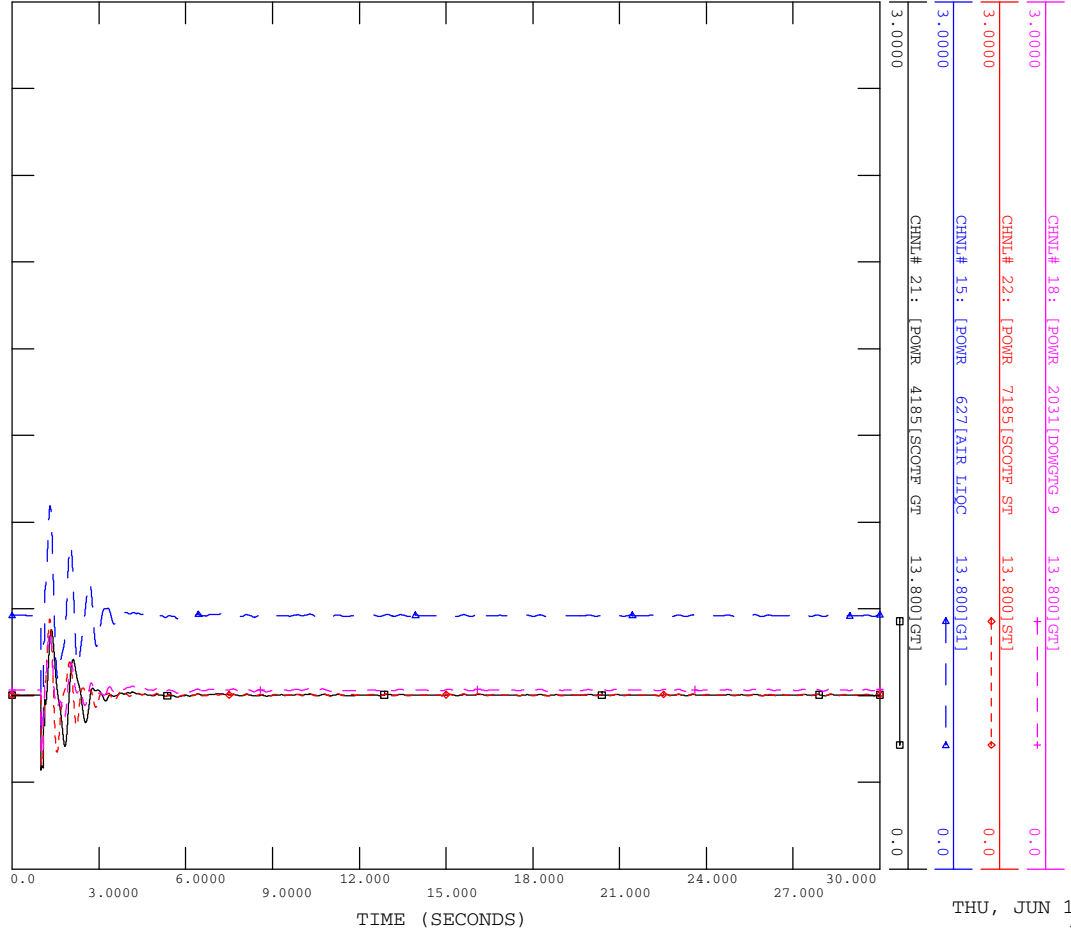


THU, JUN 19 2014 14:50  
FIG F2-16A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

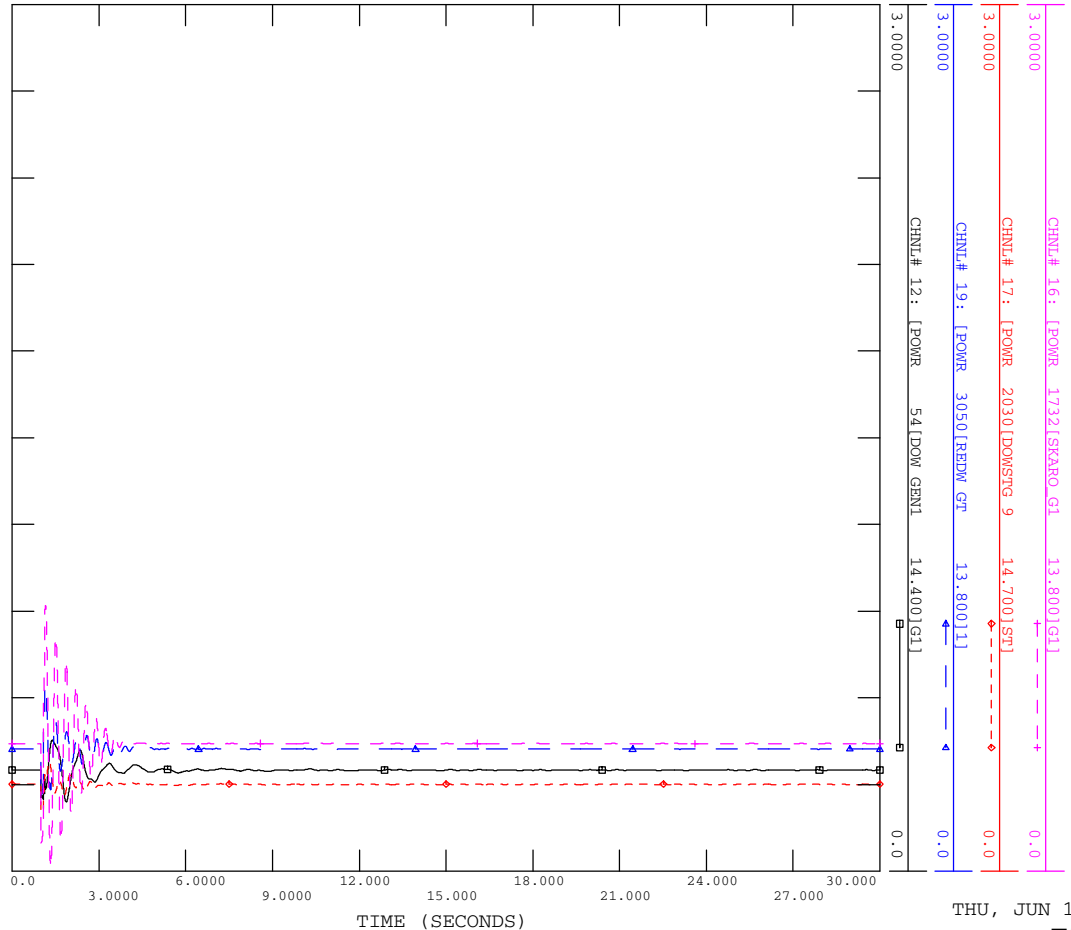


THU, JUN 19 2014 14:51  
 FIG F2-17



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

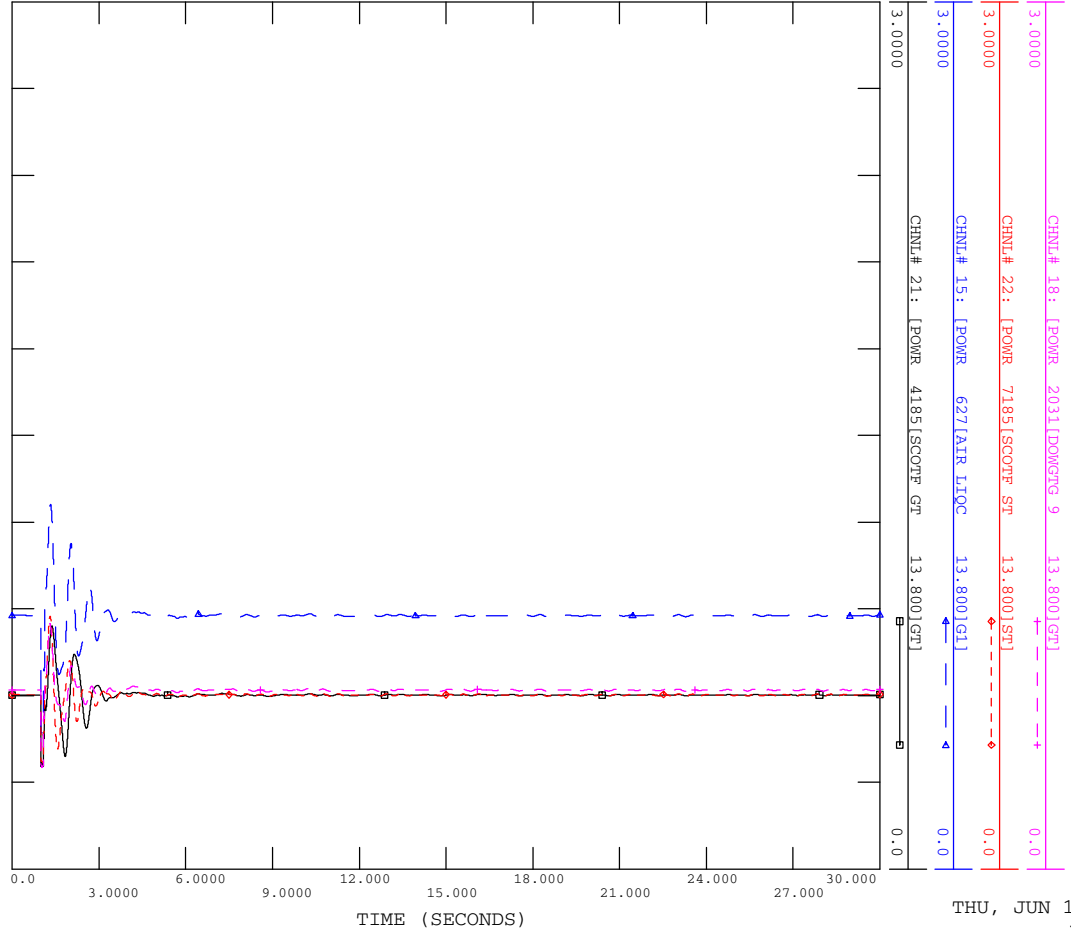


THU, JUN 19 2014 14:51  
 FIG F2-17A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

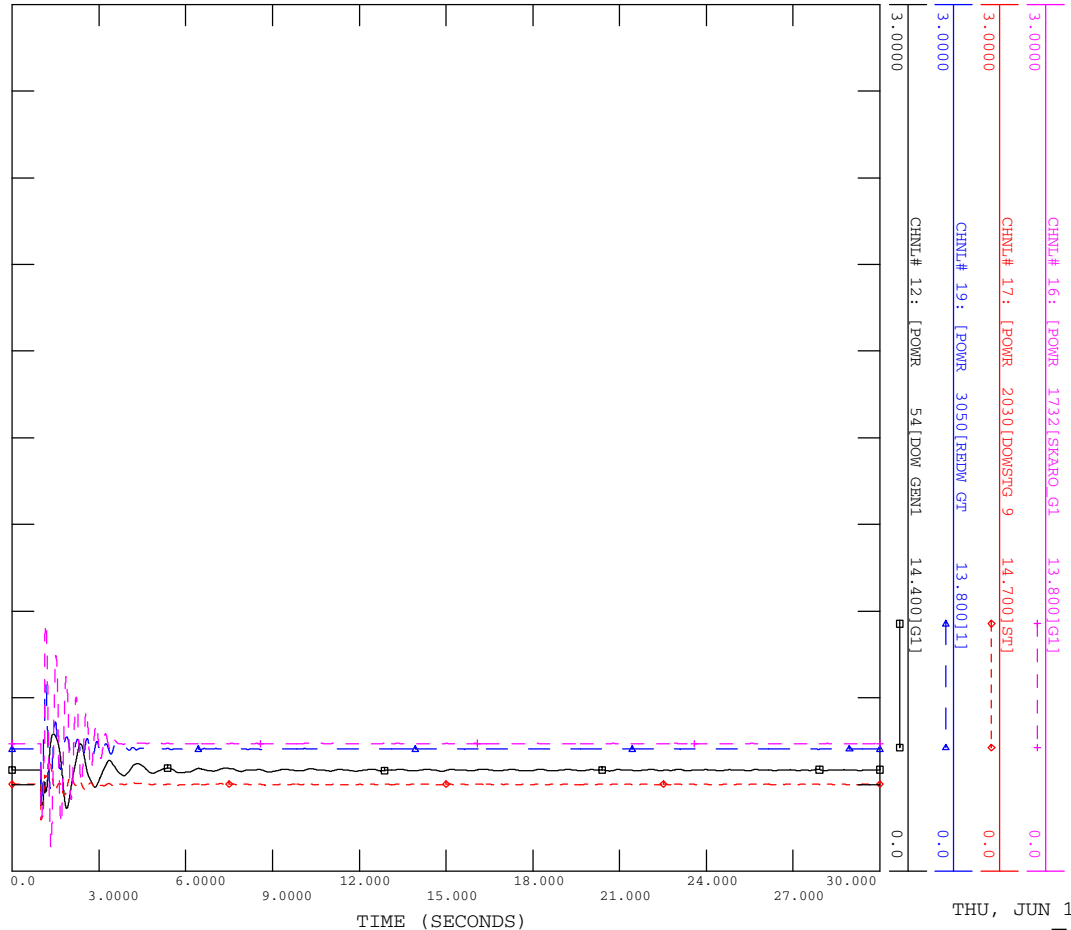


THU, JUN 19 2014 14:52  
FIG F2-18



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

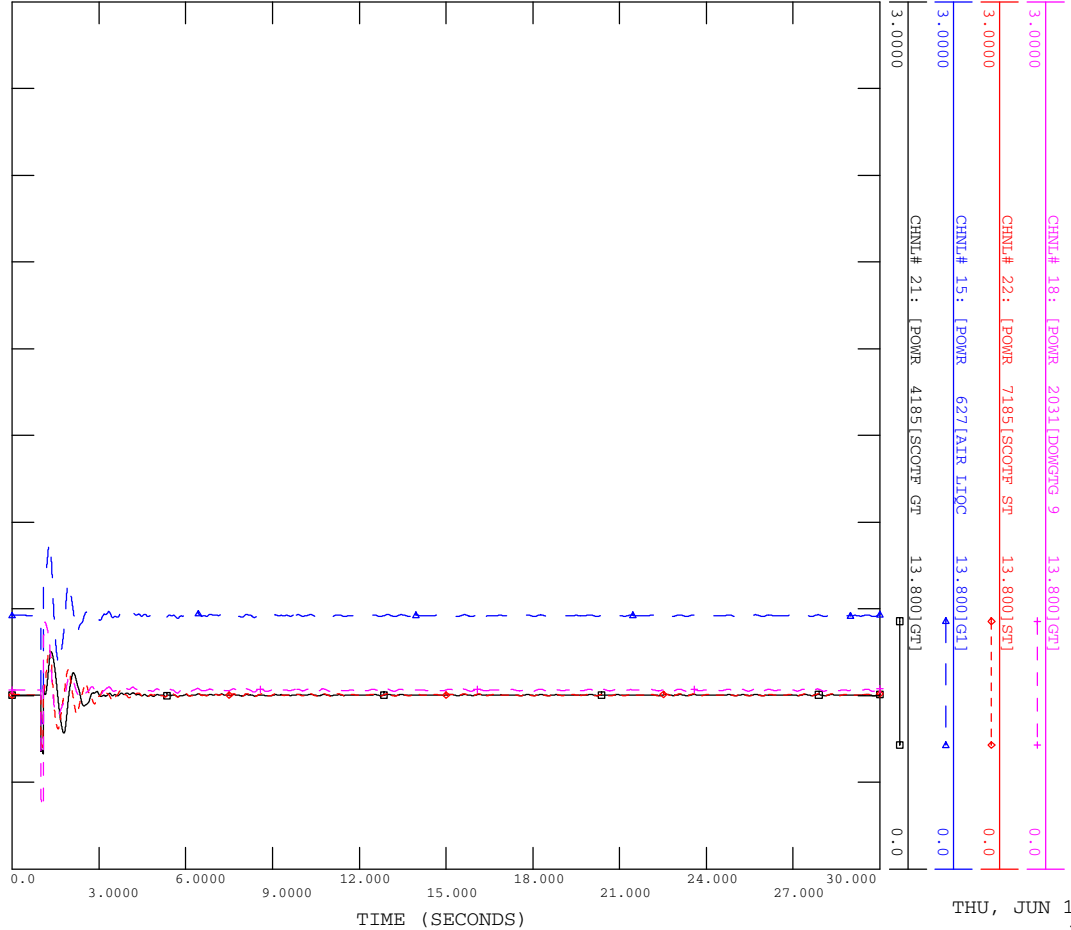


THU, JUN 19 2014 14:52  
FIG F2-18A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

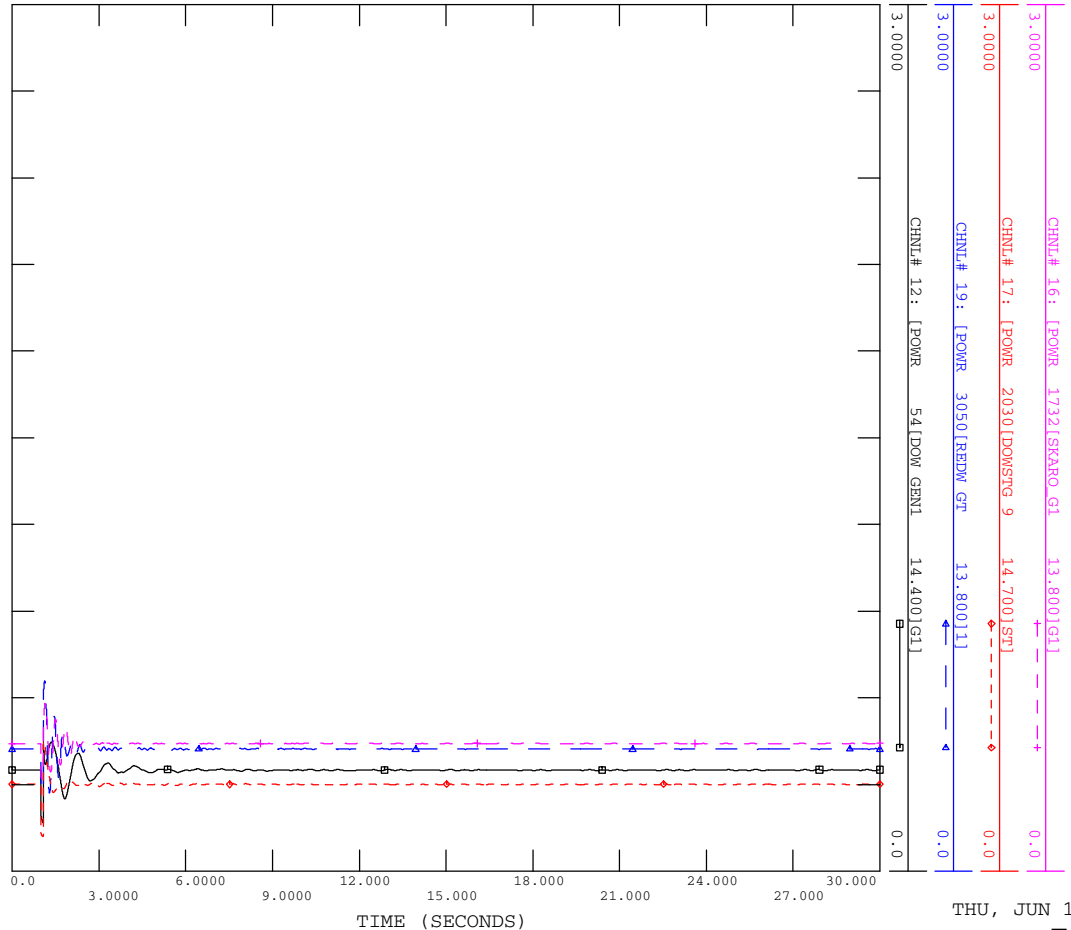


THU, JUN 19 2014 14:52  
FIG F2-19



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

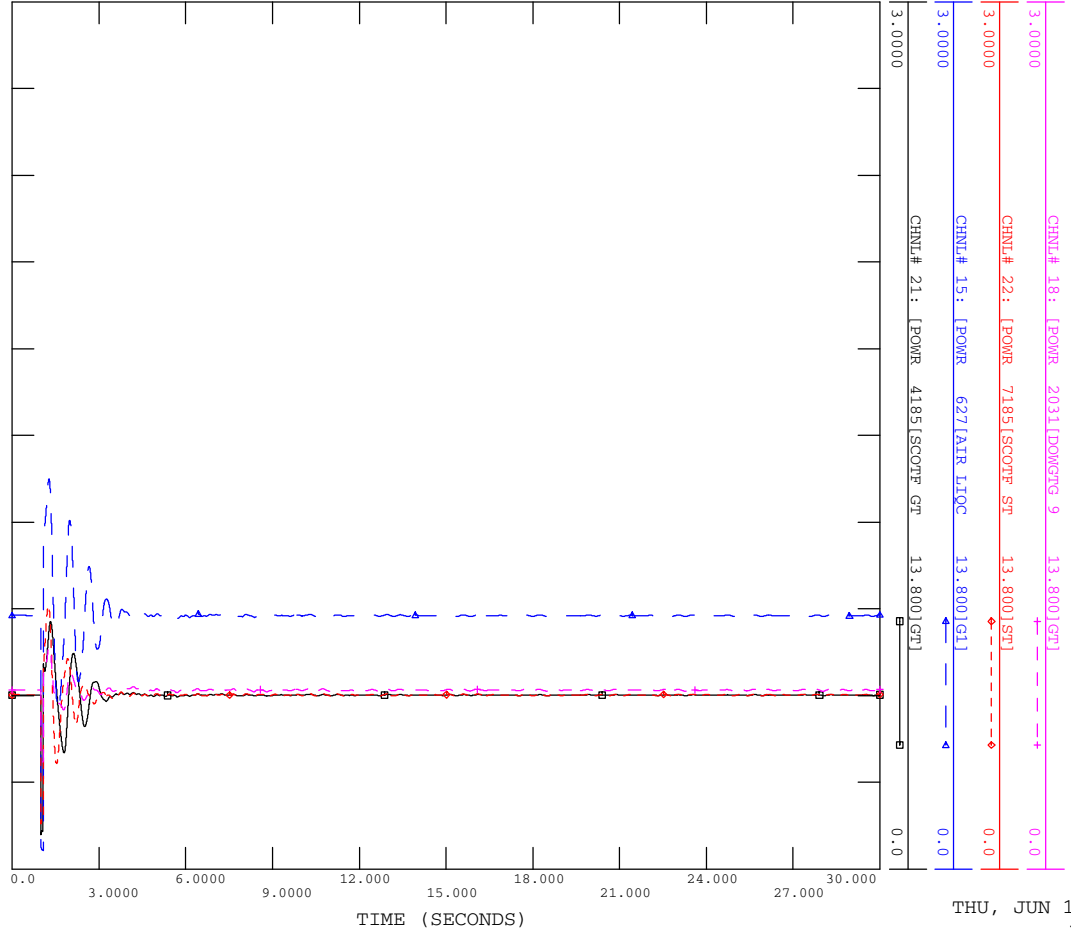


THU, JUN 19 2014 14:53  
FIG F2-19A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

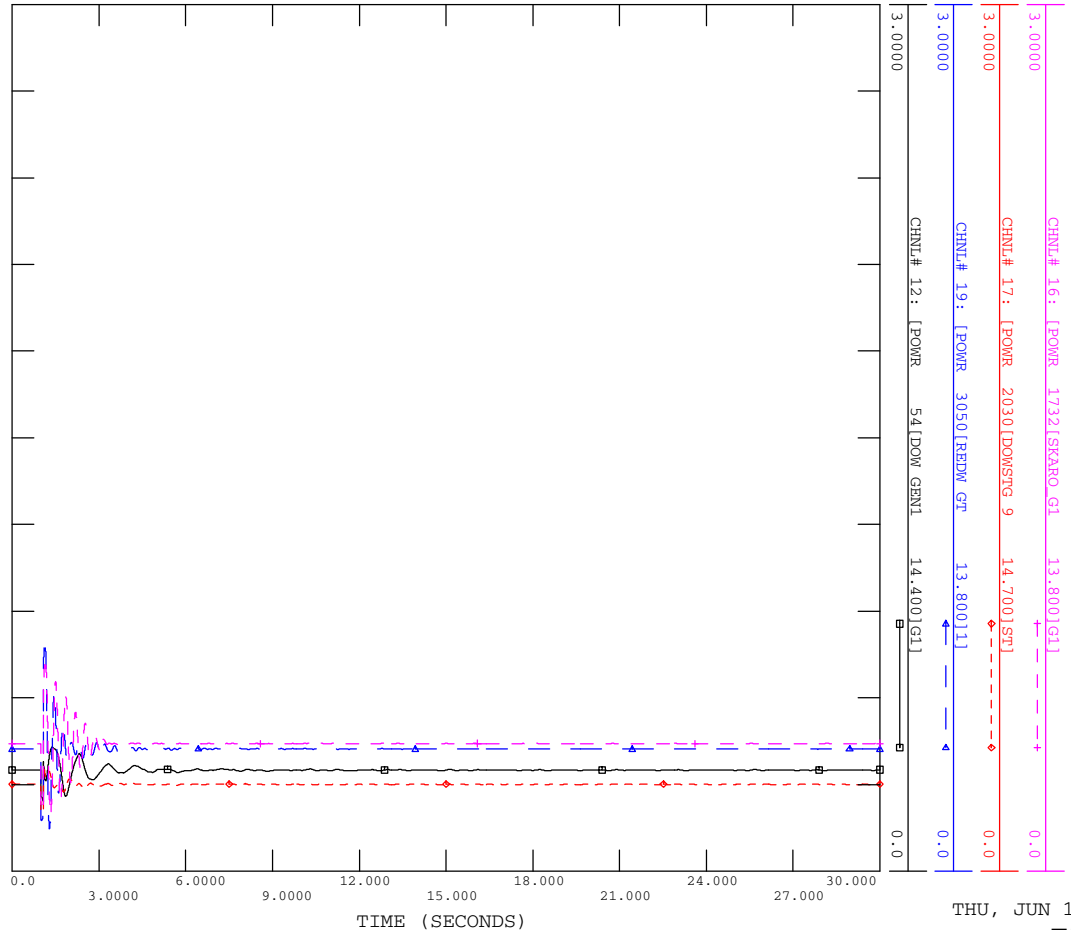


THU, JUN 19 2014 14:53  
FIG F2-20



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT



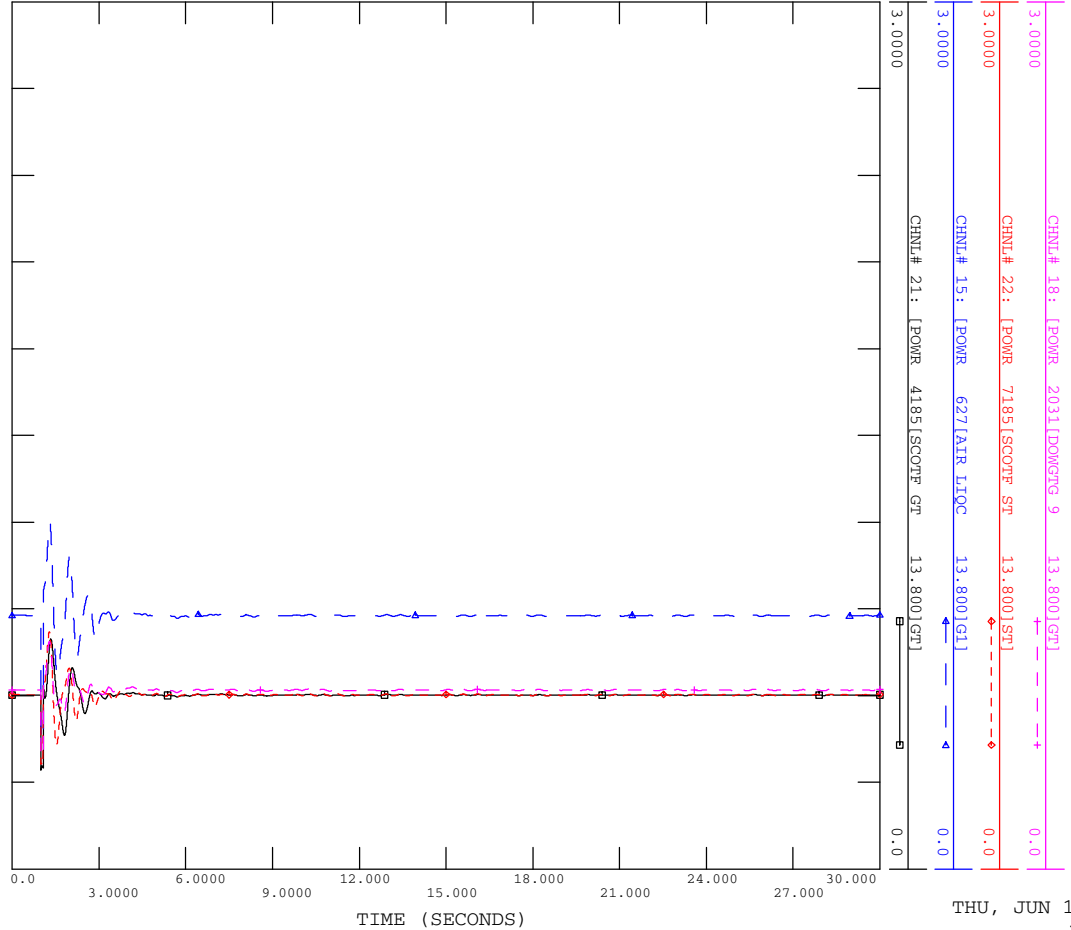
THU, JUN 19 2014 14:54  
FIG F2-20A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

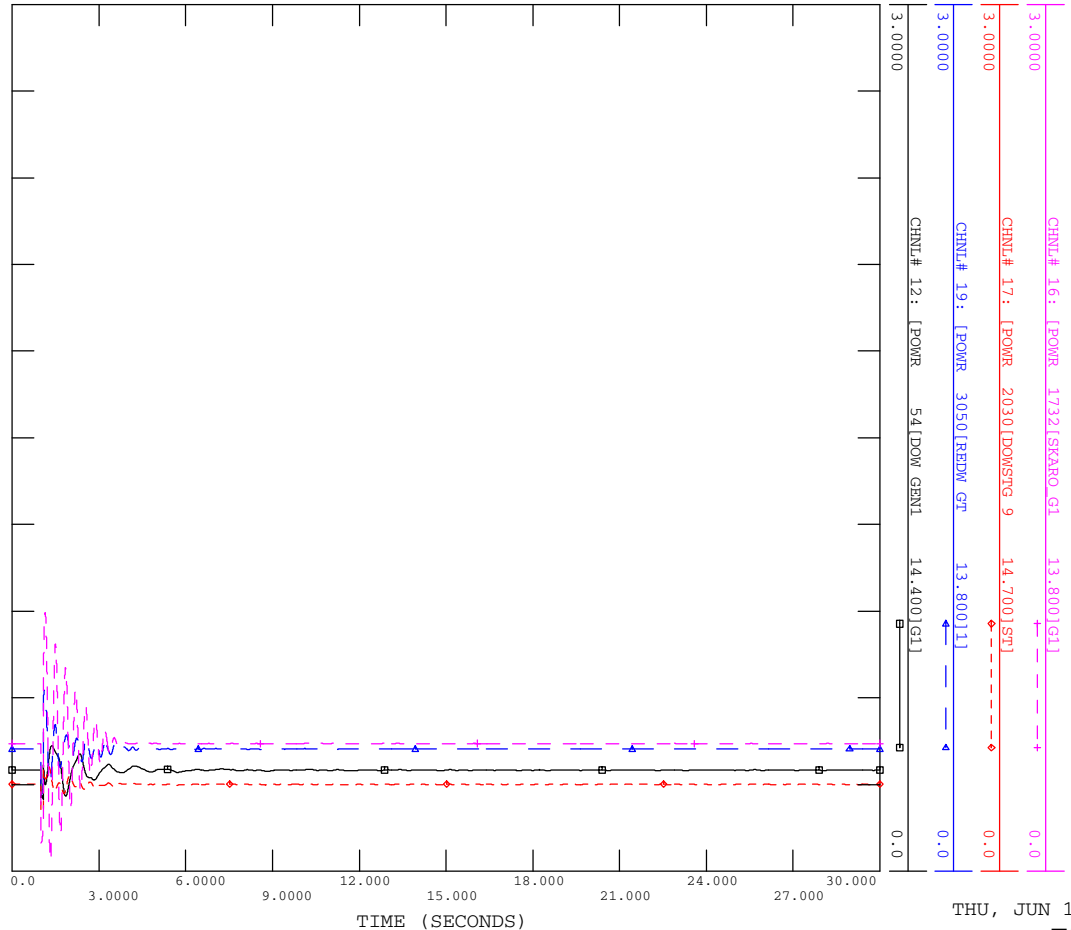


THU, JUN 19 2014 14:54  
 FIG F2-21



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

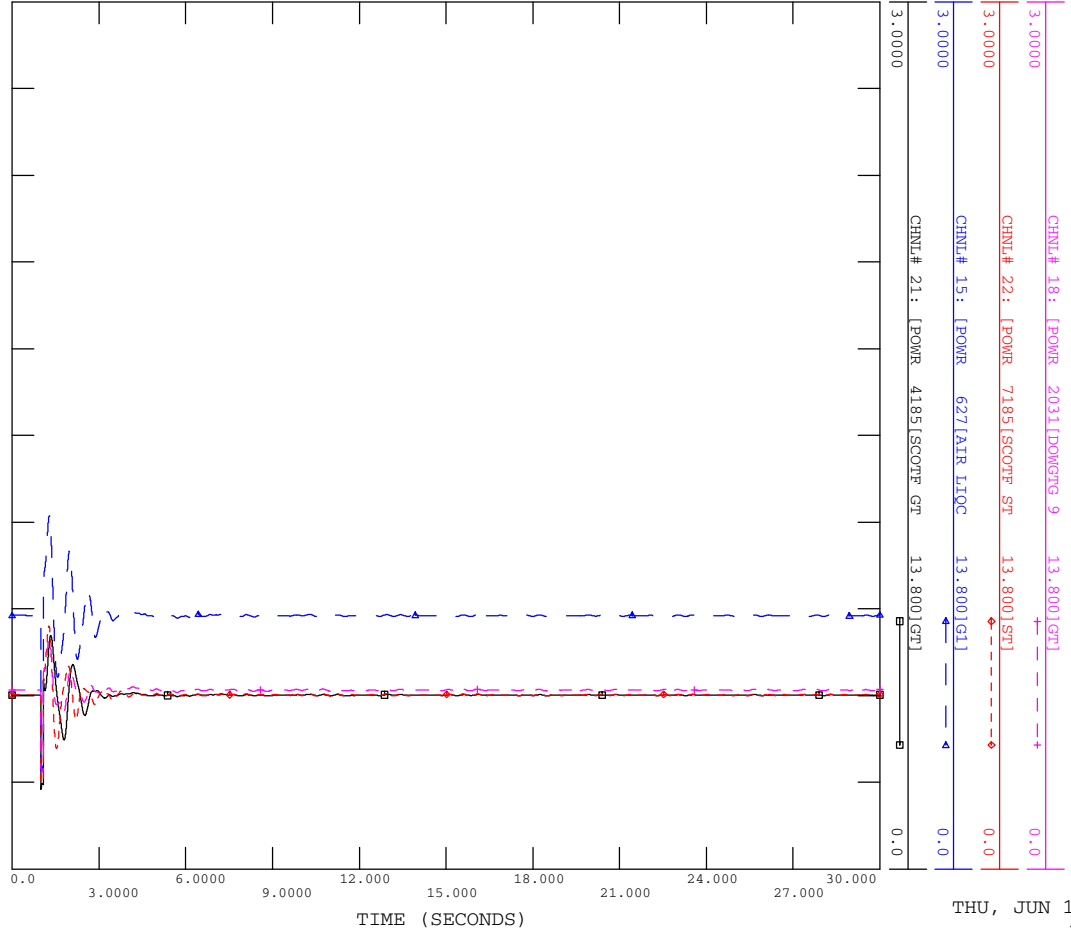


THU, JUN 19 2014 14:55  
 FIG F2-21A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

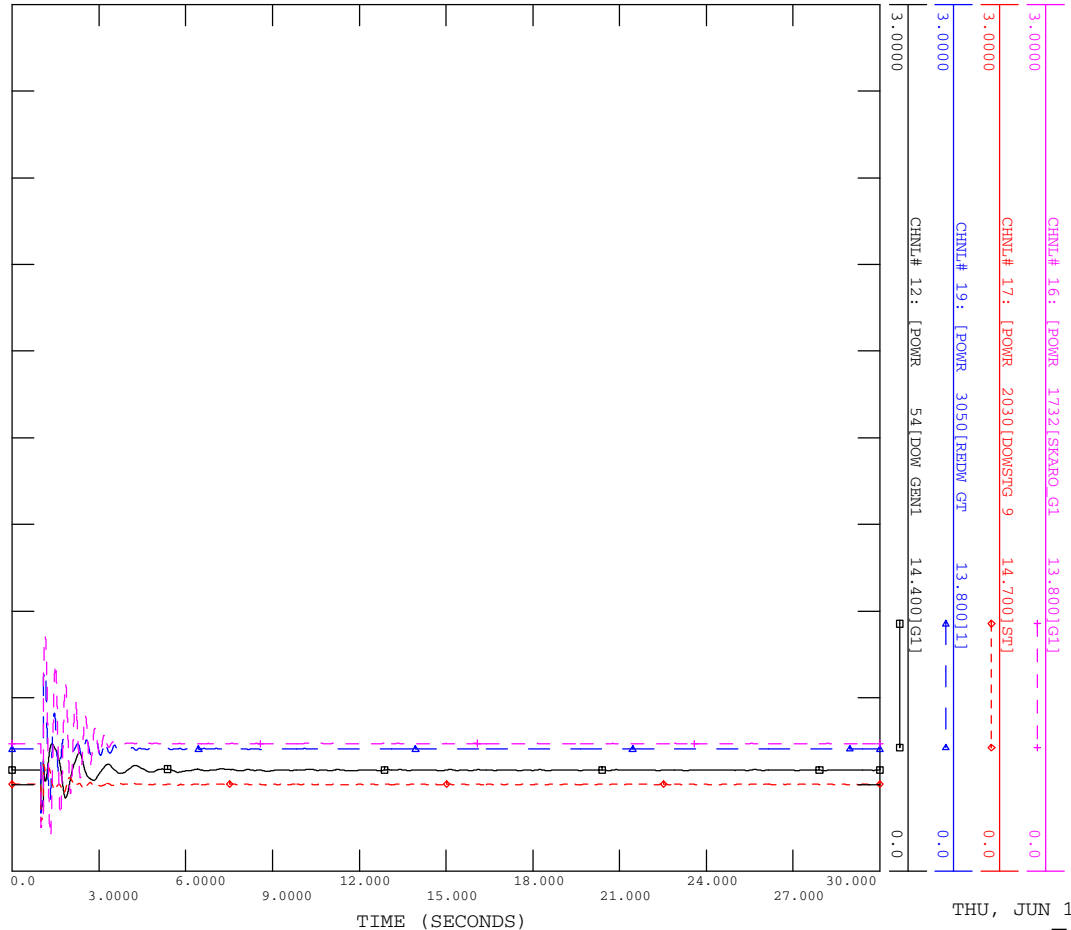


THU, JUN 19 2014 14:55  
 FIG F2-22



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

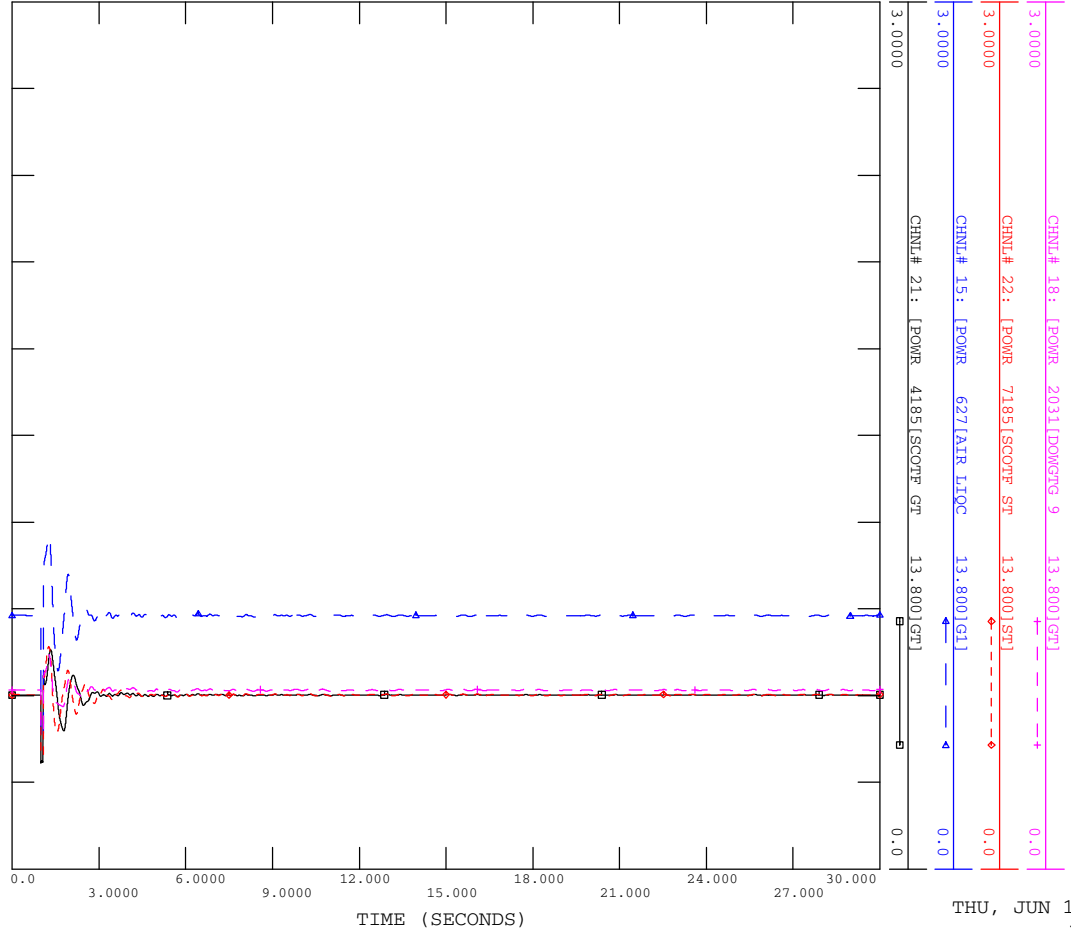


THU, JUN 19 2014 14:56  
 FIG F2-22A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

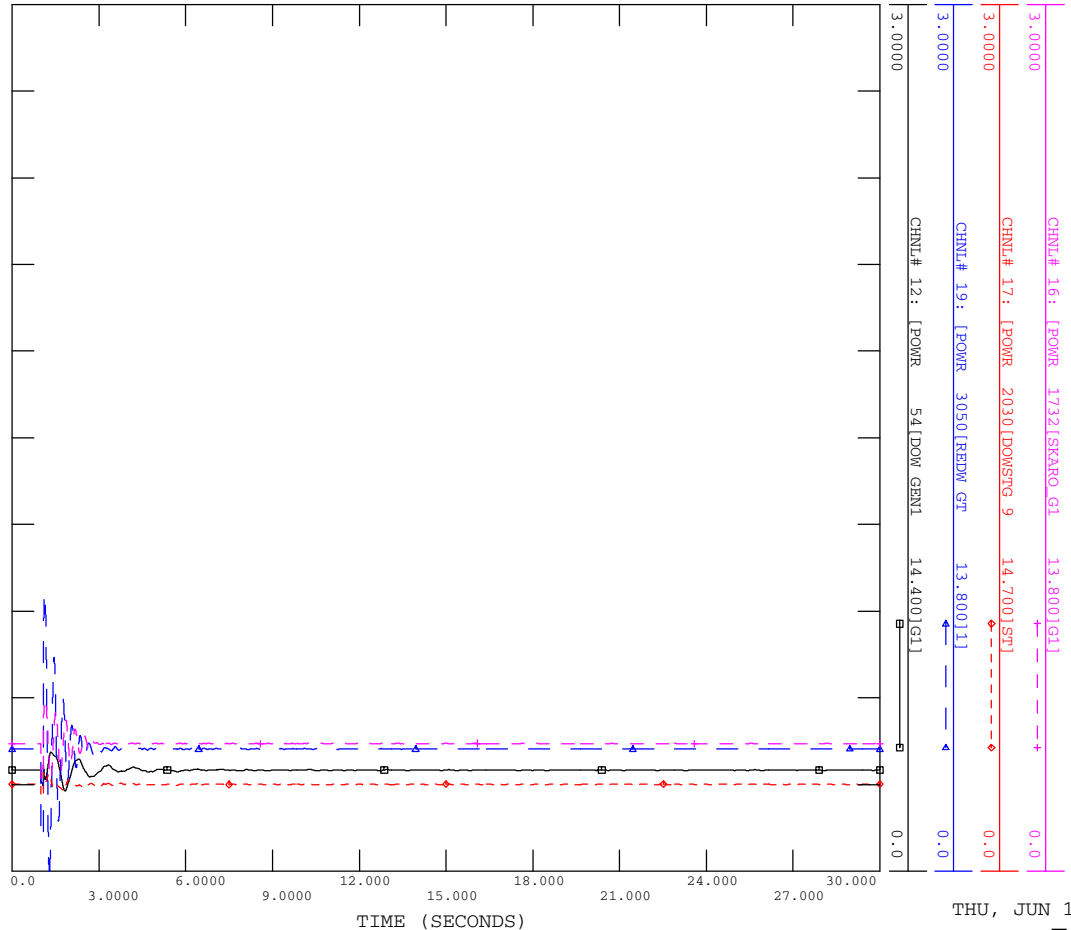


THU, JUN 19 2014 14:56  
 FIG F2-23



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

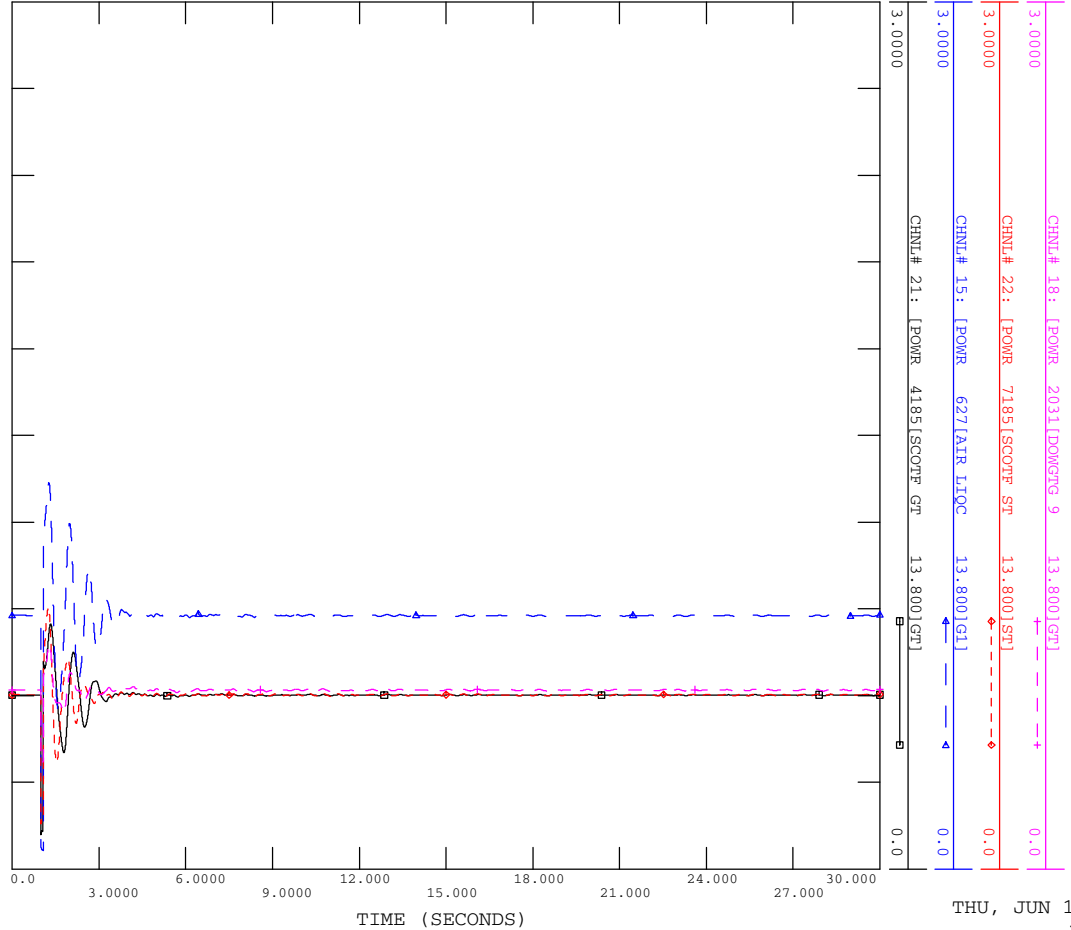


THU, JUN 19 2014 14:57  
 FIG F2-23A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

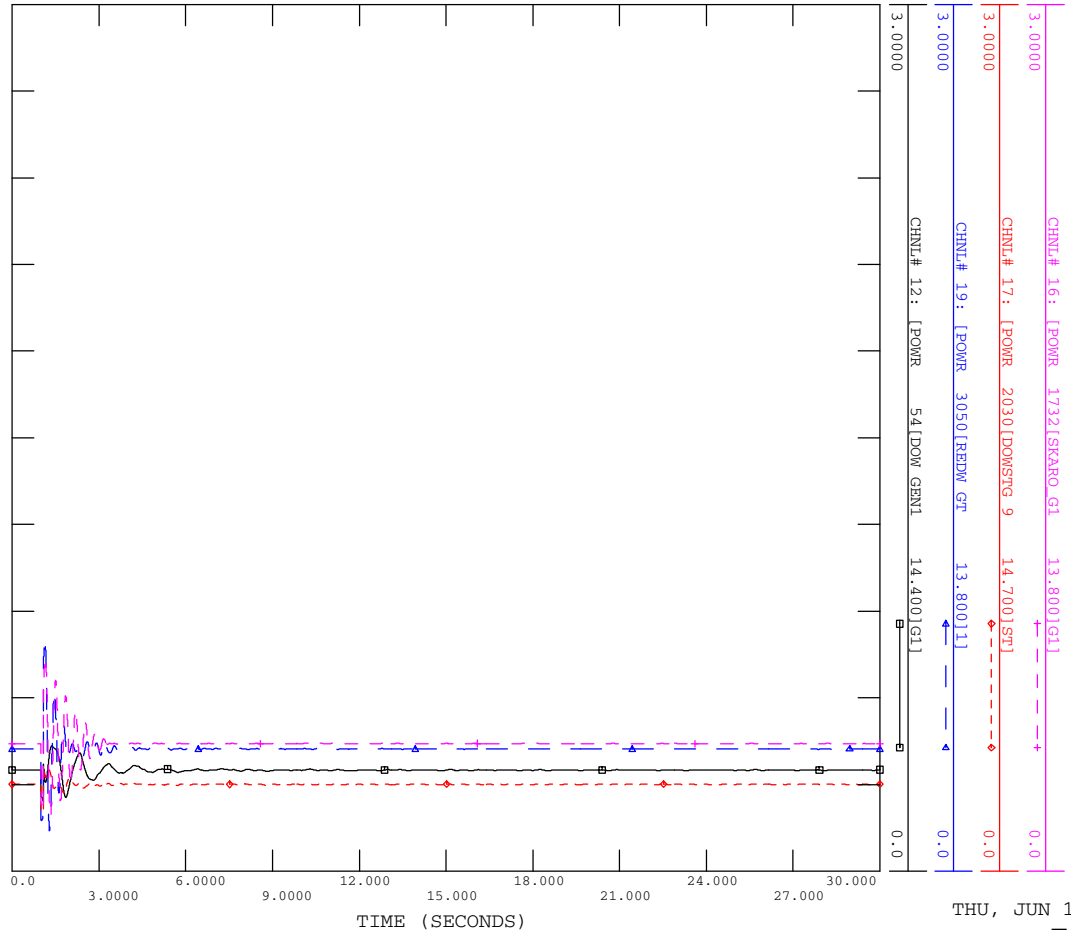


THU, JUN 19 2014 14:57  
FIG F2-24



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

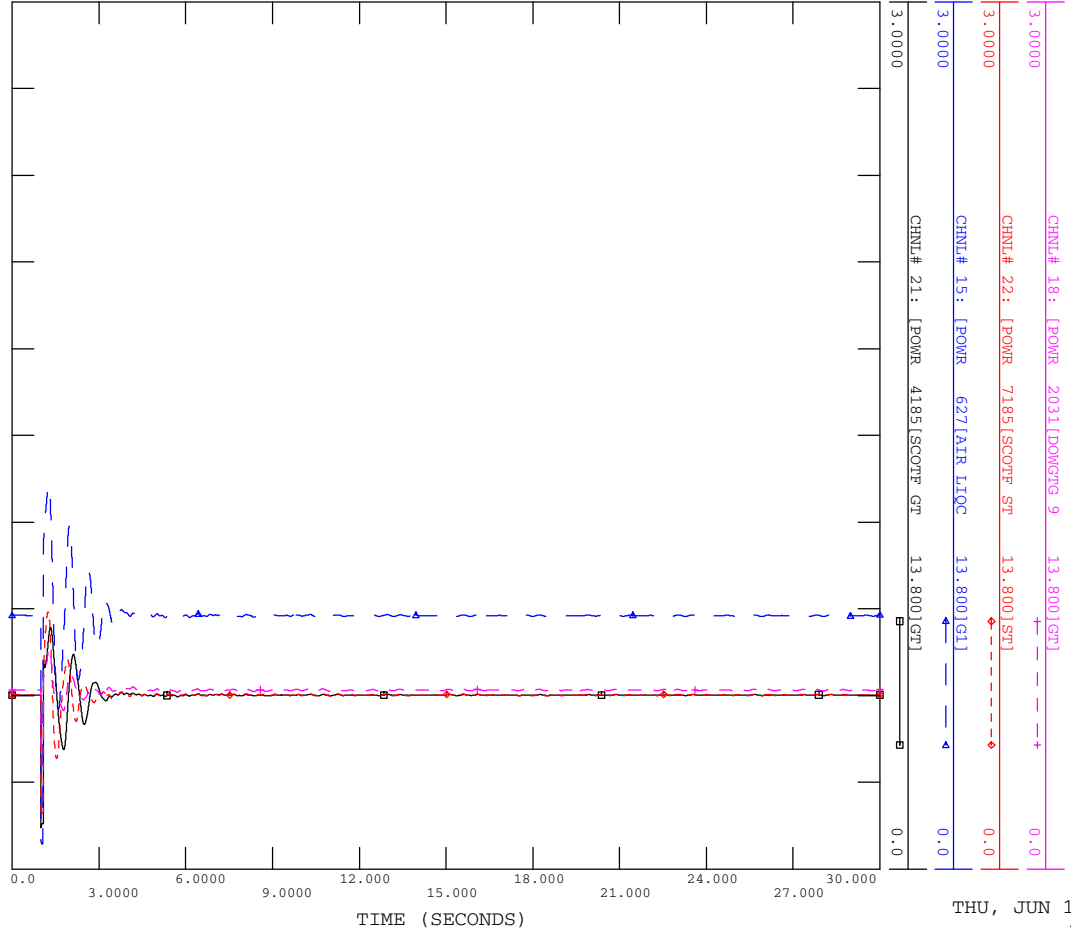


THU, JUN 19 2014 14:57  
FIG F2-24A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

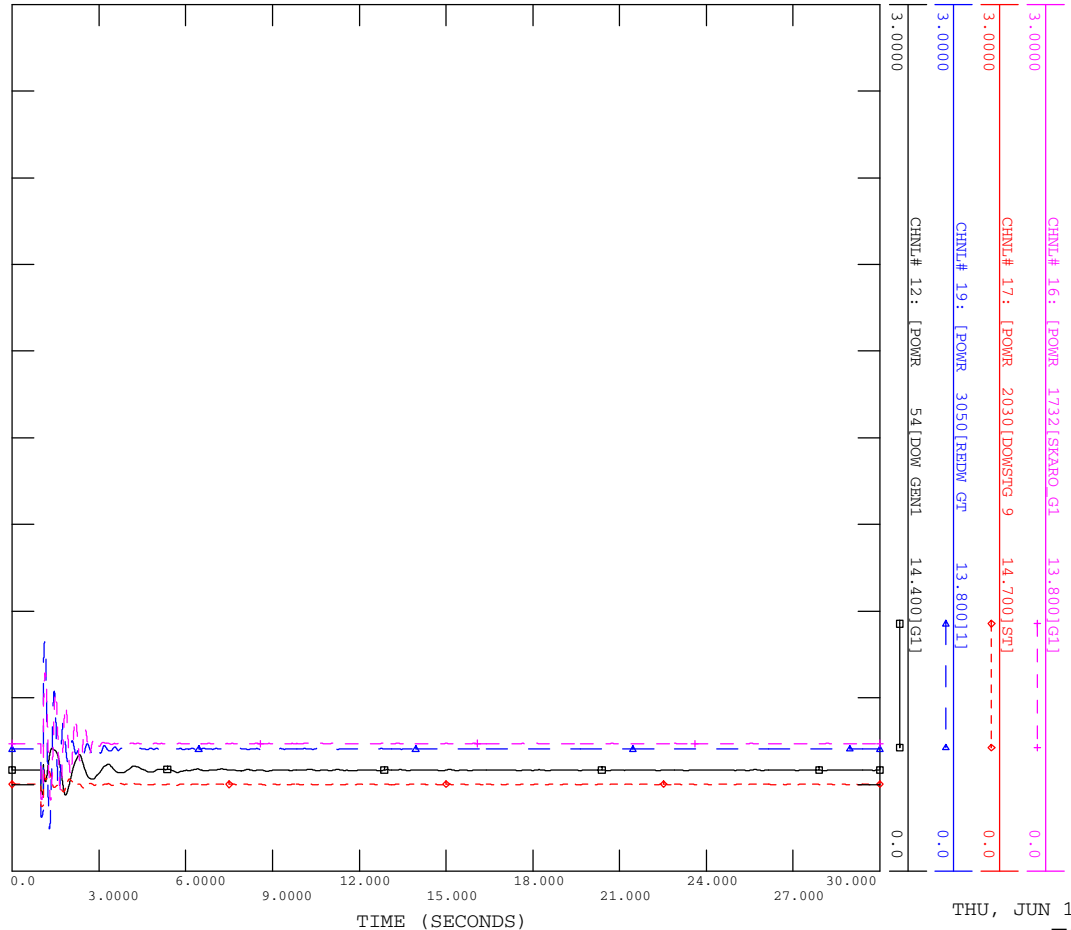


THU, JUN 19 2014 14:58  
FIG F2-25



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

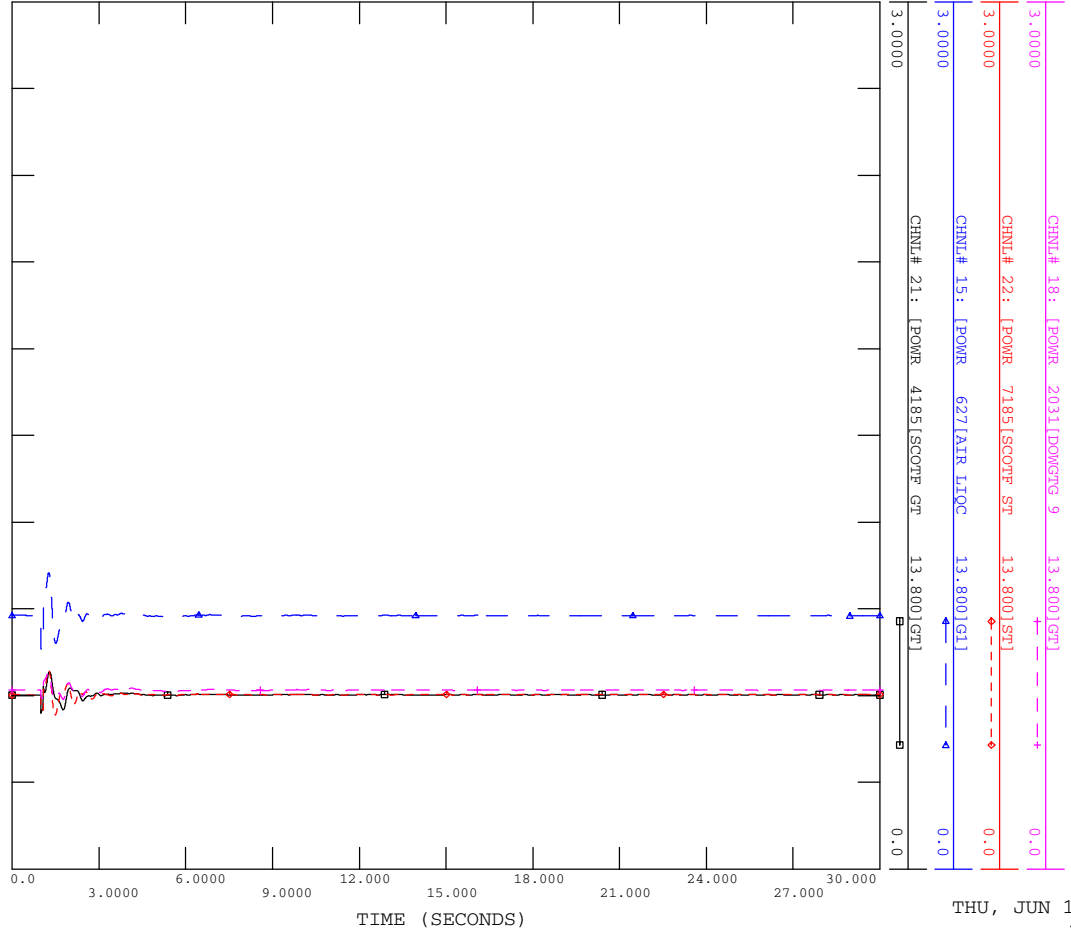


THU, JUN 19 2014 14:58  
FIG F2-25A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT

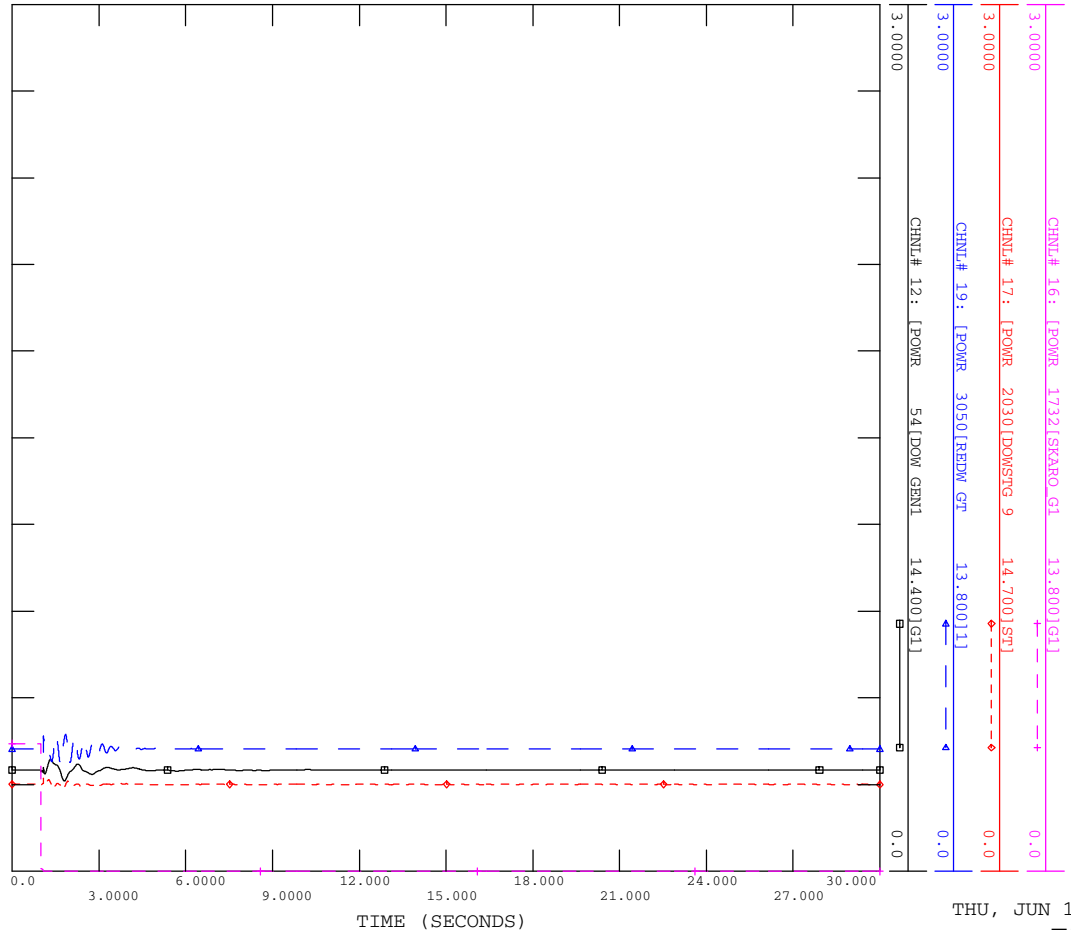


THU, JUN 19 2014 14:59  
 FIG F2-26



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT

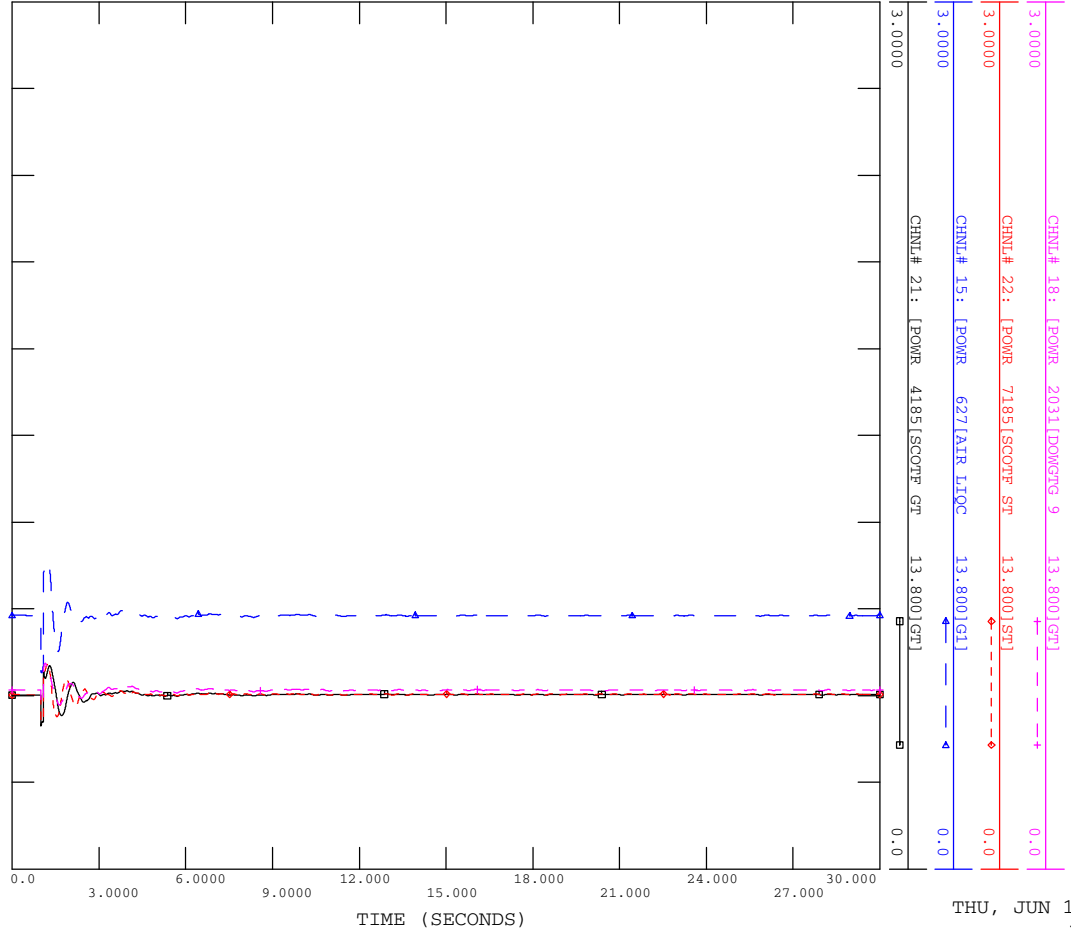


THU, JUN 19 2014 14:59  
 FIG F2-26A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

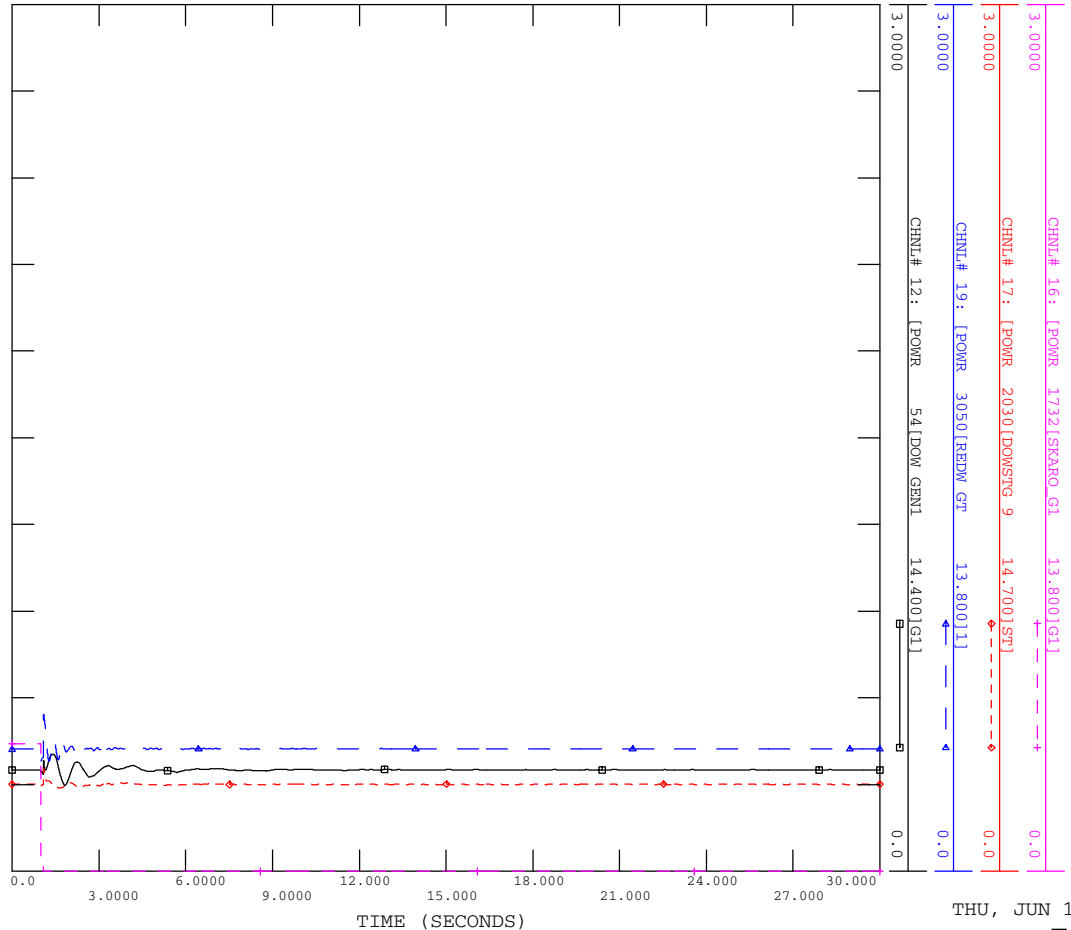


THU, JUN 19 2014 15:00  
 FIG F2-27



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

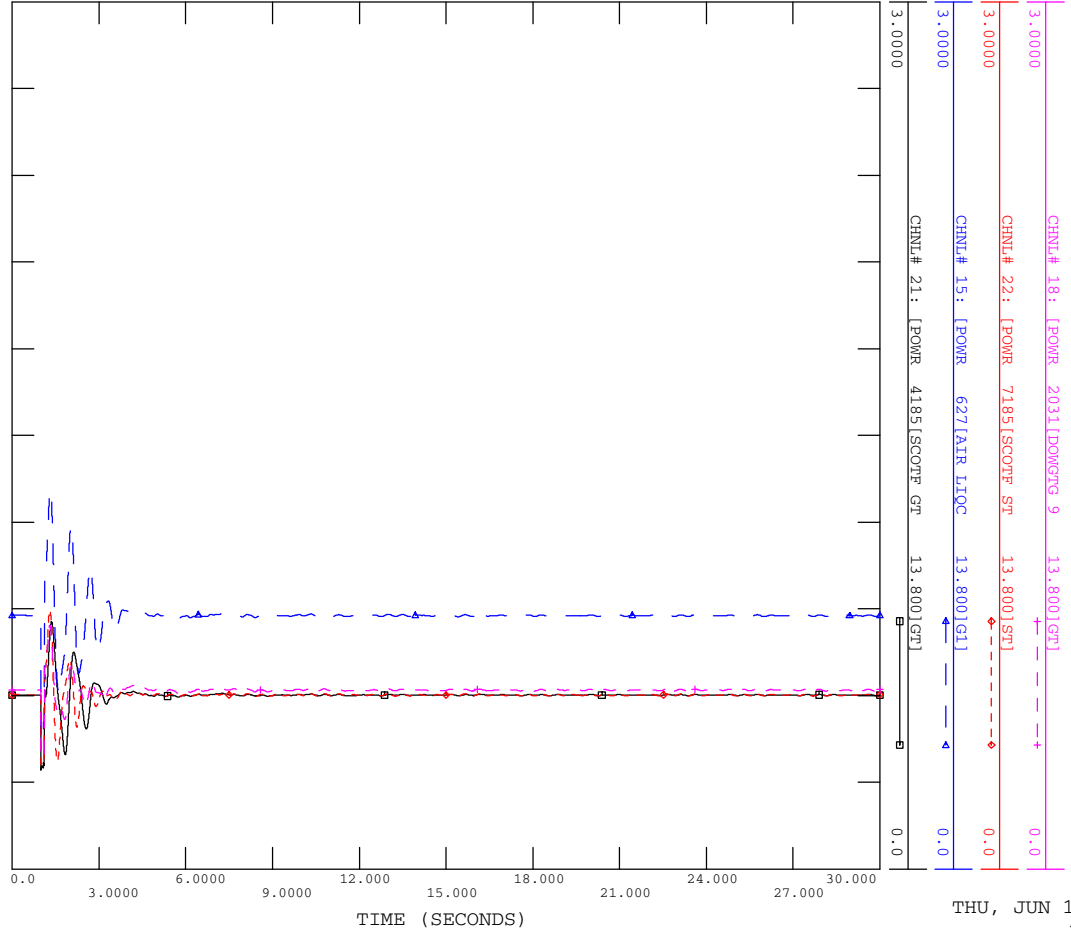


THU, JUN 19 2014 15:00  
 FIG F2-27A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT

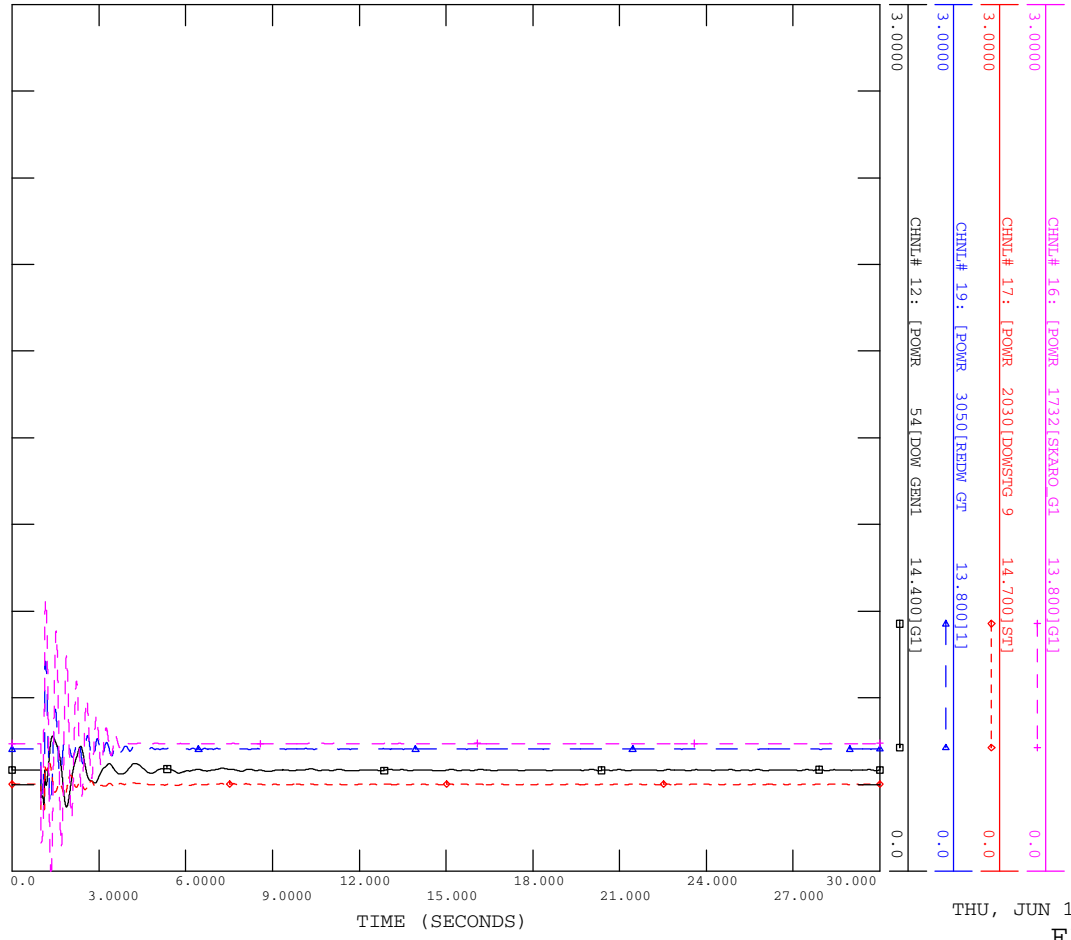


THU, JUN 19 2014 15:01  
FIG F2-28



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT



THU, JUN 19 2014 15:01  
FIG F2-28A



## **Attachment F-3**

### **Scenario 6**

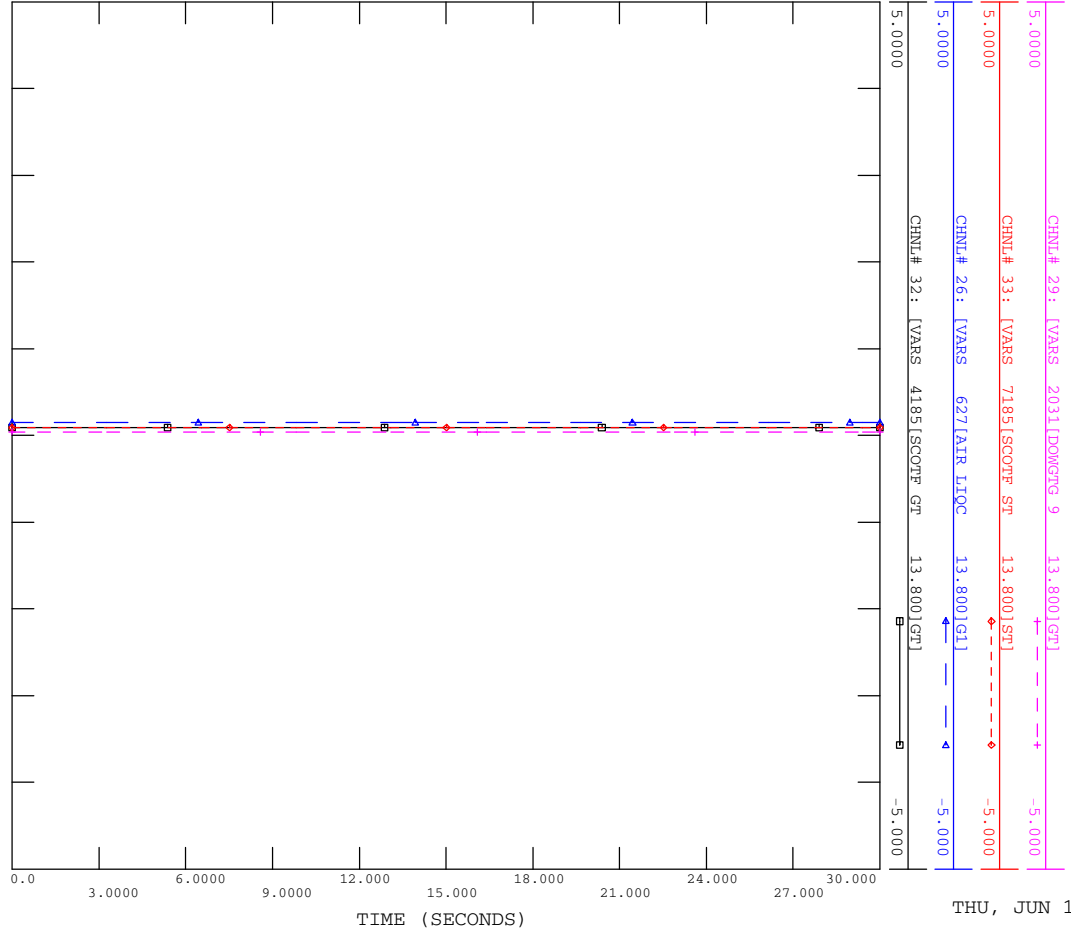
### **Transient Stability Plots**

### **Machine Reactive Power**



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP A - FLAT START

FILE: CON0.OUT

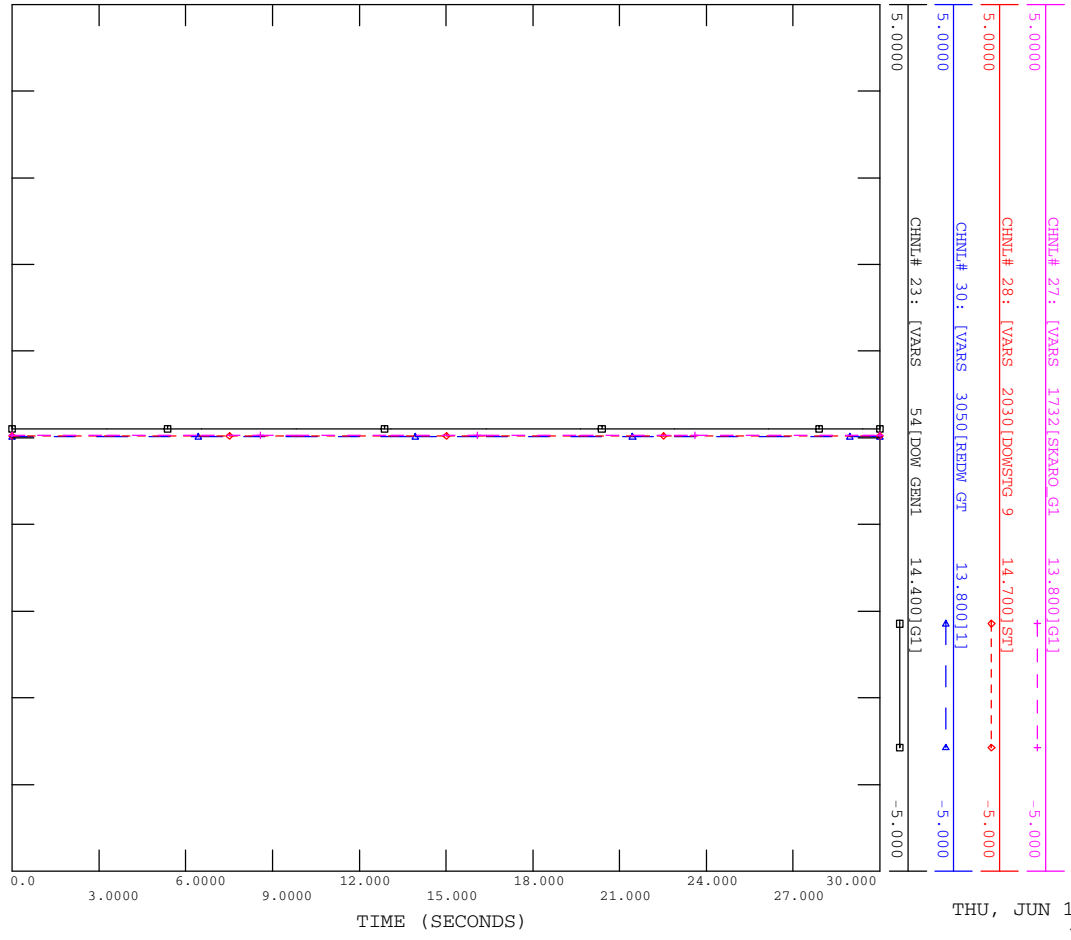


THU, JUN 19 2014 14:39  
FIG F3-1



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP A - FLAT START

FILE: CON0.OUT

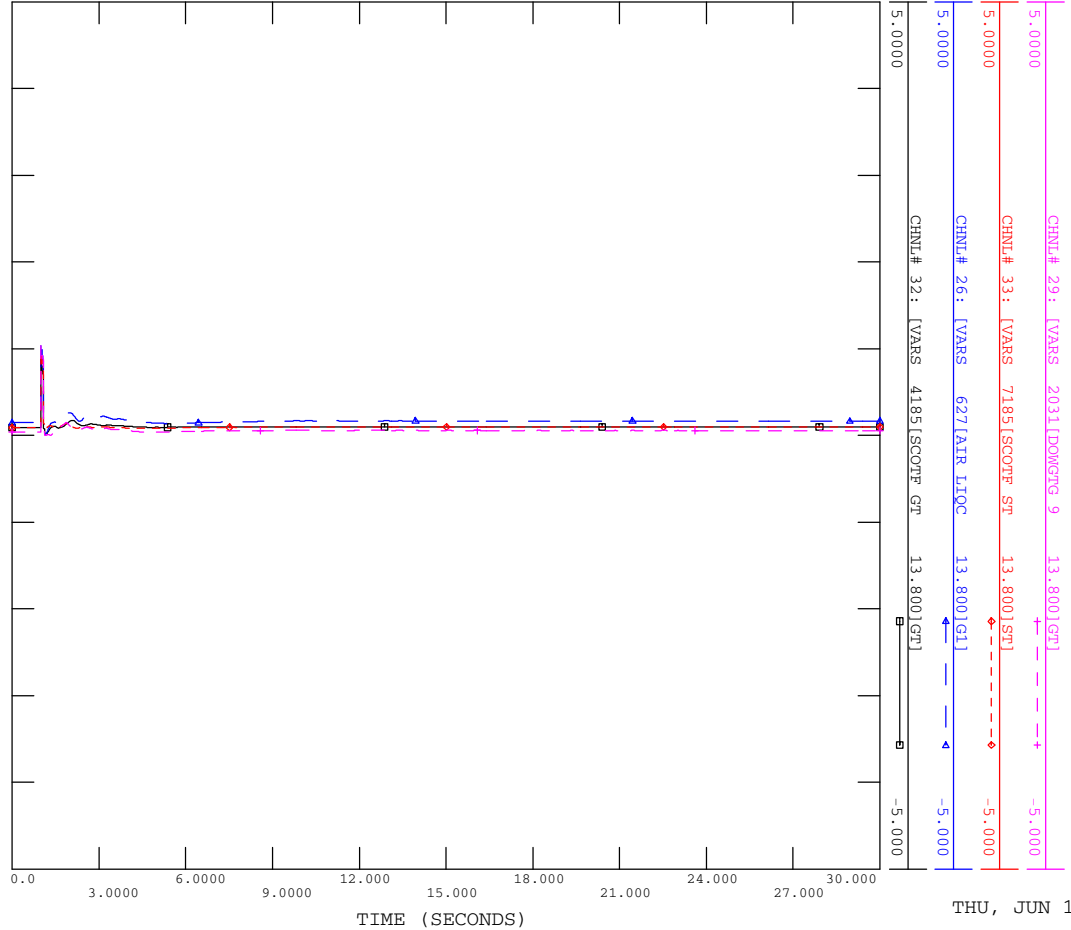


THU, JUN 19 2014 14:39  
FIG F3-1A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTPU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

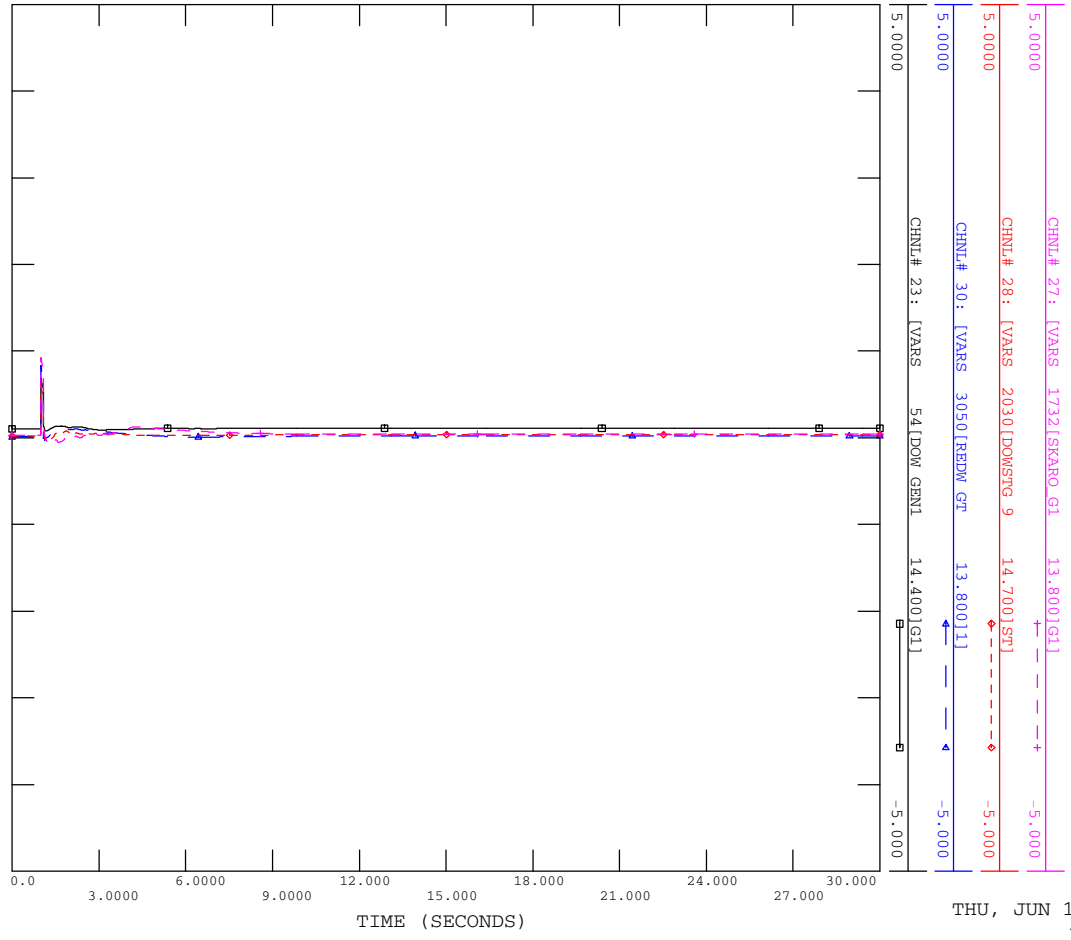


THU, JUN 19 2014 14:39  
FIG F3-2



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTPU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

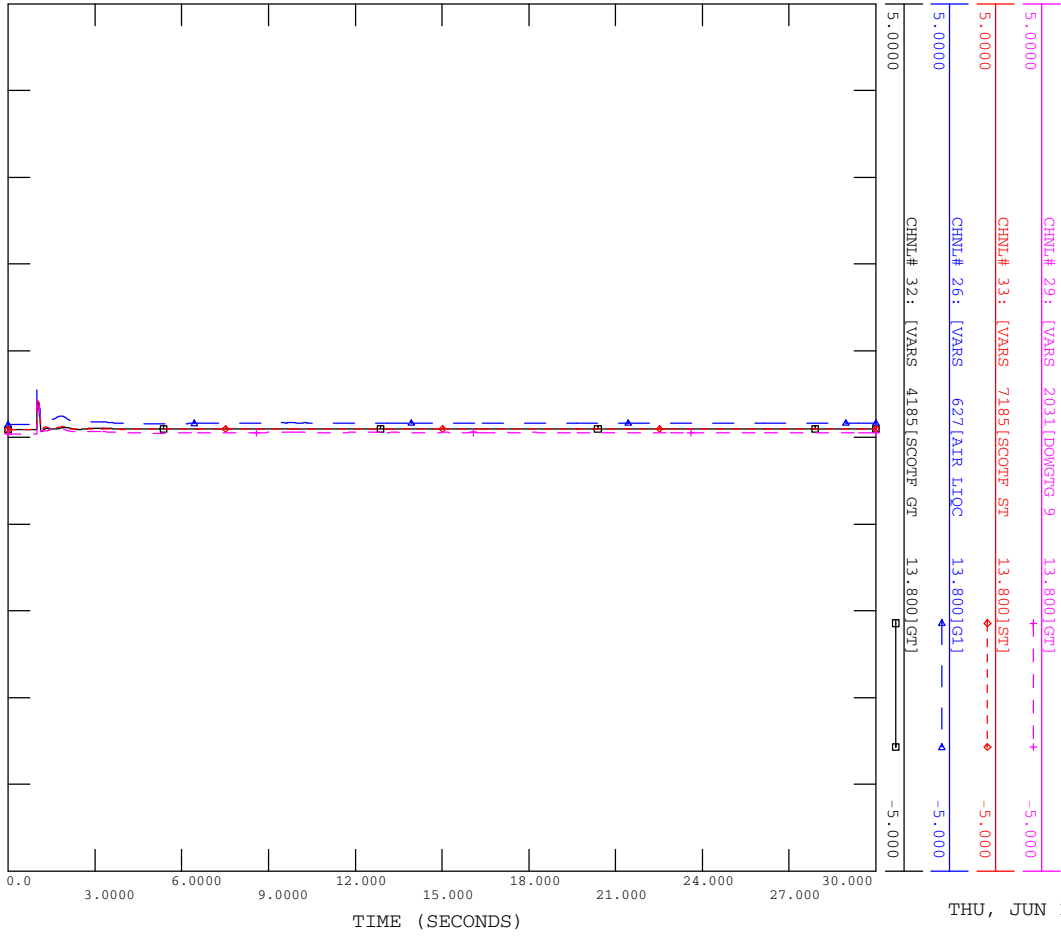


THU, JUN 19 2014 14:40  
FIG F3-2A



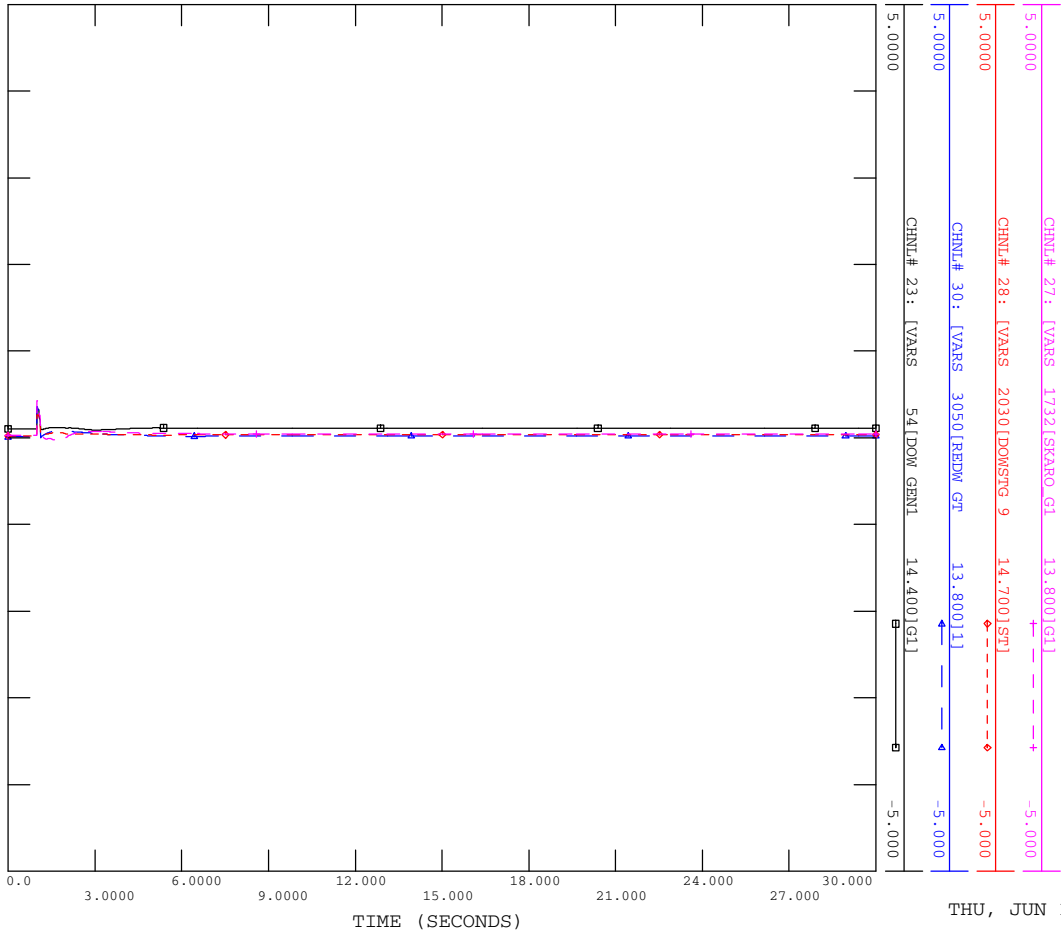
TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 825S

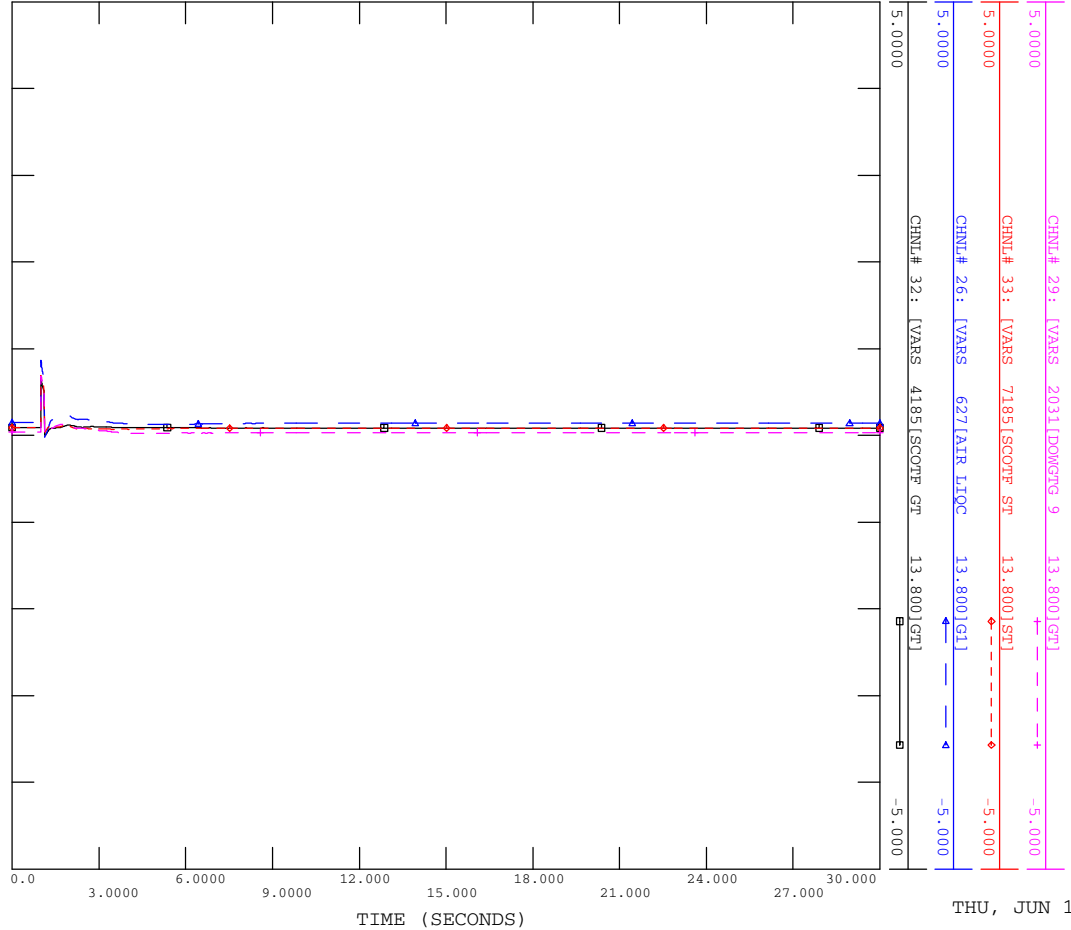
FILE: CON2.OUT





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 1715

FILE: CON3.OUT

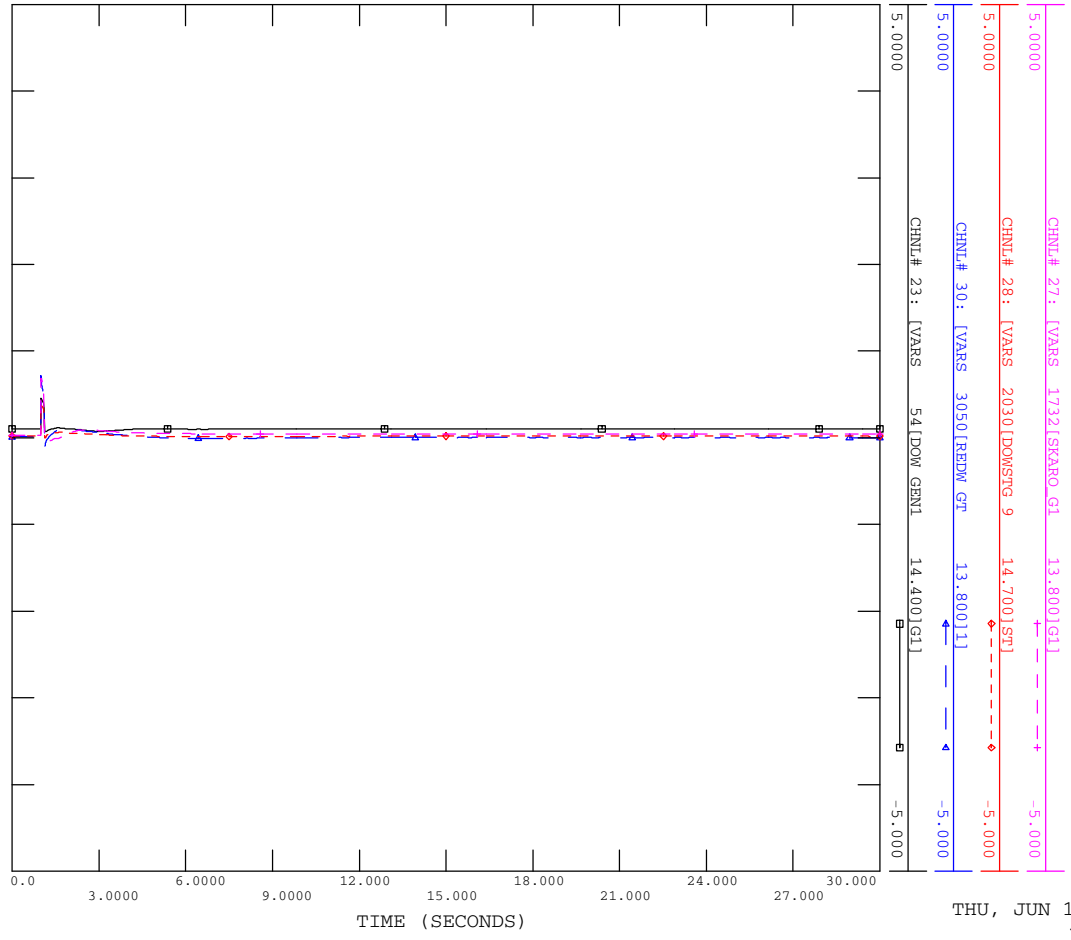


THU, JUN 19 2014 14:40  
FIG F3-4



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 1715

FILE: CON3.OUT

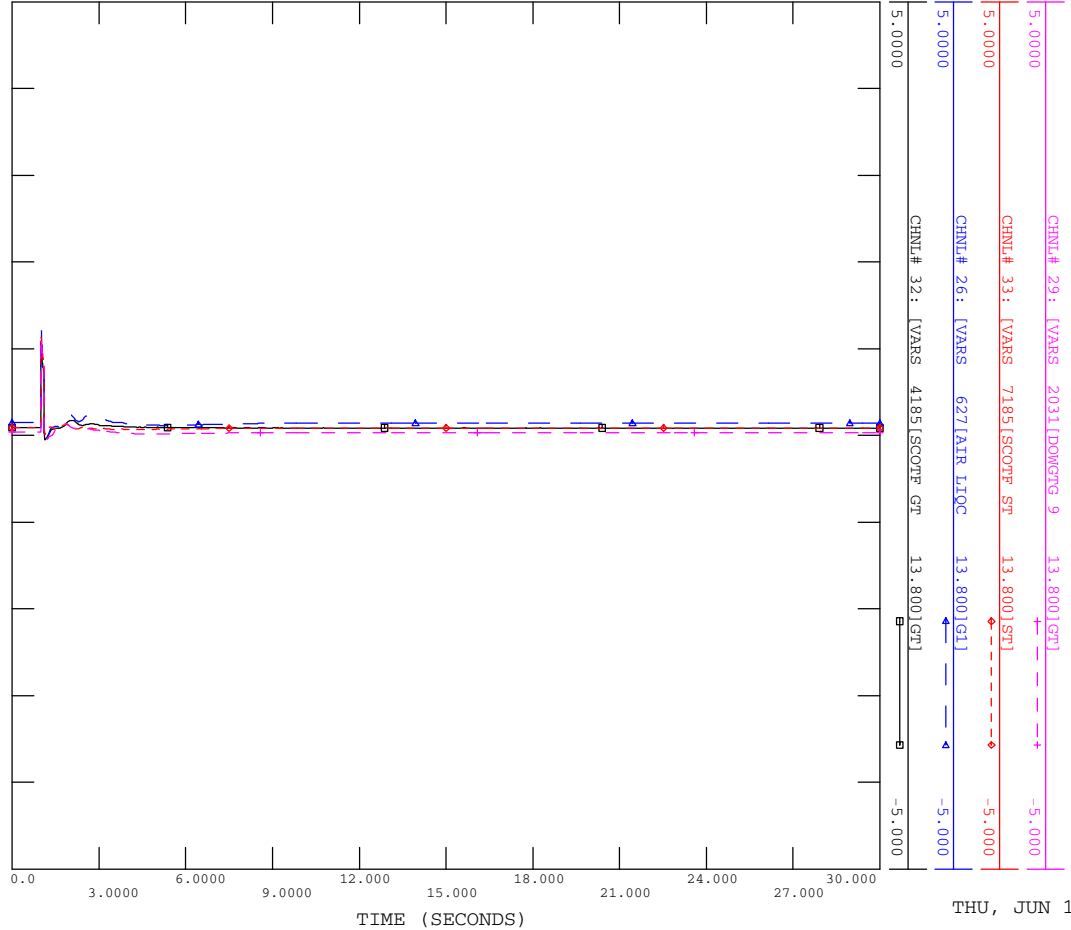


THU, JUN 19 2014 14:41  
FIG F3-4A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

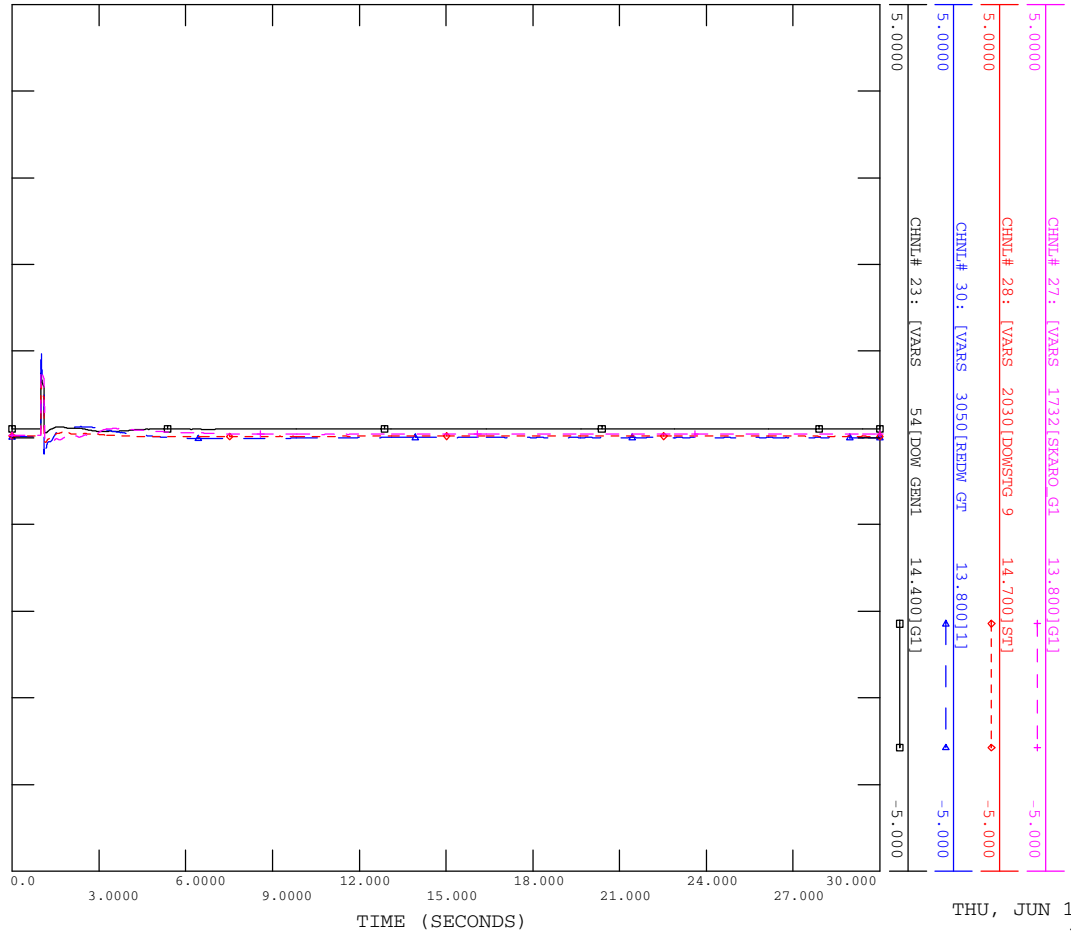


THU, JUN 19 2014 14:41  
FIG F3-5



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

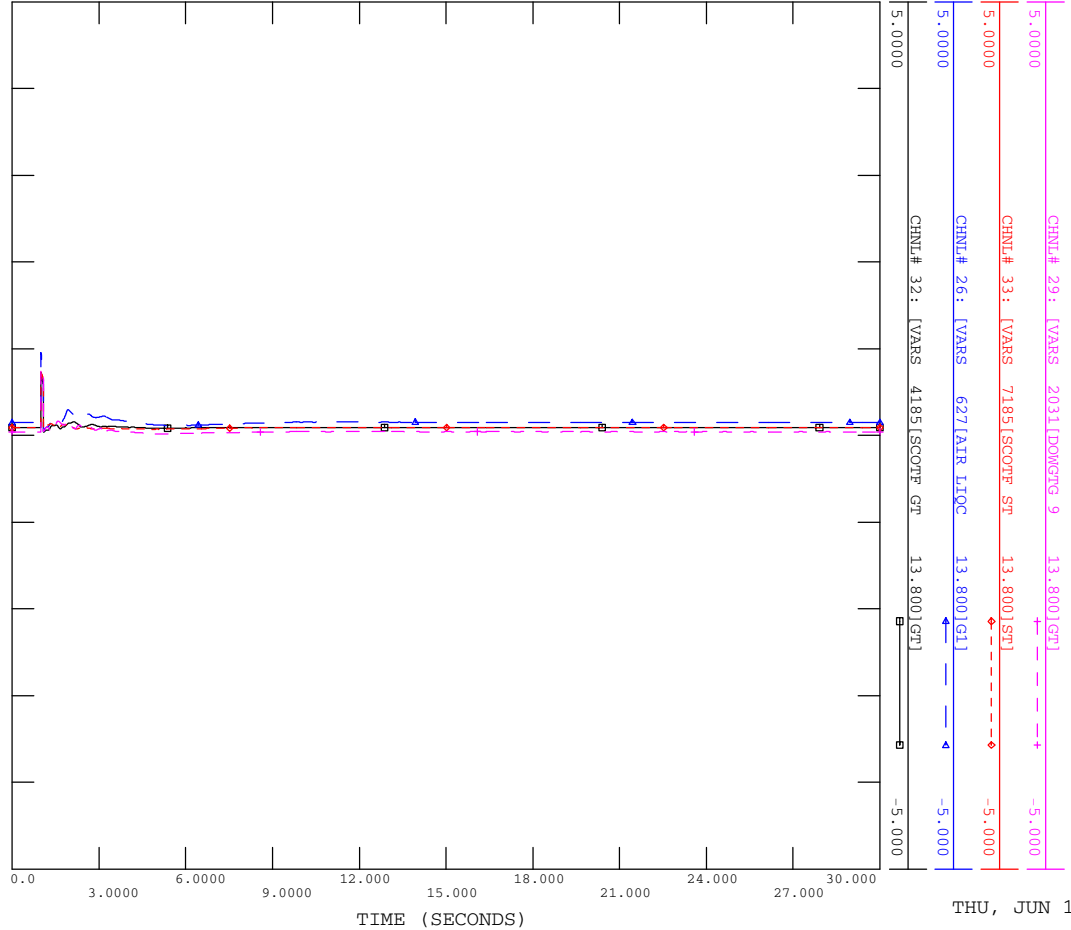


THU, JUN 19 2014 14:42  
FIG F3-5A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

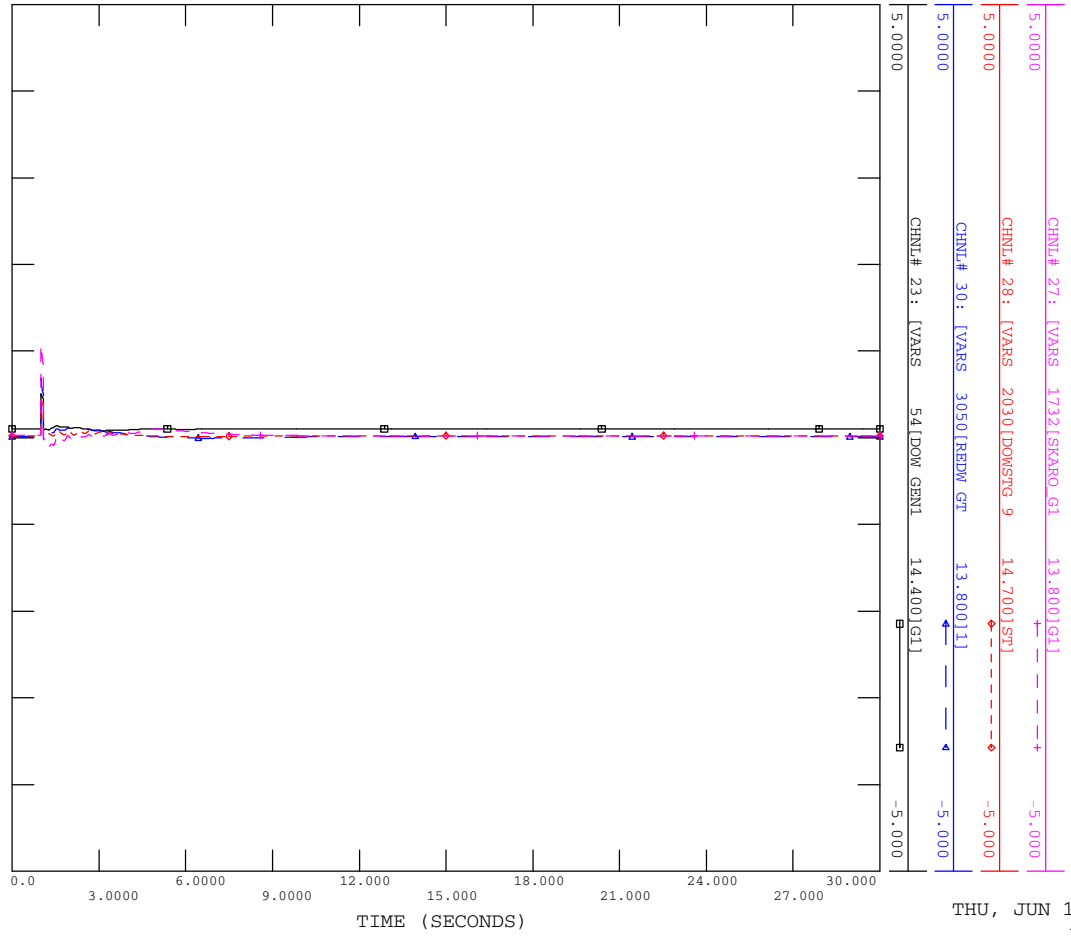


THU, JUN 19 2014 14:42  
FIG F3-6



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

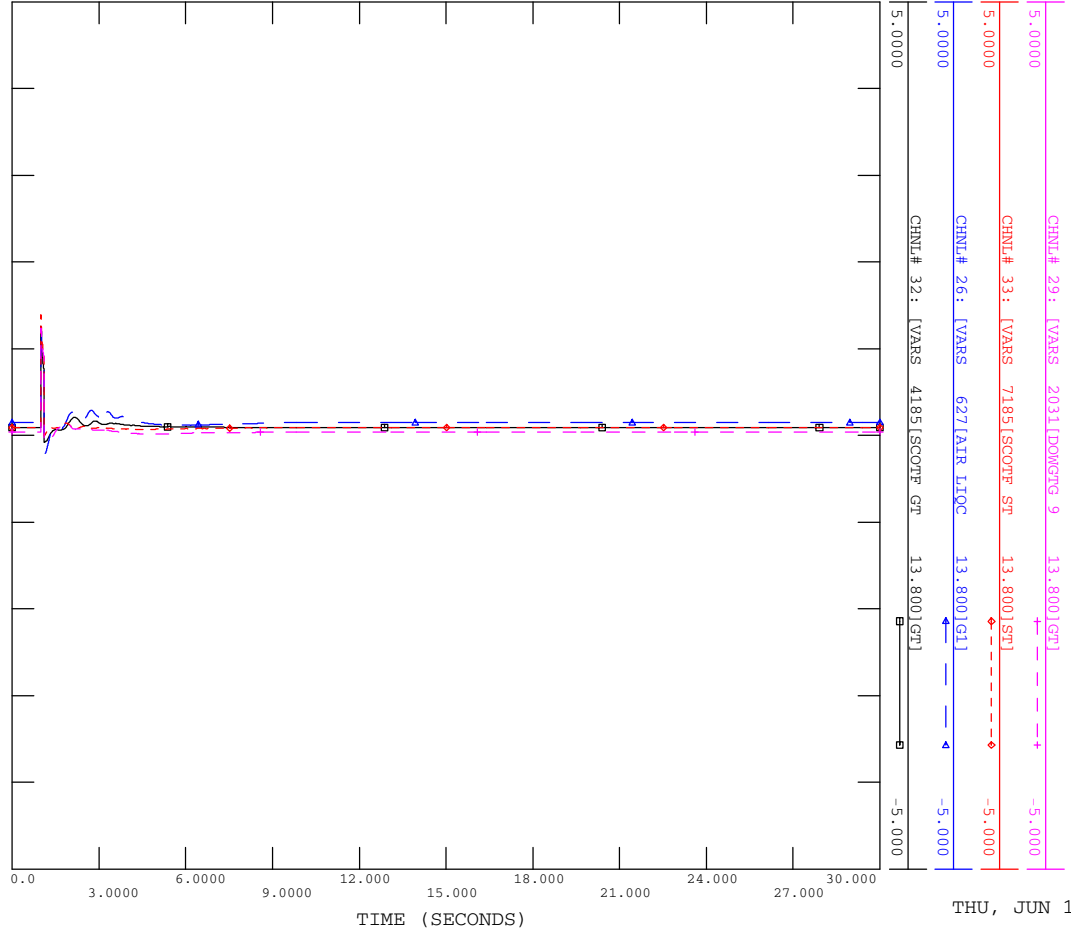


THU, JUN 19 2014 14:43  
FIG F3-6A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 776L 3PH FAULT AT 410S

FILE: CON7.OUT

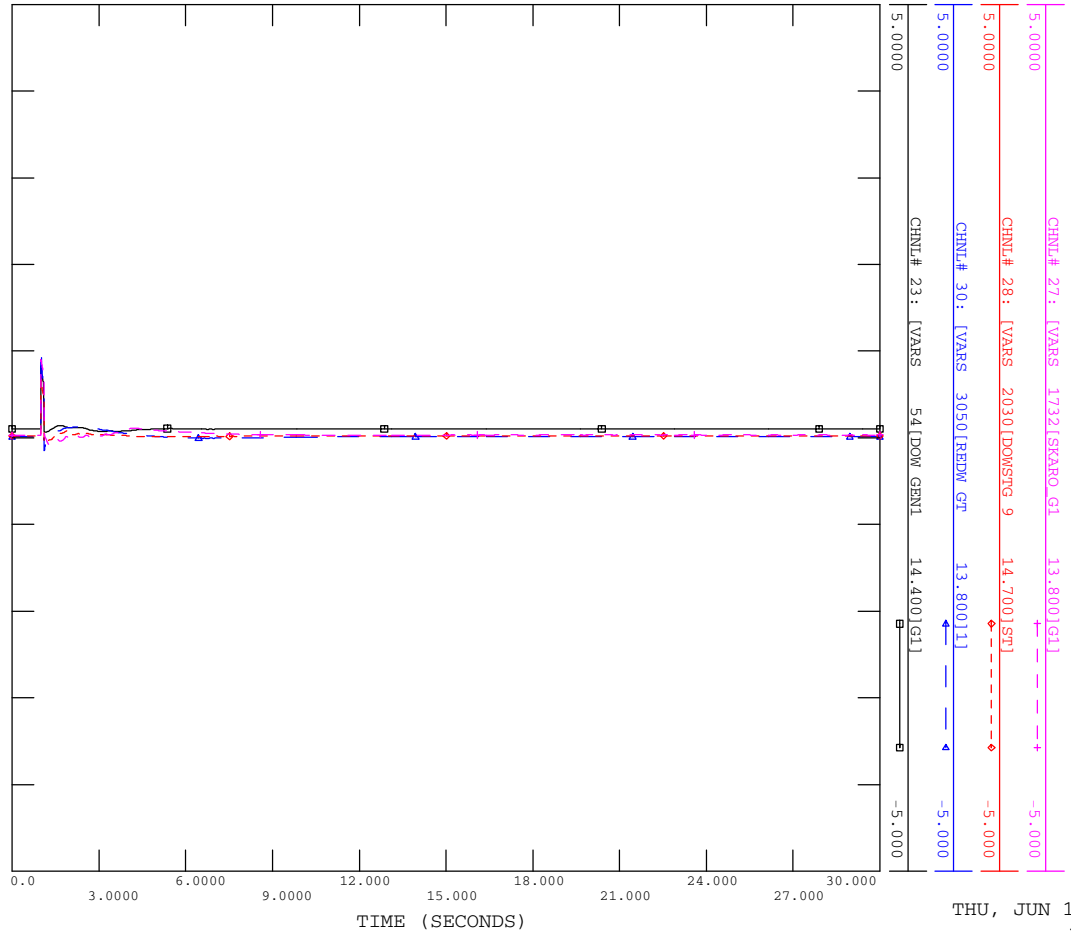


THU, JUN 19 2014 14:43  
FIG F3-7



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 776L 3PH FAULT AT 410S

FILE: CON7.OUT



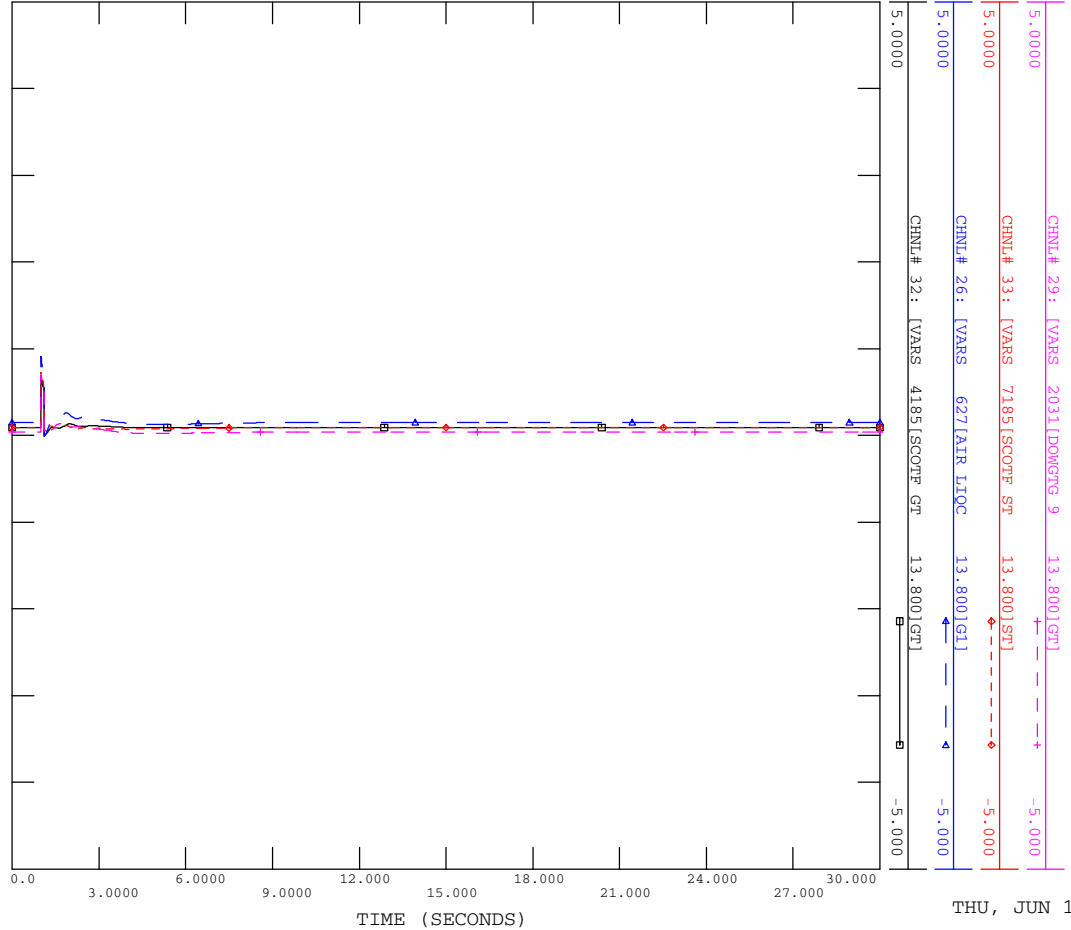
THU, JUN 19 2014 14:44  
FIG F3-7A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

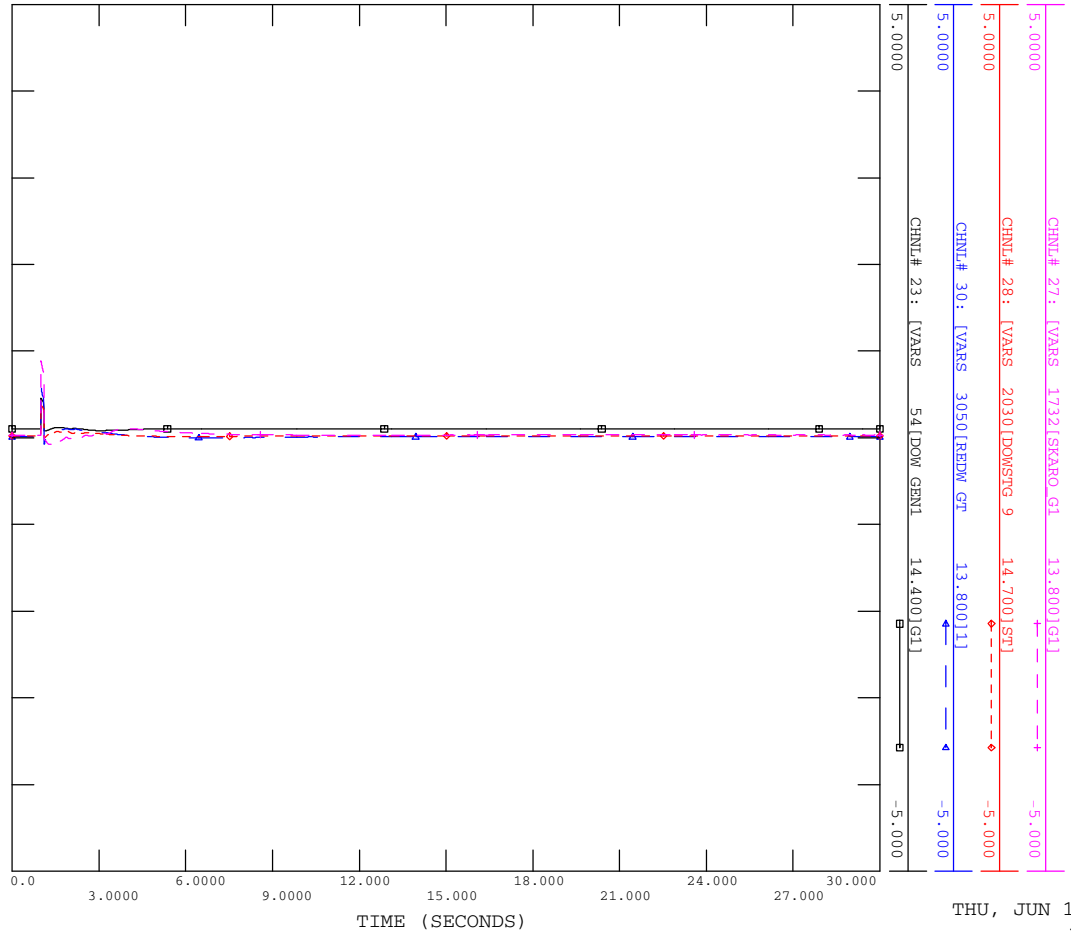


THU, JUN 19 2014 14:44  
FIG F3-8



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

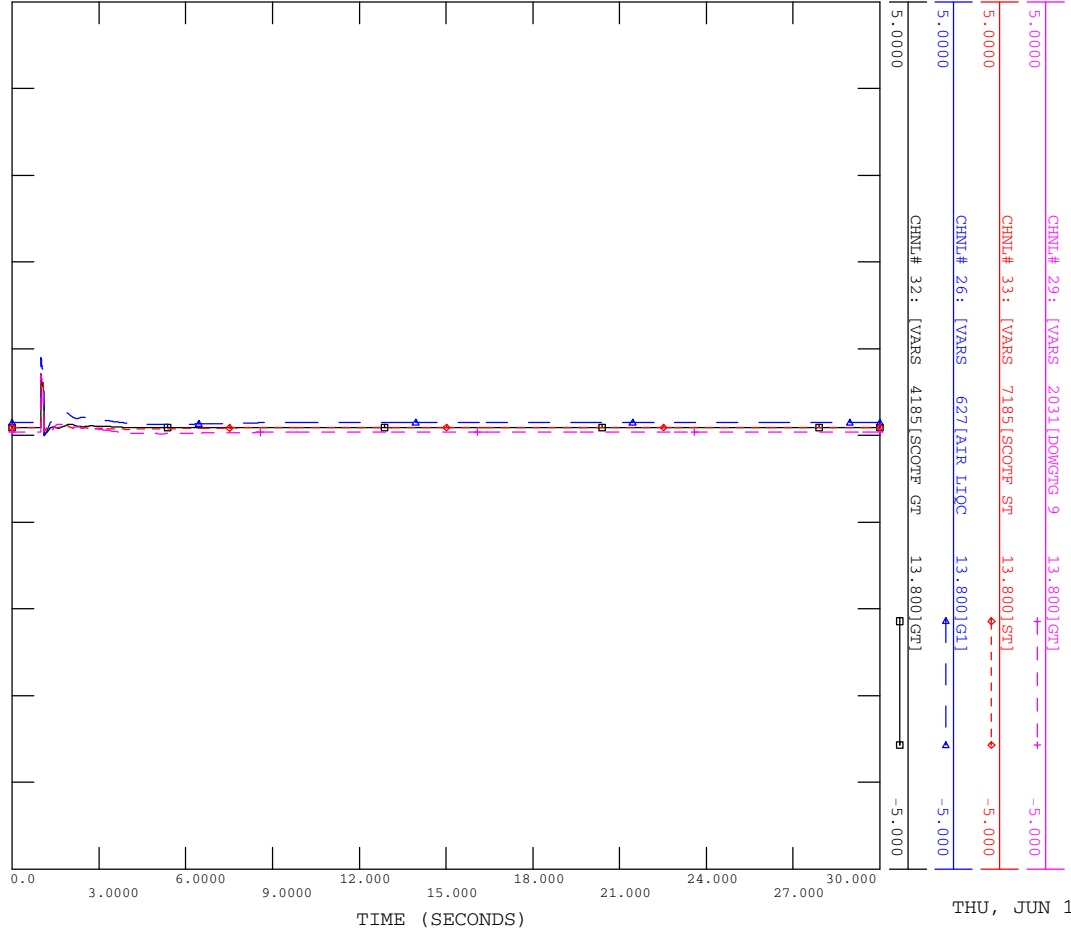


THU, JUN 19 2014 14:45  
FIG F3-8A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

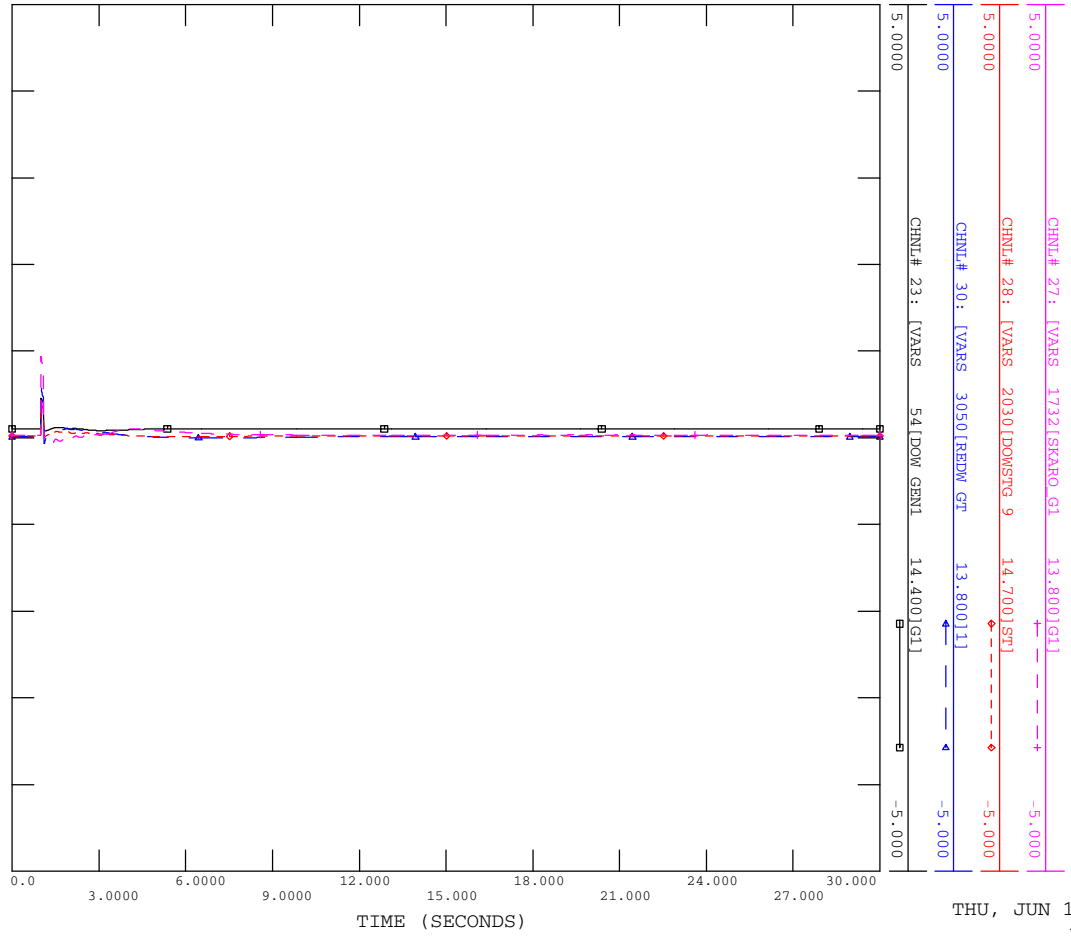


THU, JUN 19 2014 14:45  
FIG F3-9



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

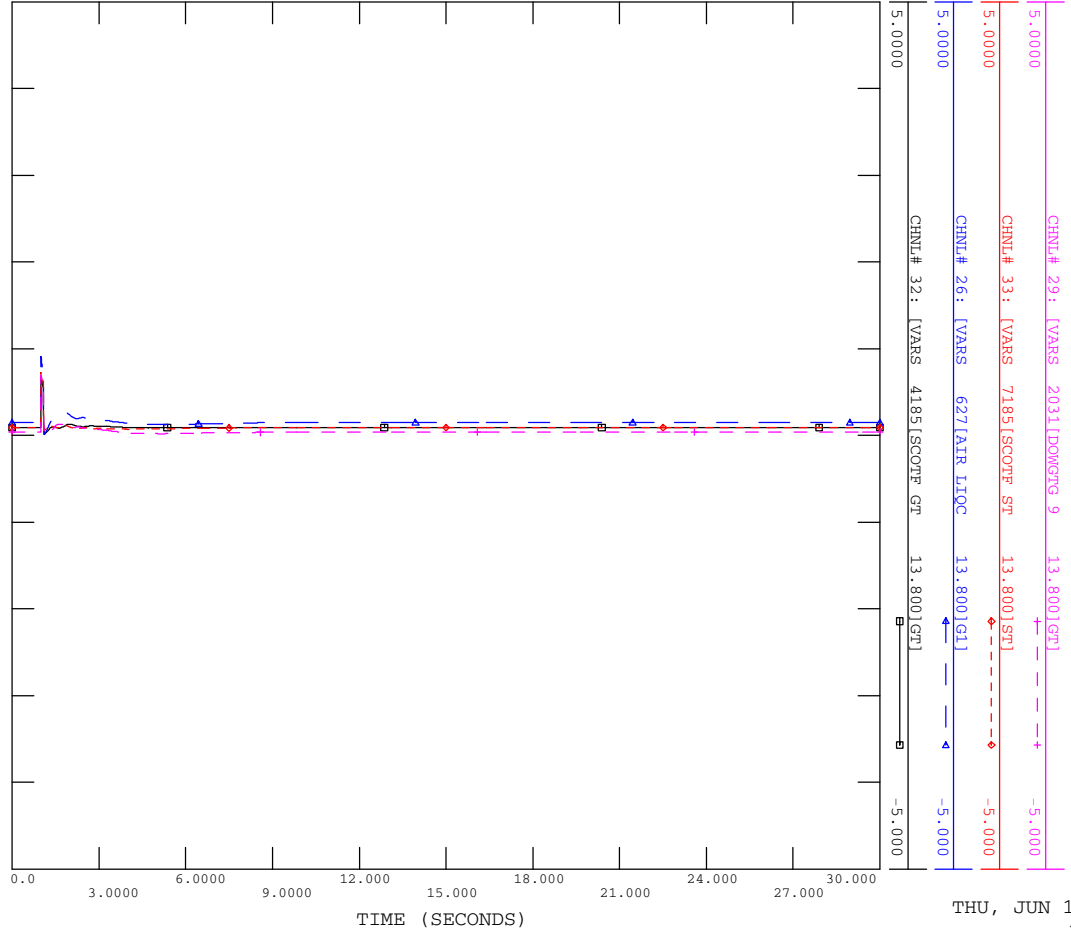


THU, JUN 19 2014 14:45  
FIG F3-9A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

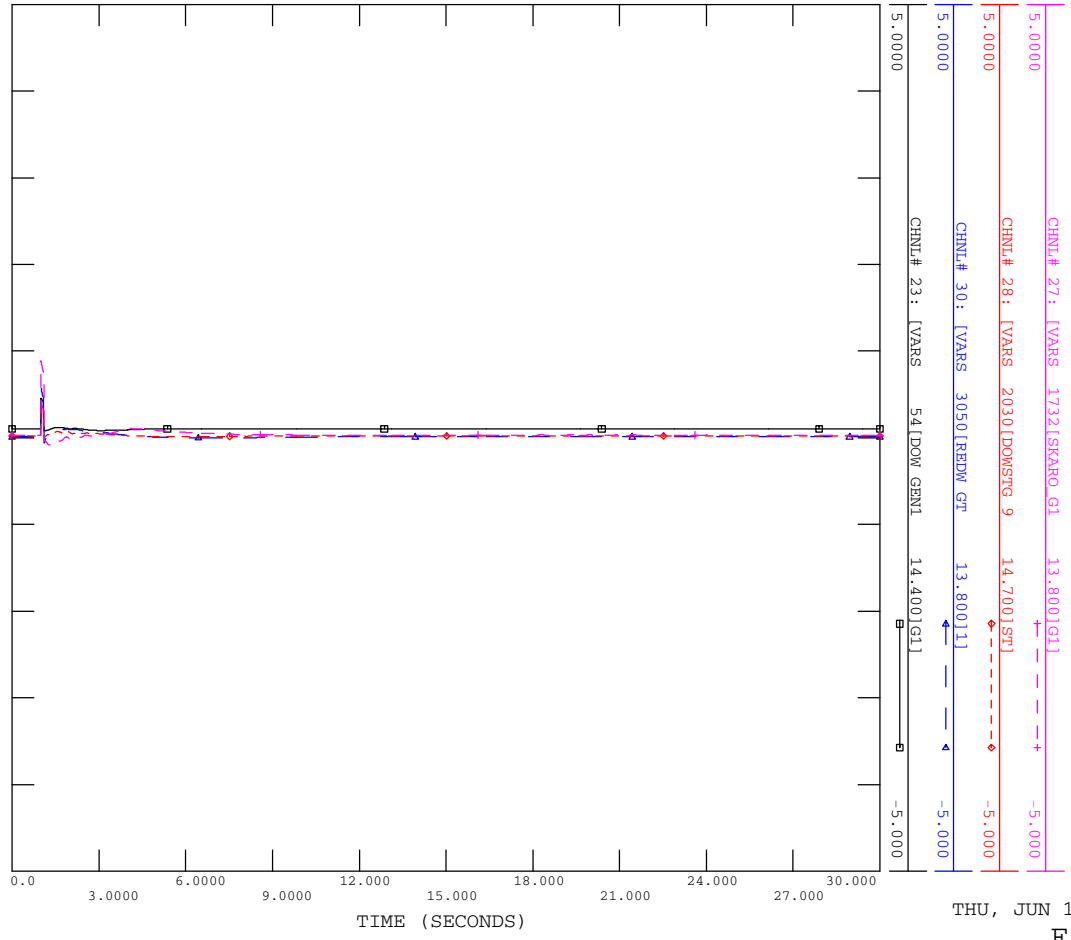


THU, JUN 19 2014 14:46  
FIG F3-10



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

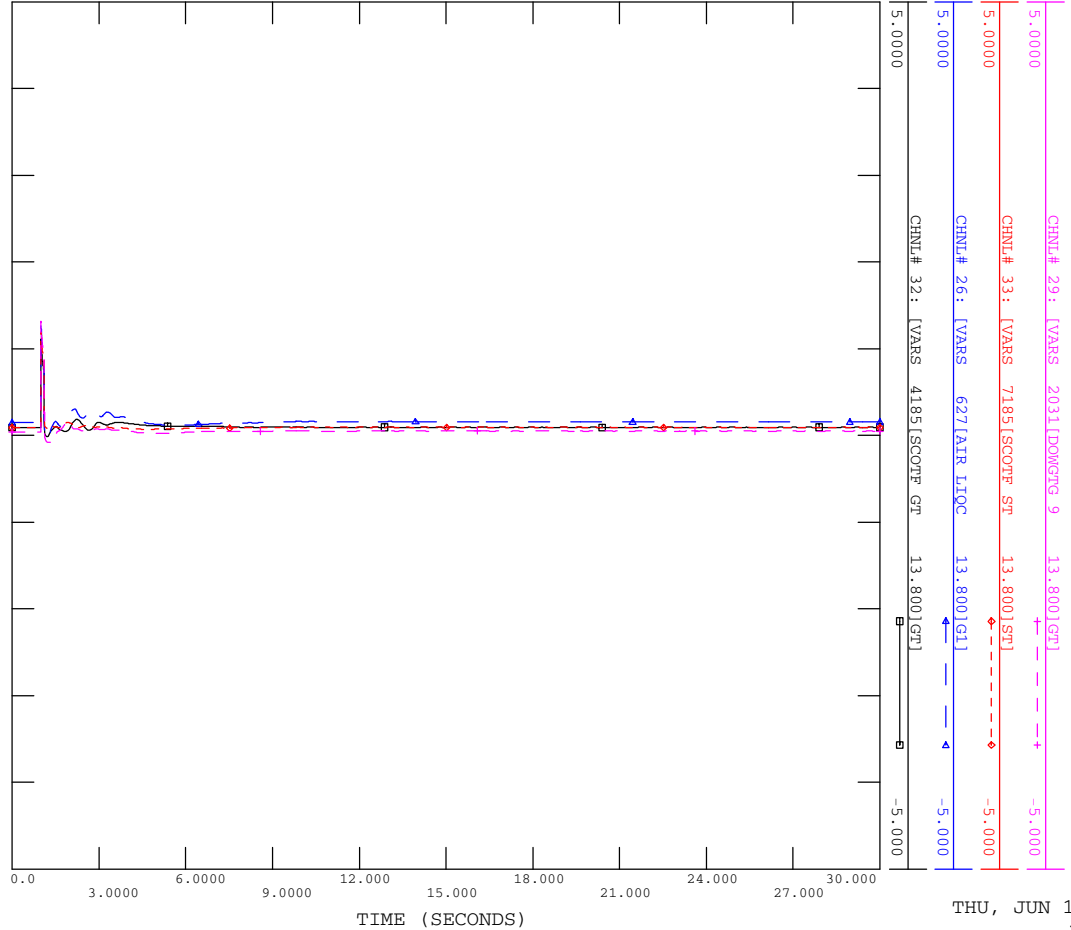


THU, JUN 19 2014 14:46  
FIG F3-10A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT

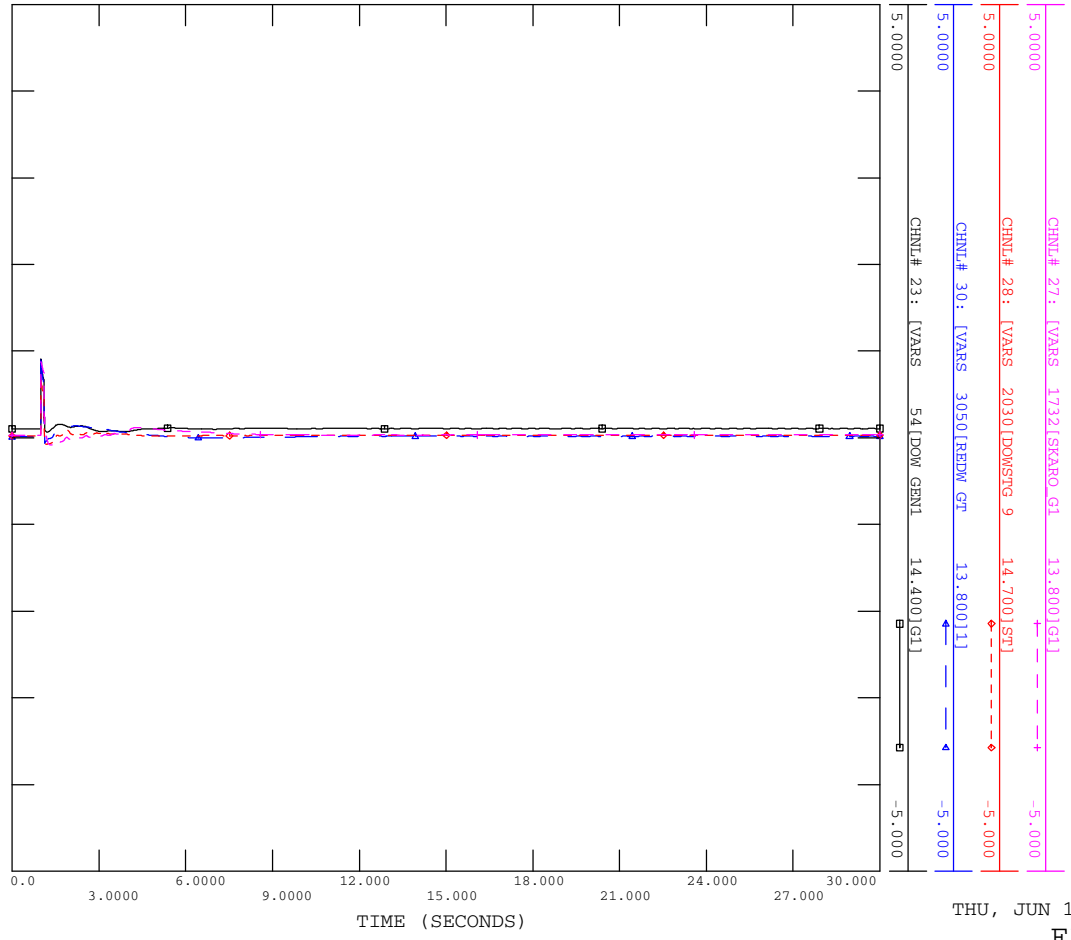


THU, JUN 19 2014 14:47  
 FIG F3-11



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT

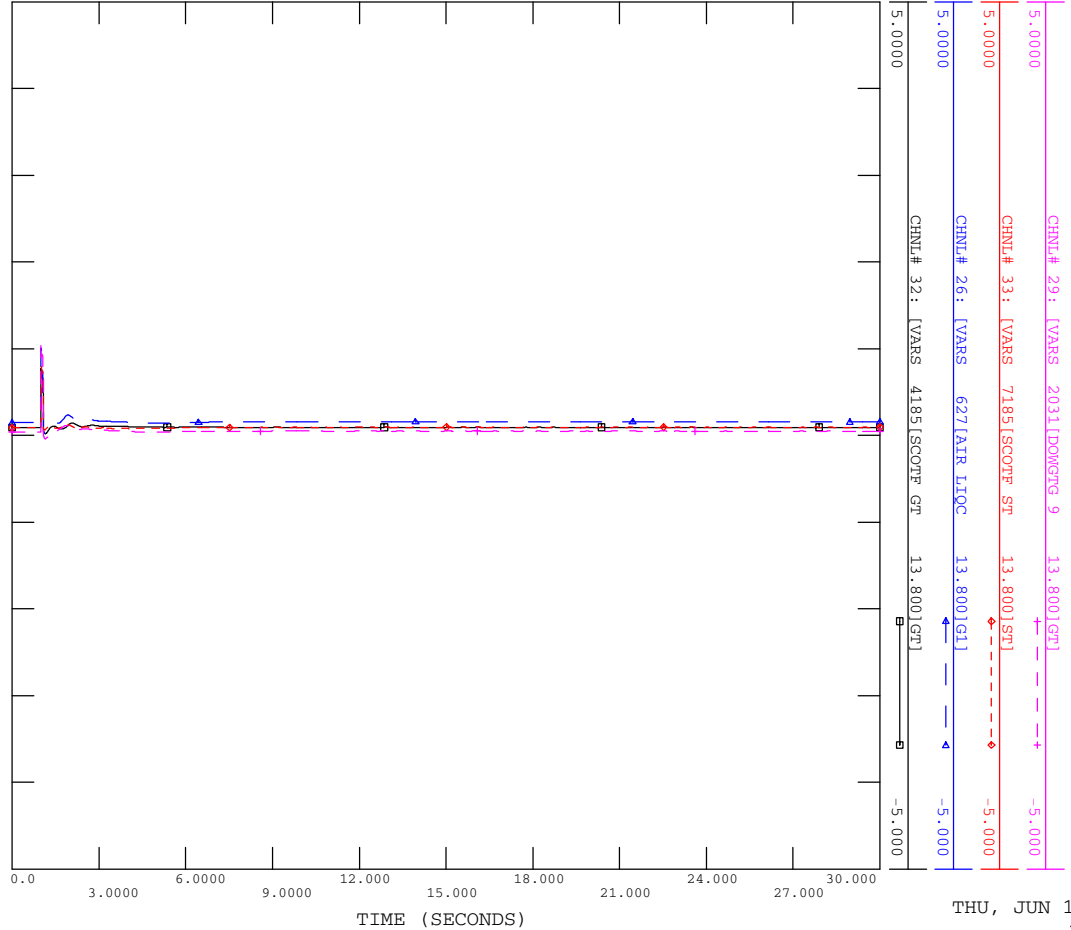


THU, JUN 19 2014 14:47  
 FIG F3-11A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT

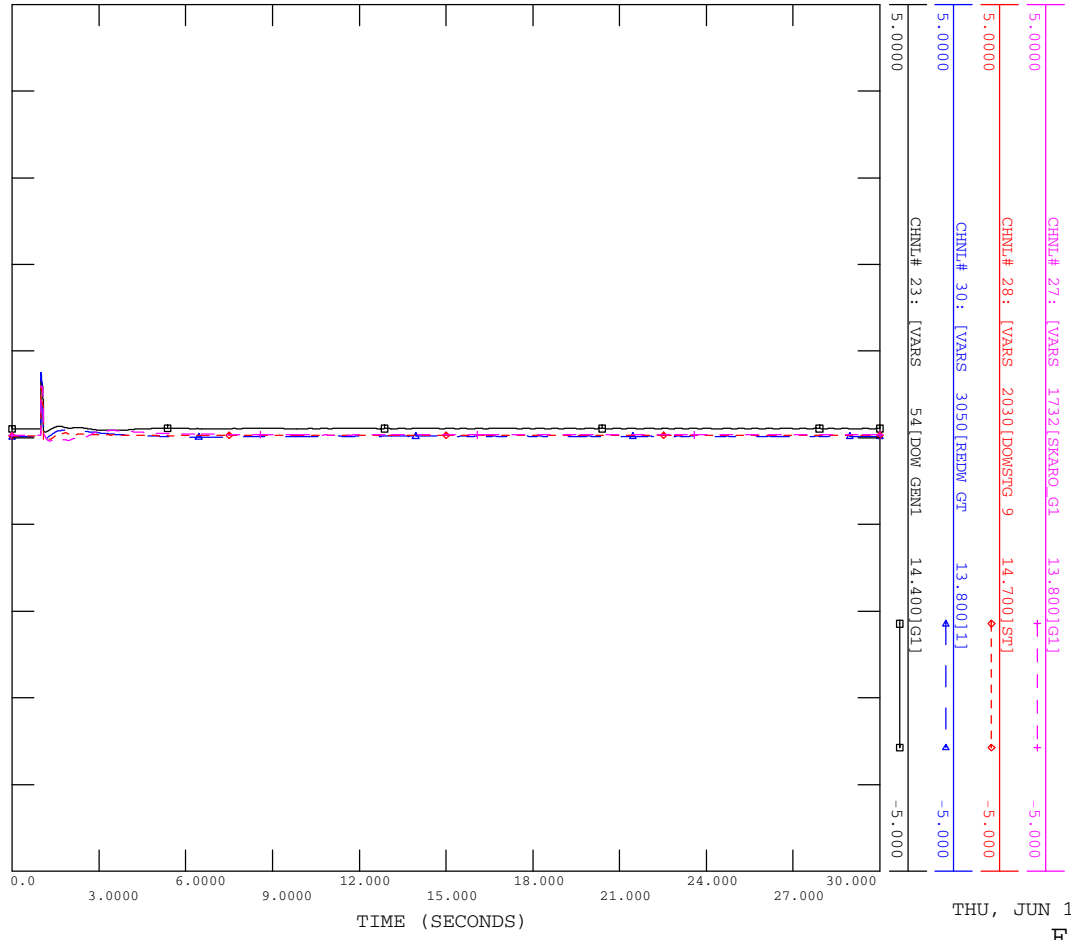


THU, JUN 19 2014 14:48  
FIG F3-12



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT

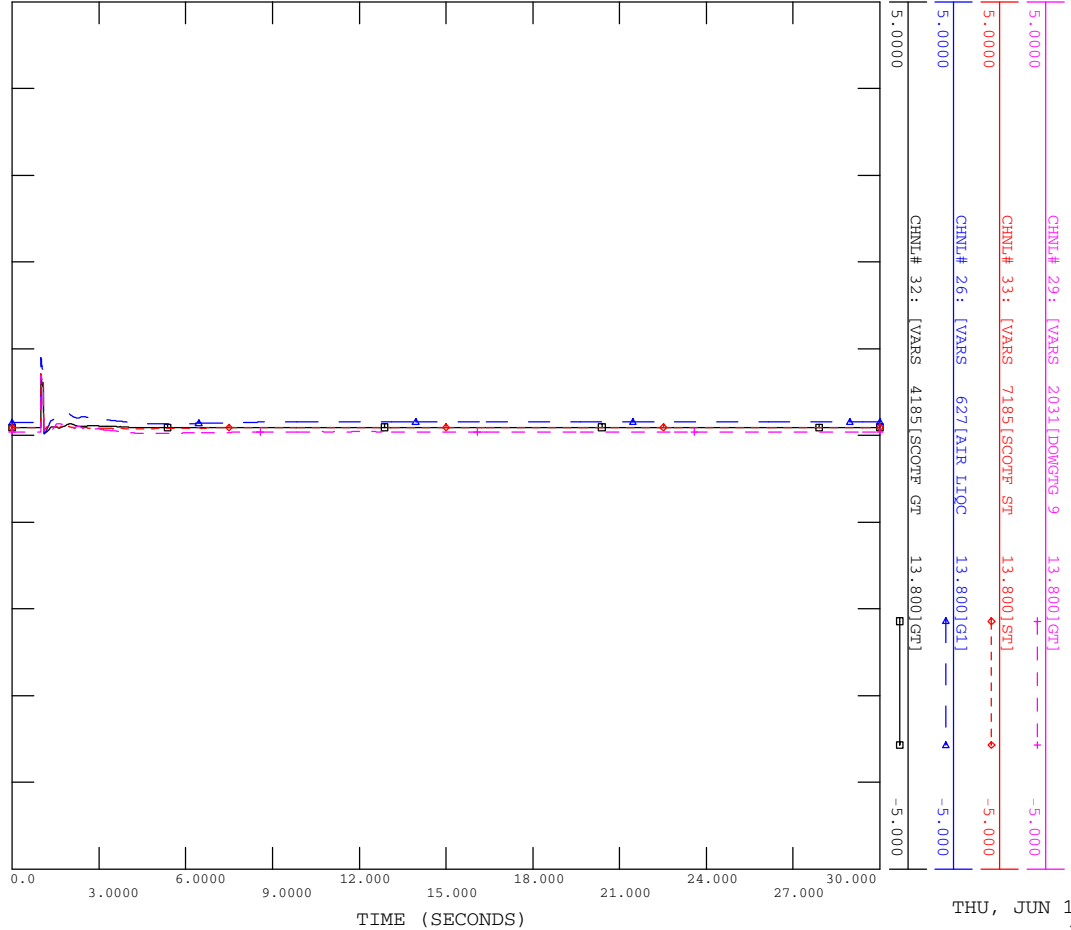


THU, JUN 19 2014 14:48  
FIG F3-12A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

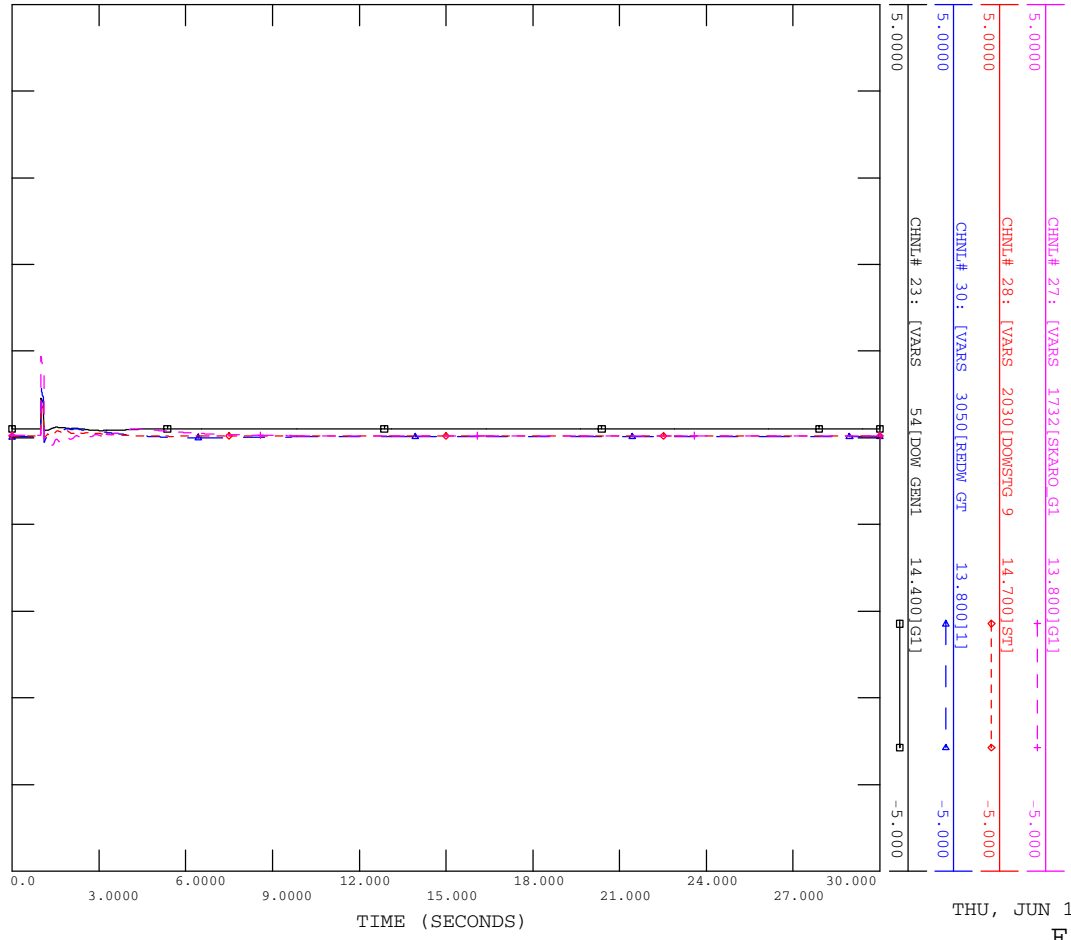


THU, JUN 19 2014 14:49  
 FIG F3-13



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

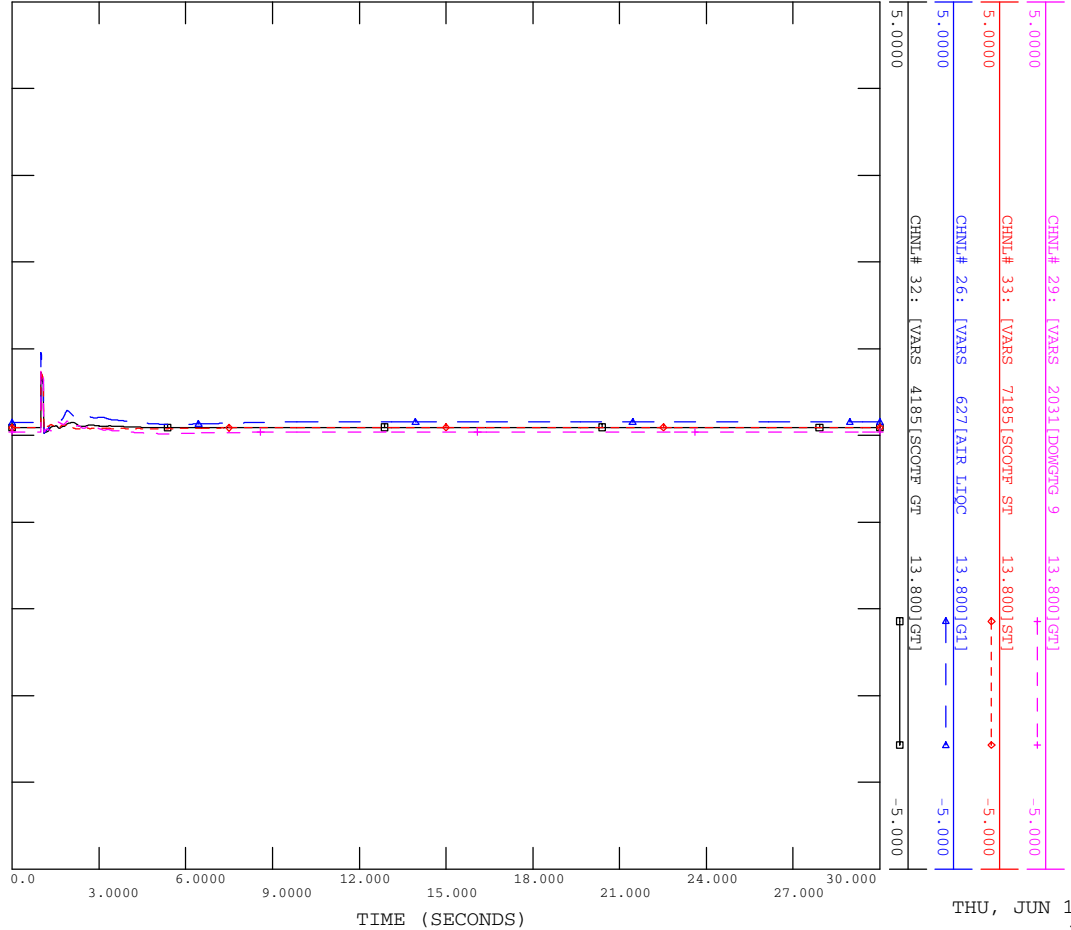


THU, JUN 19 2014 14:49  
 FIG F3-13A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

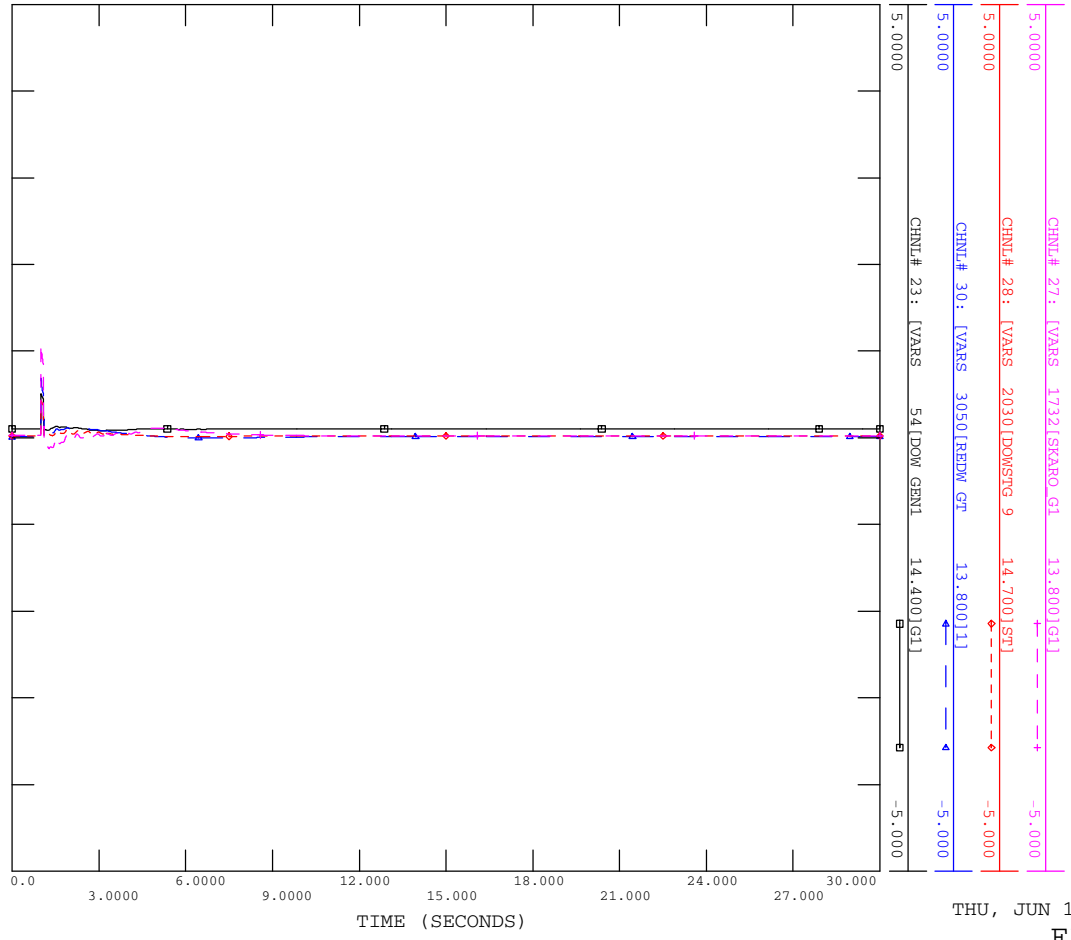


THU, JUN 19 2014 14:49  
FIG F3-14



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

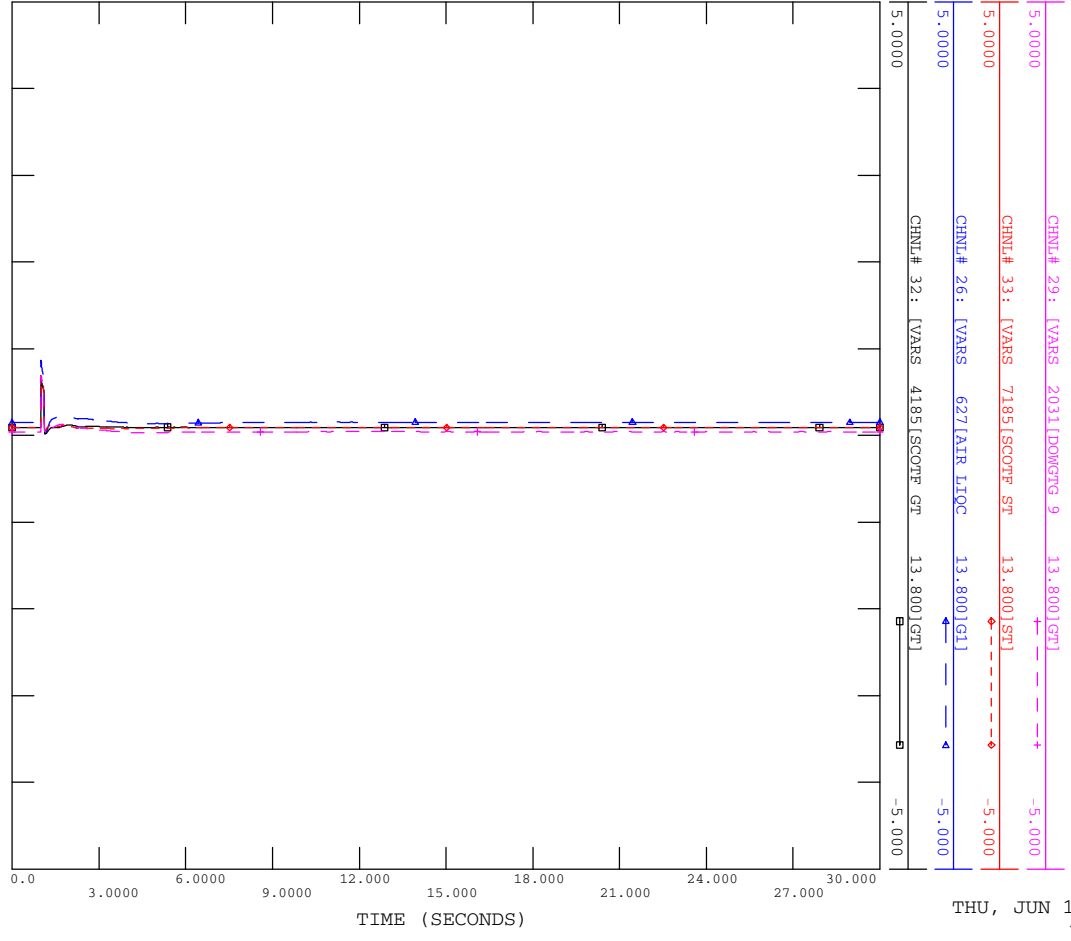


THU, JUN 19 2014 14:50  
FIG F3-14A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 808L 3PH FAULT AT 1715

FILE: CON15.OUT

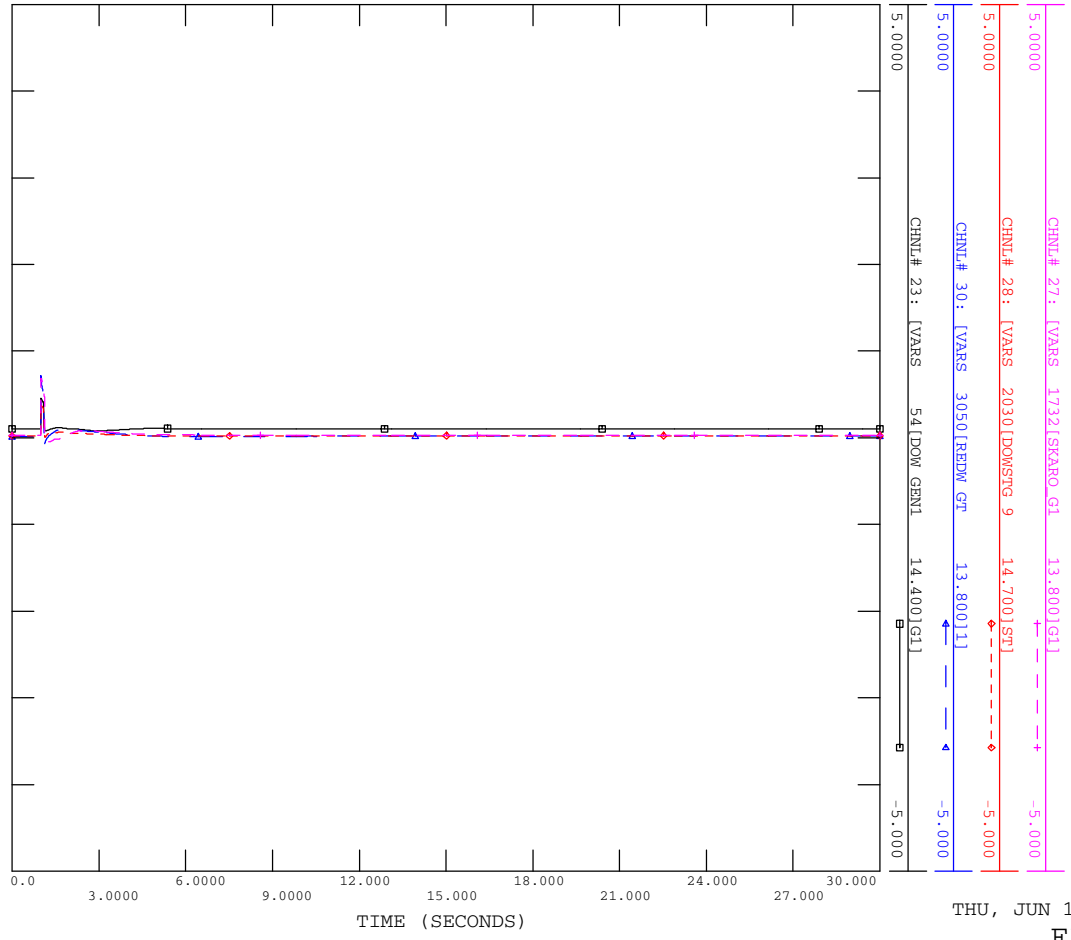


THU, JUN 19 2014 14:50  
FIG F3-15



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 808L 3PH FAULT AT 1715

FILE: CON15.OUT



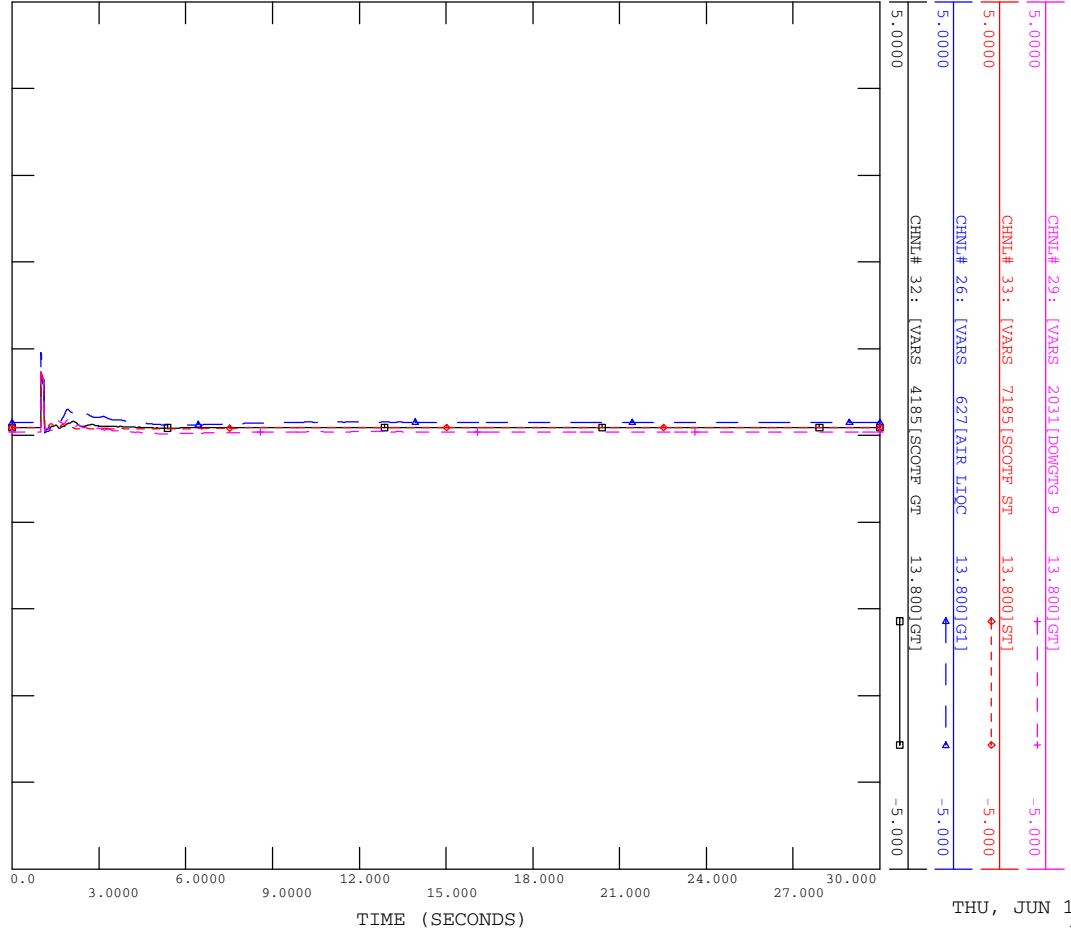
THU, JUN 19 2014 14:51  
FIG F3-15A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

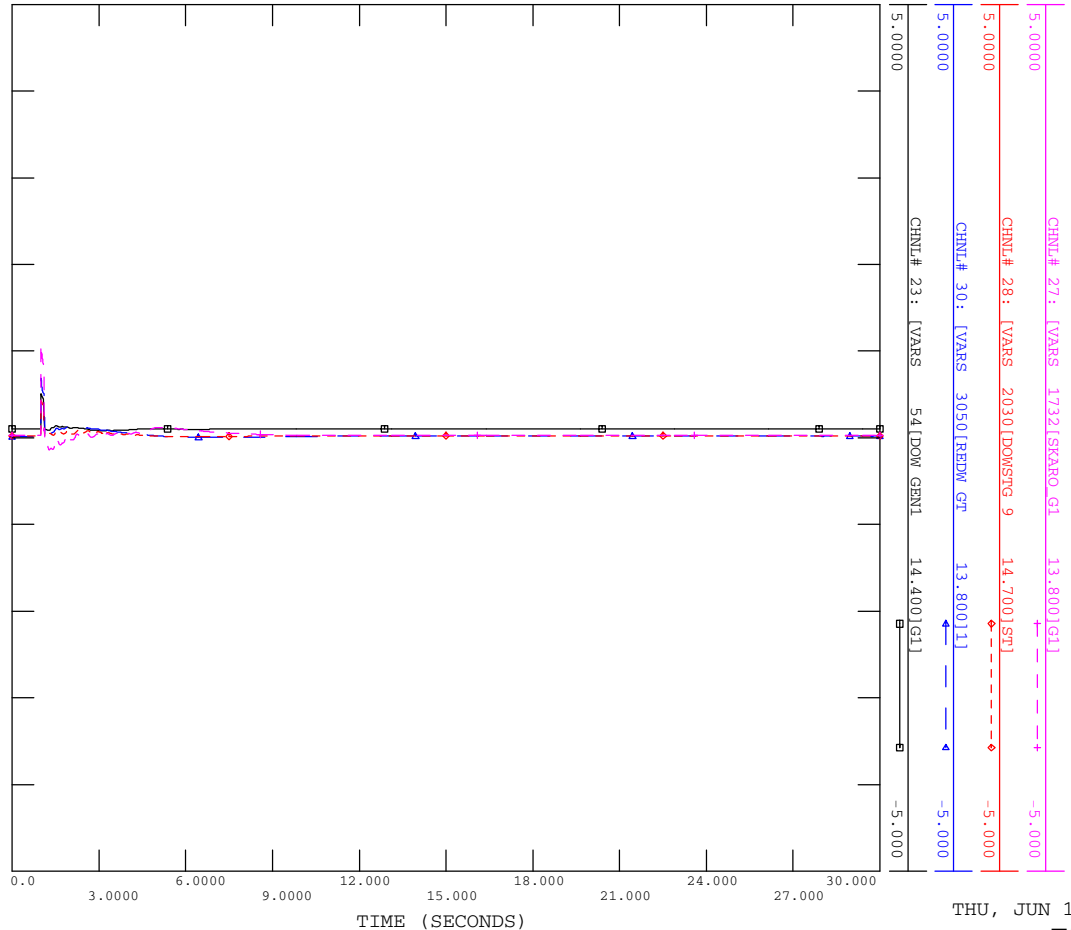


THU, JUN 19 2014 14:51  
FIG F3-16



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

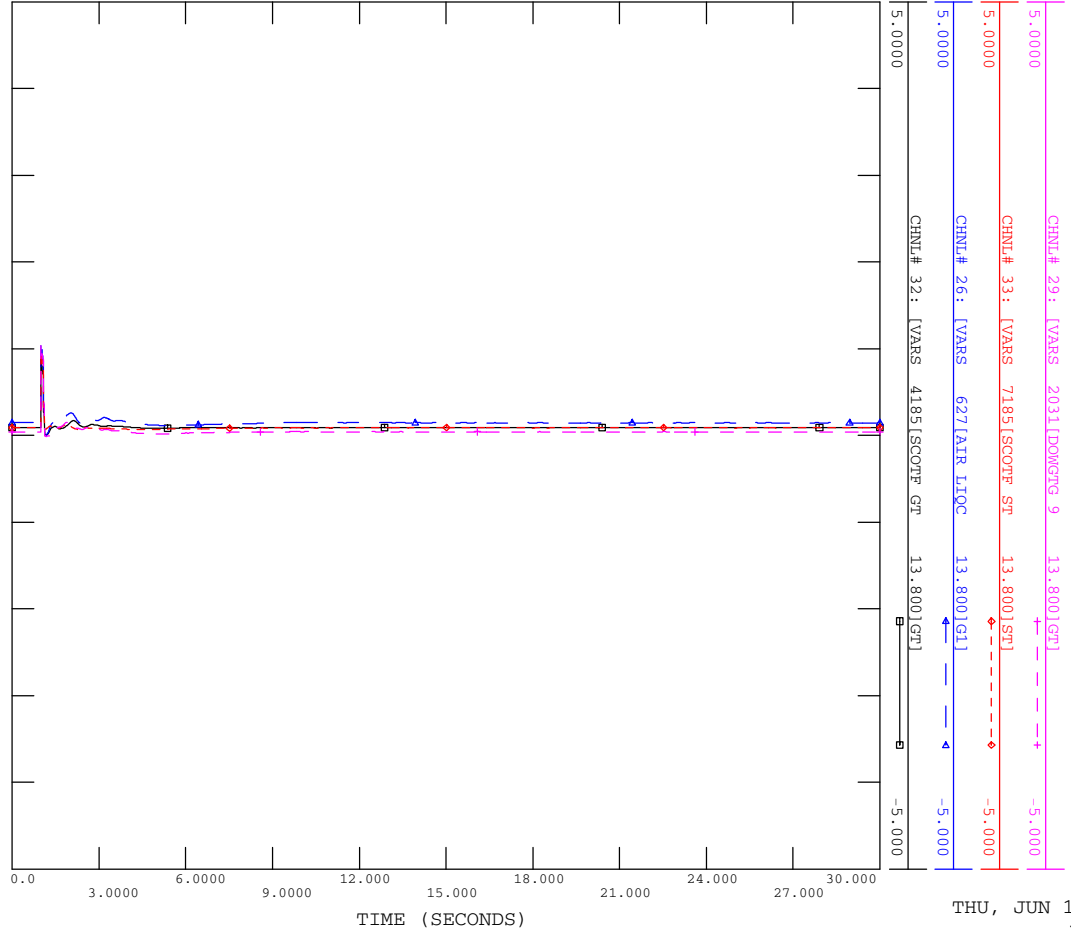


THU, JUN 19 2014 14:52  
FIG F3-16A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

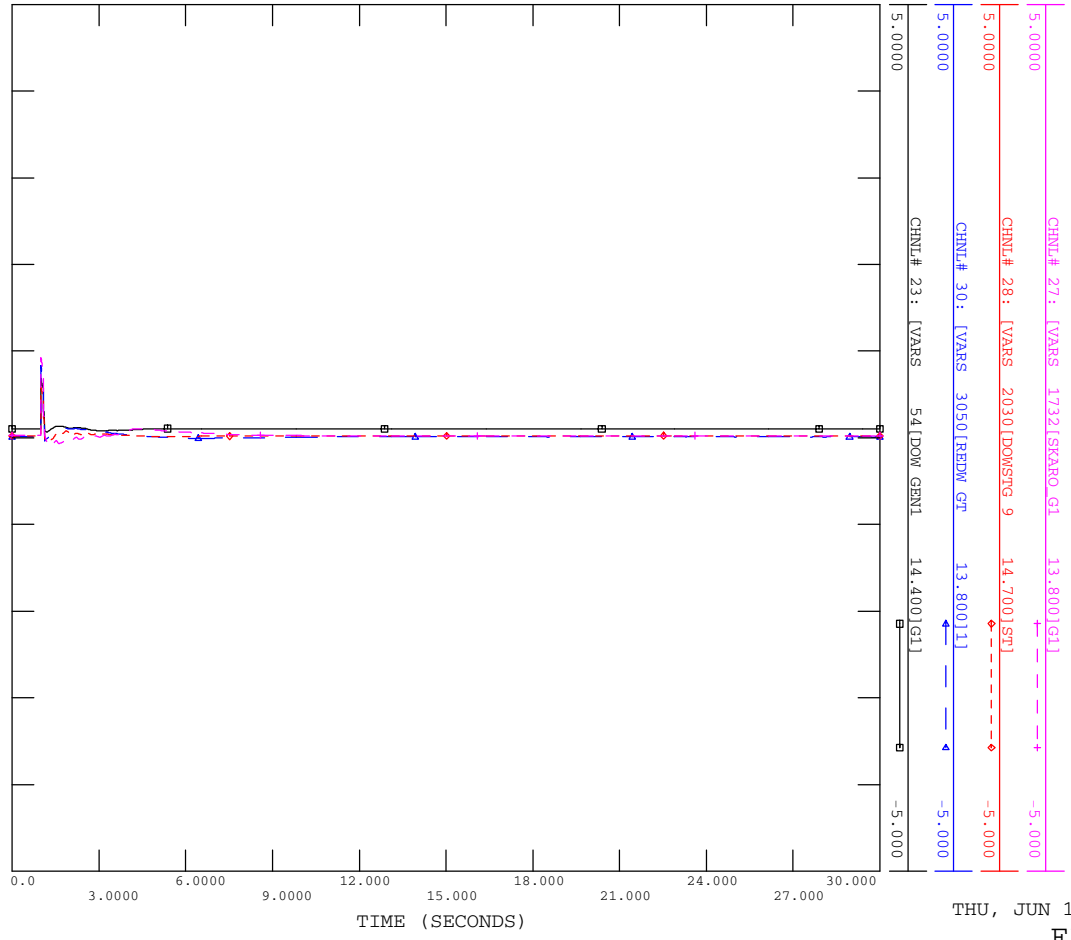


THU, JUN 19 2014 14:52  
FIG F3-17



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

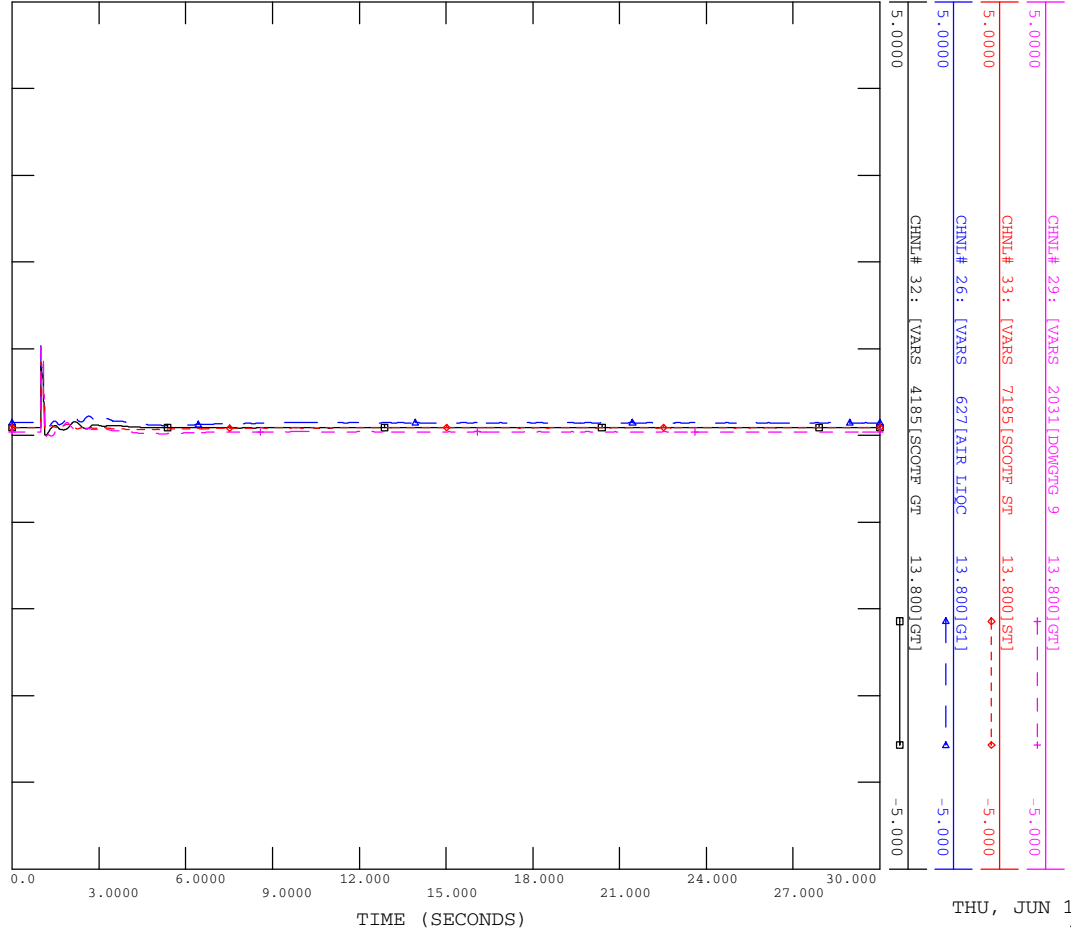


THU, JUN 19 2014 14:53  
FIG F3-17A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

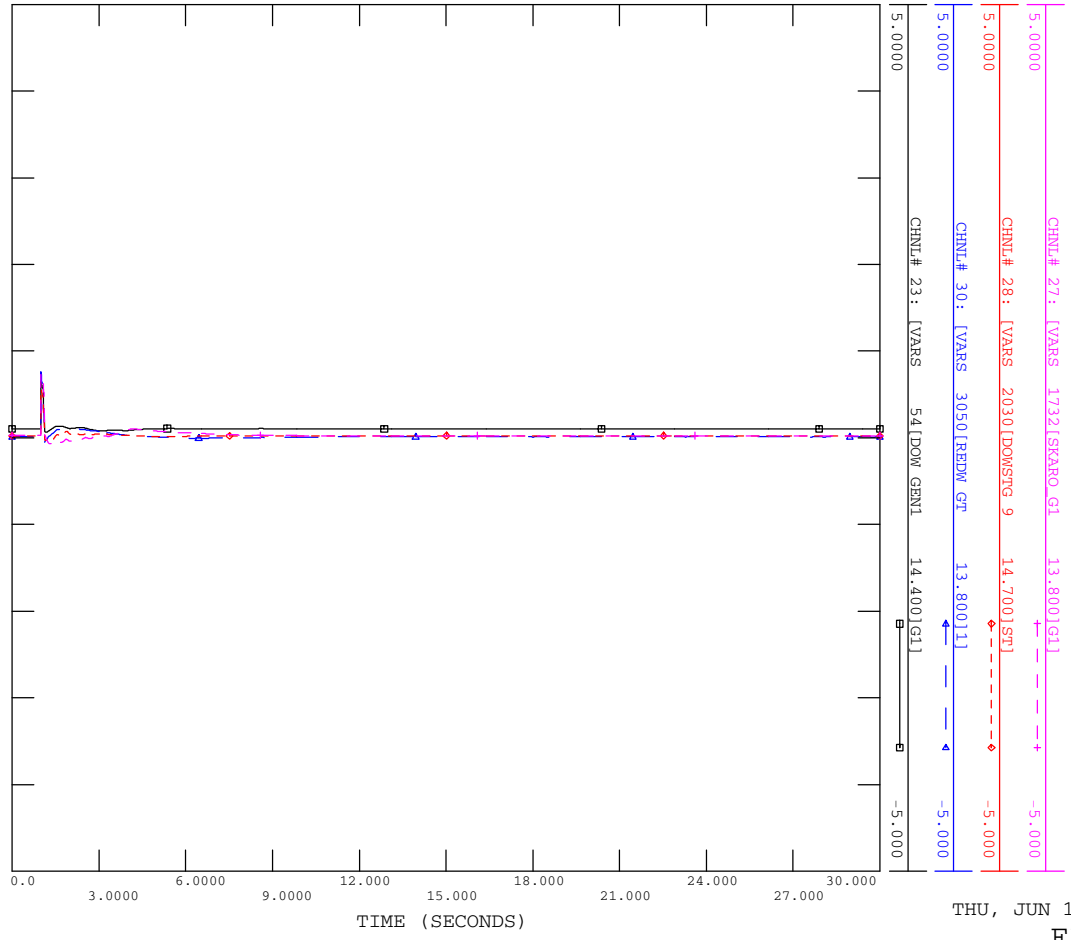


THU, JUN 19 2014 14:53  
FIG F3-18



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

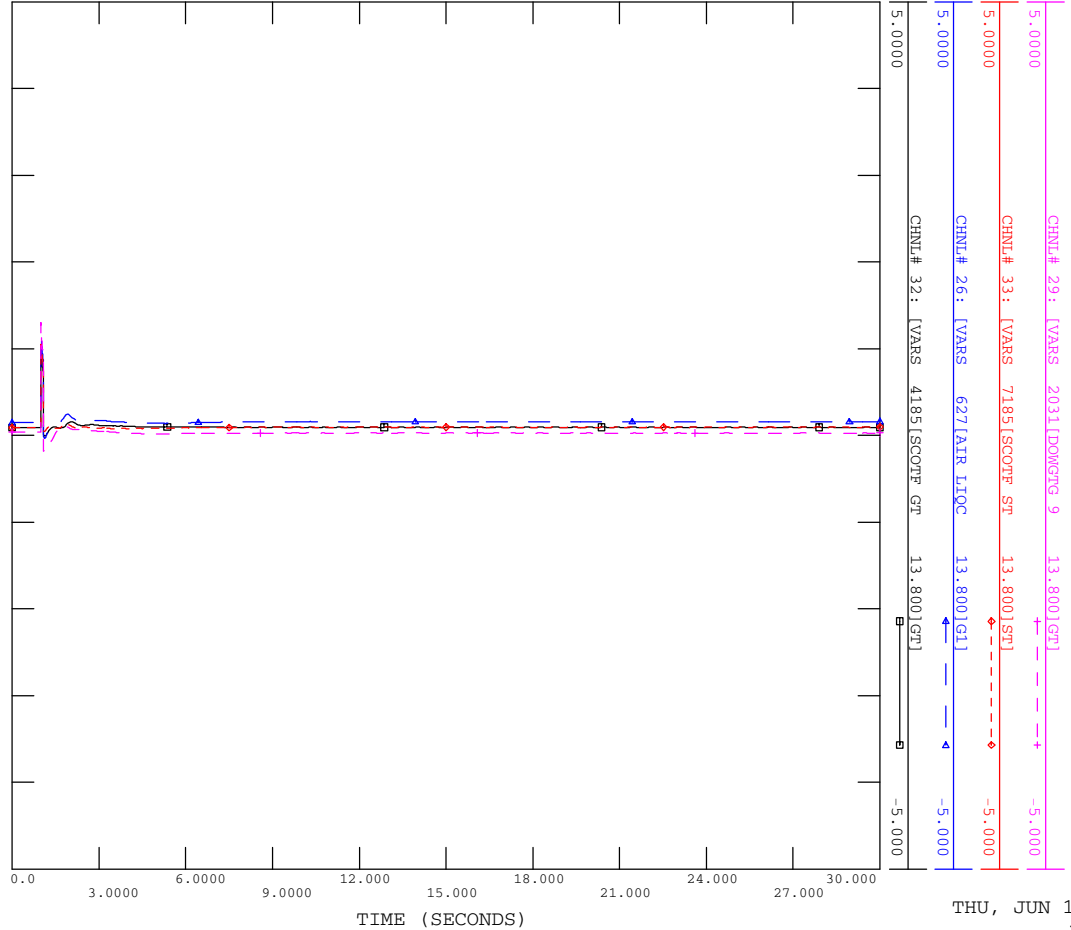


THU, JUN 19 2014 14:54  
FIG F3-18A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

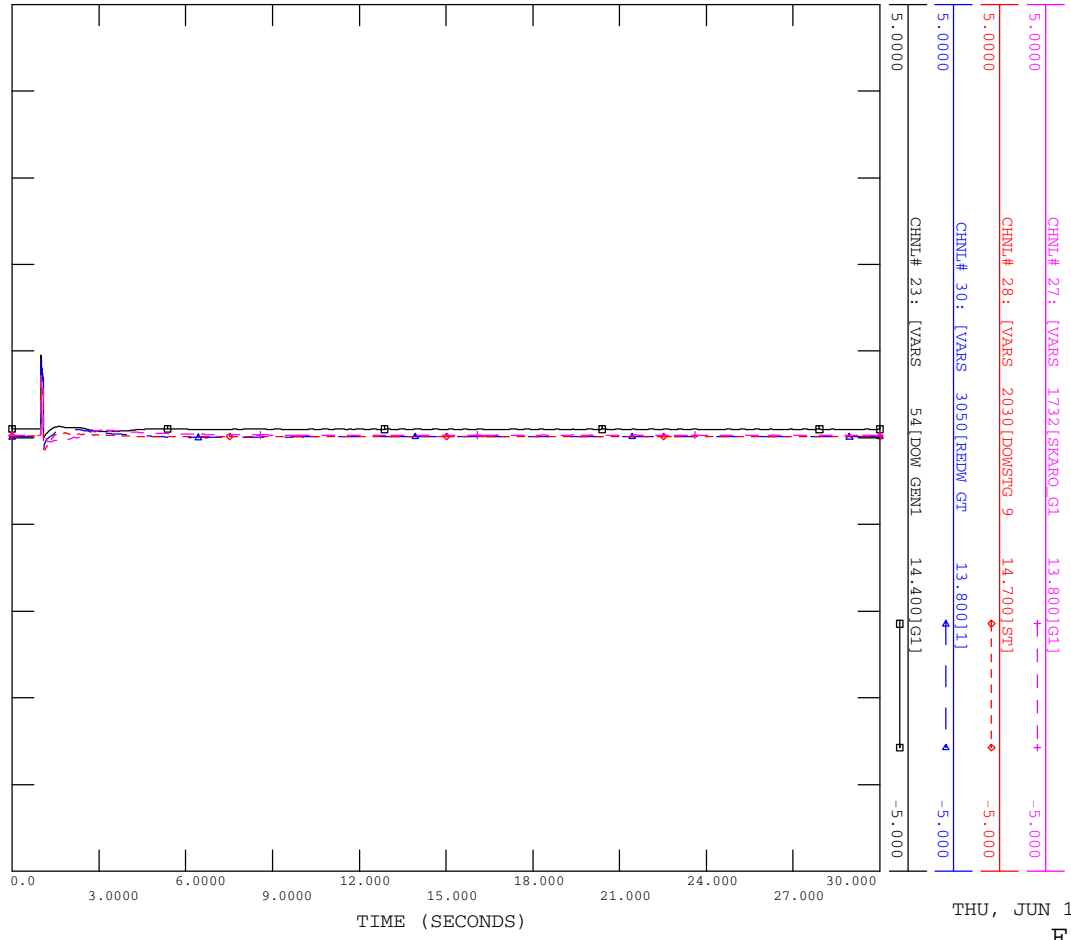


THU, JUN 19 2014 14:54  
FIG F3-19



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

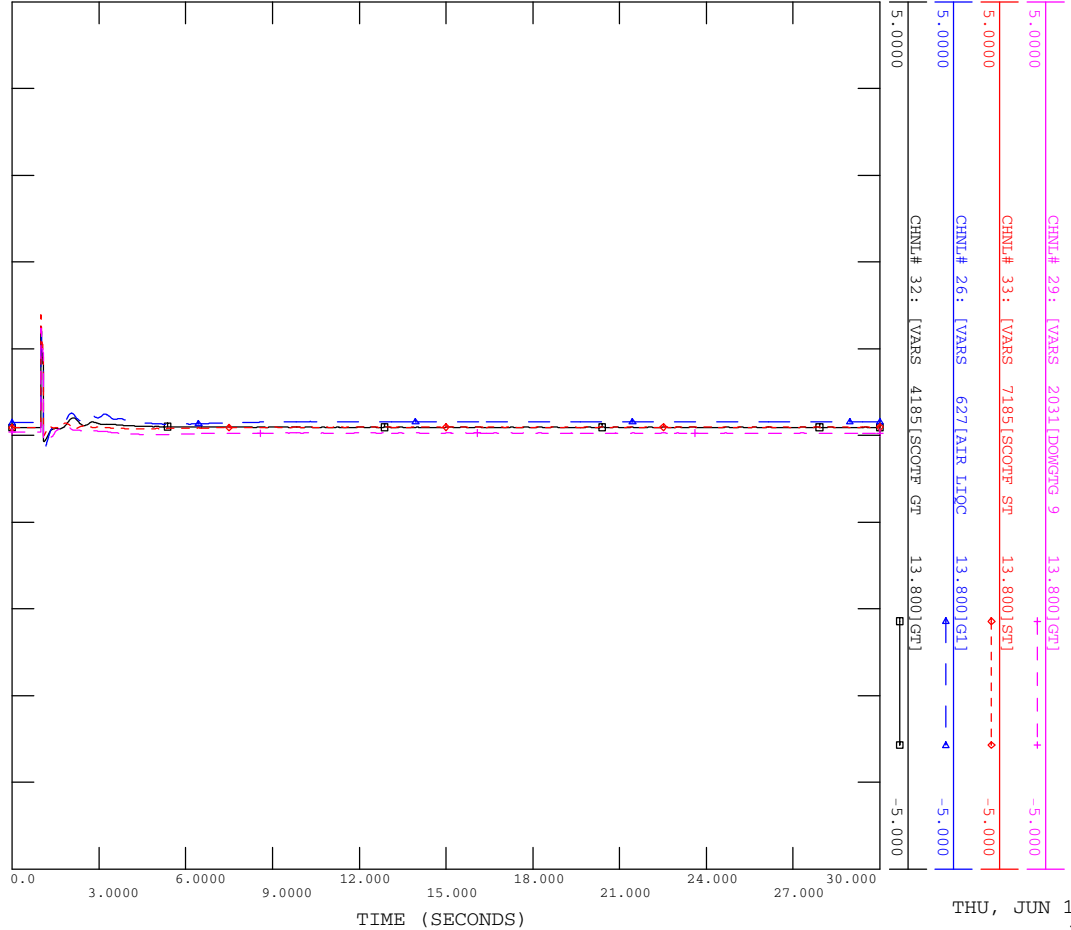


THU, JUN 19 2014 14:54  
FIG F3-19A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

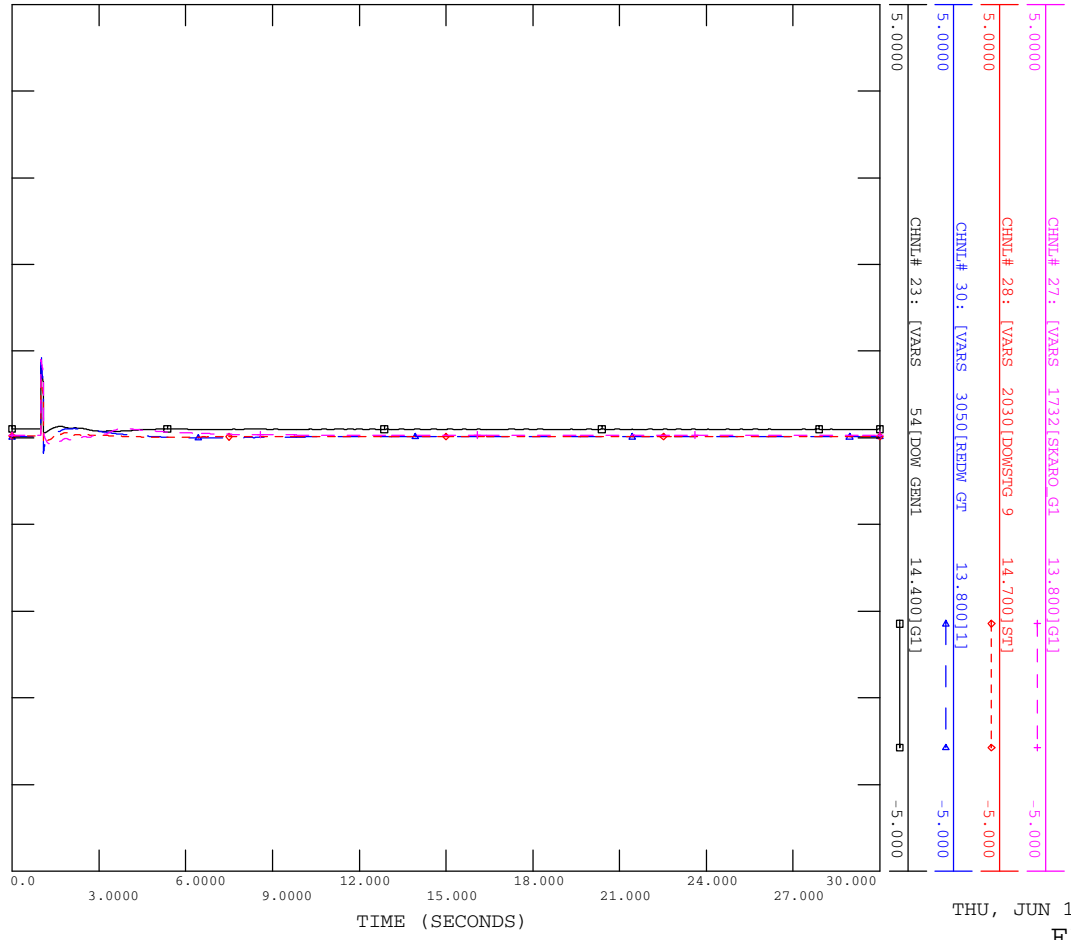


THU, JUN 19 2014 14:55  
FIG F3-20



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

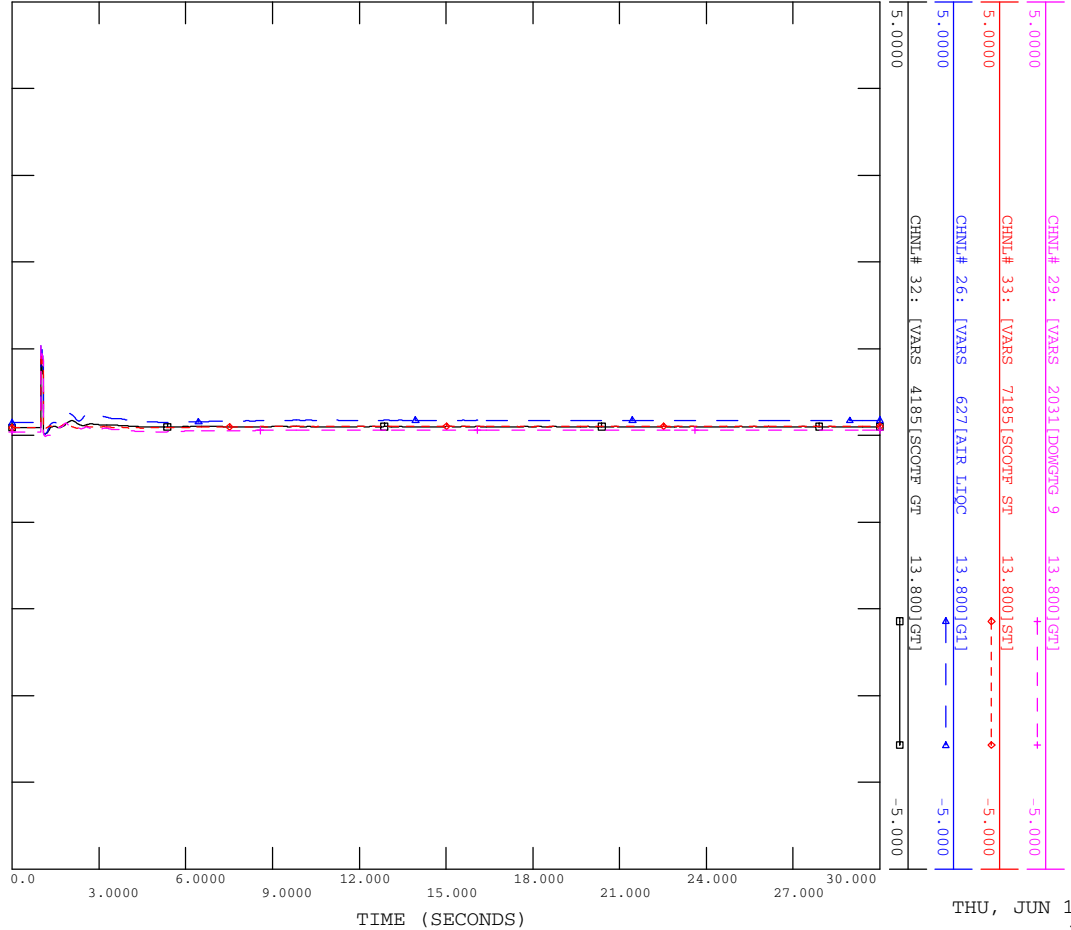


THU, JUN 19 2014 14:55  
FIG F3-20A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

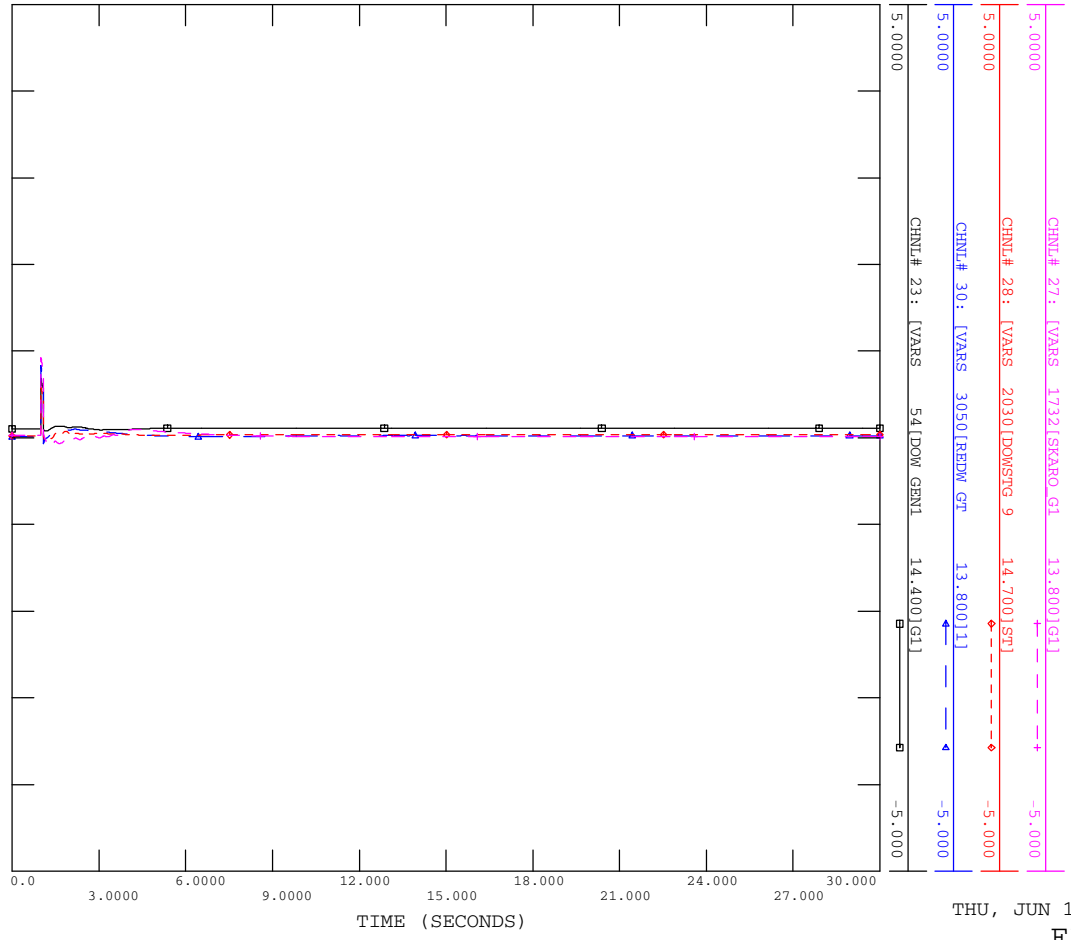


THU, JUN 19 2014 14:56  
FIG F3-21



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

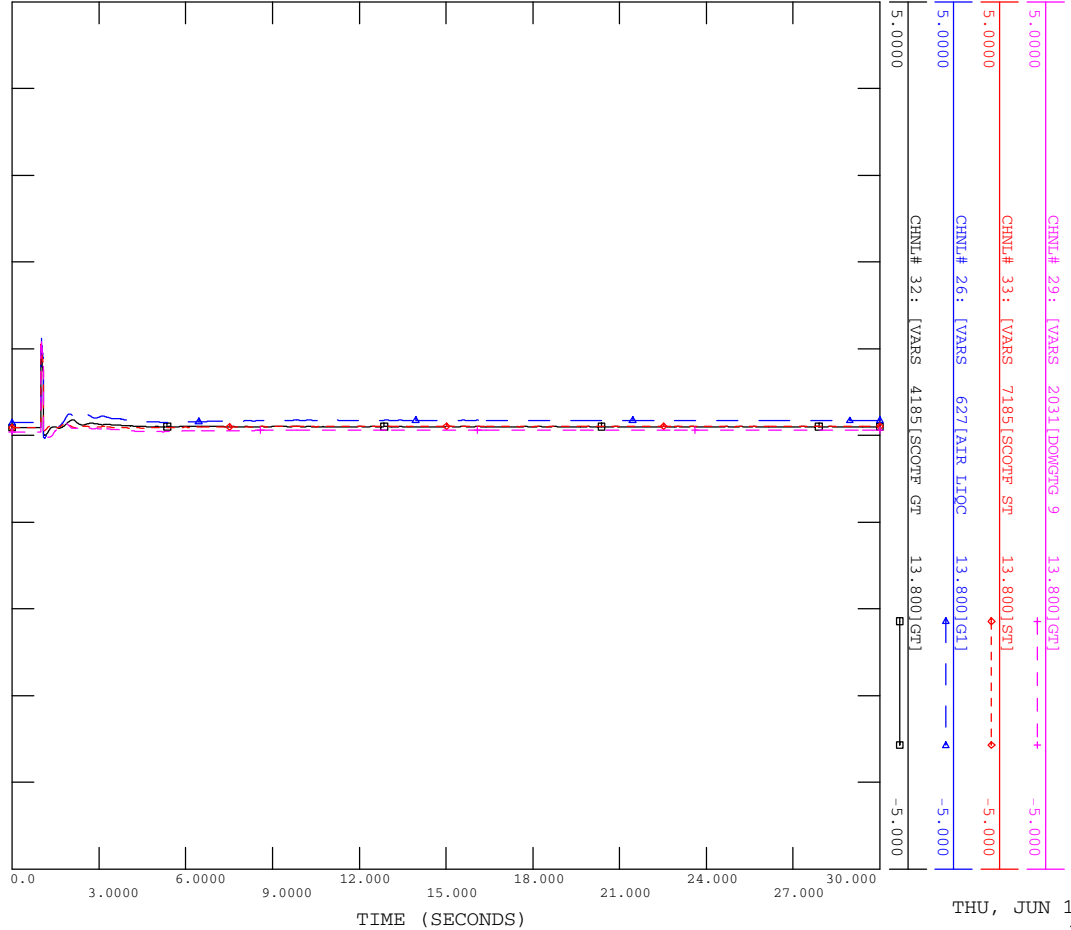


THU, JUN 19 2014 14:56  
FIG F3-21A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

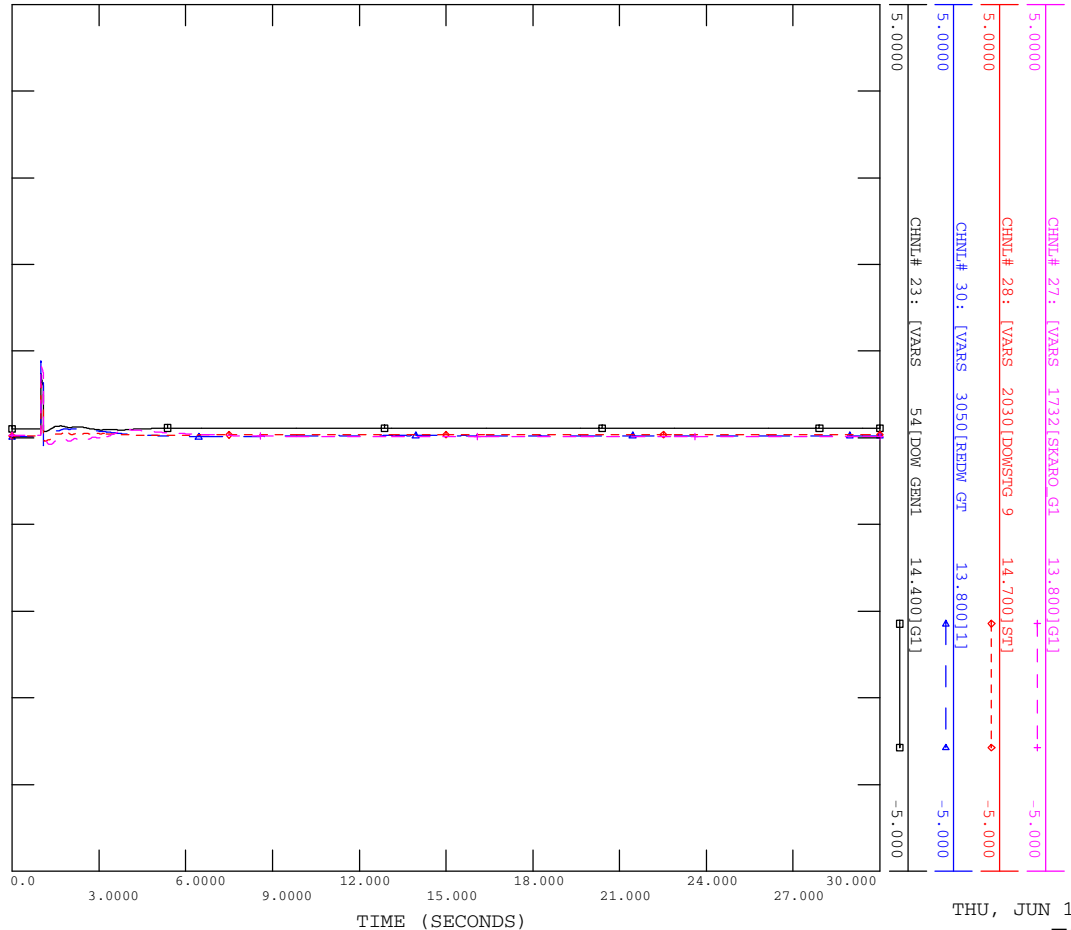


THU, JUN 19 2014 14:57  
FIG F3-22



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

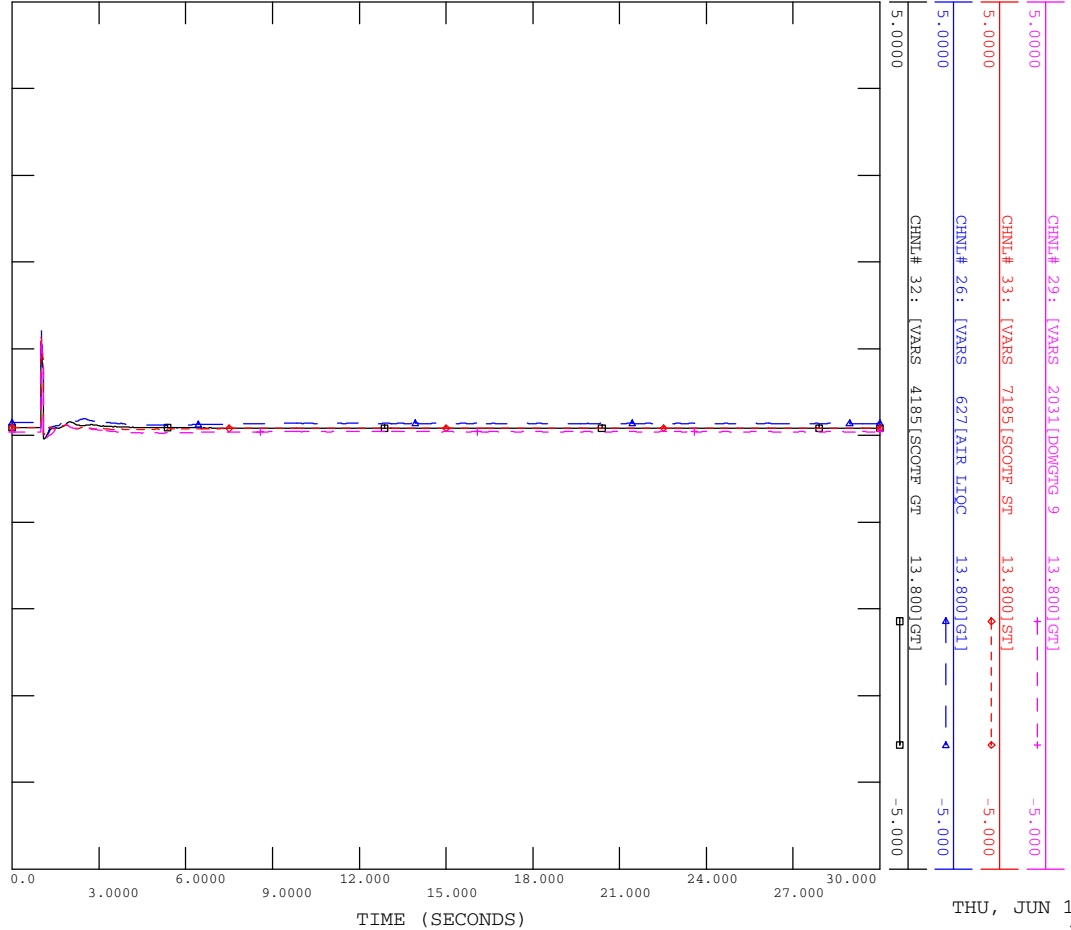


THU, JUN 19 2014 14:57  
FIG F3-22A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

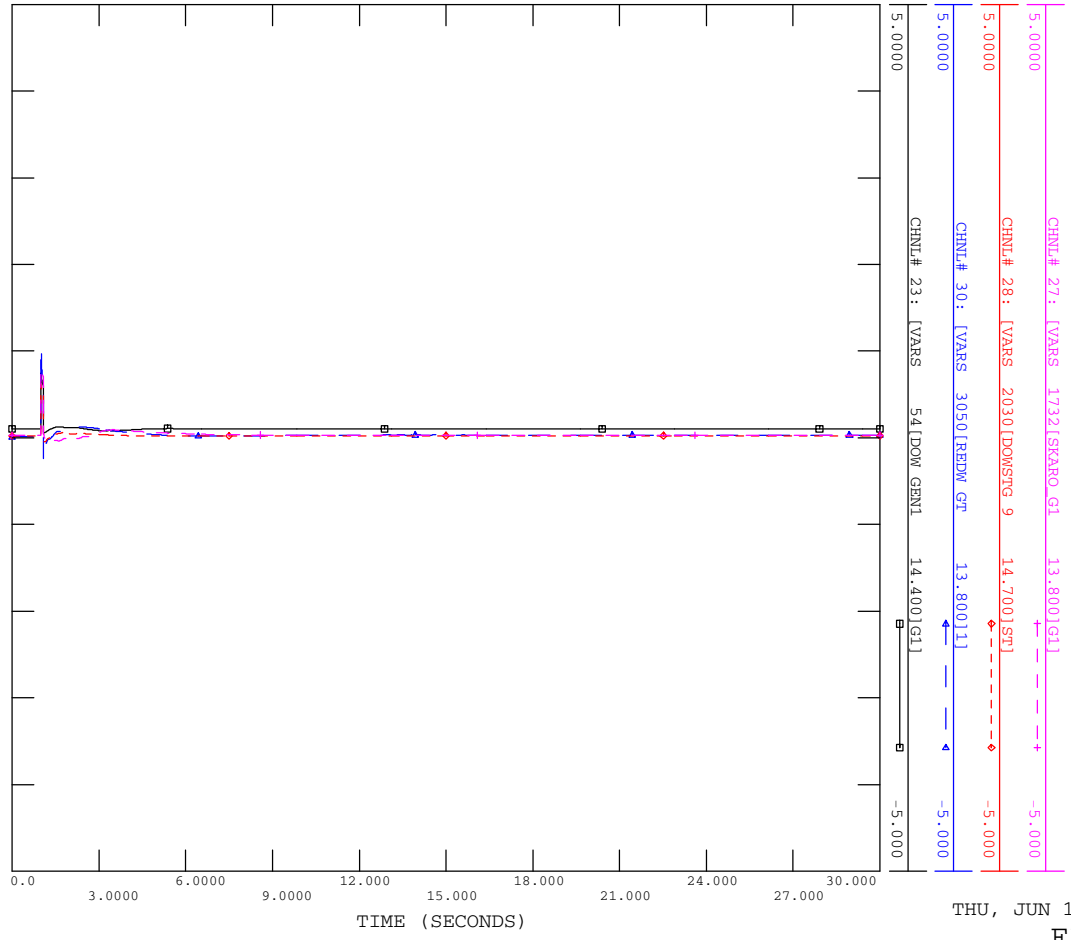


THU, JUN 19 2014 14:58  
FIG F3-23



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT



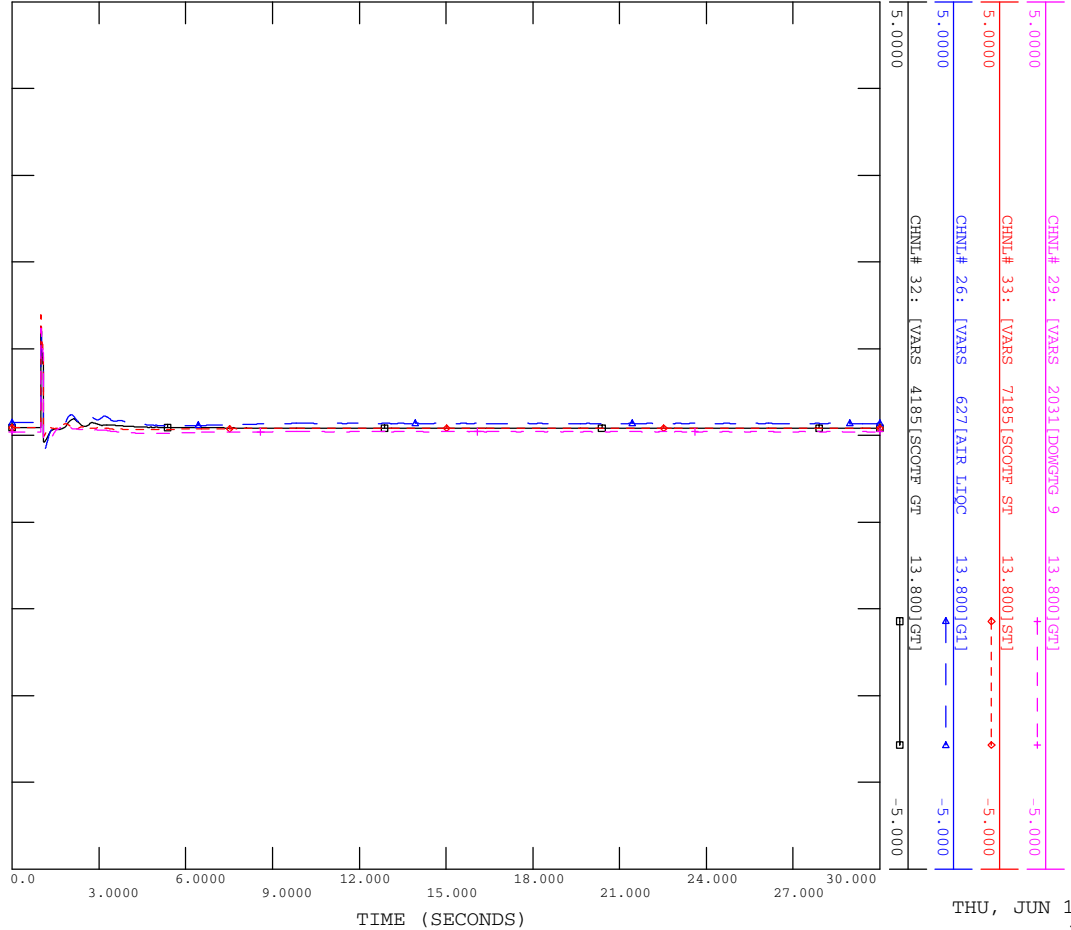
THU, JUN 19 2014 14:58  
FIG F3-23A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

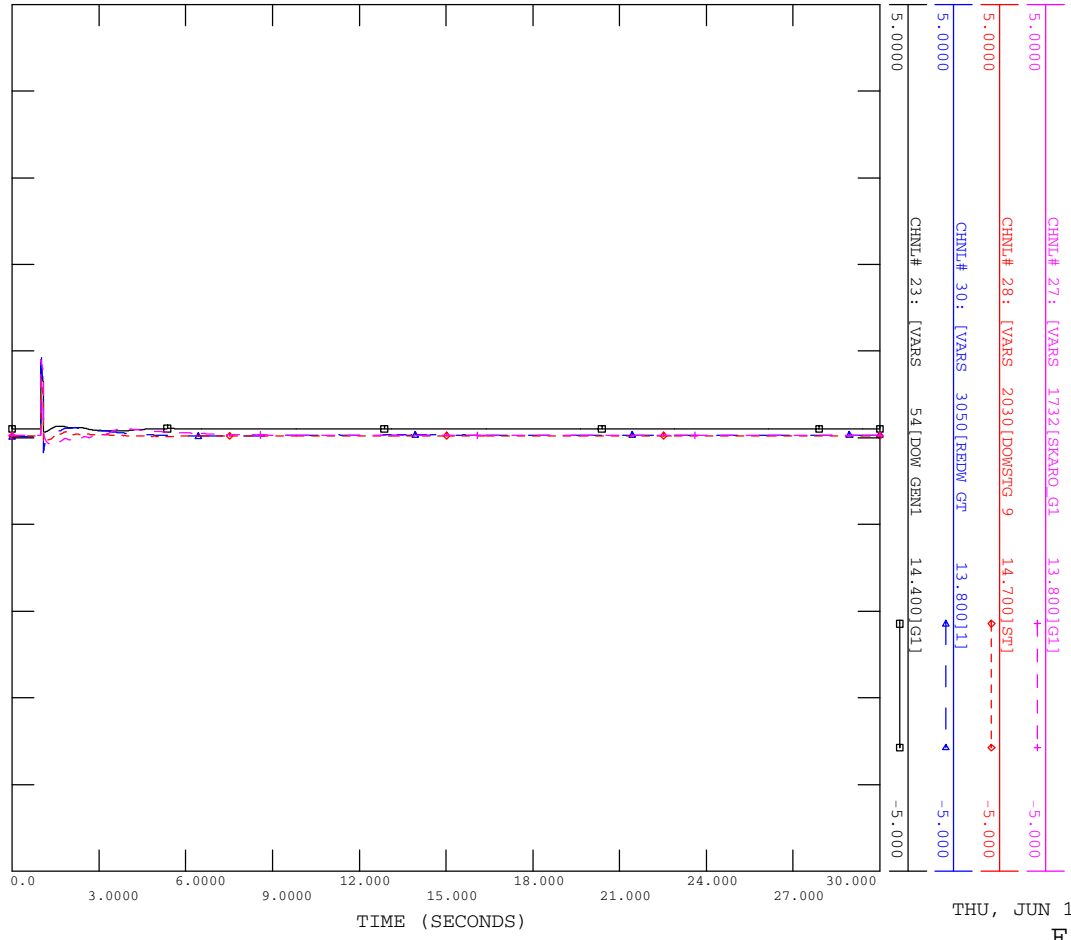


THU, JUN 19 2014 14:59  
 FIG F3-24



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

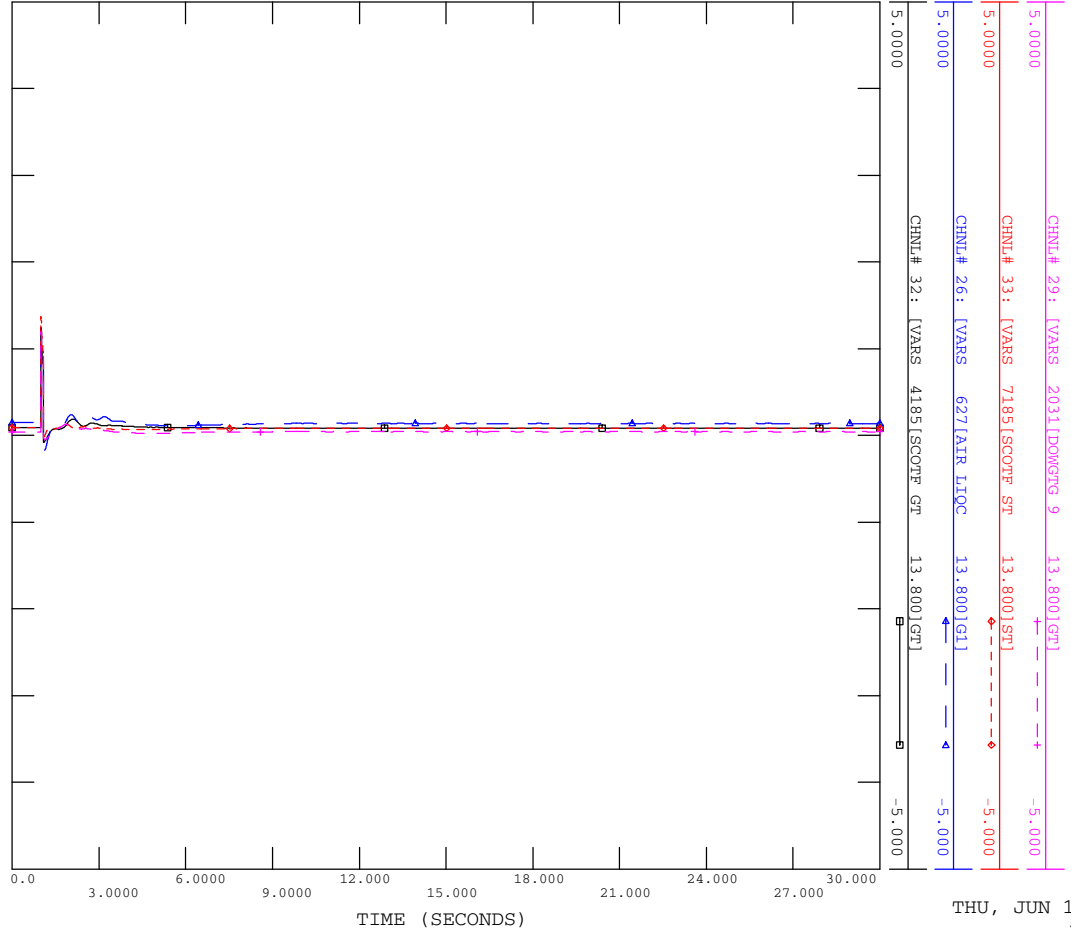


THU, JUN 19 2014 14:59  
 FIG F3-24A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

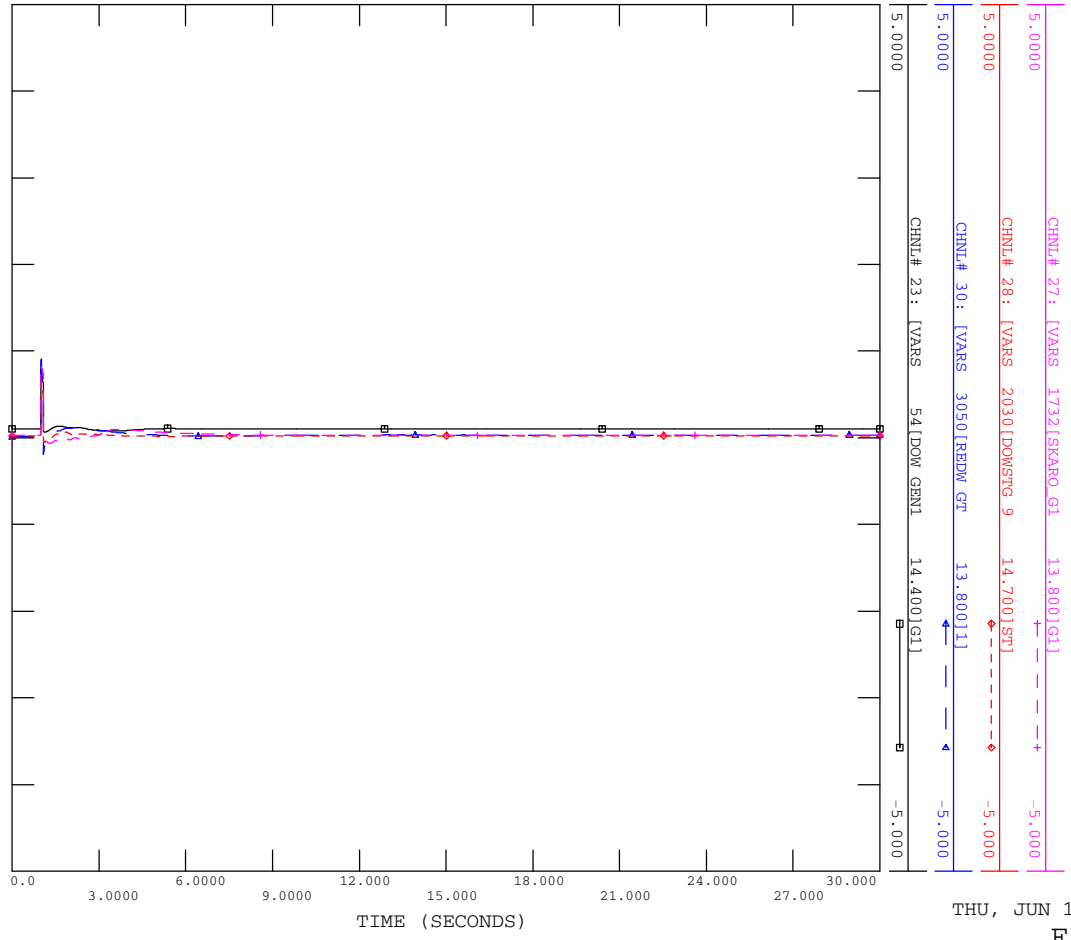


THU, JUN 19 2014 14:59  
FIG F3-25



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

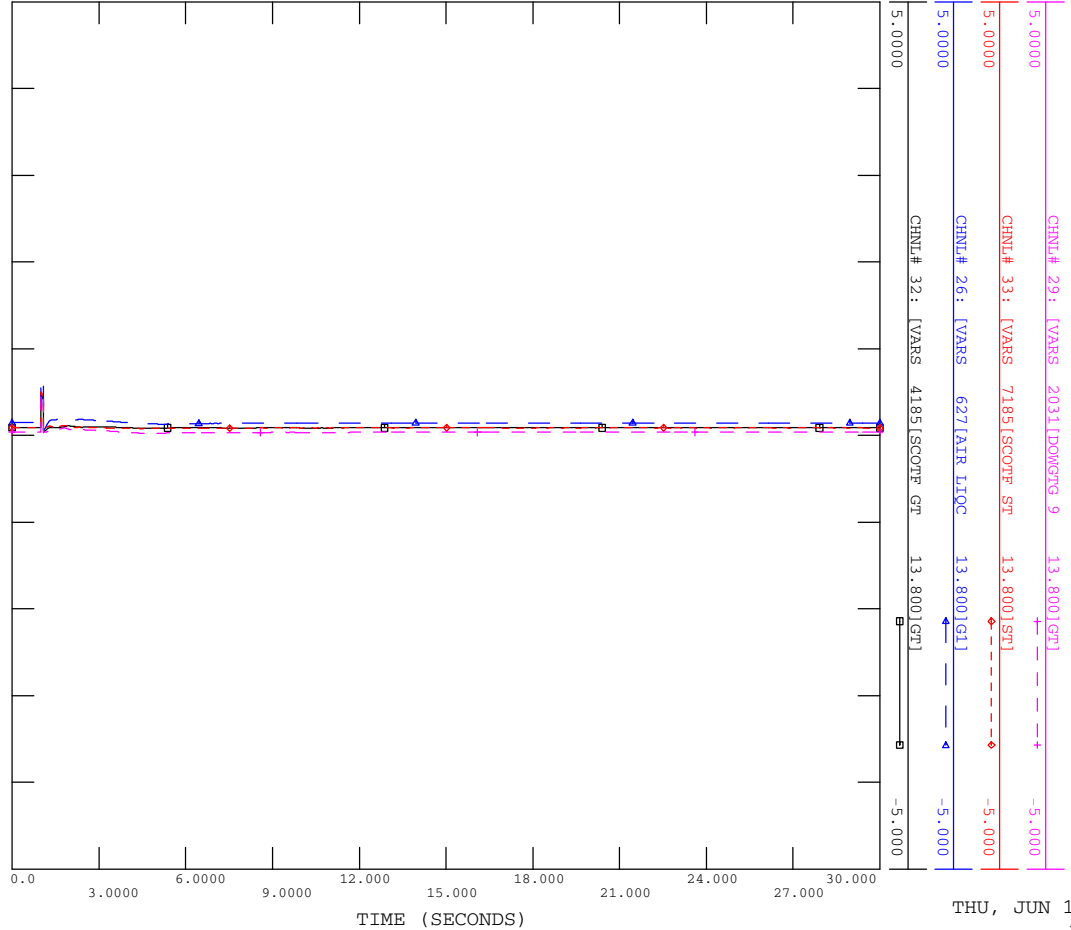


THU, JUN 19 2014 15:00  
FIG F3-25A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 109S T1

FILE: CONG1.OUT

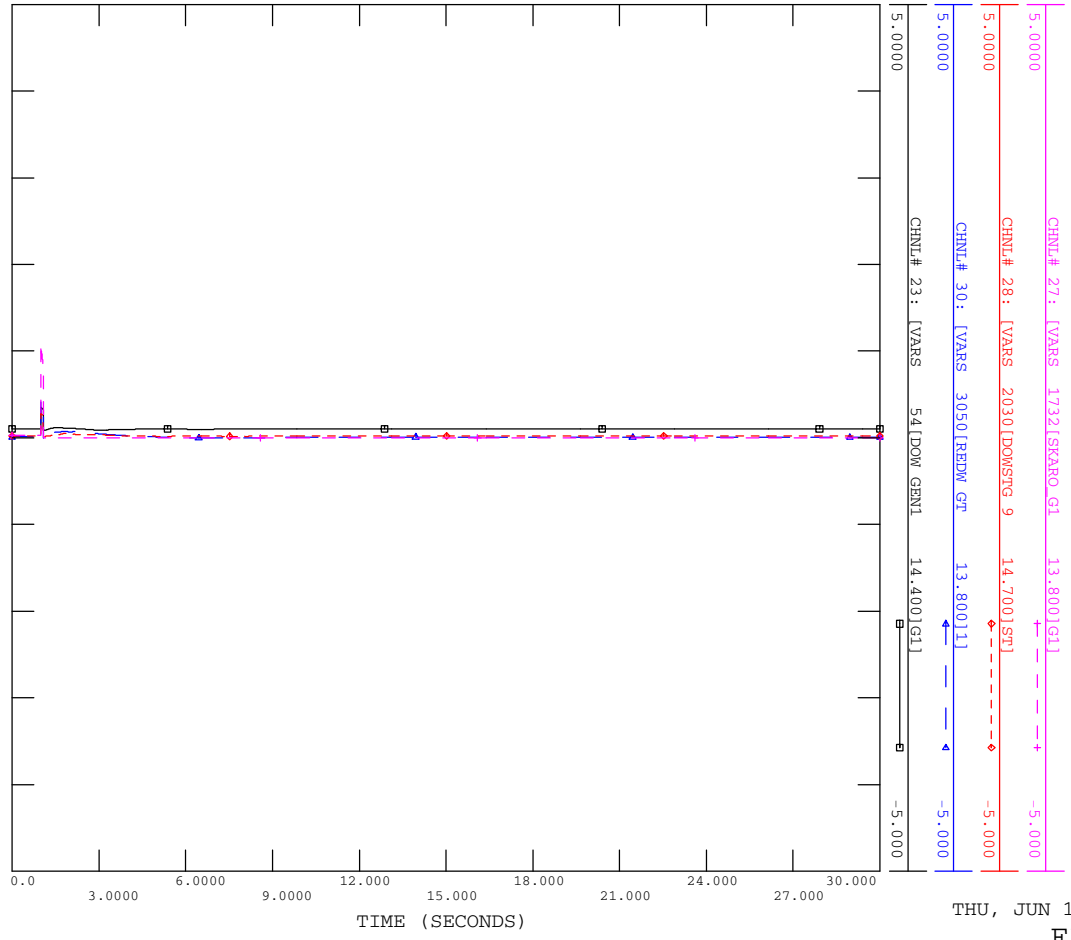


THU, JUN 19 2014 15:00  
FIG F3-26



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 109S T1

FILE: CONG1.OUT

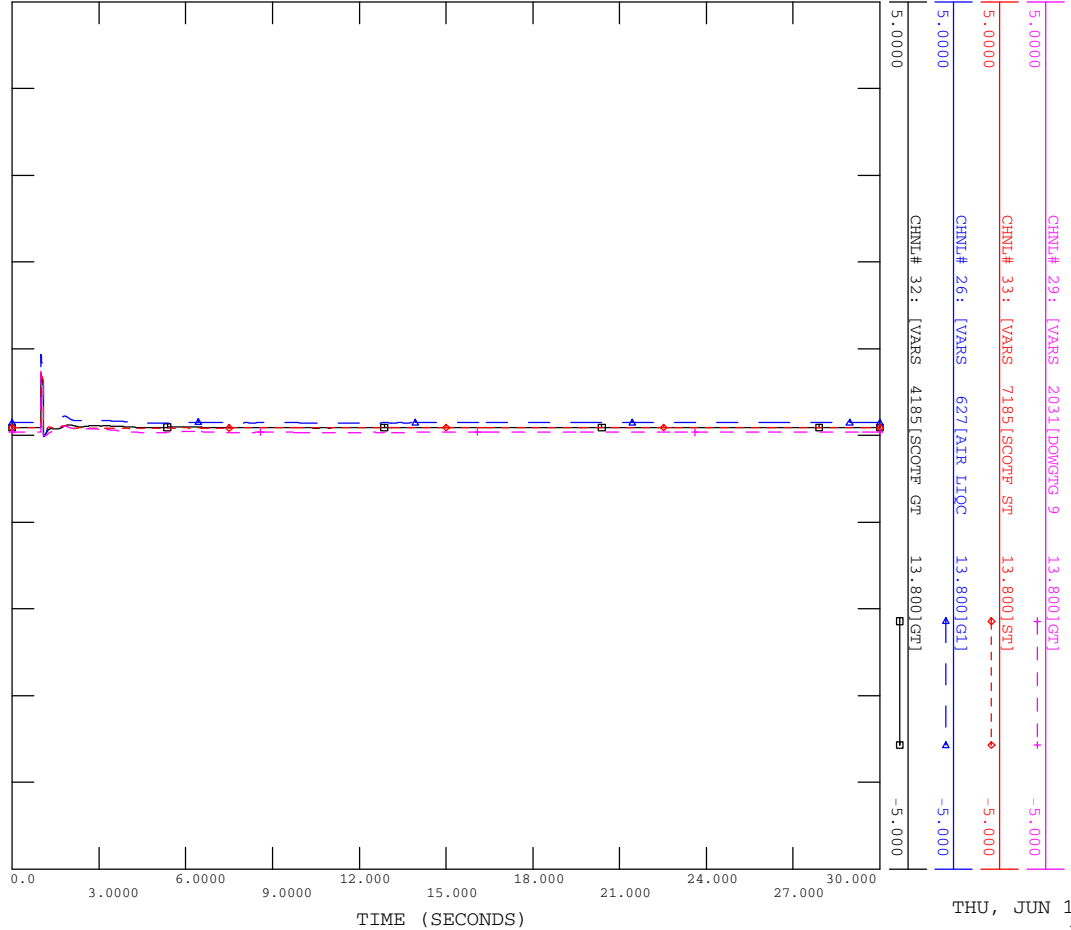


THU, JUN 19 2014 15:01  
FIG F3-26A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

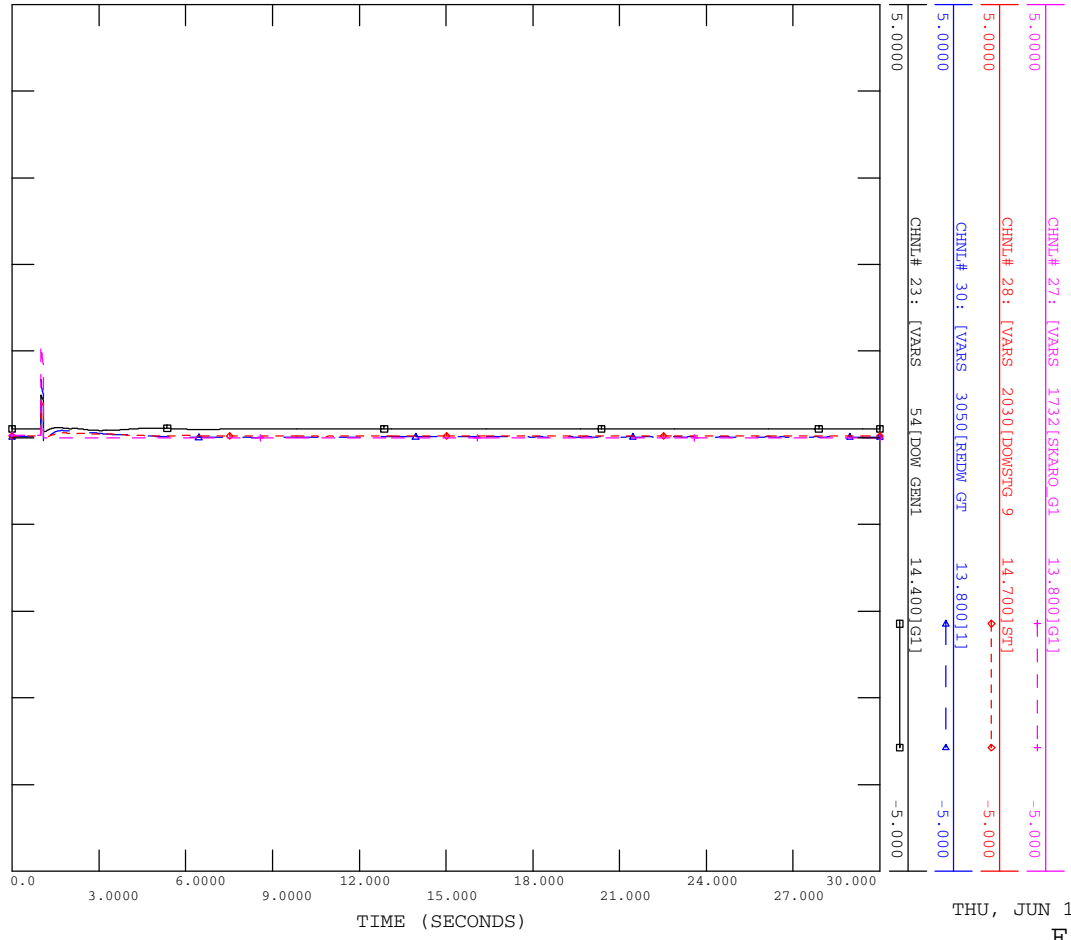


THU, JUN 19 2014 15:01  
FIG F3-27



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

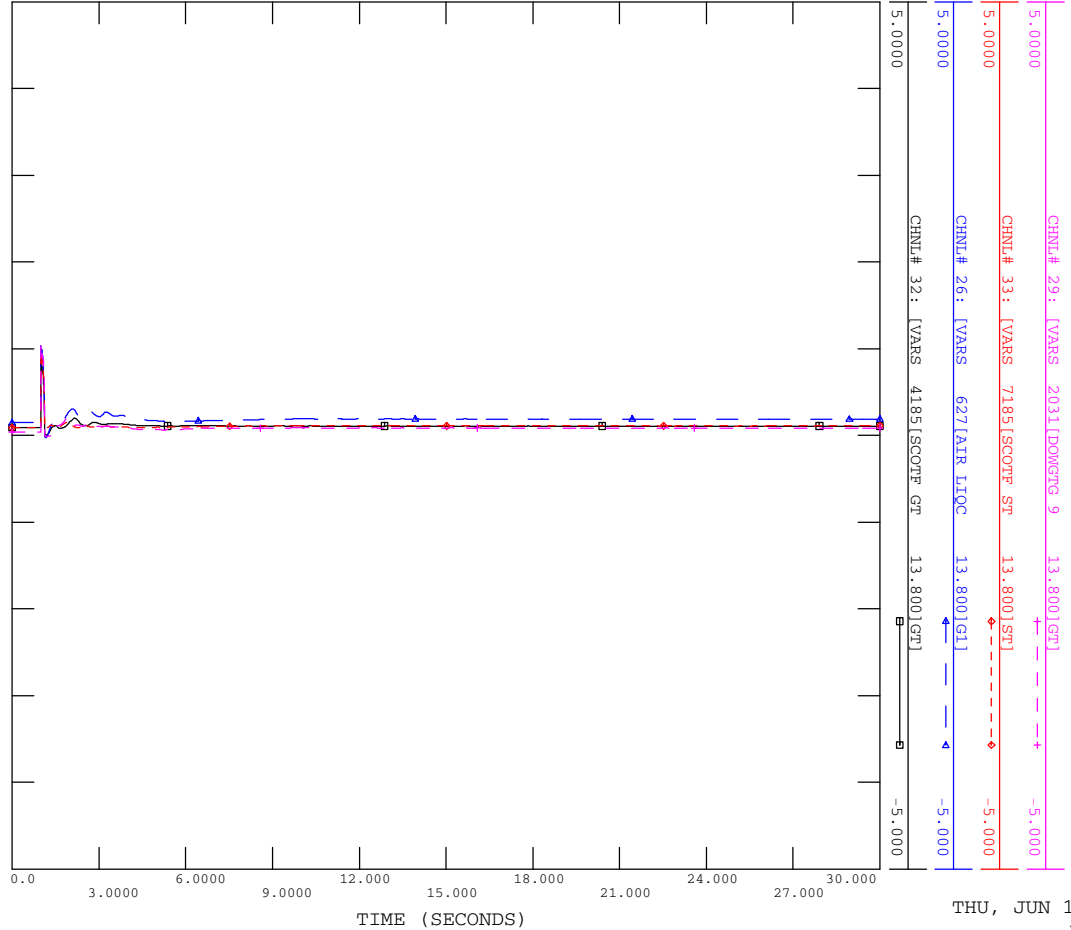


THU, JUN 19 2014 15:02  
FIG F3-27A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT

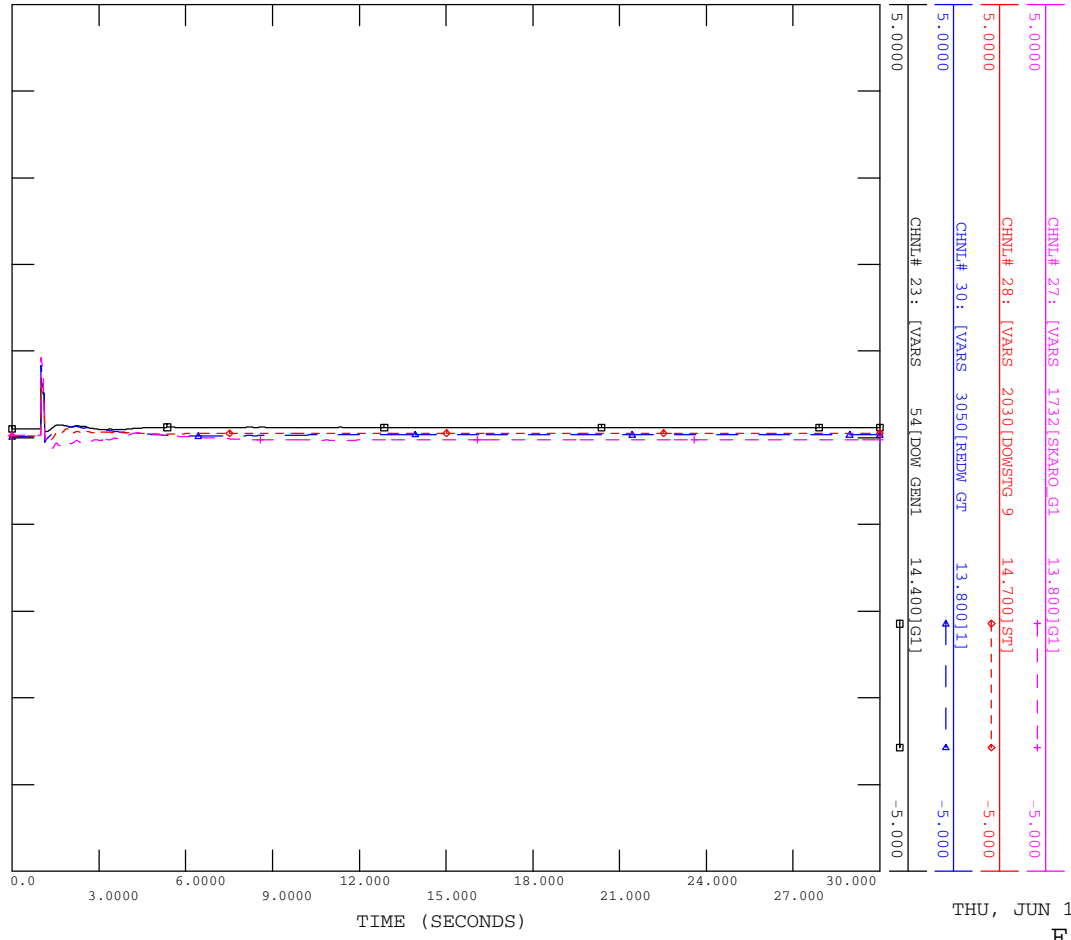


THU, JUN 19 2014 15:02  
FIG F3-28



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT



THU, JUN 19 2014 15:02  
FIG F3-28A

## **Attachment F-4**

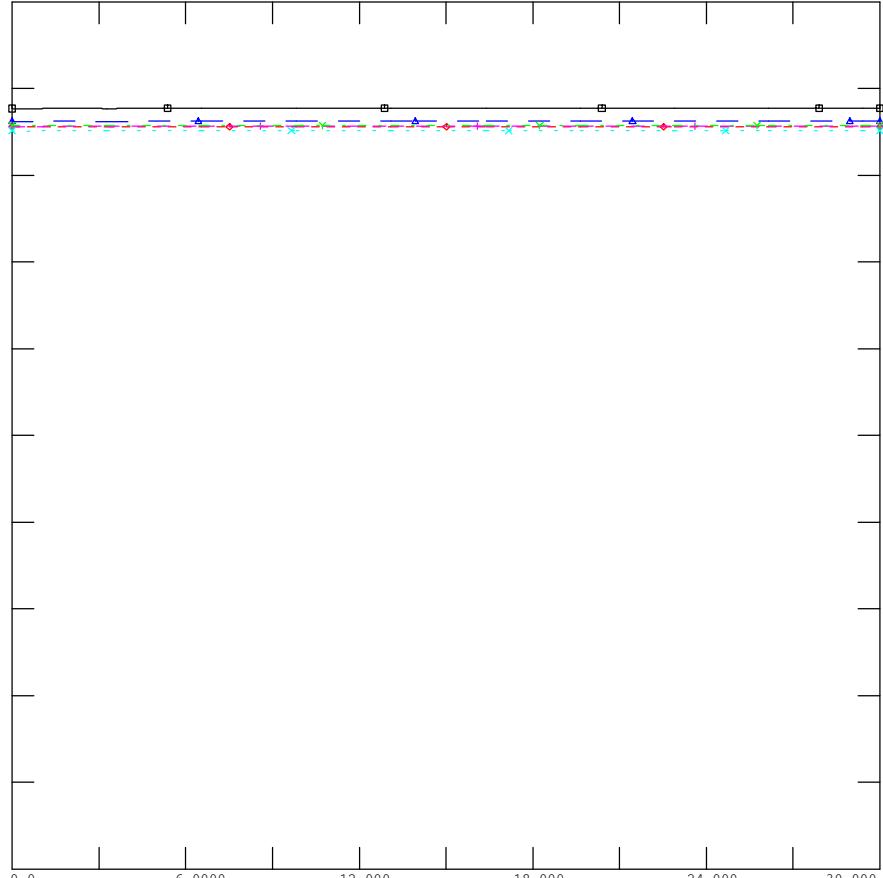
### **Scenario 6 Transient Stability Plots Monitored Area Bus Voltages**



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP A - FLAT START

FILE: CONO.OUT

CHANNEL#	VOLT	SCOT4	138.001	0.0
44	185	8	138.001	0.0
37	59	REBDATE7	138.001	0.0
52	1420	WEASST1	138.001	0.0
51	954	ABBE.01	138.001	0.0
42	106	DEBRLAN7	138.001	0.0
43	109	DEBRLAN4	240.001	0.0



TIME (SECONDS)

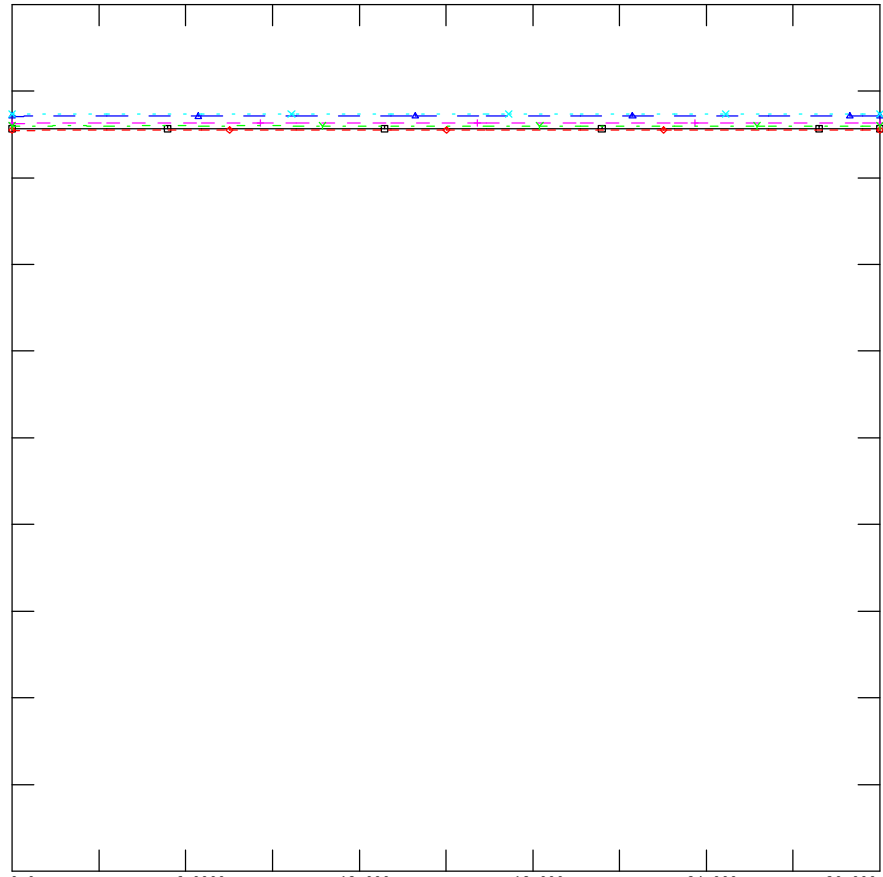
THU, JUN 19 2014 14:40  
 FIG F4-1



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP A - FLAT START

FILE: CONO.OUT

CHANNEL#	VOLT	BRUDRH7	138.001	0.0
41	67	BRUDRH7	138.001	0.0
45	443	BANN.240	240.001	0.0
39	61	DOW. CHBM	138.001	0.0
38	60	BEAMER.7	138.001	0.0
50	771	AMELIA1	240.001	0.0
49	628	ALC. SCOT	138.001	0.0



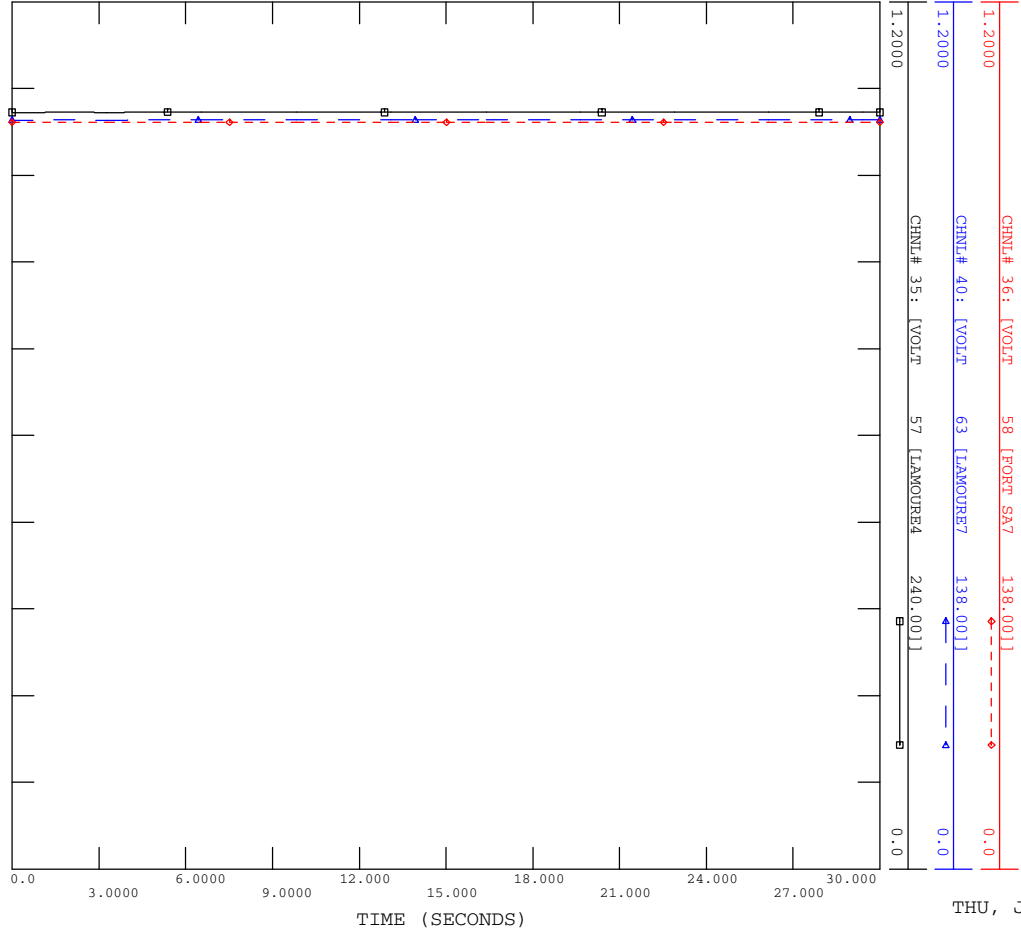
TIME (SECONDS)

THU, JUN 19 2014 14:40  
 FIG F4-1A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP A - FLAT START

FILE: CON0.OUT

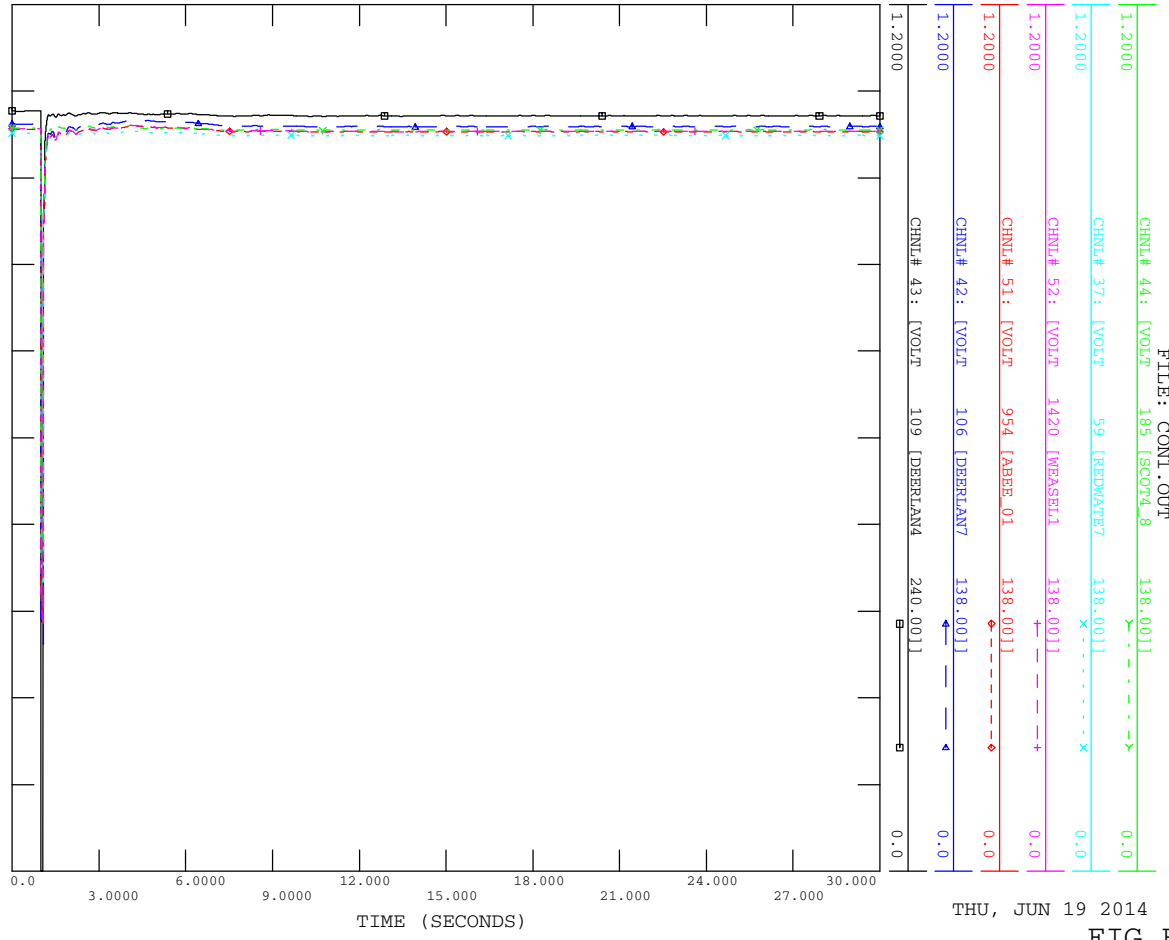


THU, JUN 19 2014 14:40  
 FIG F4-1B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT



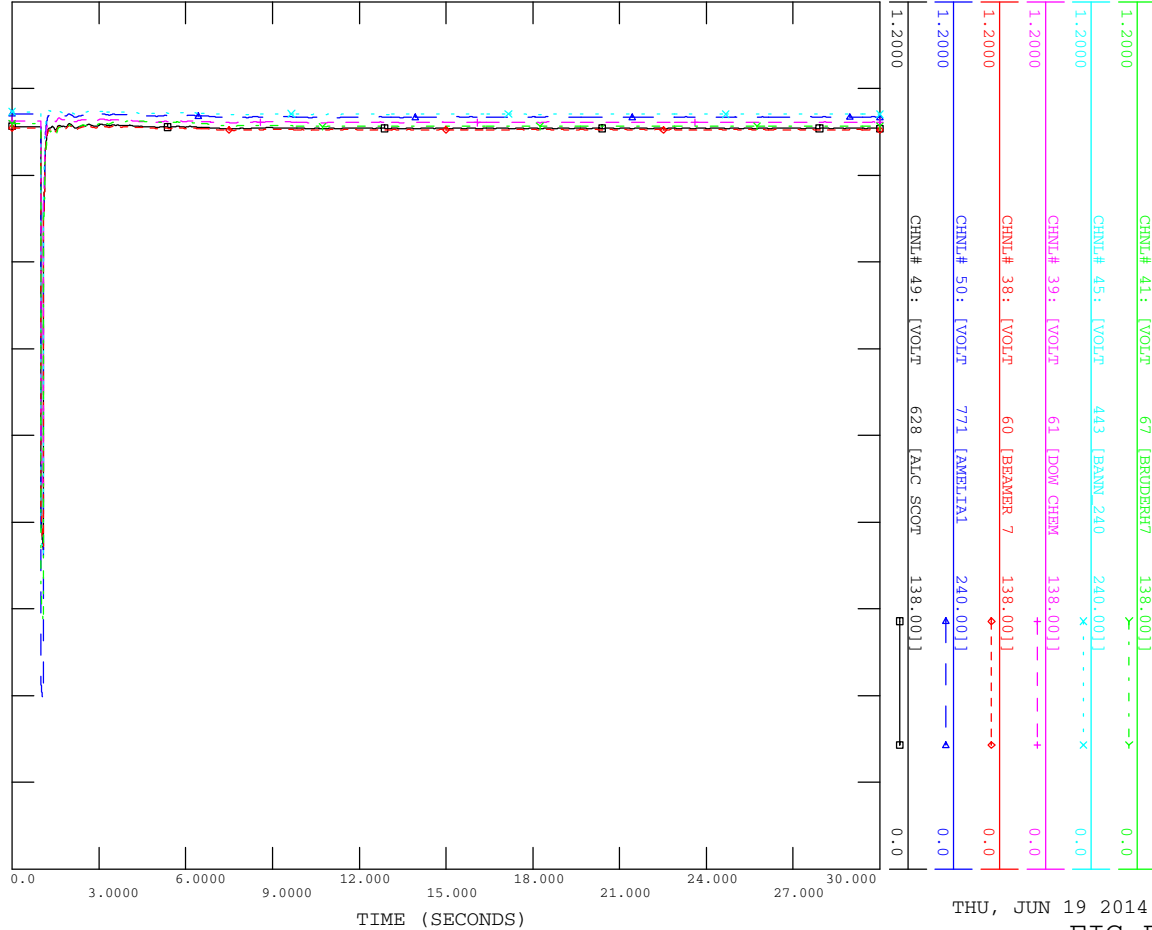
THU, JUN 19 2014 14:40  
 FIG F4-2





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT

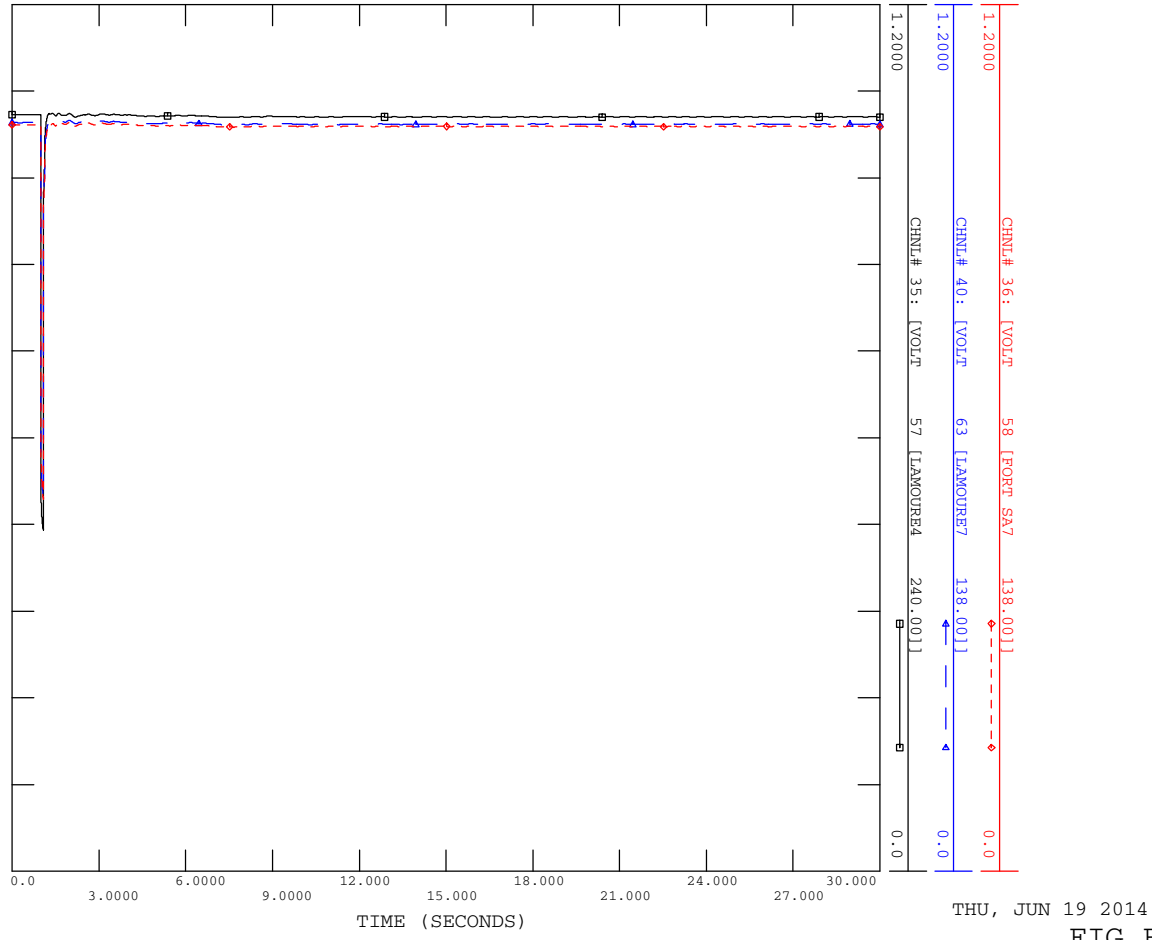


THU, JUN 19 2014 14:40  
FIG F4-2A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 9L961 3PH FAULT AT 13S

FILE: CON1.OUT



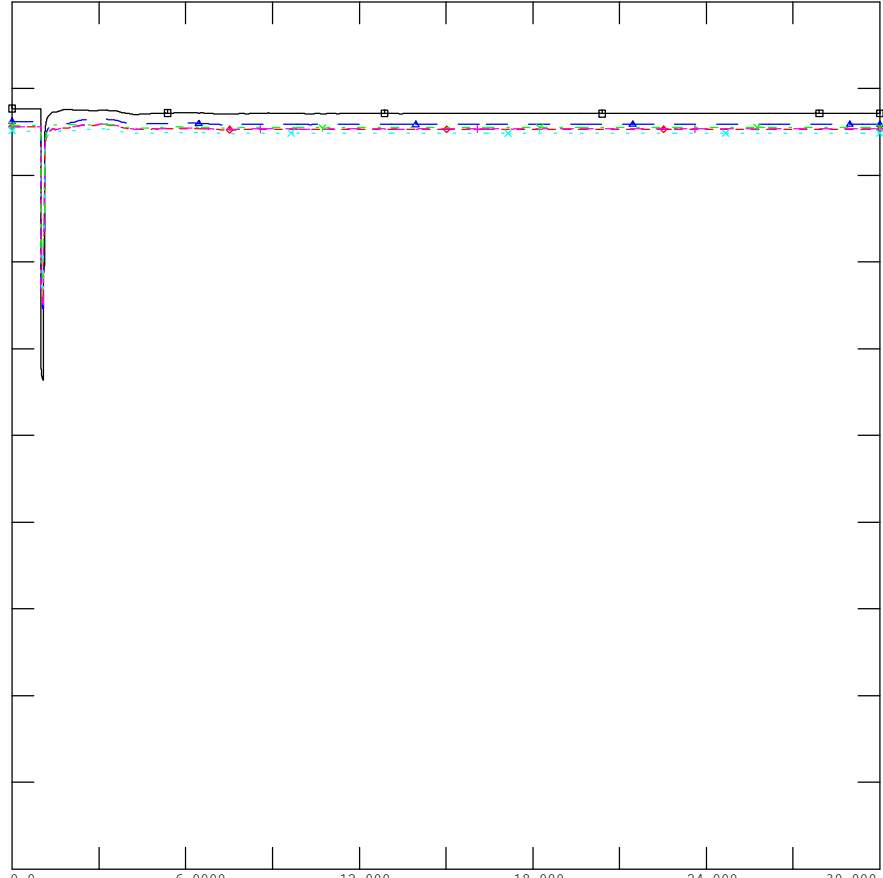
THU, JUN 19 2014 14:41  
FIG F4-2B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
CHNL# 44:	[VOLT]	185 [SCOT4 8]	138.001	0.0
CHNL# 37:	[VOLT]	59 [BRDERRH7]	138.001	0.0
CHNL# 52:	[VOLT]	1420 [WEASBFL1]	138.001	0.0
CHNL# 51:	[VOLT]	954 [ABBE 01]	138.001	0.0
CHNL# 42:	[VOLT]	106 [DBERLAN7]	138.001	0.0
CHNL# 43:	[VOLT]	109 [DBERLAN4]	240.001	0.0



TIME (SECONDS)

THU, JUN 19 2014 14:41

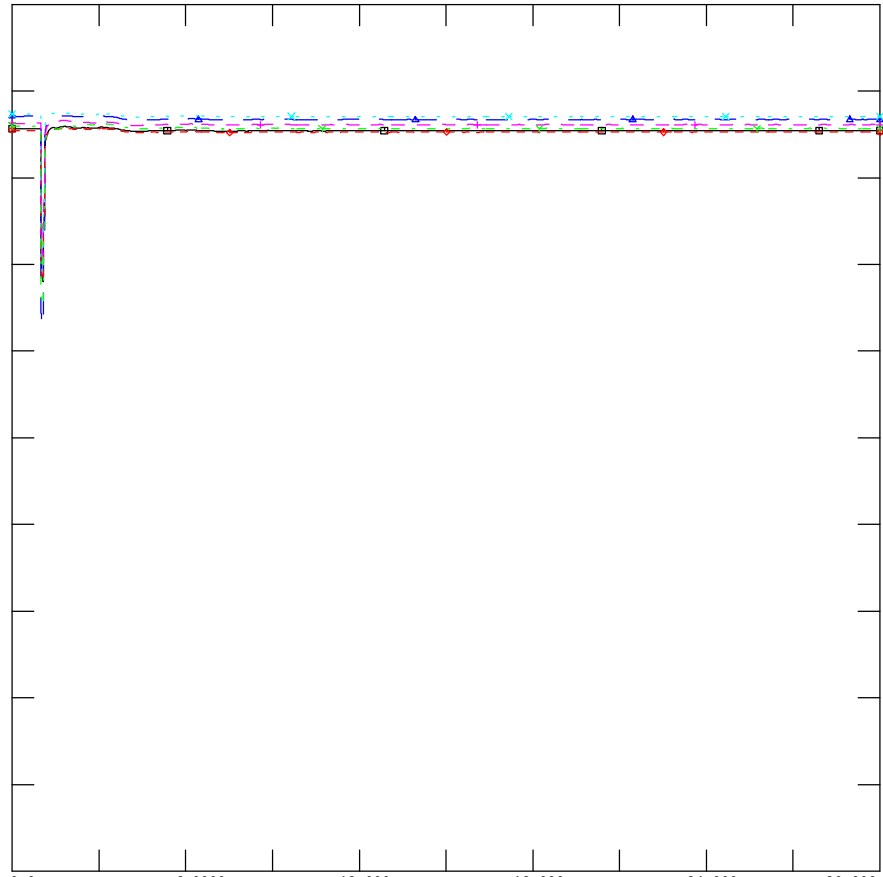
FIG F4-3



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

CHNL#	[VOLT]	[BRDERRH7]	[138.001]	[0.0]
CHNL# 41:	[VOLT]	67 [BRDERRH7]	138.001	0.0
CHNL# 45:	[VOLT]	443 [BANN 240]	240.001	0.0
CHNL# 39:	[VOLT]	61 [DOW CHBM]	138.001	0.0
CHNL# 38:	[VOLT]	60 [BEAMER 7]	138.001	0.0
CHNL# 50:	[VOLT]	771 [AMELIA1]	240.001	0.0
CHNL# 49:	[VOLT]	628 [ALC SCOT]	138.001	0.0



TIME (SECONDS)

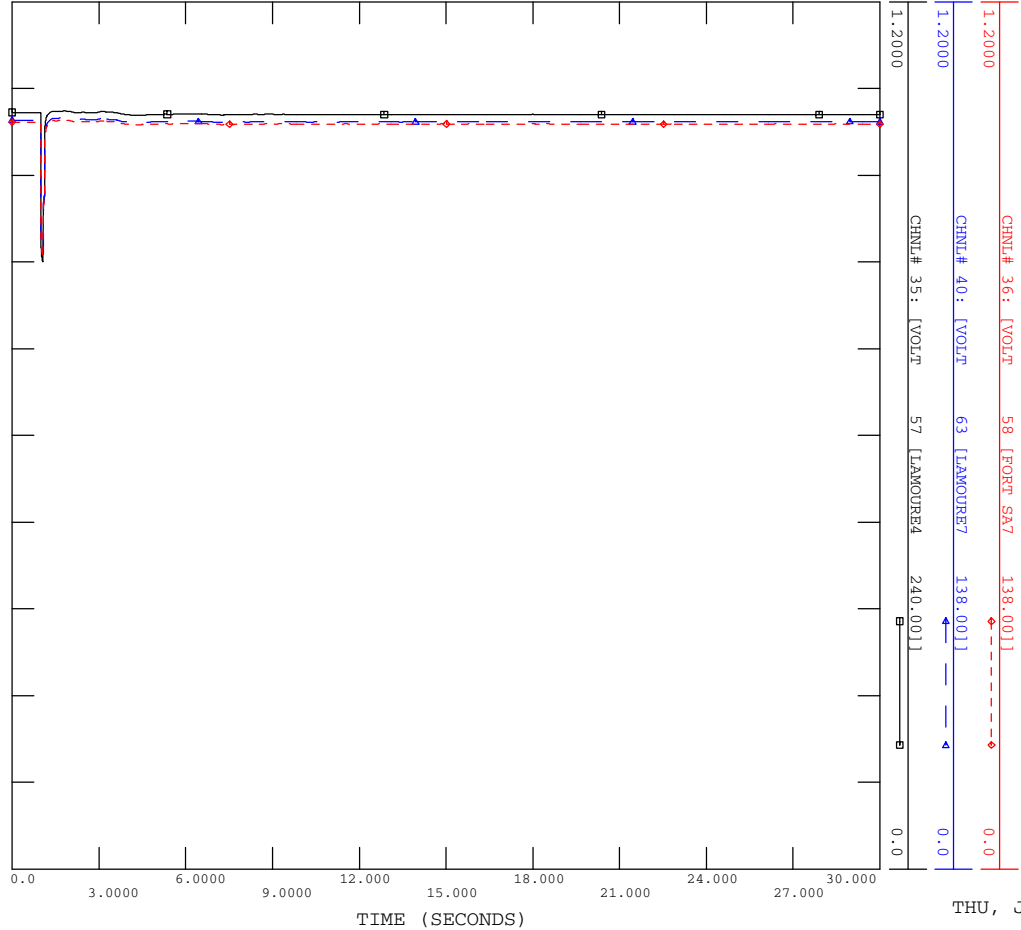
THU, JUN 19 2014 14:41

FIG F4-3A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAT B - 9L961 3PH FAULT AT 825S

FILE: CON2.OUT

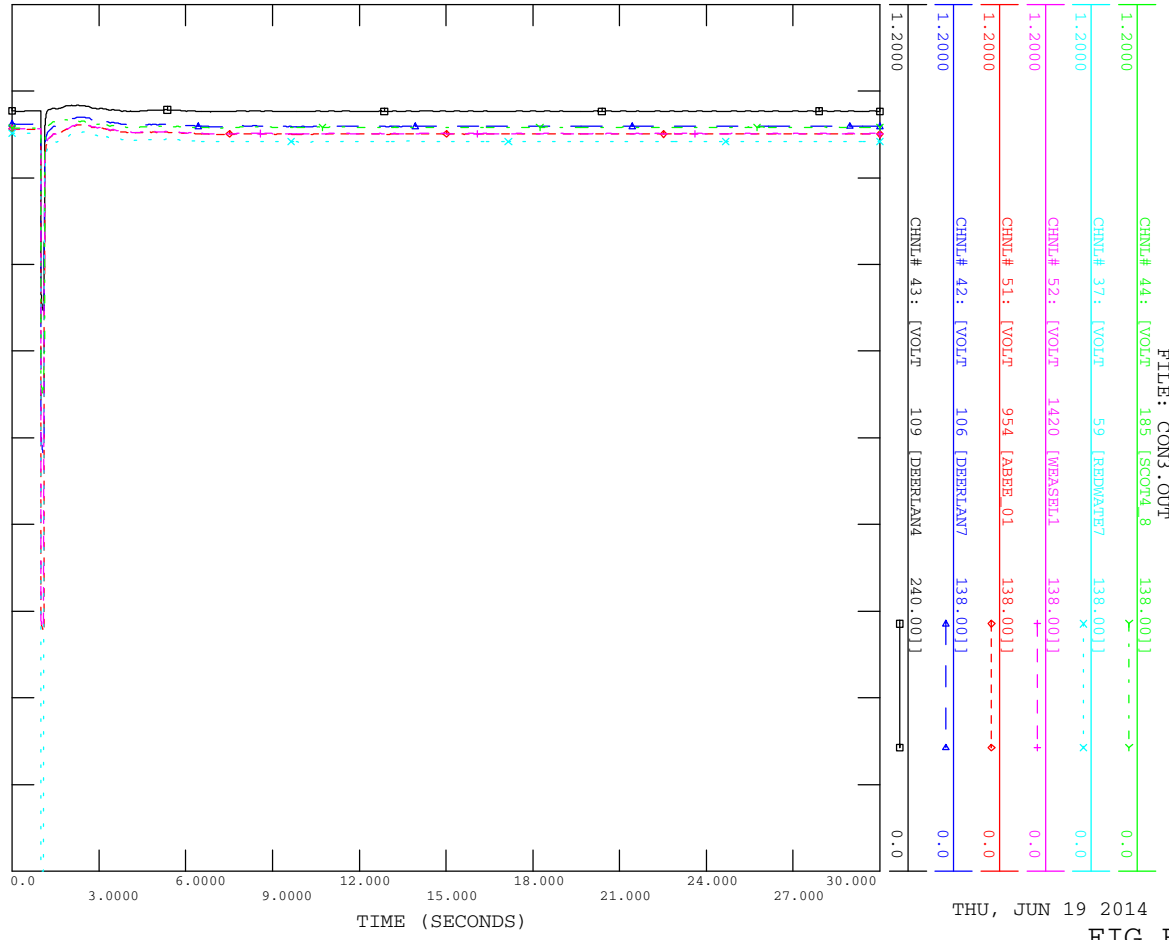


THU, JUN 19 2014 14:42  
 FIG F4-3B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAT B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

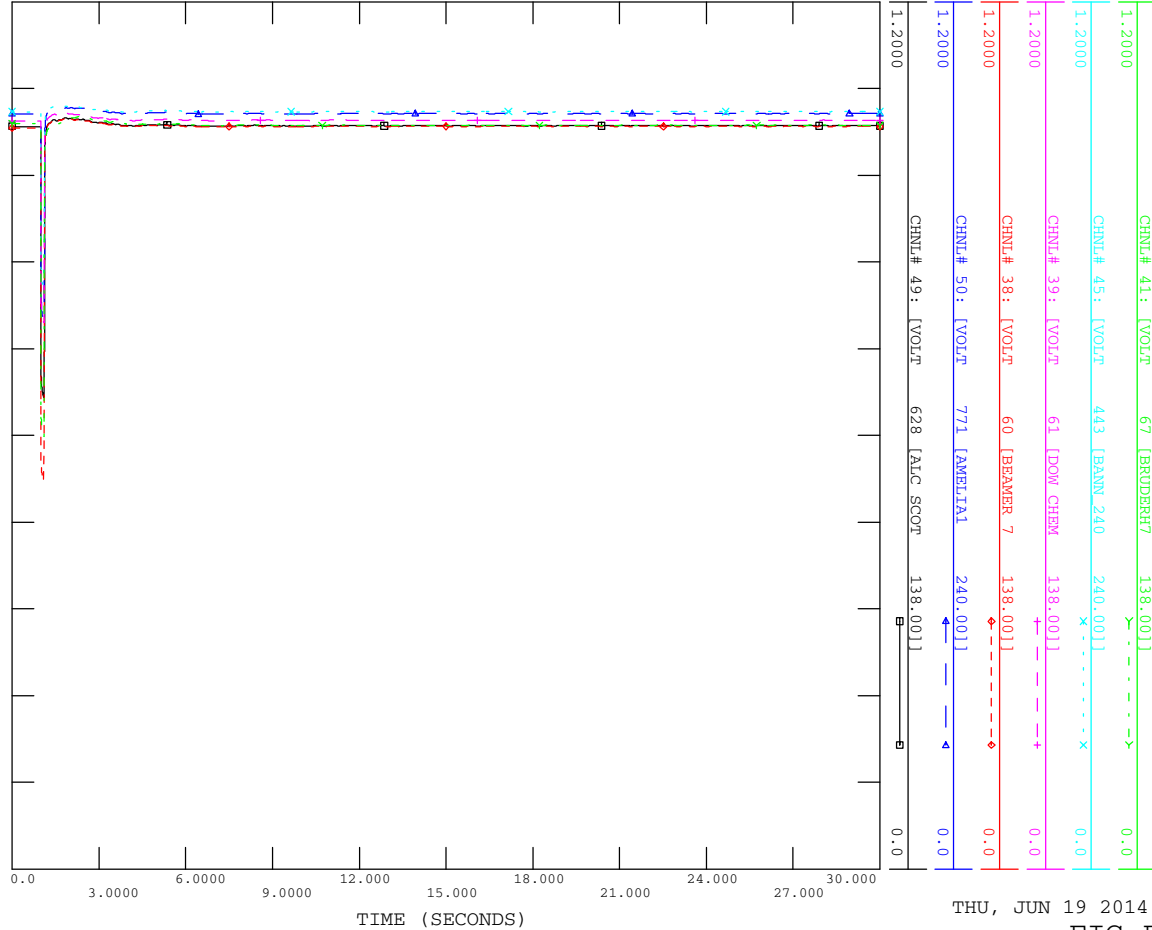


THU, JUN 19 2014 14:42  
 FIG F4-4



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

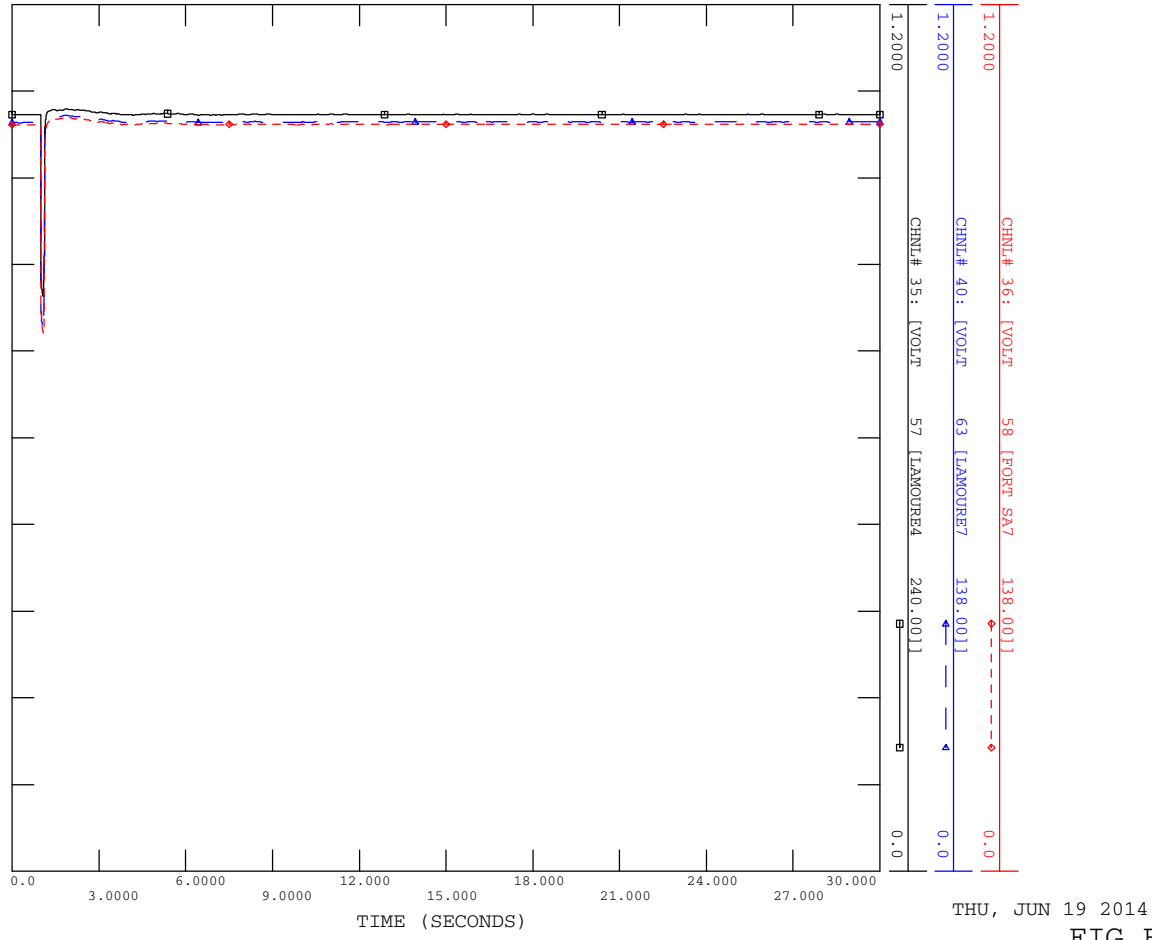


THU, JUN 19 2014 14:43  
FIG F4-4A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 171S

FILE: CON3.OUT

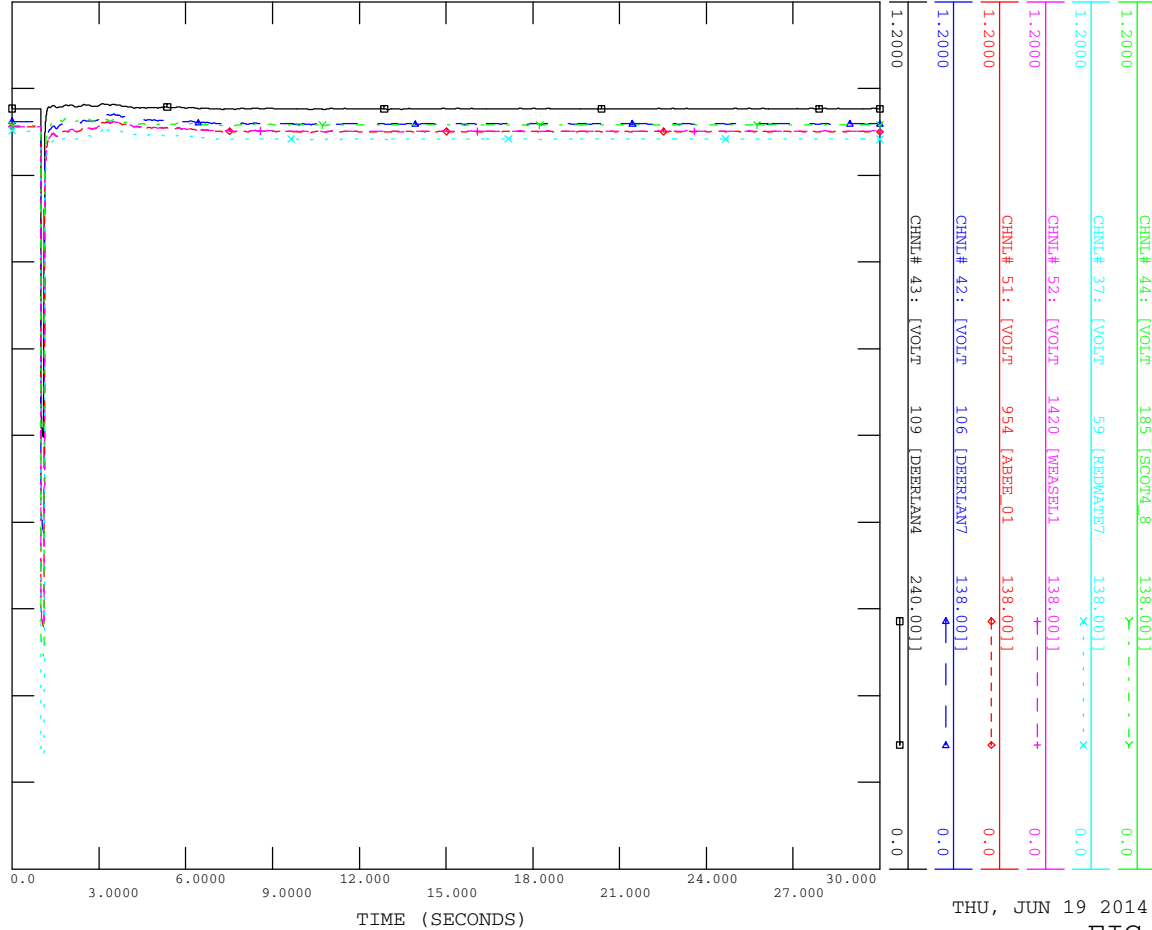


THU, JUN 19 2014 14:43  
FIG F4-4B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

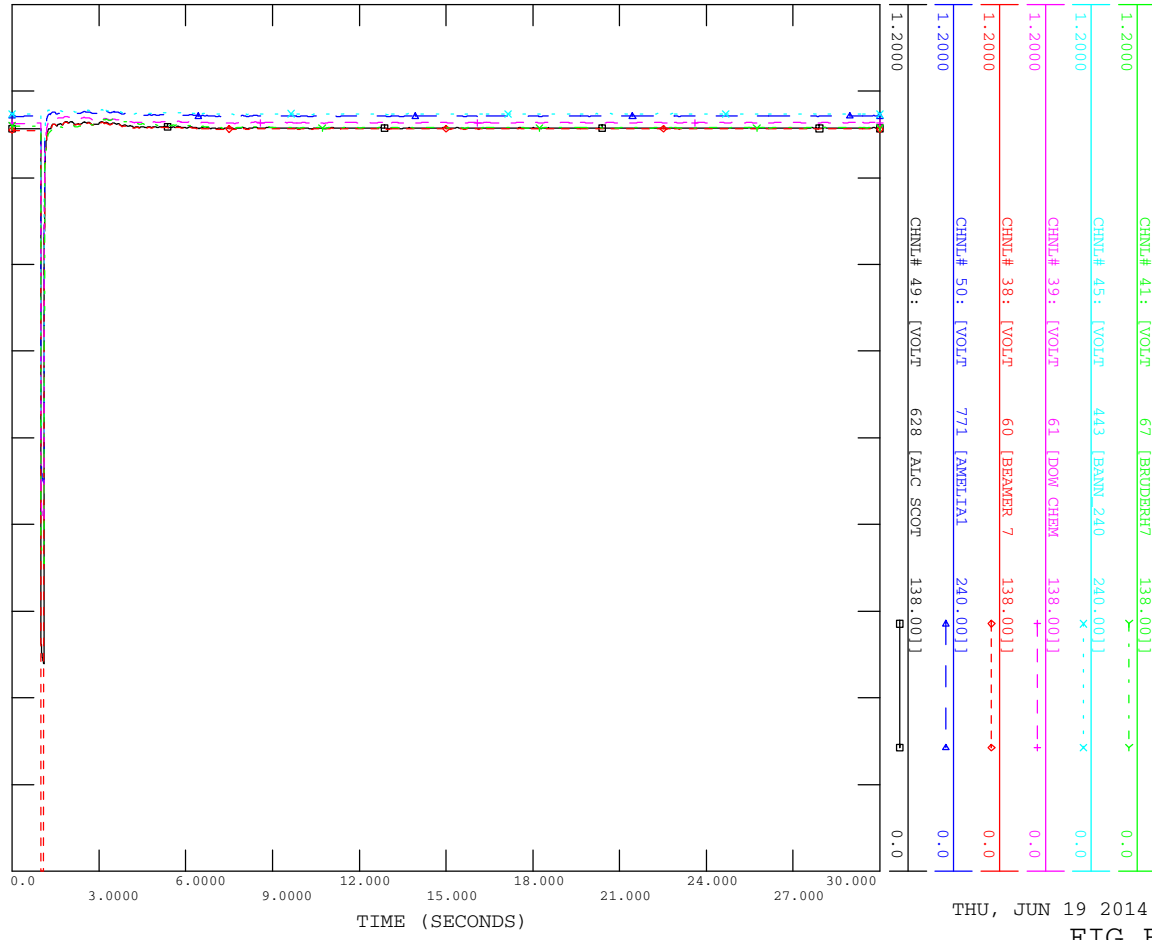


THU, JUN 19 2014 14:44  
FIG F4-5



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

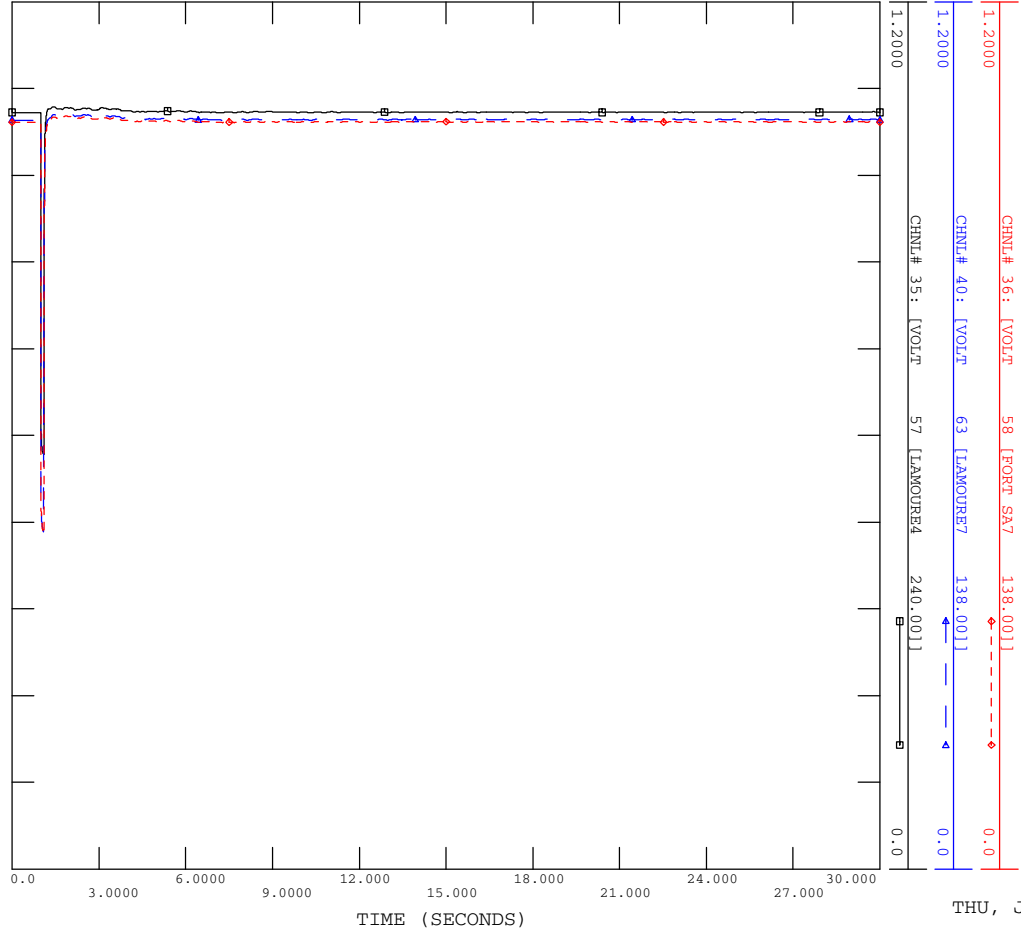


THU, JUN 19 2014 14:44  
FIG F4-5A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 735L 3PH FAULT AT 238S

FILE: CON4.OUT

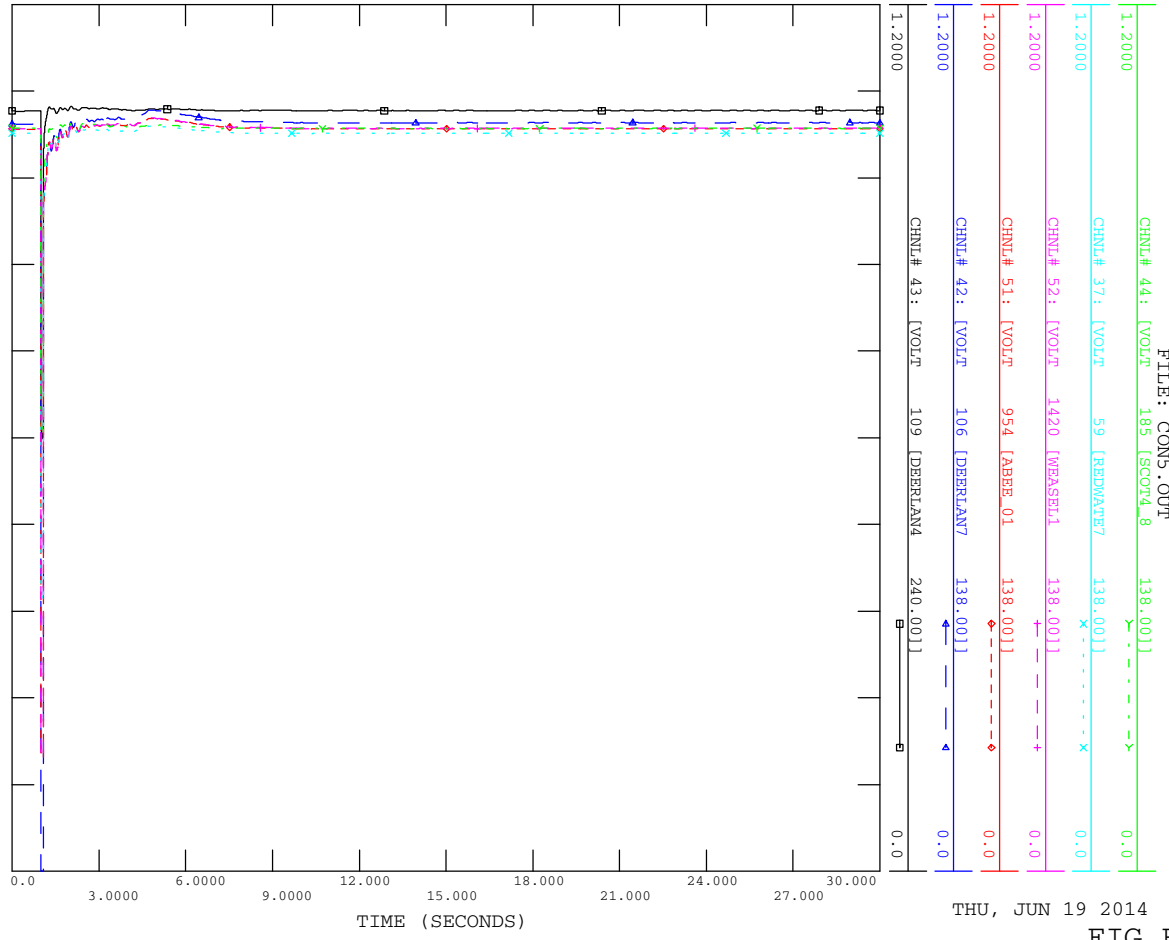


THU, JUN 19 2014 14:45  
 FIG F4-5B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT



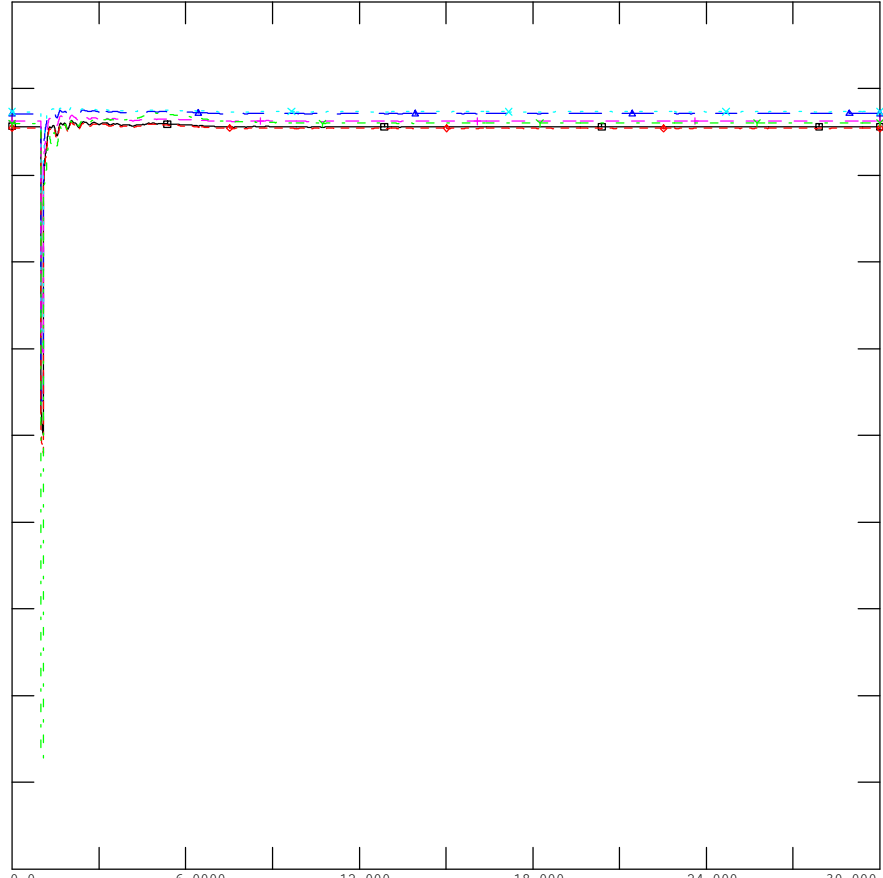
THU, JUN 19 2014 14:45  
 FIG F4-6



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

CHNL#	[VOLT]	[BRUDERH7]	[138.001]
41	[VOLT]	67 [BRUDERH7]	138.001
45	[VOLT]	443 [BANNV_240]	240.001
39	[VOLT]	61 [DOH_CHEM]	138.001
38	[VOLT]	60 [BEAMER_7]	138.001
50	[VOLT]	771 [AMELTA1]	240.001
49	[VOLT]	628 [ALC_SCORE]	138.001



TIME (SECONDS)

THU, JUN 19 2014 14:46

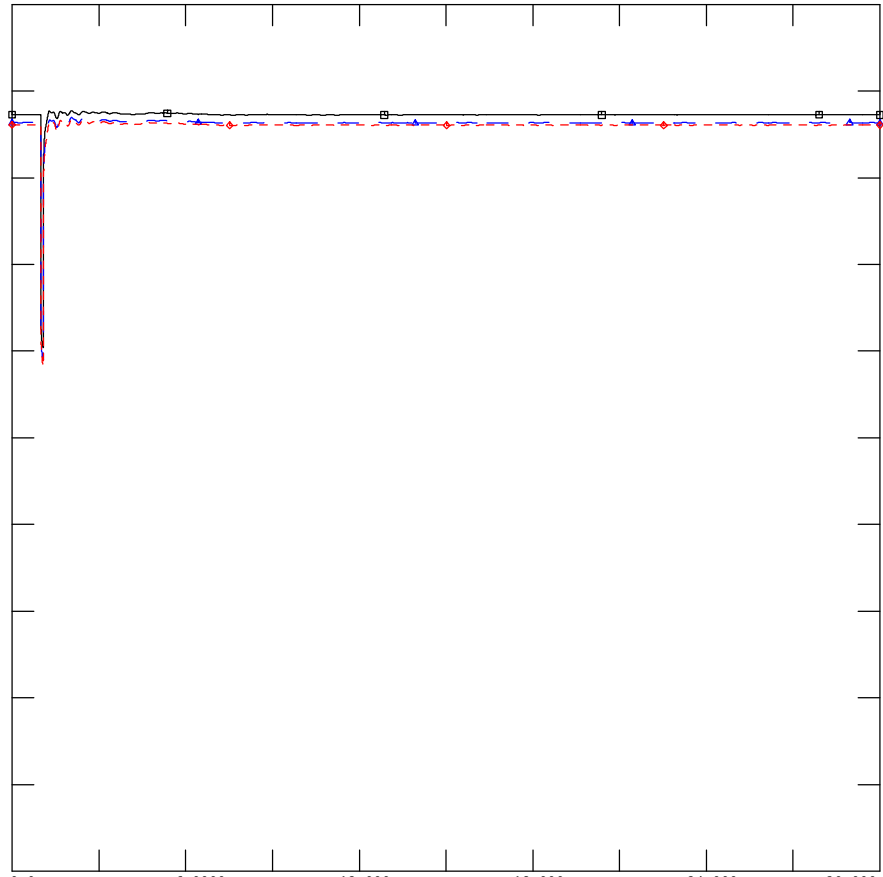
FIG F4-6A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 3PH FAULT AT DERRLAND T2

FILE: CONS.OUT

CHNL#	[VOLT]	[58 [PORT SA7]	[138.001]
36	[VOLT]	58 [PORT SA7]	138.001
40	[VOLT]	63 [LAMOURB7]	138.001
35	[VOLT]	57 [LAMOURB4]	240.001



TIME (SECONDS)

THU, JUN 19 2014 14:46

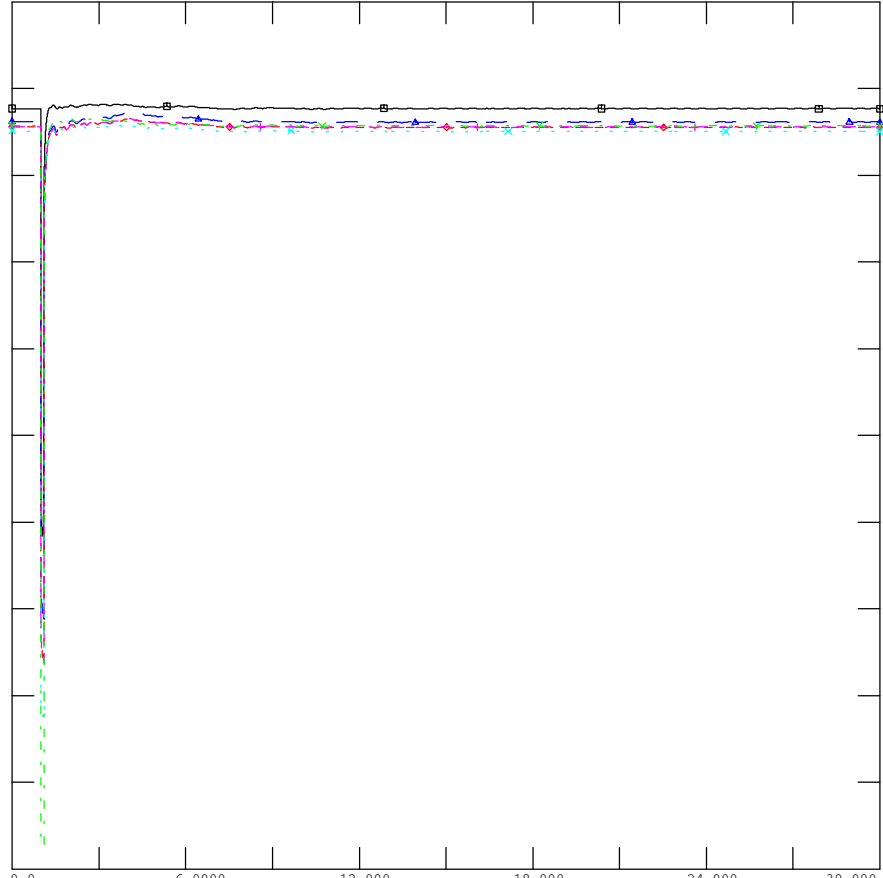
FIG F4-6B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 410S

FILE: CONT.OUT

CHNL# 44: [VOLT]	189 [SCOT4_8]	138.001]	0.0
CHNL# 37: [VOLT]	59 [BRDDETH7]	138.001]	0.0
CHNL# 52: [VOLT]	1420 [WEASB1]	138.001]	0.0
CHNL# 51: [VOLT]	954 [ABBE_01]	138.001]	0.0
CHNL# 42: [VOLT]	106 [DBERLAN7]	138.001]	0.0
CHNL# 43: [VOLT]	109 [DBERLAN4]	240.001]	0.0



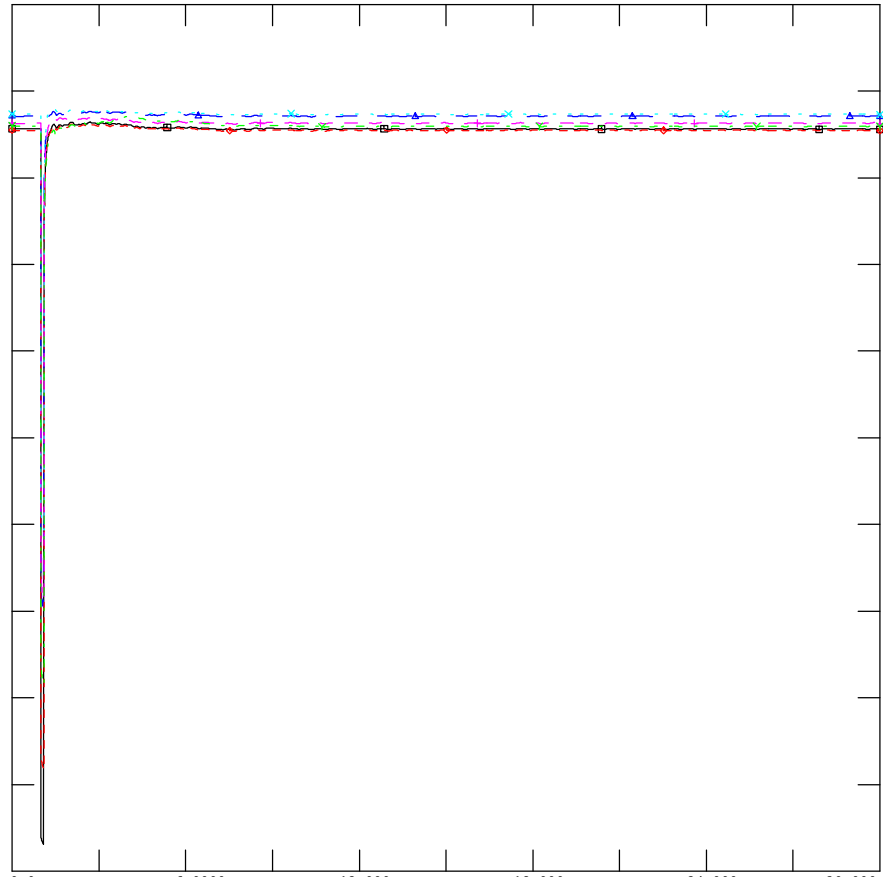
THU, JUN 19 2014 14:46  
 FIG F4-7



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 410S

FILE: CONT.OUT

CHNL# 41: [VOLT]	67 [BRDDETH7]	138.001]	0.0
CHNL# 45: [VOLT]	443 [BANN_240]	240.001]	0.0
CHNL# 39: [VOLT]	61 [DOW_GHBM]	138.001]	0.0
CHNL# 38: [VOLT]	60 [BEAMER_7]	138.001]	0.0
CHNL# 50: [VOLT]	771 [AMELIA1]	240.001]	0.0
CHNL# 49: [VOLT]	628 [ALC_SCOT]	138.001]	0.0



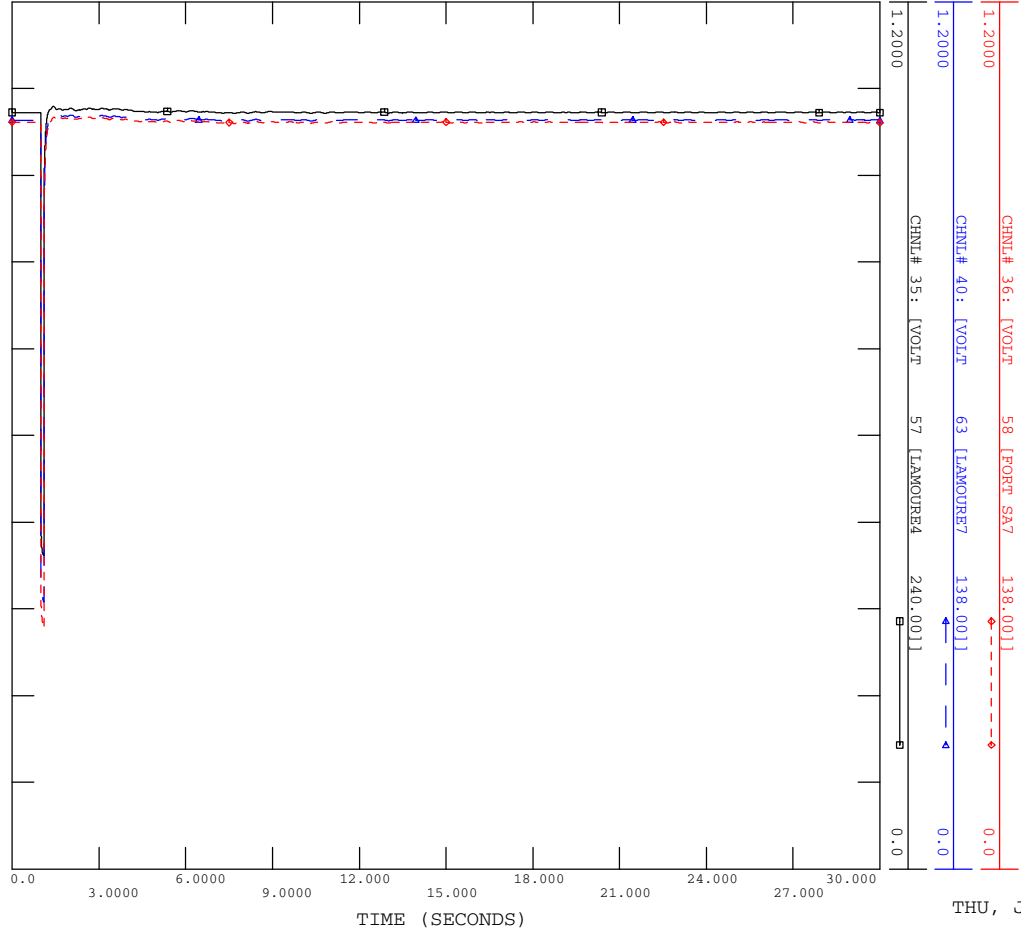
THU, JUN 19 2014 14:47  
 FIG F4-7A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 410S

FILE: CON7.OUT

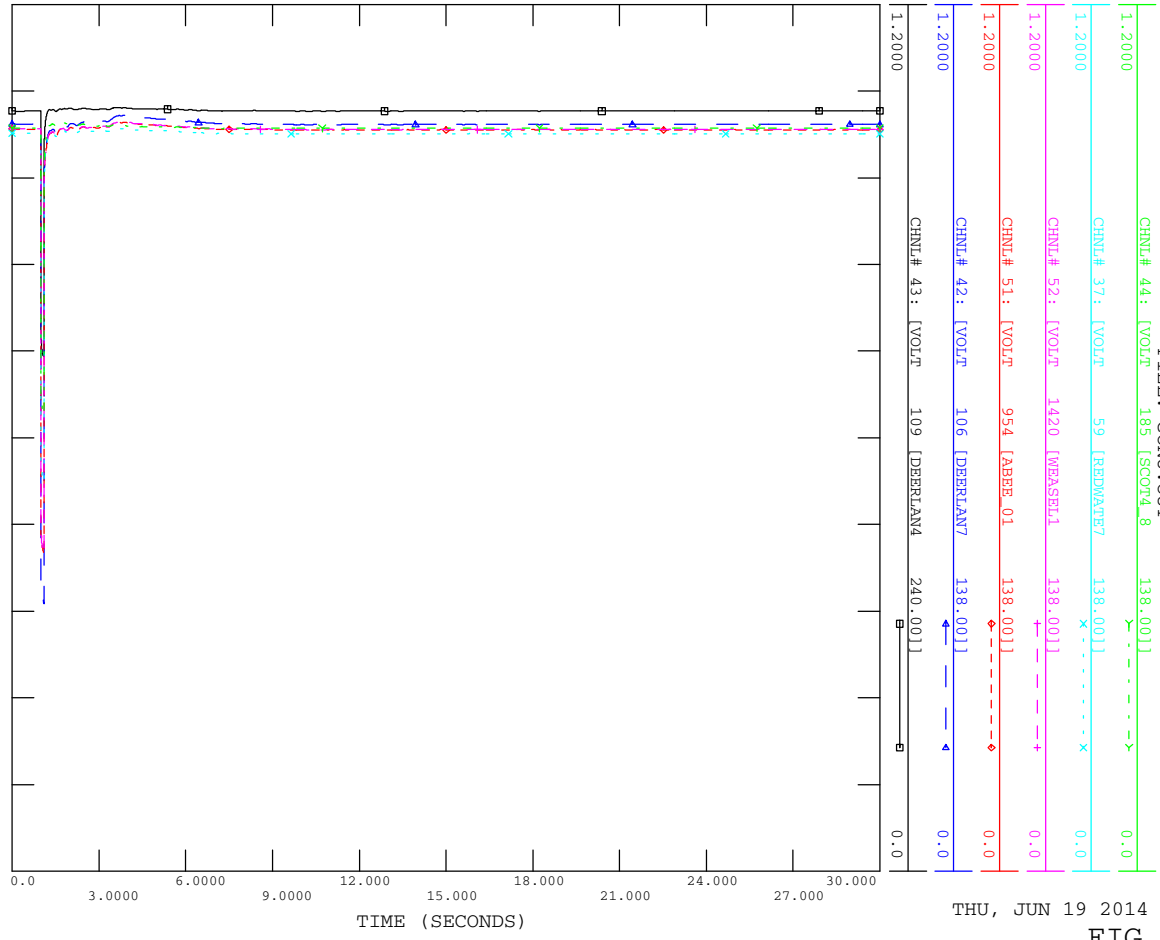


THU, JUN 19 2014 14:47  
 FIG F4-7B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT



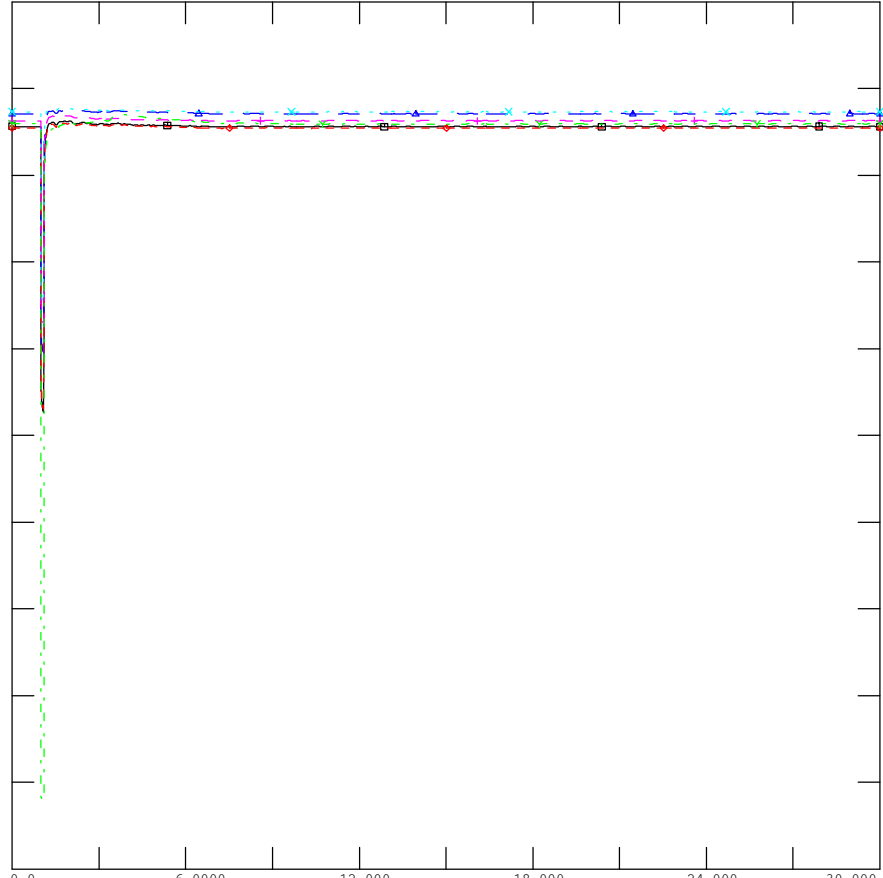
THU, JUN 19 2014 14:48  
 FIG F4-8



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

CHNL#	UNIT	VALUE	UNIT	VALUE
41	[VOLT]	67	[BRUDERH7]	138.001
45	[VOLT]	443	[BANNV_240]	240.001
39	[VOLT]	61	[DOH CHRM]	138.001
38	[VOLT]	60	[BEPANR 7]	138.001
50	[VOLT]	771	[AMELTA1]	240.001
49	[VOLT]	628	[ALC SCOR]	138.001



TIME (SECONDS)

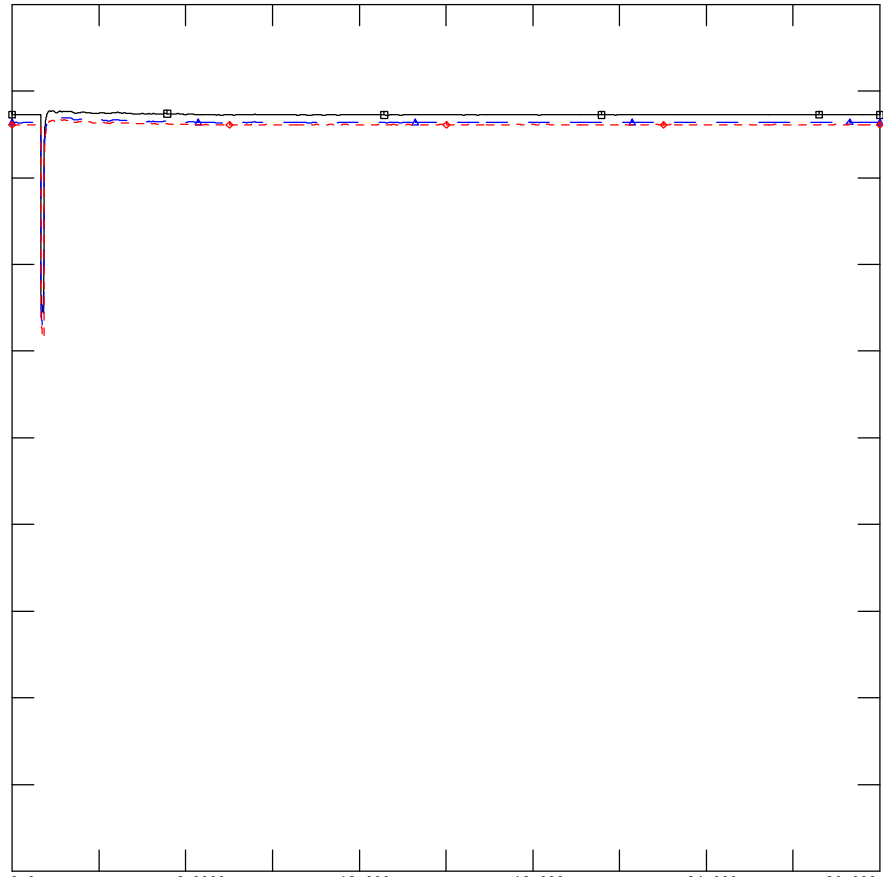
THU, JUN 19 2014 14:48  
FIG F4-8A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 776L 3PH FAULT AT 308S

FILE: CON8.OUT

CHNL#	UNIT	VALUE	UNIT	VALUE
36	[VOLT]	58	[PORT SA7]	138.001
40	[VOLT]	63	[LAMOURR7]	138.001
35	[VOLT]	57	[LAMOURR4]	240.001



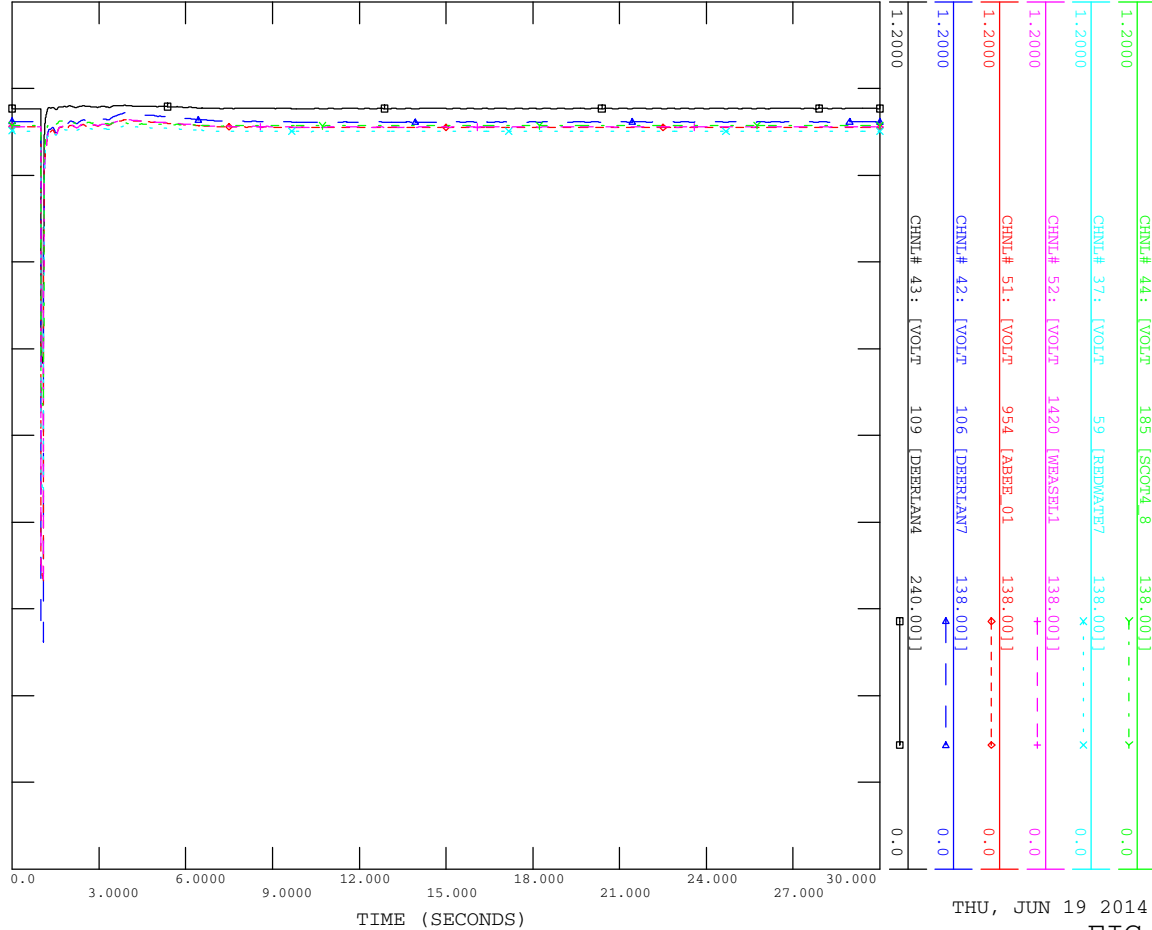
TIME (SECONDS)

THU, JUN 19 2014 14:49  
FIG F4-8B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

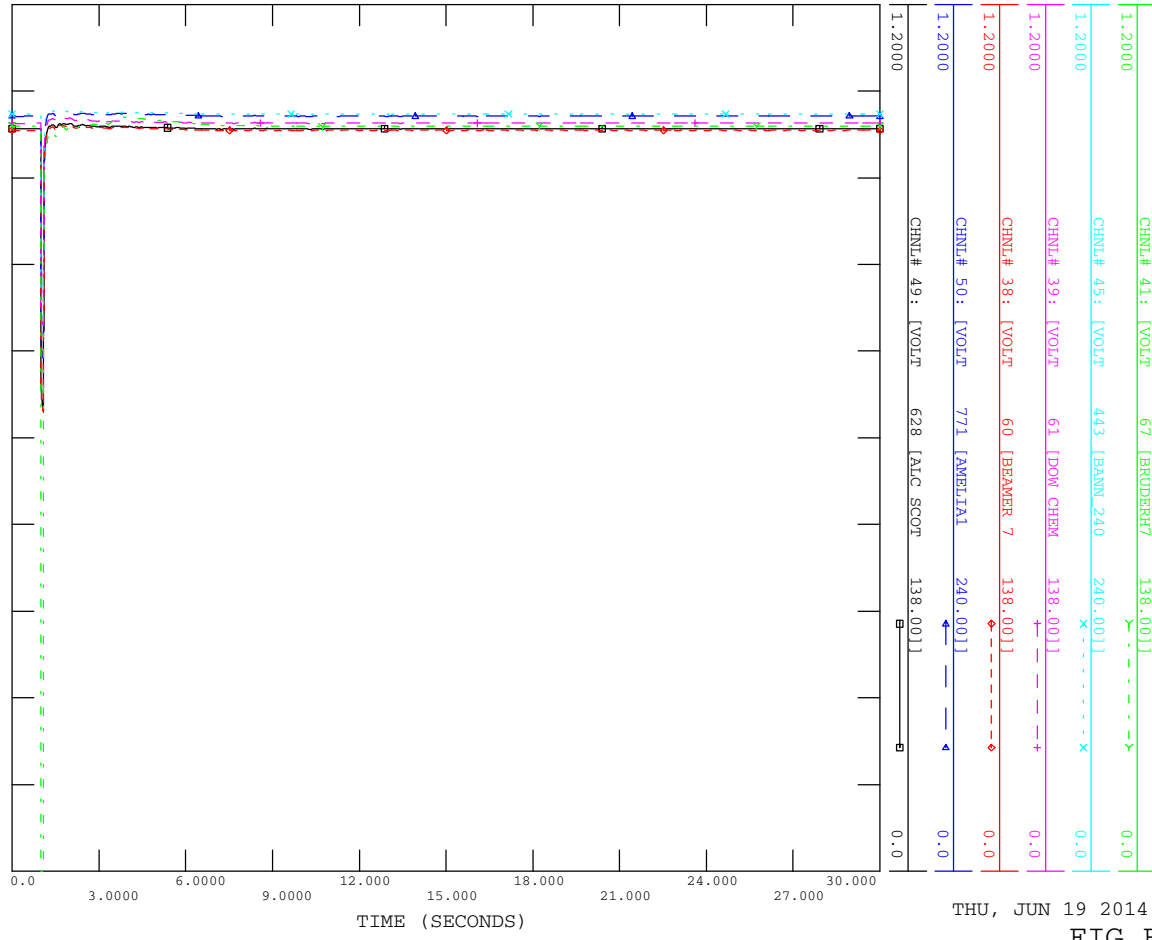


THU, JUN 19 2014 14:49  
 FIG F4-9



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

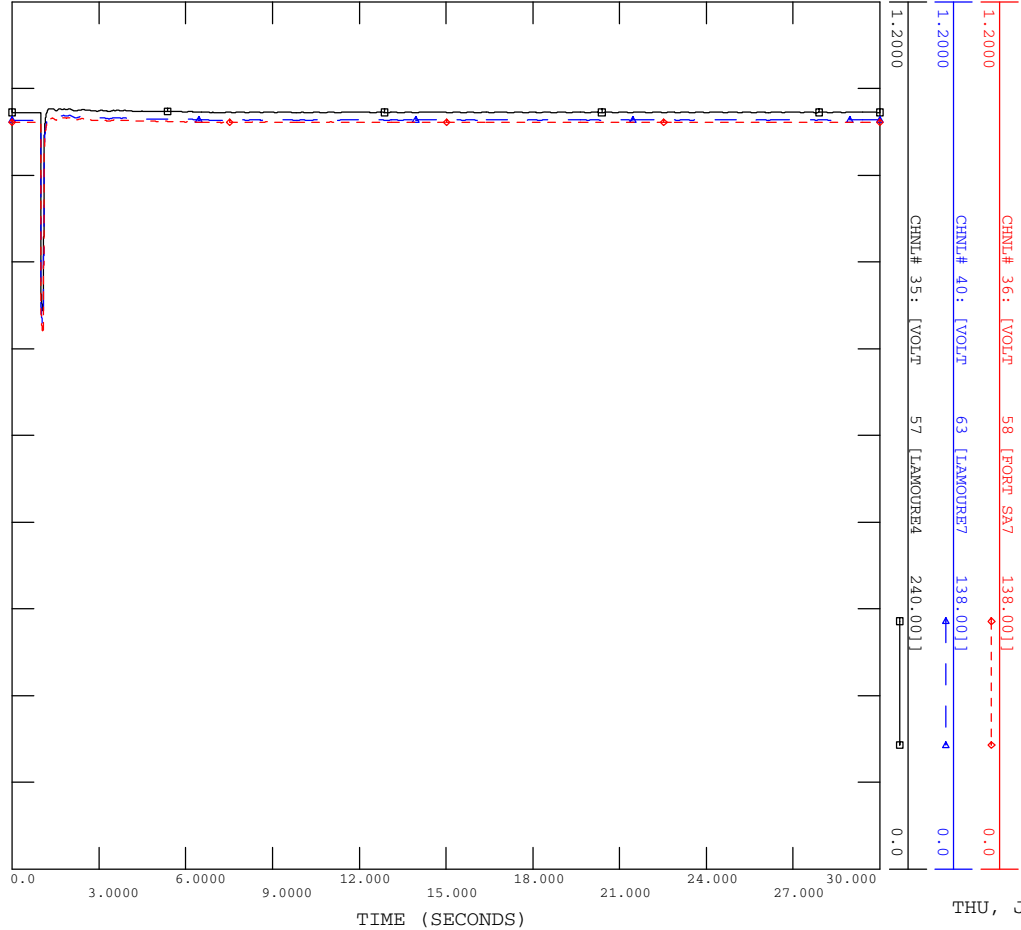


THU, JUN 19 2014 14:50  
 FIG F4-9A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 127S

FILE: CON9.OUT

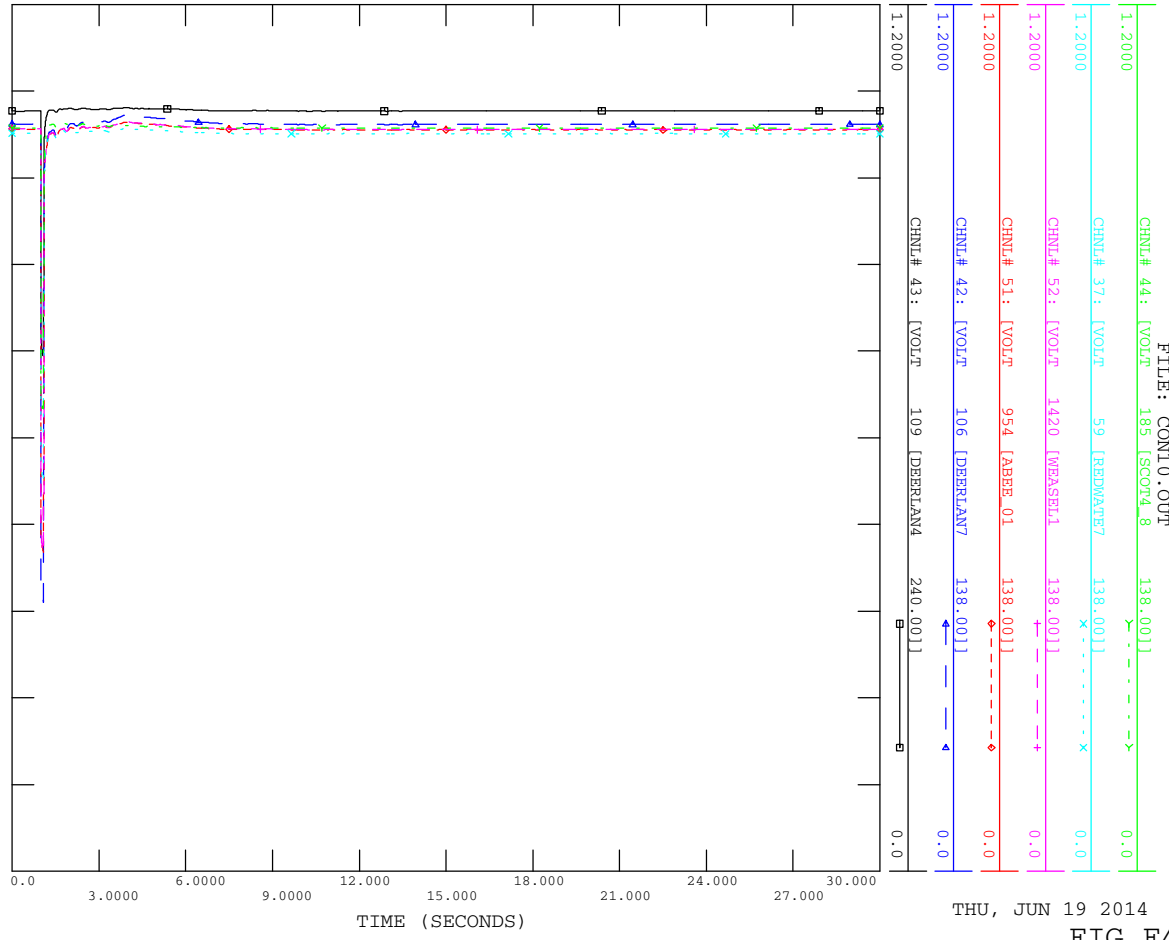


THU, JUN 19 2014 14:50  
 FIG F4-9B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

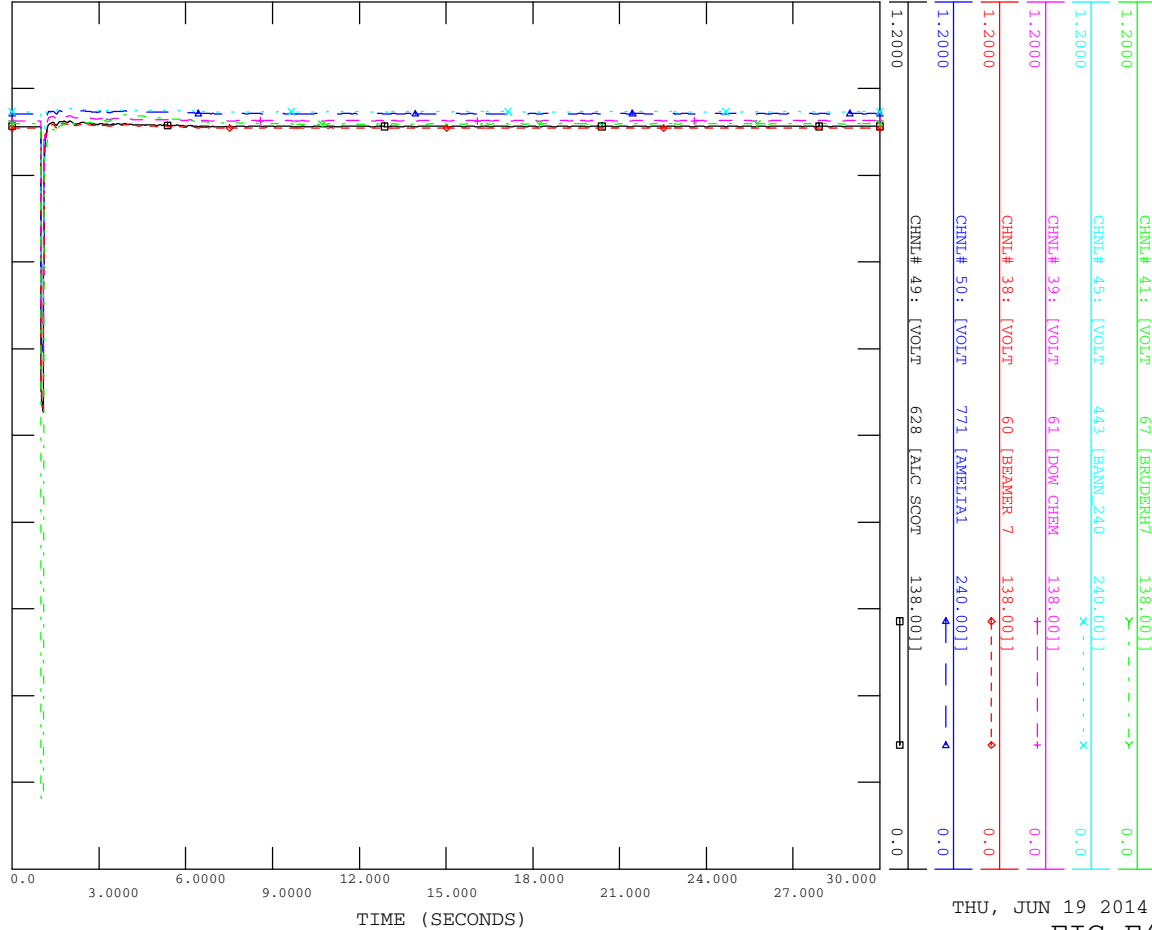


THU, JUN 19 2014 14:50  
 FIG F4-10



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT

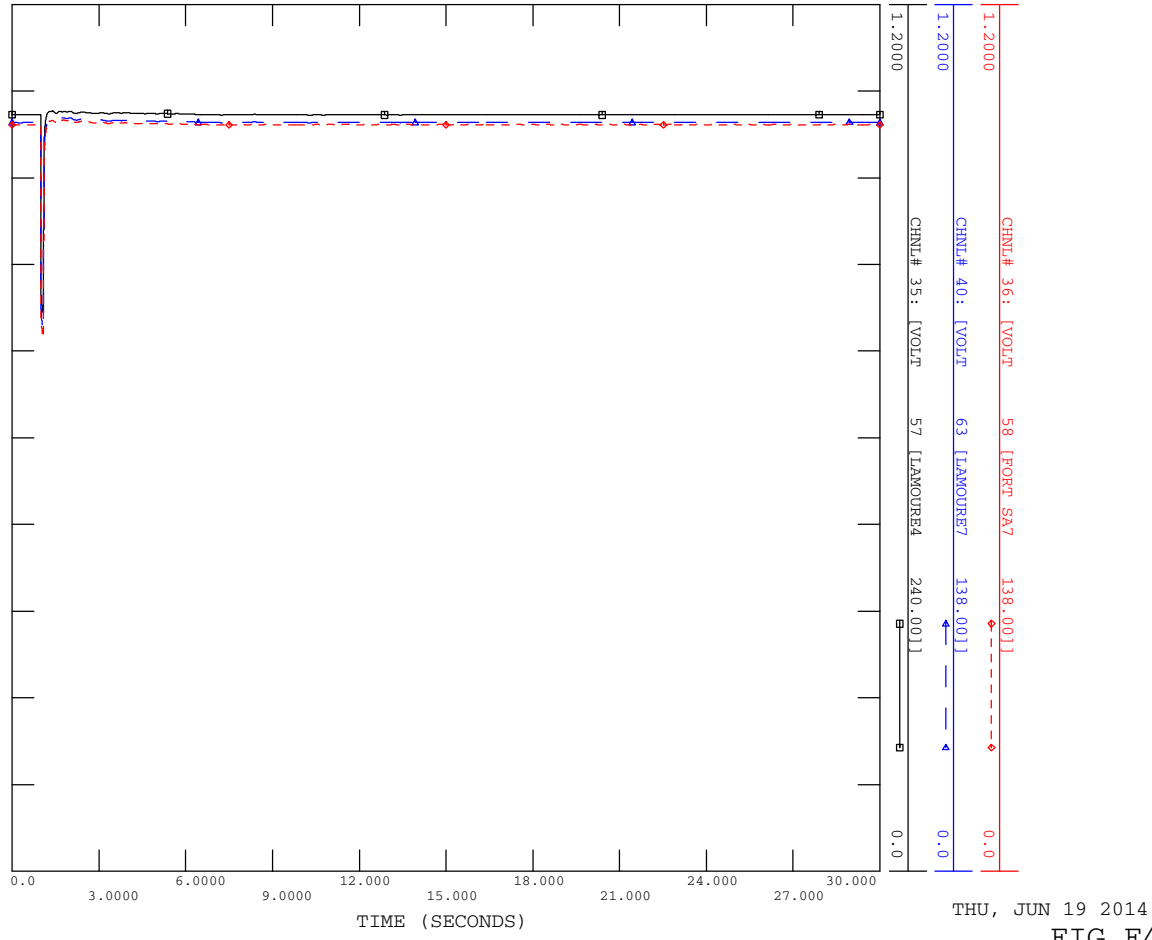


THU, JUN 19 2014 14:51  
FIG F4-10A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 773L 3PH FAULT AT 308S

FILE: CON10.OUT



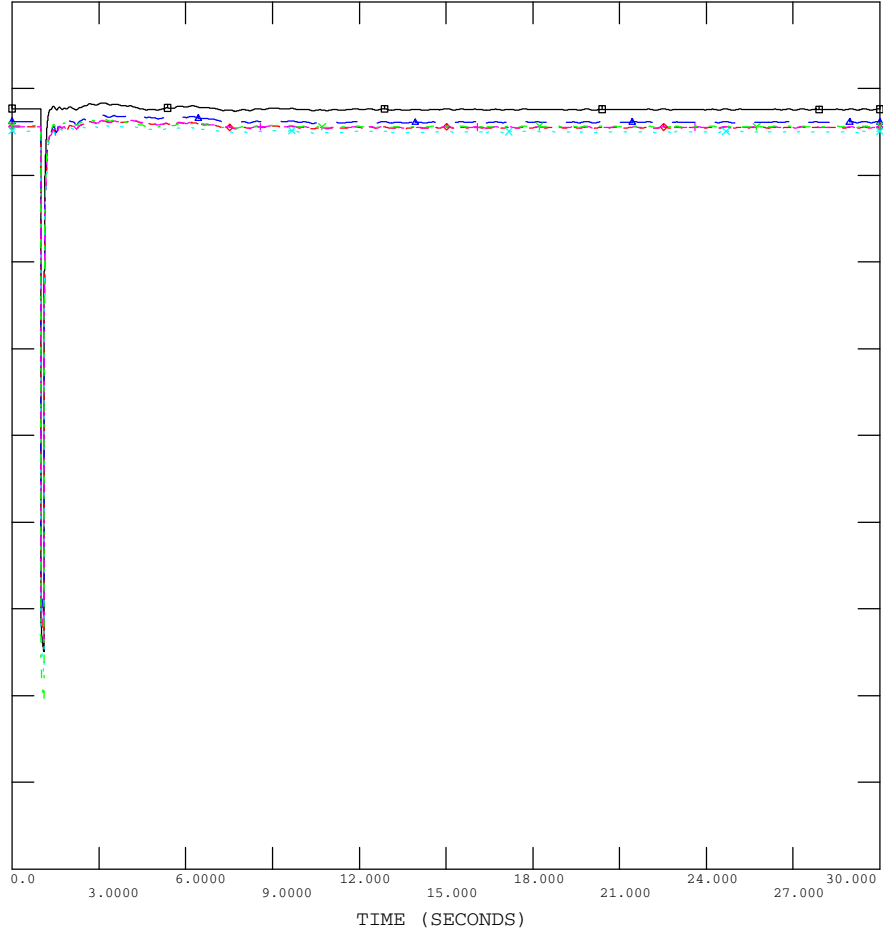
THU, JUN 19 2014 14:51  
FIG F4-10B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.0UT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
1.2000	CHNL# 44:	189 [SCOT4 8]	138.001	0.0
1.2000	CHNL# 37:	59 [REDMATE7]	138.001	0.0
1.2000	CHNL# 52:	1420 [WEASSEL1]	138.001	0.0
1.2000	CHNL# 51:	954 [ABBE 01]	138.001	0.0
1.2000	CHNL# 42:	106 [DEBRLAN7]	138.001	0.0
1.2000	CHNL# 43:	109 [DEBRLAN4]	240.001	0.0



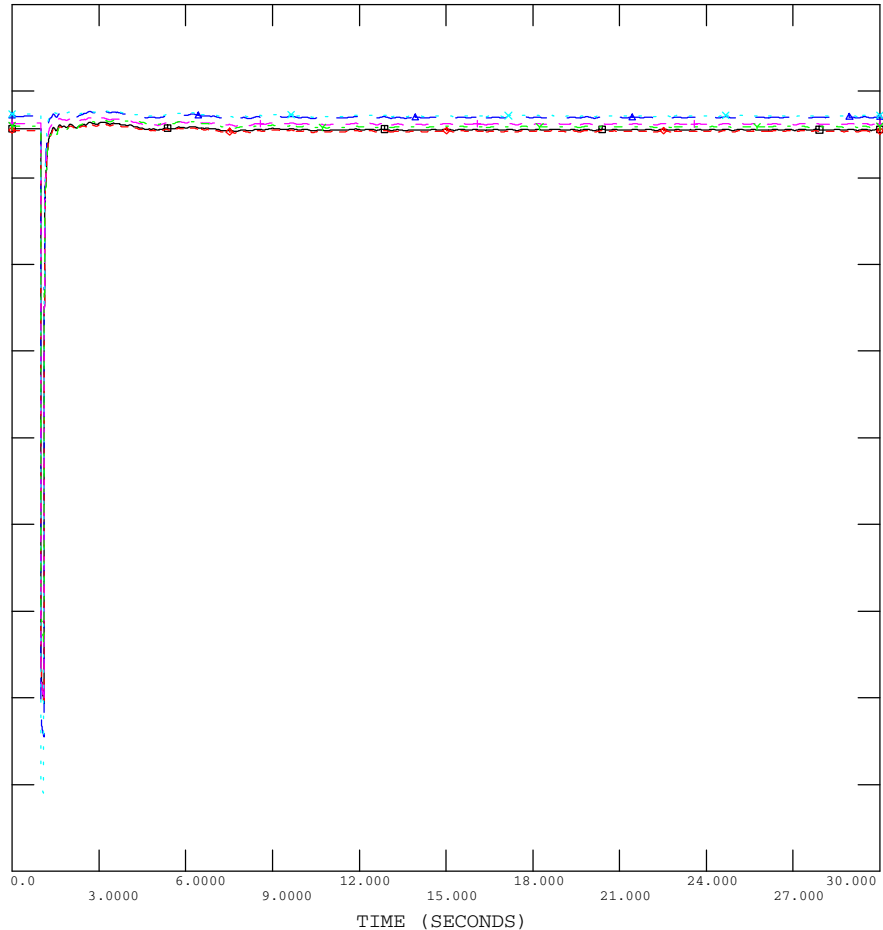
THU, JUN 19 2014 14:52  
FIG F4-11



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.0UT

CHNL#	[VOLT]	[BRDERRH7]	[138.001]	[0.0]
1.2000	CHNL# 41:	67 [BRDERRH7]	138.001	0.0
1.2000	CHNL# 45:	443 [BANN 240]	240.001	0.0
1.2000	CHNL# 39:	61 [DOW CHDM]	138.001	0.0
1.2000	CHNL# 38:	60 [BEAMER 7]	138.001	0.0
1.2000	CHNL# 50:	771 [AMELIA1]	240.001	0.0
1.2000	CHNL# 49:	628 [ALC SCOT]	138.001	0.0

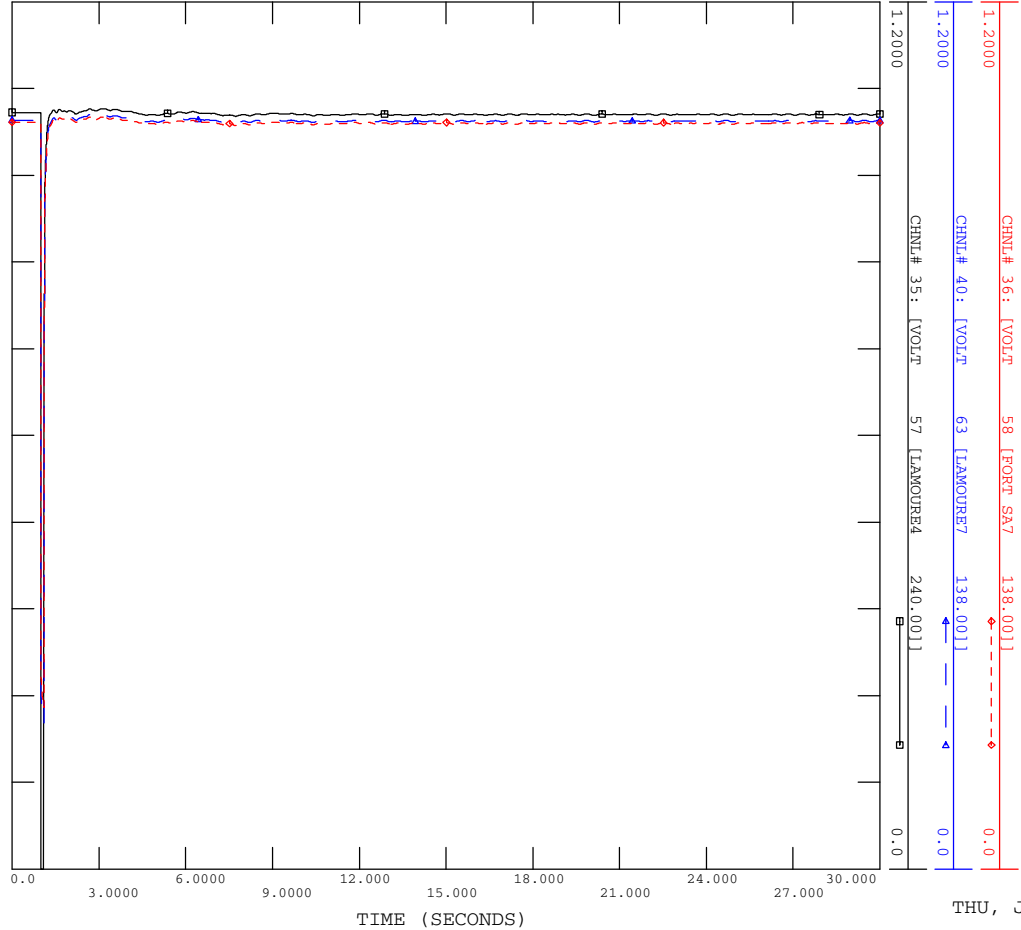


THU, JUN 19 2014 14:52  
FIG F4-11A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 71S

FILE: CON11.OUT

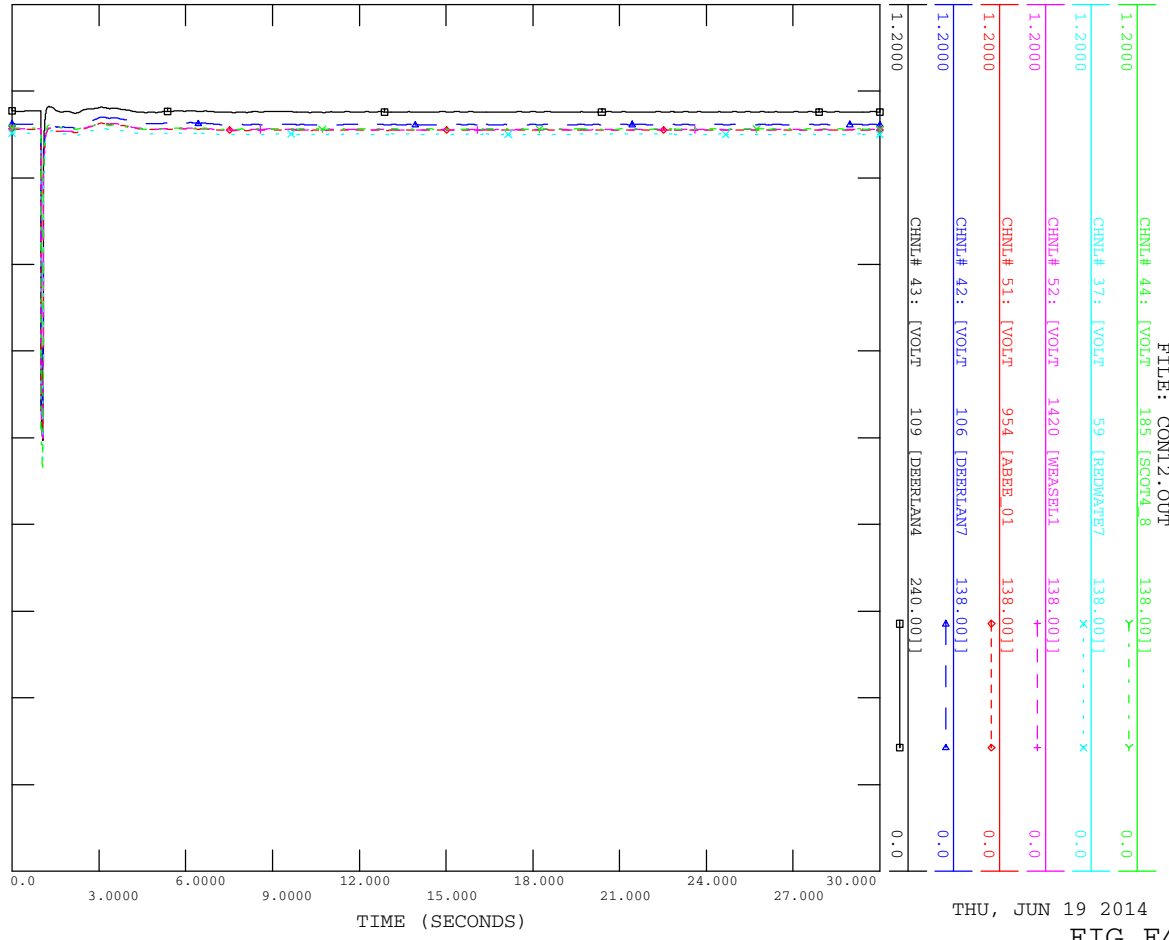


THU, JUN 19 2014 14:53  
FIG F4-11B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 57S

FILE: CON12.OUT

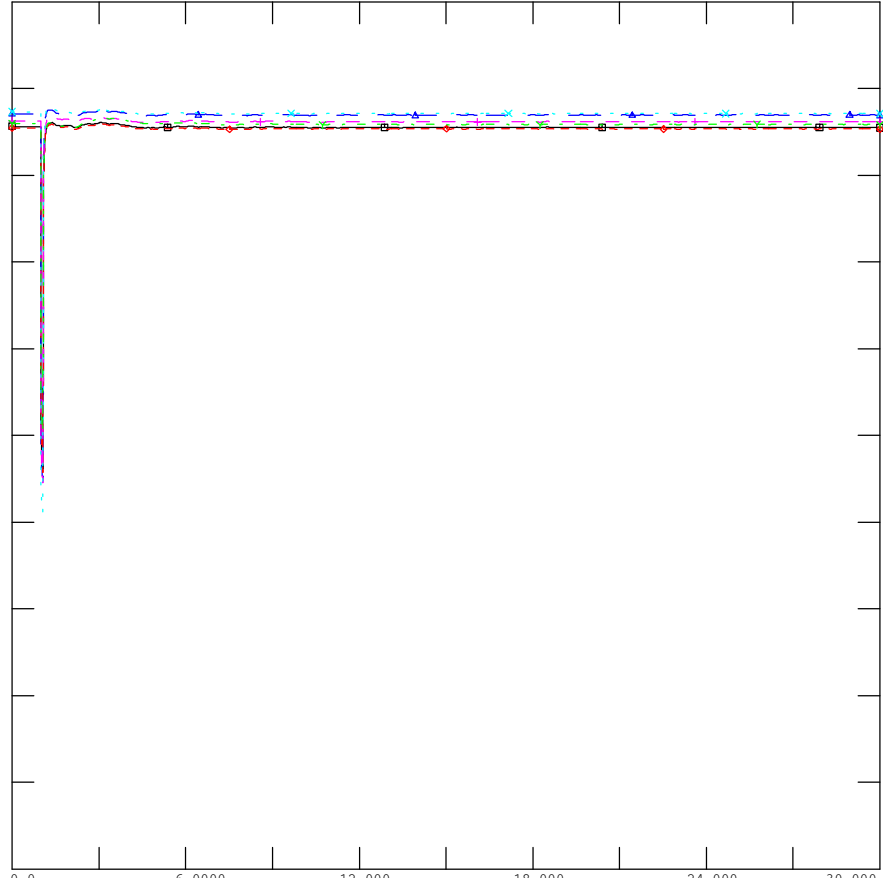
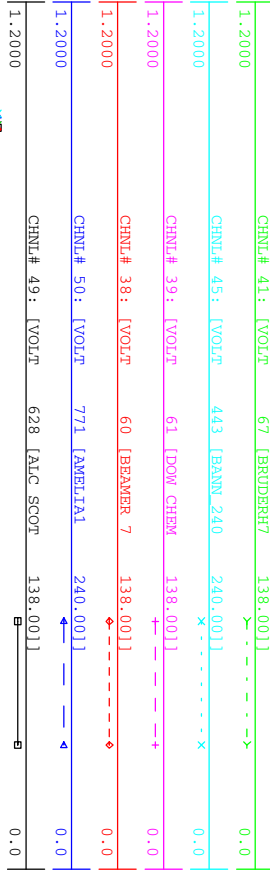


THU, JUN 19 2014 14:53  
FIG F4-12



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT



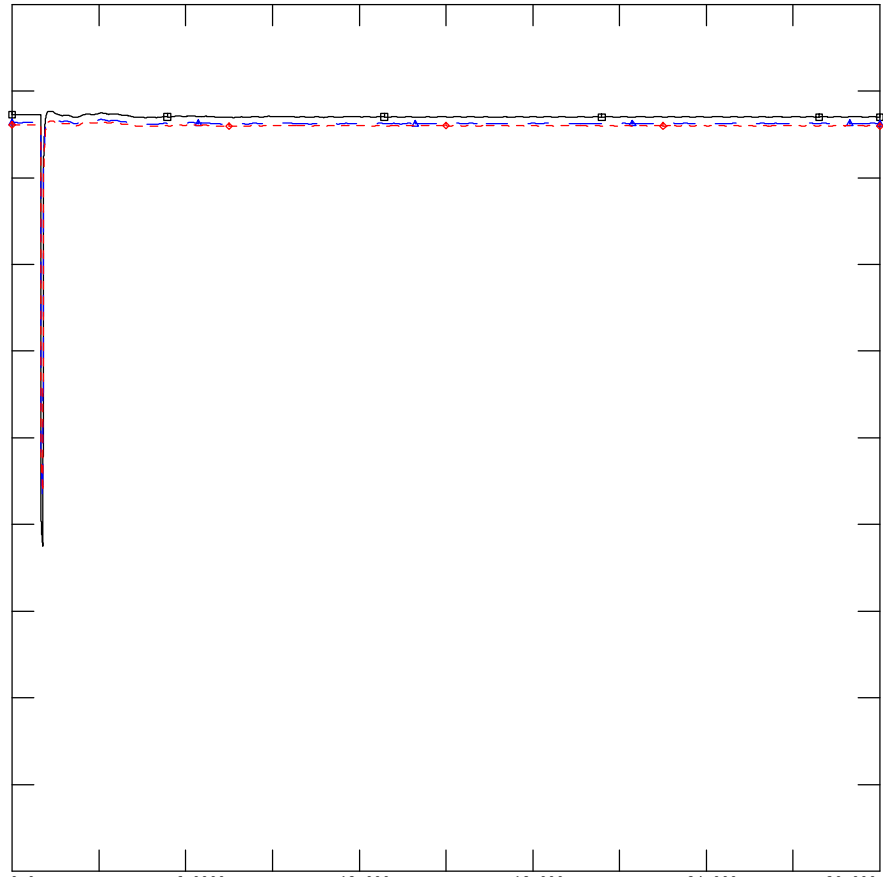
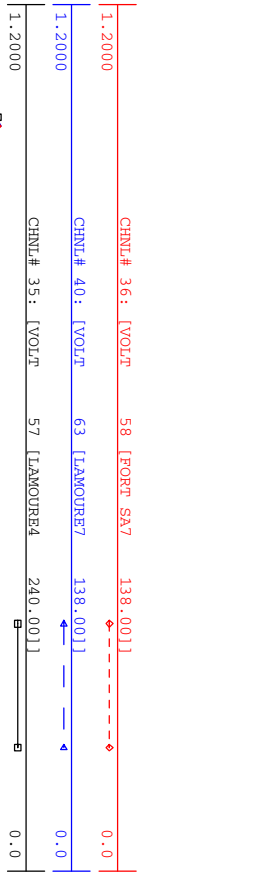
TIME (SECONDS)

THU, JUN 19 2014 14:54  
FIG F4-12A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 920L 3PH FAULT AT 557S

FILE: CON12.OUT



TIME (SECONDS)

THU, JUN 19 2014 14:54  
FIG F4-12B

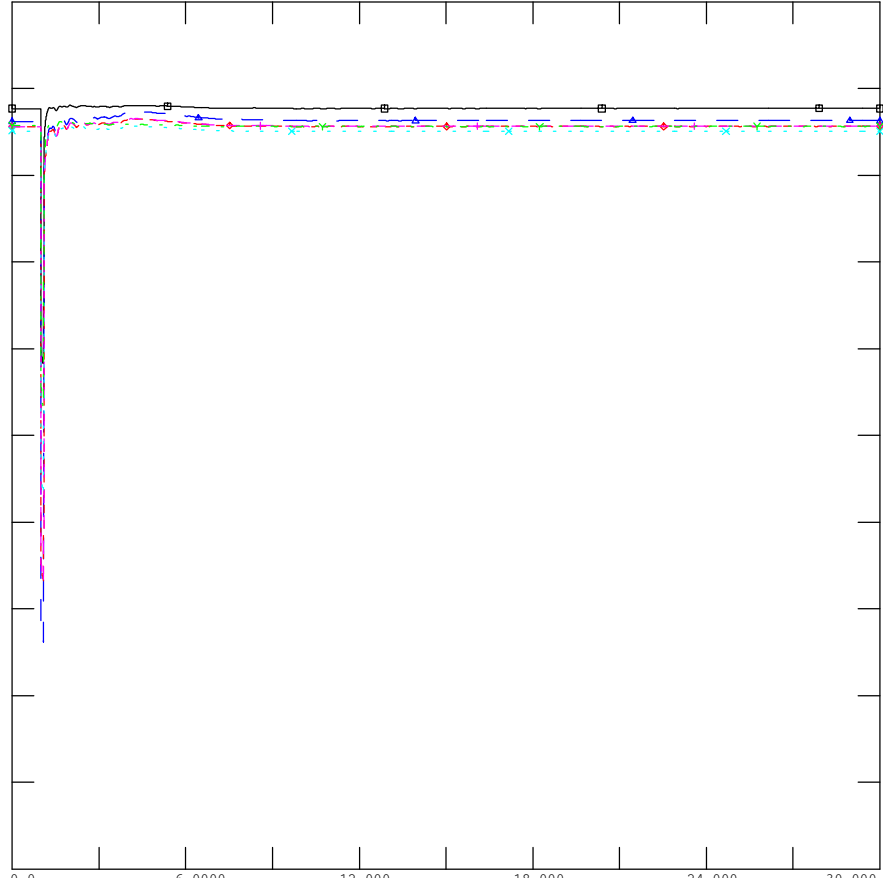




TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
1.2000	CHNL# 44:	189 [SCOT4 8]	138.001	0.0
1.2000	CHNL# 37:	59 [REDMATE7]	138.001	0.0
1.2000	CHNL# 52:	1420 [WEASSEL1]	138.001	0.0
1.2000	CHNL# 51:	954 [ABBE 01]	138.001	0.0
1.2000	CHNL# 42:	106 [DEBRLAN7]	138.001	0.0
1.2000	CHNL# 43:	109 [DEBRLAN4]	240.001	0.0



TIME (SECONDS)

THU, JUN 19 2014 14:55

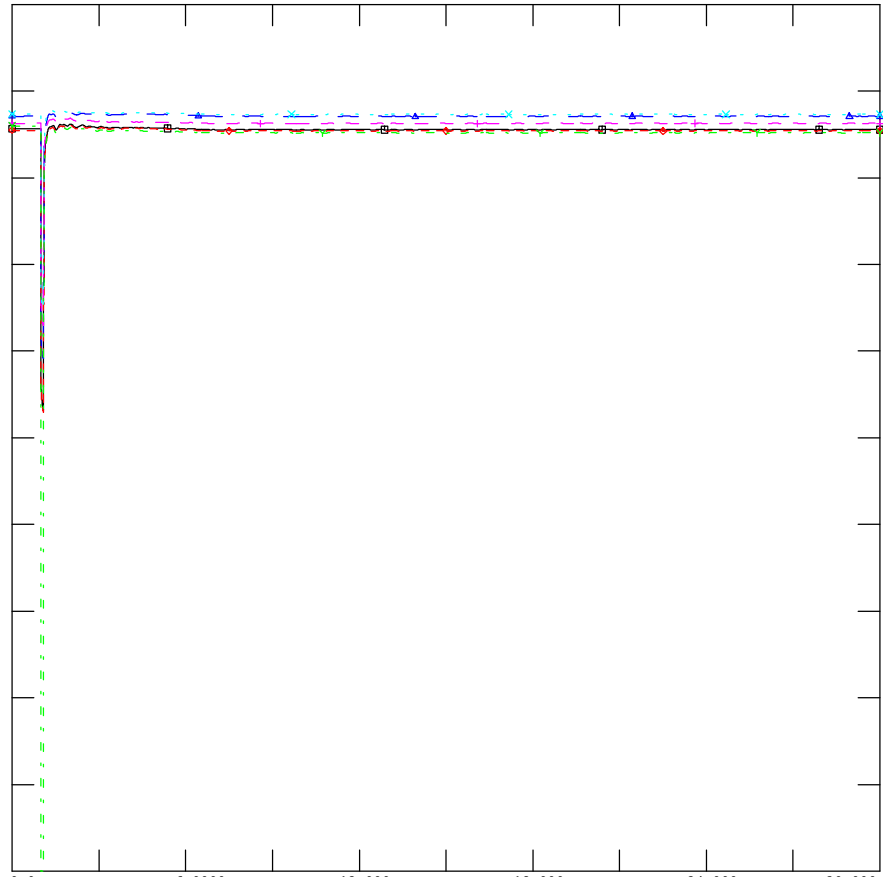
FIG F4-13



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

CHNL#	[VOLT]	[BRDERRH7]	[138.001]	[0.0]
1.2000	CHNL# 41:	67 [BRDERRH7]	138.001	0.0
1.2000	CHNL# 45:	443 [BANN 240]	240.001	0.0
1.2000	CHNL# 39:	61 [DOW CHDM]	138.001	0.0
1.2000	CHNL# 38:	60 [BEAMER 7]	138.001	0.0
1.2000	CHNL# 50:	771 [AMELIA1]	240.001	0.0
1.2000	CHNL# 49:	628 [ALC SCOT]	138.001	0.0



TIME (SECONDS)

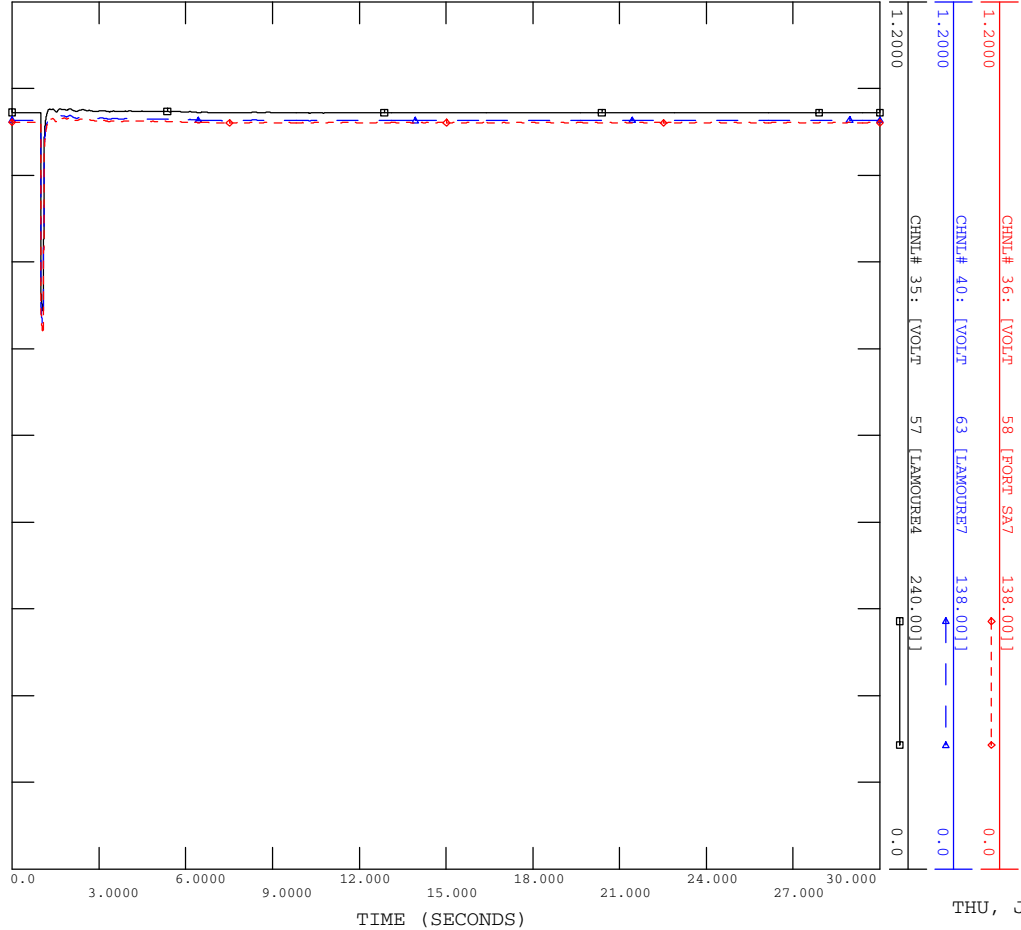
THU, JUN 19 2014 14:55

FIG F4-13A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 127S

FILE: CON13.OUT

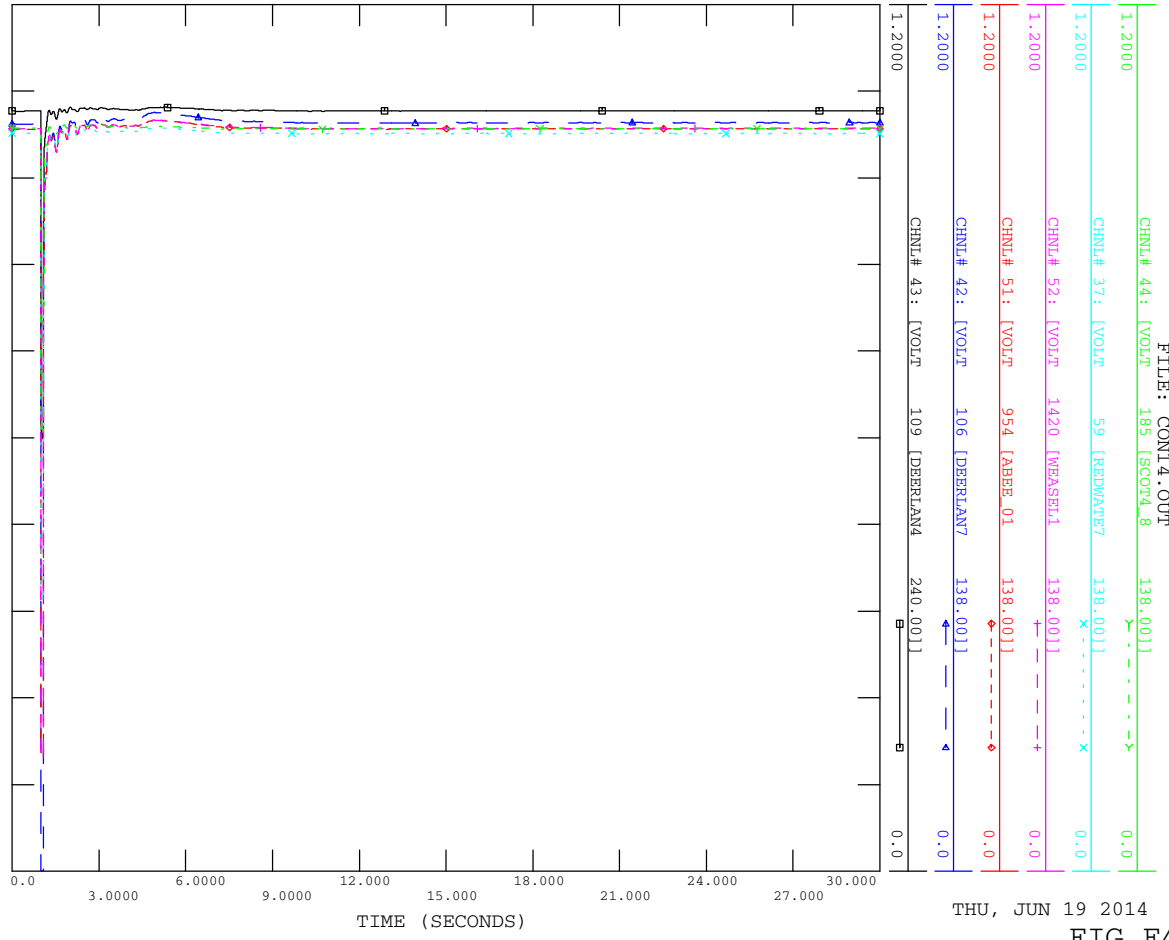


THU, JUN 19 2014 14:55  
FIG F4-13B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT

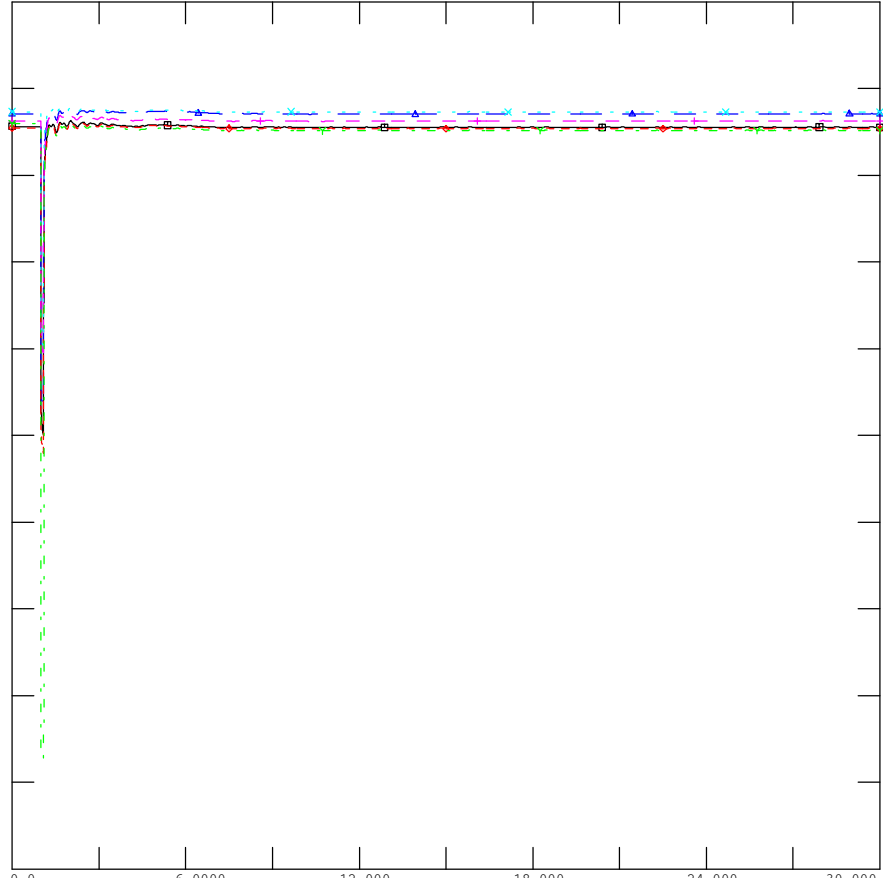
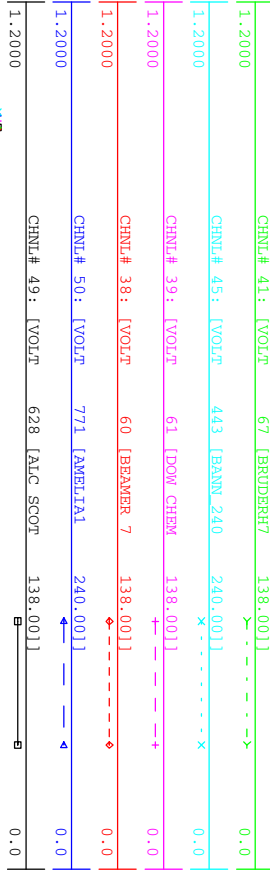


THU, JUN 19 2014 14:56  
FIG F4-14



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT



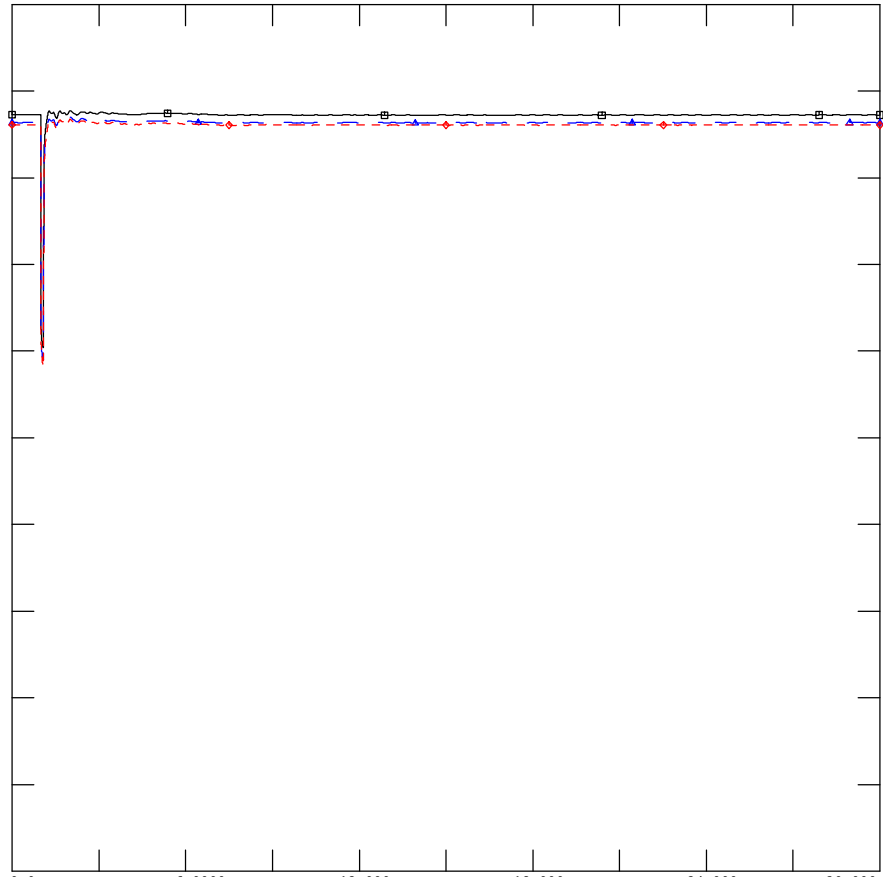
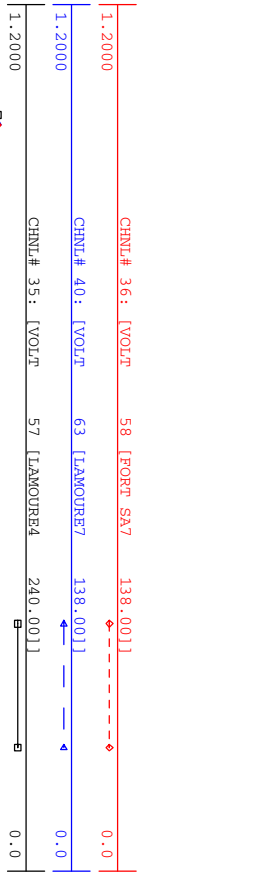
TIME (SECONDS)

THU, JUN 19 2014 14:56  
FIG F4-14A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 815L 3PH FAULT AT 13S

FILE: CON14.OUT



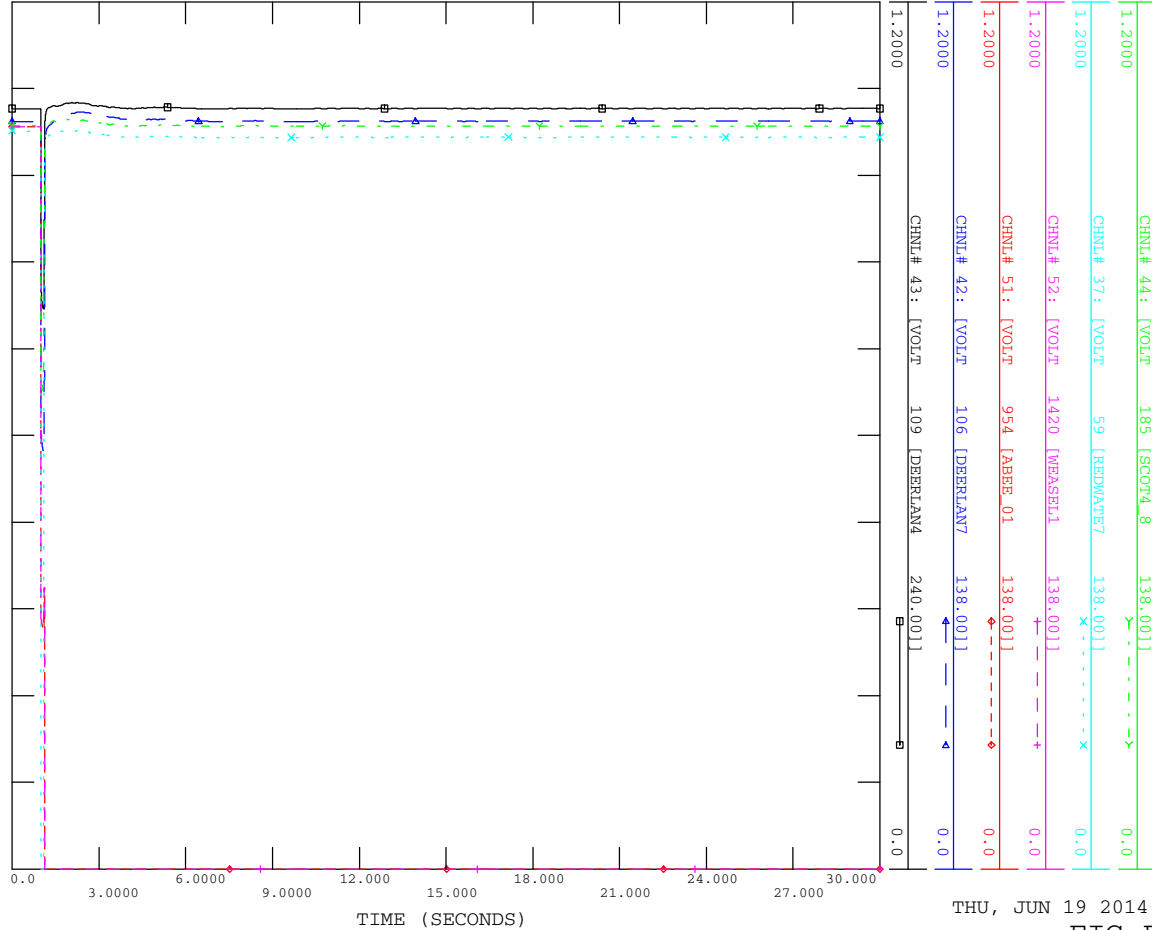
TIME (SECONDS)

THU, JUN 19 2014 14:57  
FIG F4-14B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT

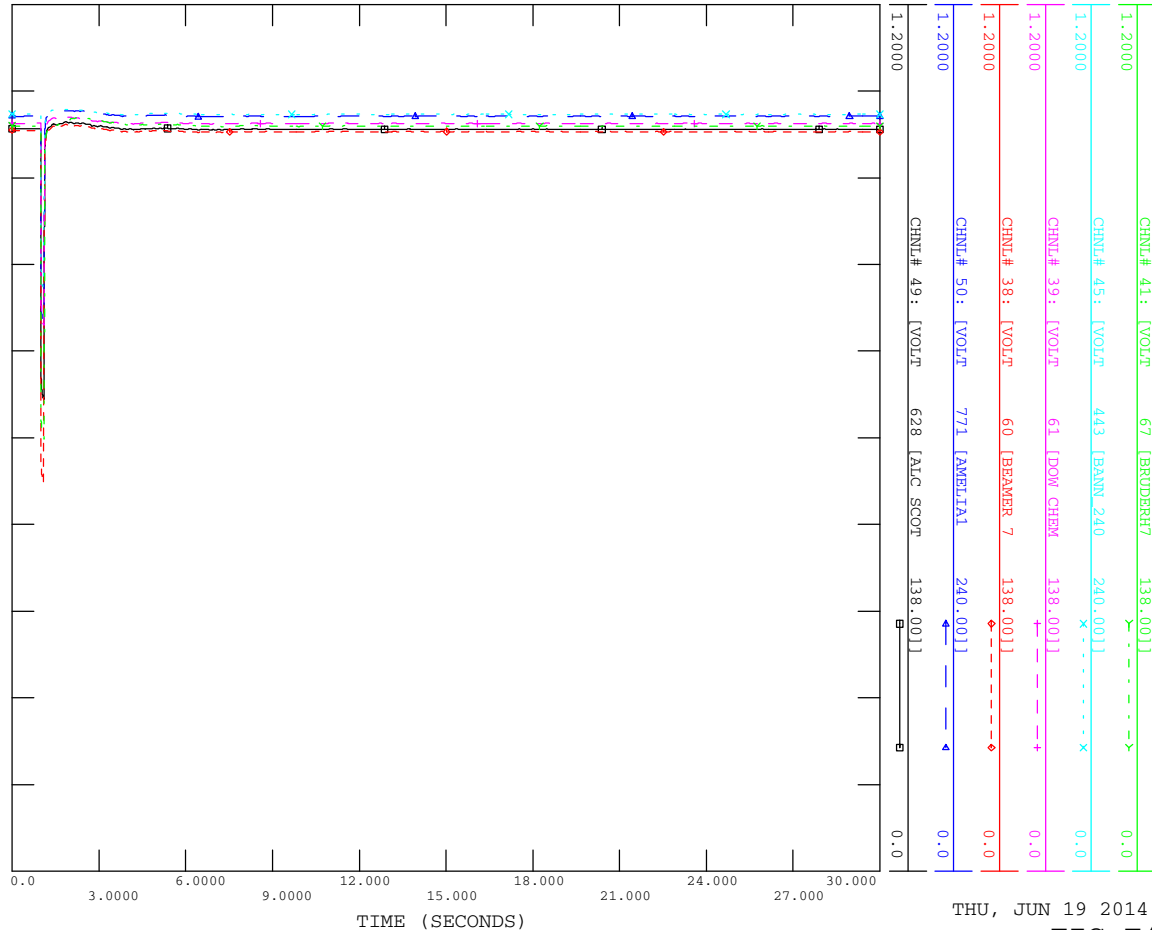


THU, JUN 19 2014 14:57  
FIG F4-15



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT

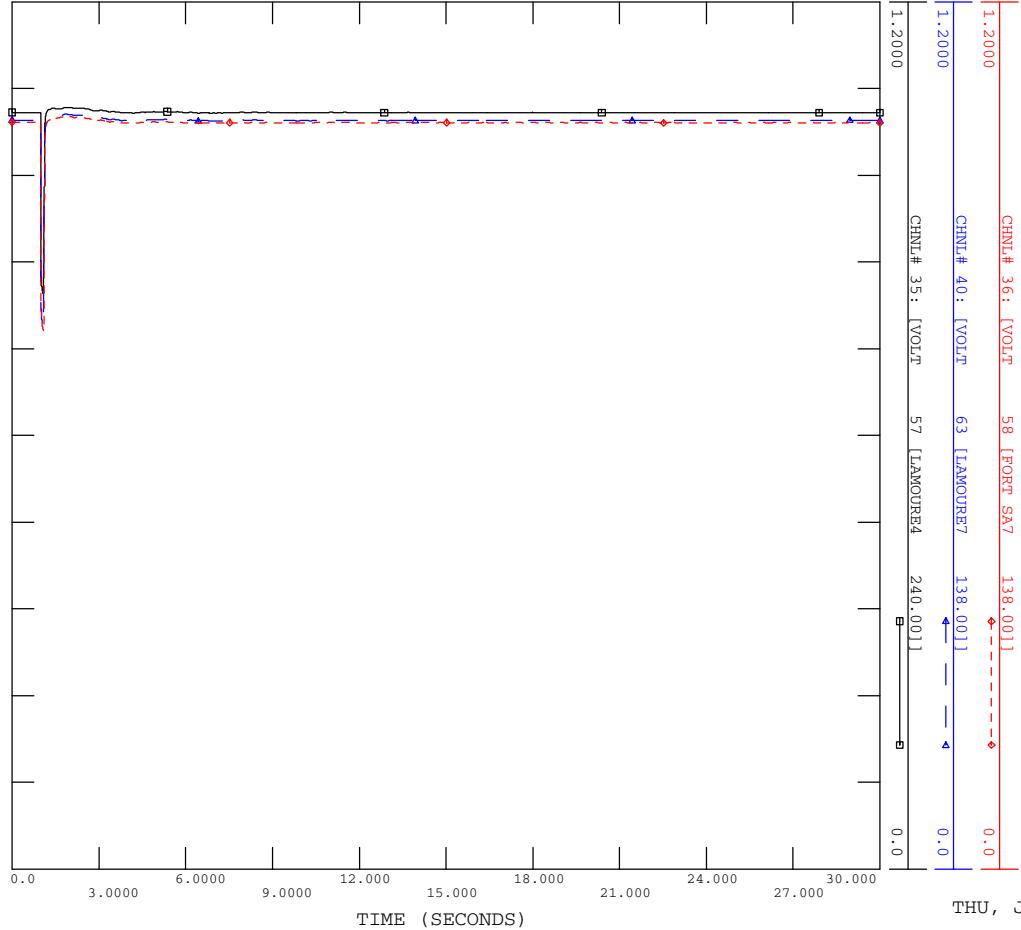


THU, JUN 19 2014 14:58  
FIG F4-15A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 808L 3PH FAULT AT 171S

FILE: CON15.OUT

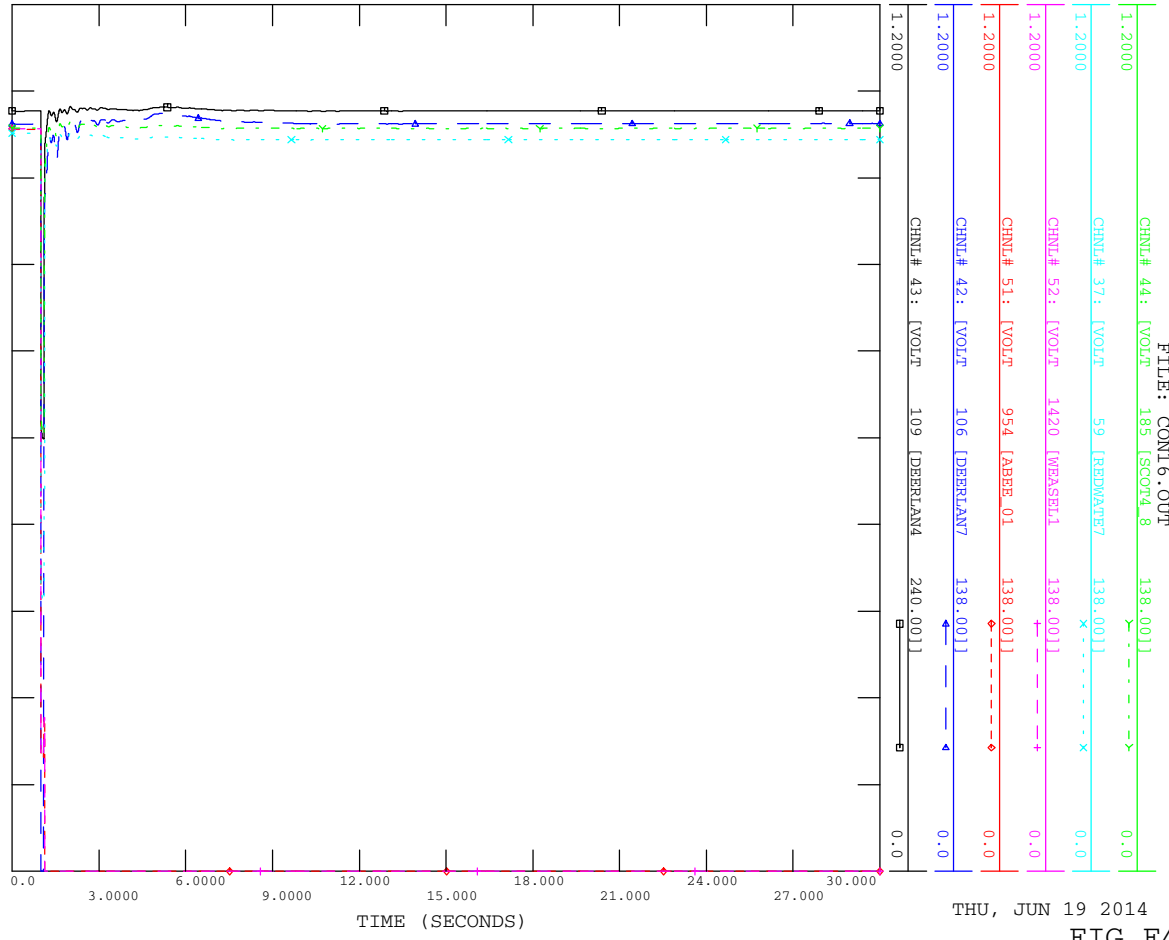


THU, JUN 19 2014 14:58  
 FIG F4-15C



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT



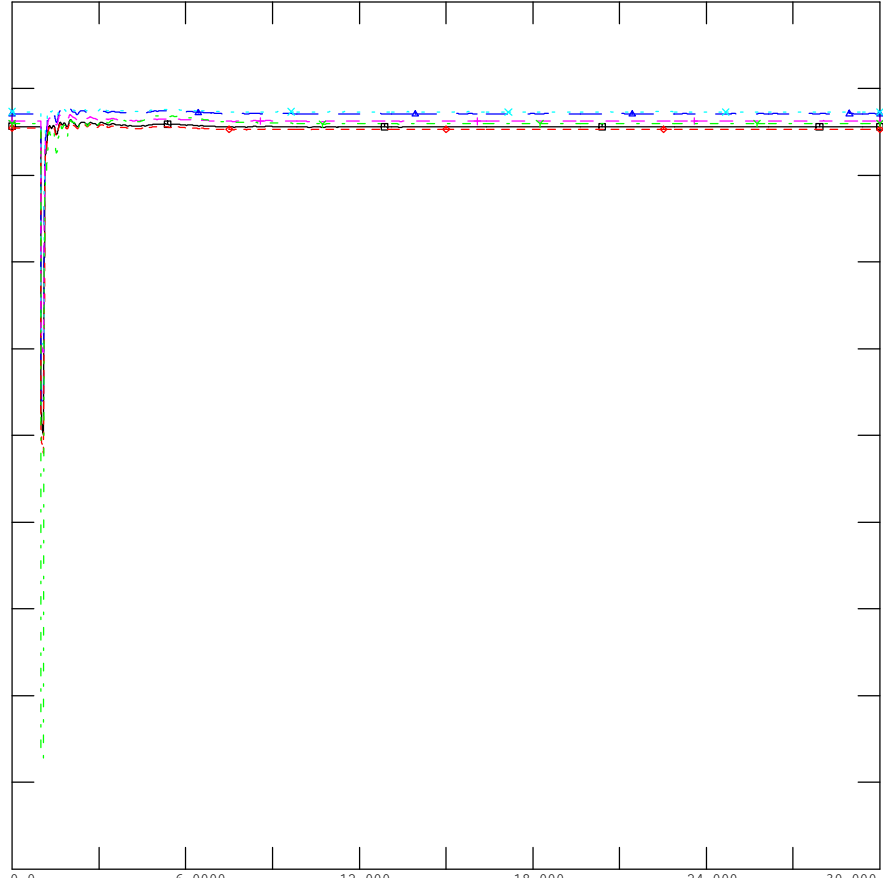
THU, JUN 19 2014 14:59  
 FIG F4-16



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

CHNL#	[VOLT]	[BRUDERH7]	138.001]	0.0
41	[VOLT]	67 [BRUDERH7]	138.001]	0.0
45	[VOLT]	443 [BANNV_240]	240.001]	0.0
39	[VOLT]	61 [DOH_CHEM]	138.001]	0.0
38	[VOLT]	60 [BEPANR_7]	138.001]	0.0
50	[VOLT]	771 [AMELTA1]	240.001]	0.0
49	[VOLT]	628 [ALC_SCOR]	138.001]	0.0



TIME (SECONDS)

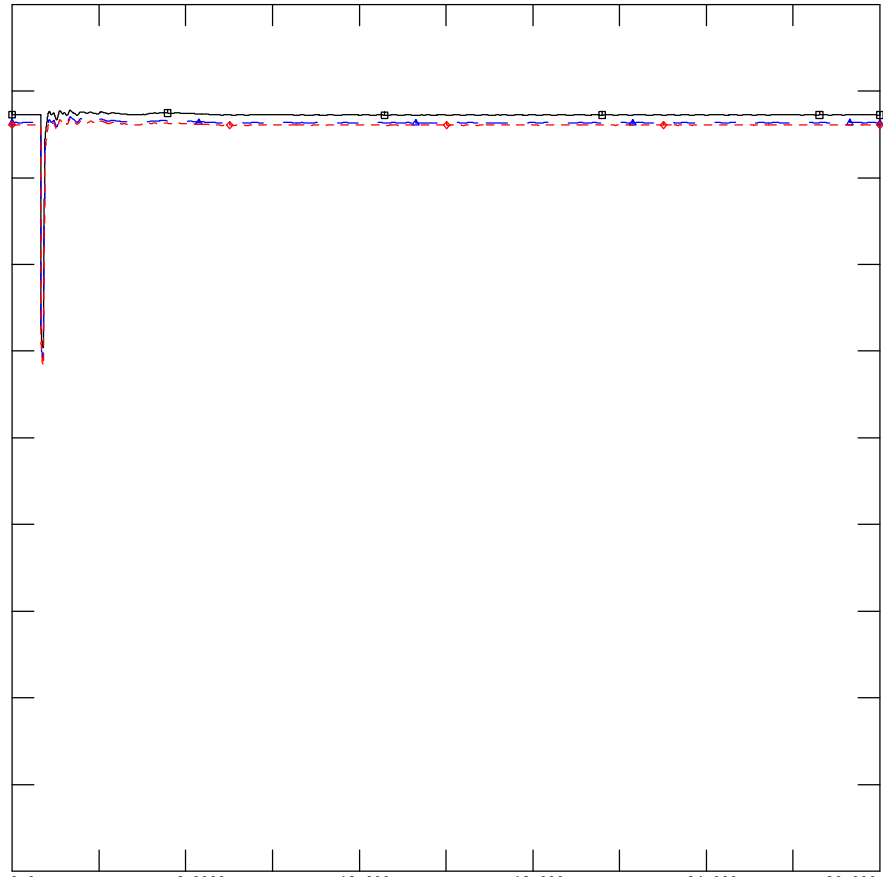
THU, JUN 19 2014 14:59  
FIG F4-16A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 808L 3PH FAULT AT 13S

FILE: CON16.OUT

CHNL#	[VOLT]	58 [PORT SA7]	138.001]	0.0
36	[VOLT]	58 [PORT SA7]	138.001]	0.0
40	[VOLT]	63 [LAMOURB7]	138.001]	0.0
35	[VOLT]	57 [LAMOURB4]	240.001]	0.0



TIME (SECONDS)

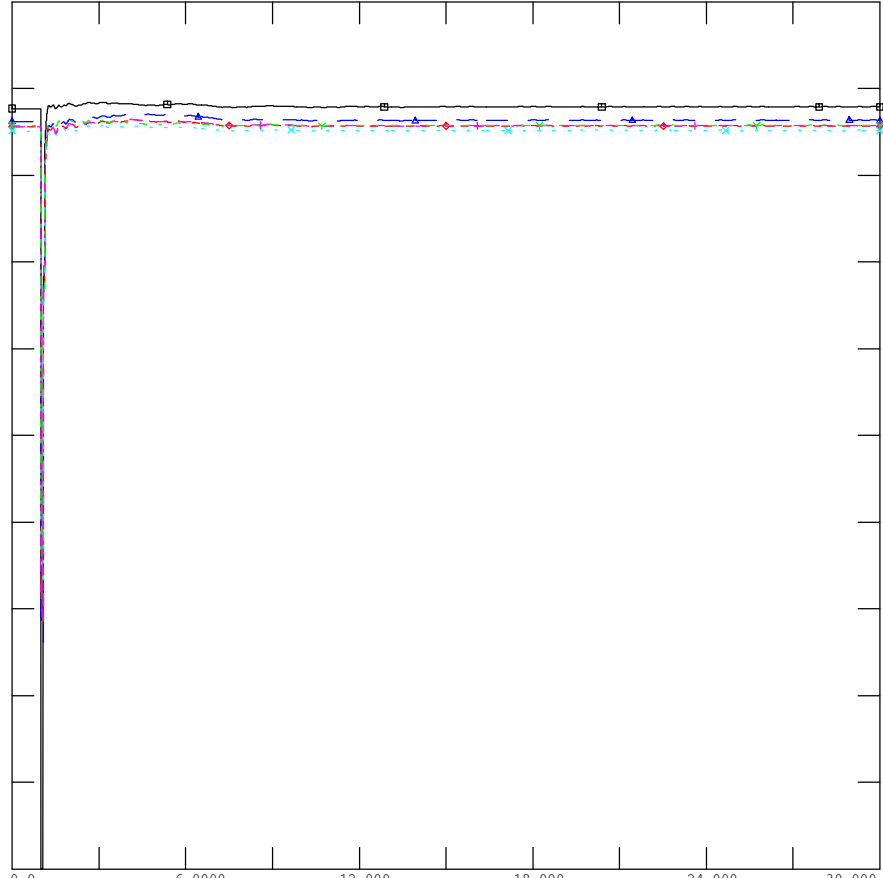
THU, JUN 19 2014 15:00  
FIG F4-16B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

CHNL#	[VOLT]	[SCOT4 8]	138.001	0.0
CHNL# 44:	[VOLT]	189 [SCOT4 8]	138.001	0.0
CHNL# 37:	[VOLT]	59 [BRDERRH7]	138.001	0.0
CHNL# 52:	[VOLT]	1420 [WEASBFL1]	138.001	0.0
CHNL# 51:	[VOLT]	954 [ABBE 01]	138.001	0.0
CHNL# 42:	[VOLT]	106 [DBERLAN7]	138.001	0.0
CHNL# 43:	[VOLT]	109 [DBERLAN4]	240.001	0.0



TIME (SECONDS)

THU, JUN 19 2014 15:00

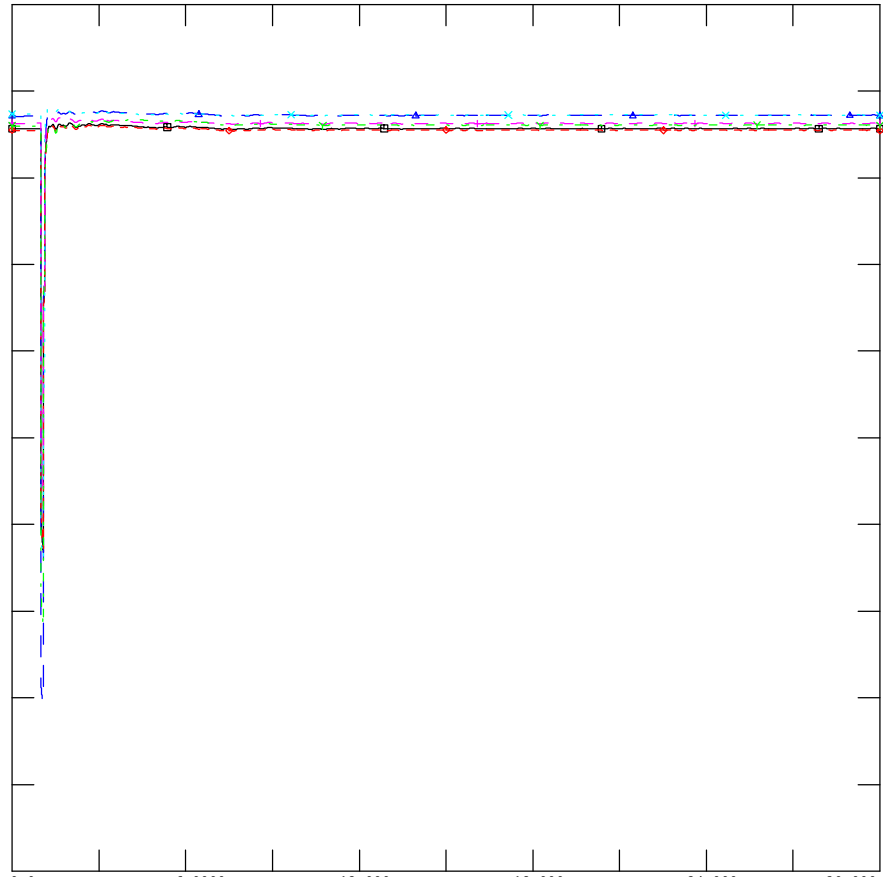
FIG F4-17



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

CHNL#	[VOLT]	[BRDERRH7]	138.001	0.0
CHNL# 41:	[VOLT]	67 [BRDERRH7]	138.001	0.0
CHNL# 45:	[VOLT]	443 [BANN 240]	240.001	0.0
CHNL# 39:	[VOLT]	61 [DOW CHBM]	138.001	0.0
CHNL# 38:	[VOLT]	60 [BEAMER 7]	138.001	0.0
CHNL# 50:	[VOLT]	771 [AMELIA1]	240.001	0.0
CHNL# 49:	[VOLT]	628 [ALC SCOT]	138.001	0.0



TIME (SECONDS)

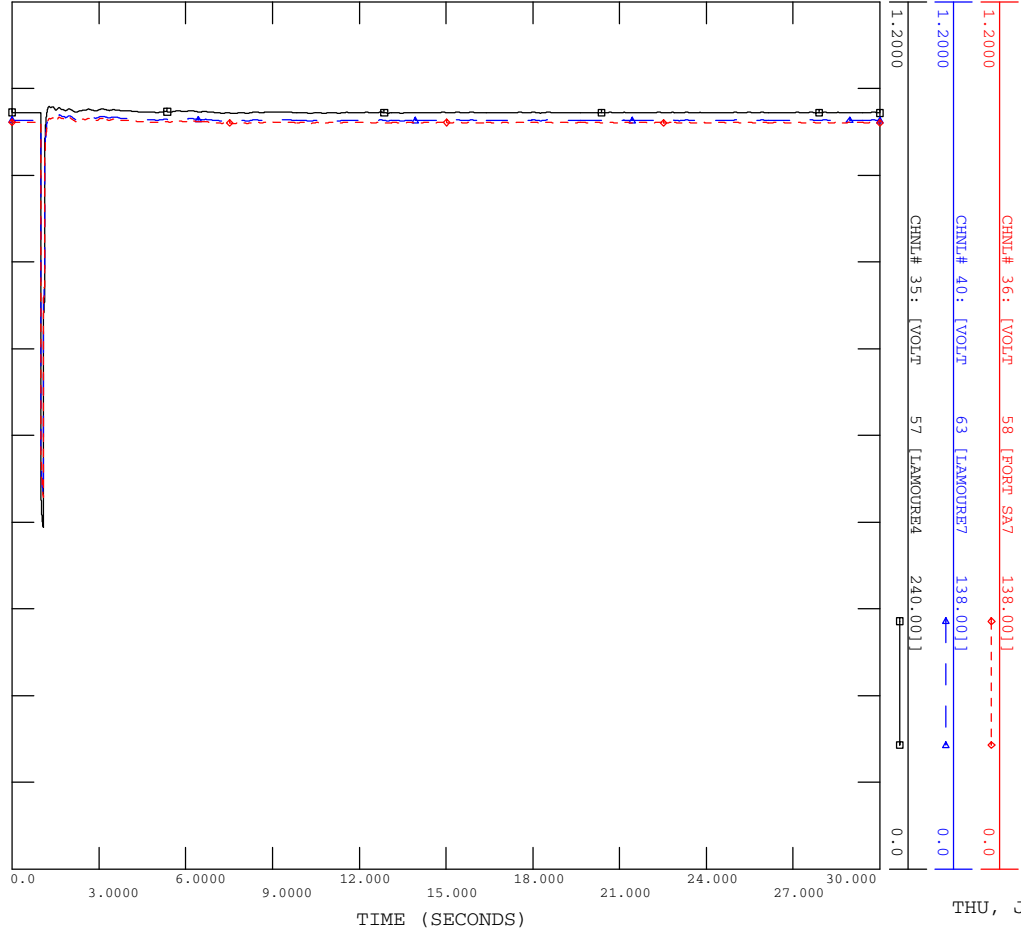
THU, JUN 19 2014 15:00

FIG F4-17A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 13S

FILE: CON17.OUT

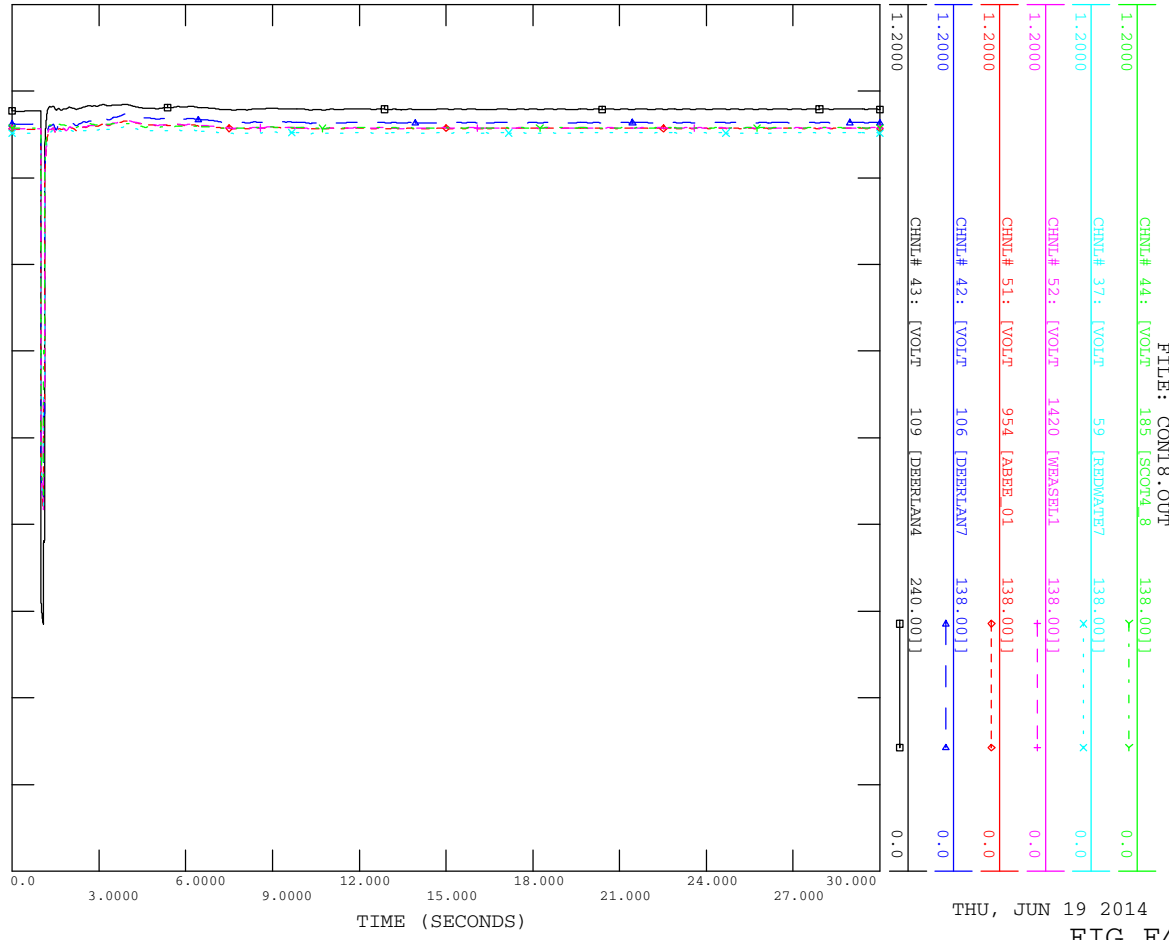


THU, JUN 19 2014 15:01  
FIG F4-17B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT



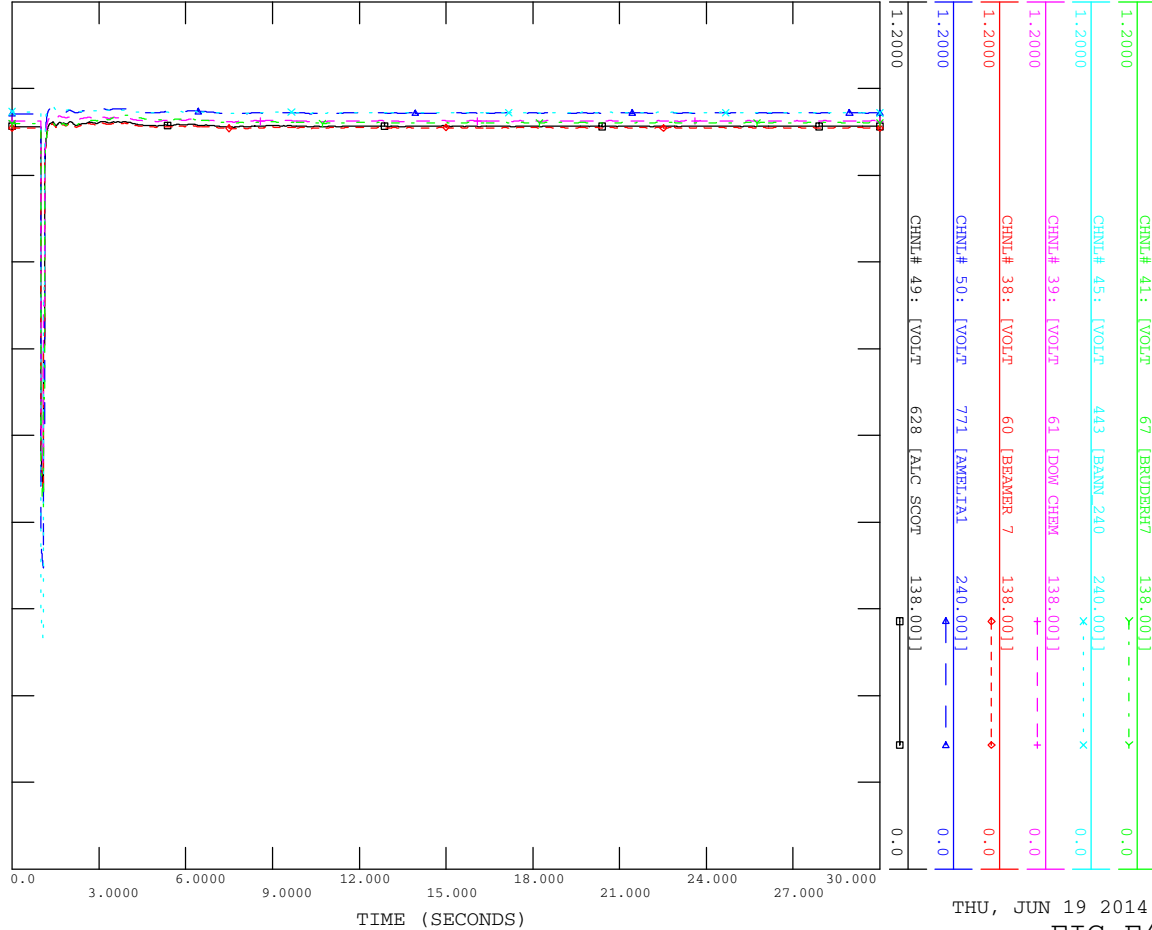
THU, JUN 19 2014 15:01  
FIG F4-18





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT

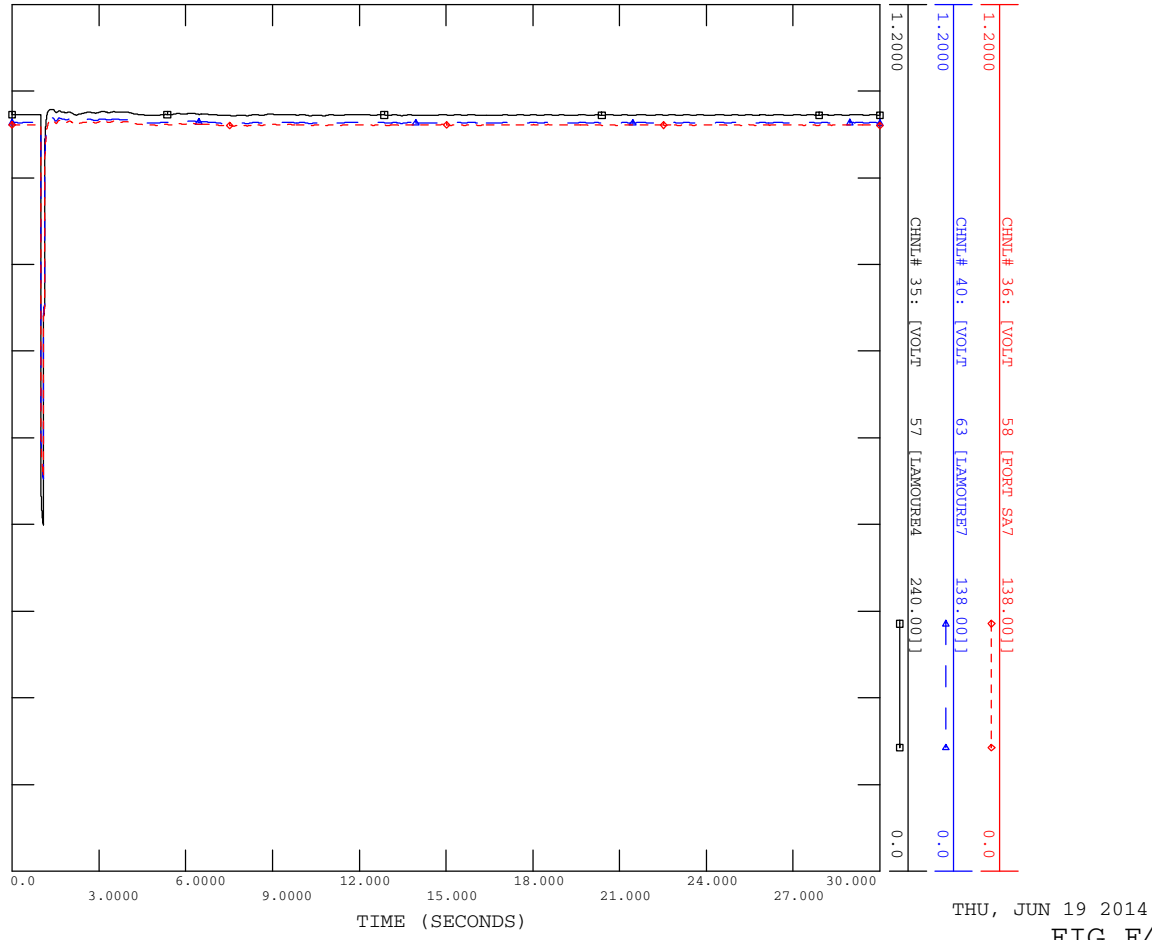


THU, JUN 19 2014 15:02  
FIG F4-18A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 1054L 3PH FAULT AT 12S

FILE: CON18.OUT



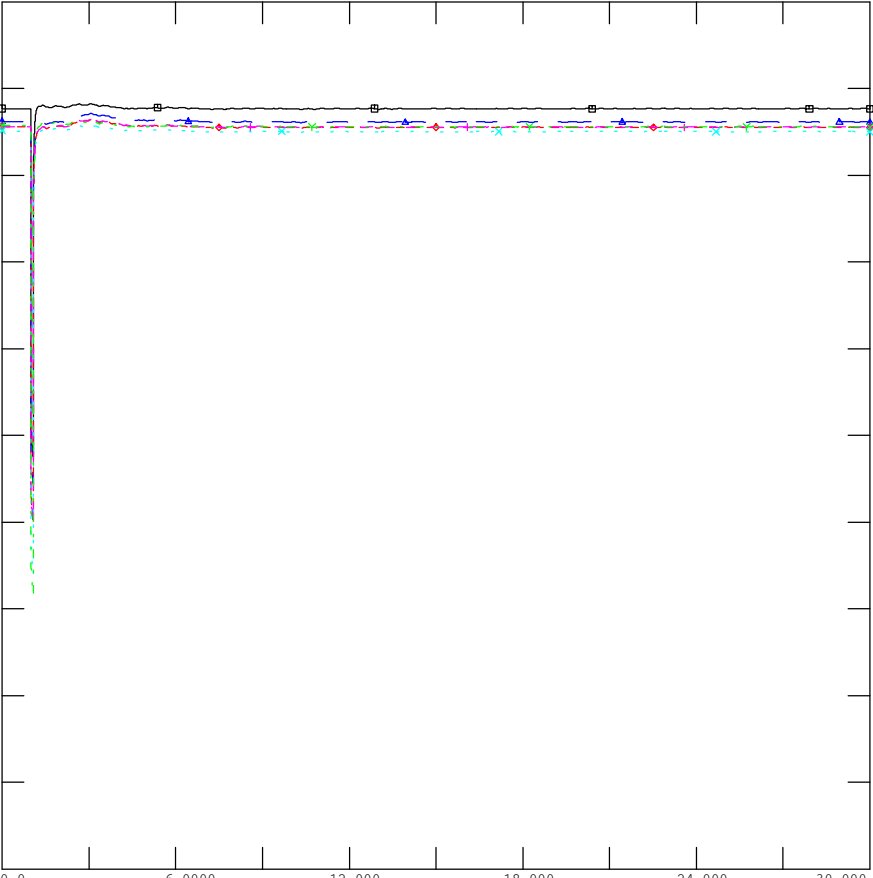
THU, JUN 19 2014 15:02  
FIG F4-18B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
CHNL# 44:	[VOLT]	189 [SCOT4 8]	138.001	0.0
CHNL# 37:	[VOLT]	59 [REDMATE7]	138.001	0.0
CHNL# 52:	[VOLT]	1420 [WEASST1]	138.001	0.0
CHNL# 51:	[VOLT]	954 [ABBE 01]	138.001	0.0
CHNL# 42:	[VOLT]	106 [DEBRLAN7]	138.001	0.0
CHNL# 43:	[VOLT]	109 [DEBRLAN4]	240.001	0.0



TIME (SECONDS)

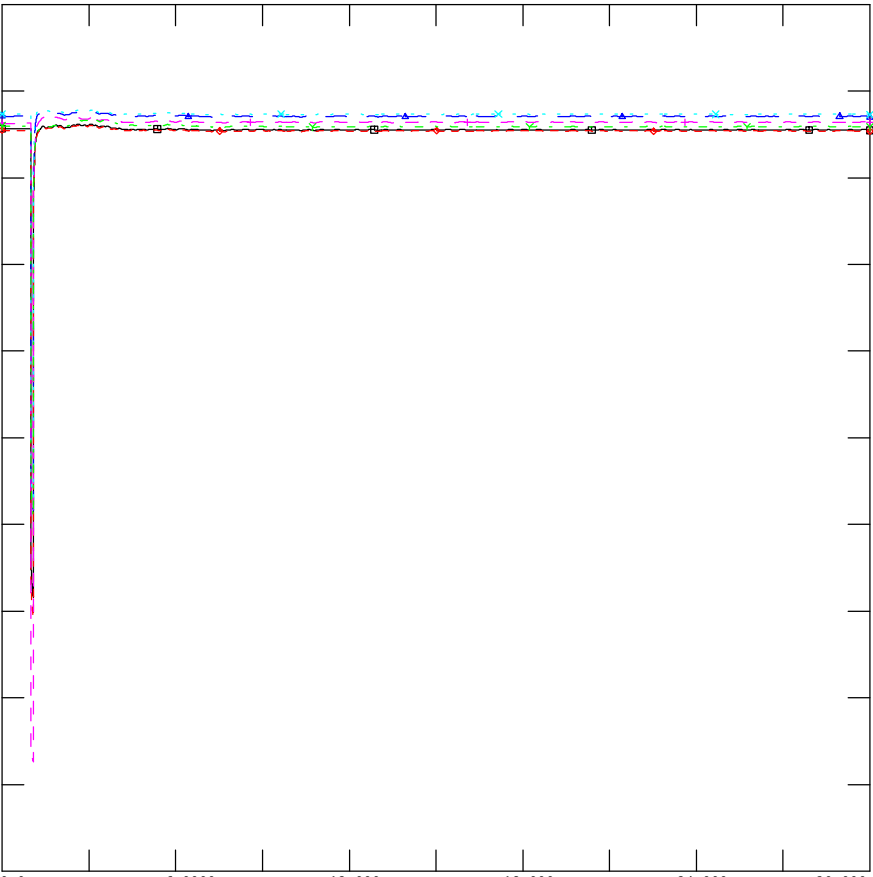
THU, JUN 19 2014 15:02  
 FIG F4-19



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

CHNL#	[VOLT]	[BRDERRH7]	[138.001]	[0.0]
CHNL# 41:	[VOLT]	67 [BRDERRH7]	138.001	0.0
CHNL# 45:	[VOLT]	443 [BANN 240]	240.001	0.0
CHNL# 39:	[VOLT]	61 [DOW CHDM]	138.001	0.0
CHNL# 38:	[VOLT]	60 [BEAMER 7]	138.001	0.0
CHNL# 50:	[VOLT]	771 [AMELIA1]	240.001	0.0
CHNL# 49:	[VOLT]	628 [ALC SCOT]	138.001	0.0



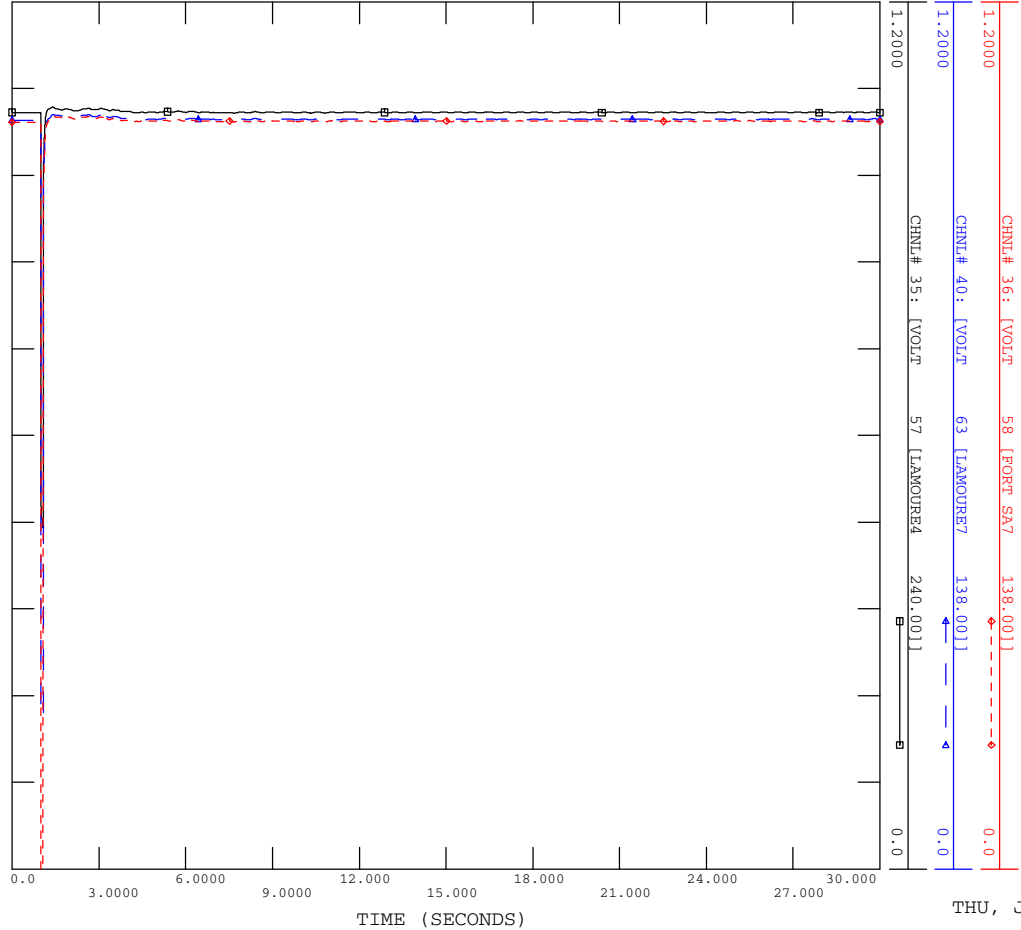
TIME (SECONDS)

THU, JUN 19 2014 15:03  
 FIG F4-19A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 54S

FILE: CON19.OUT

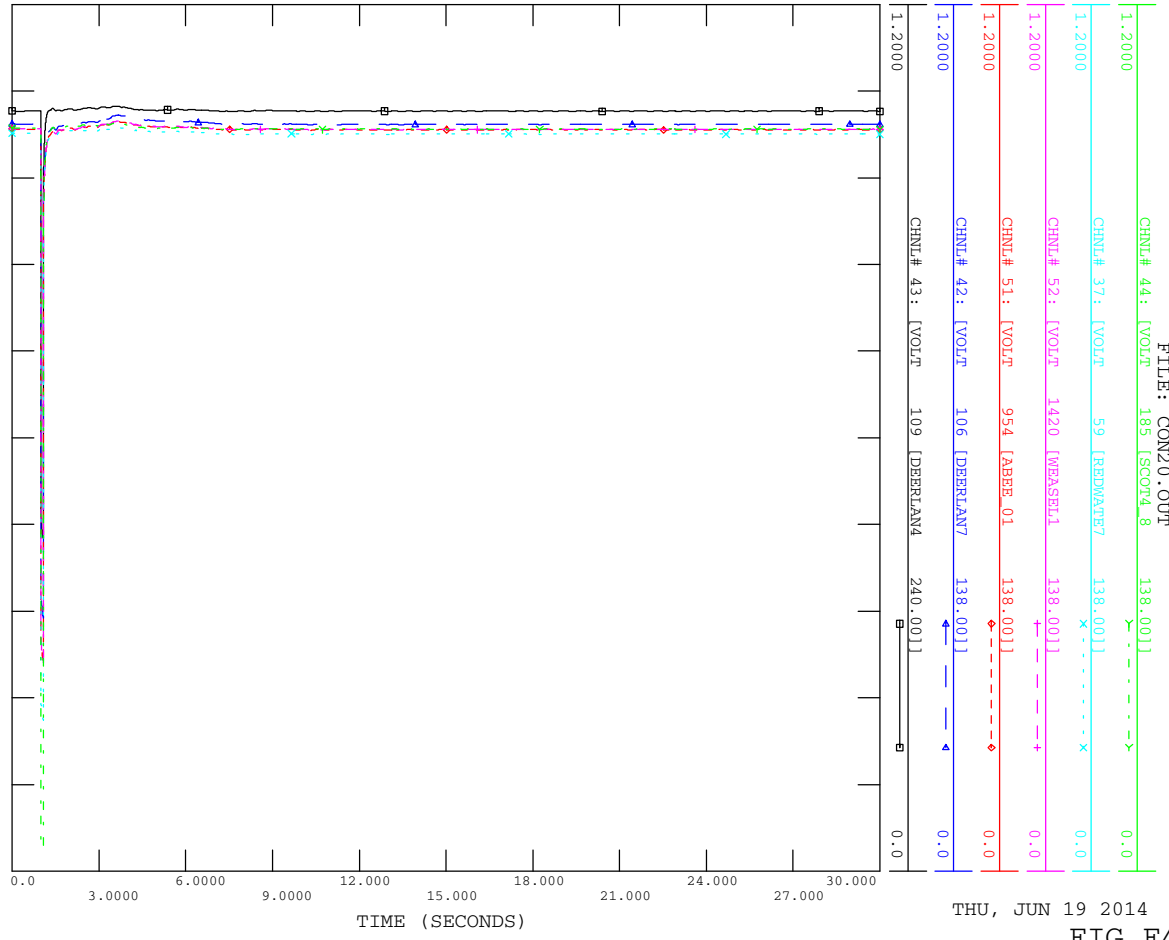


THU, JUN 19 2014 15:03  
FIG F4-19B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

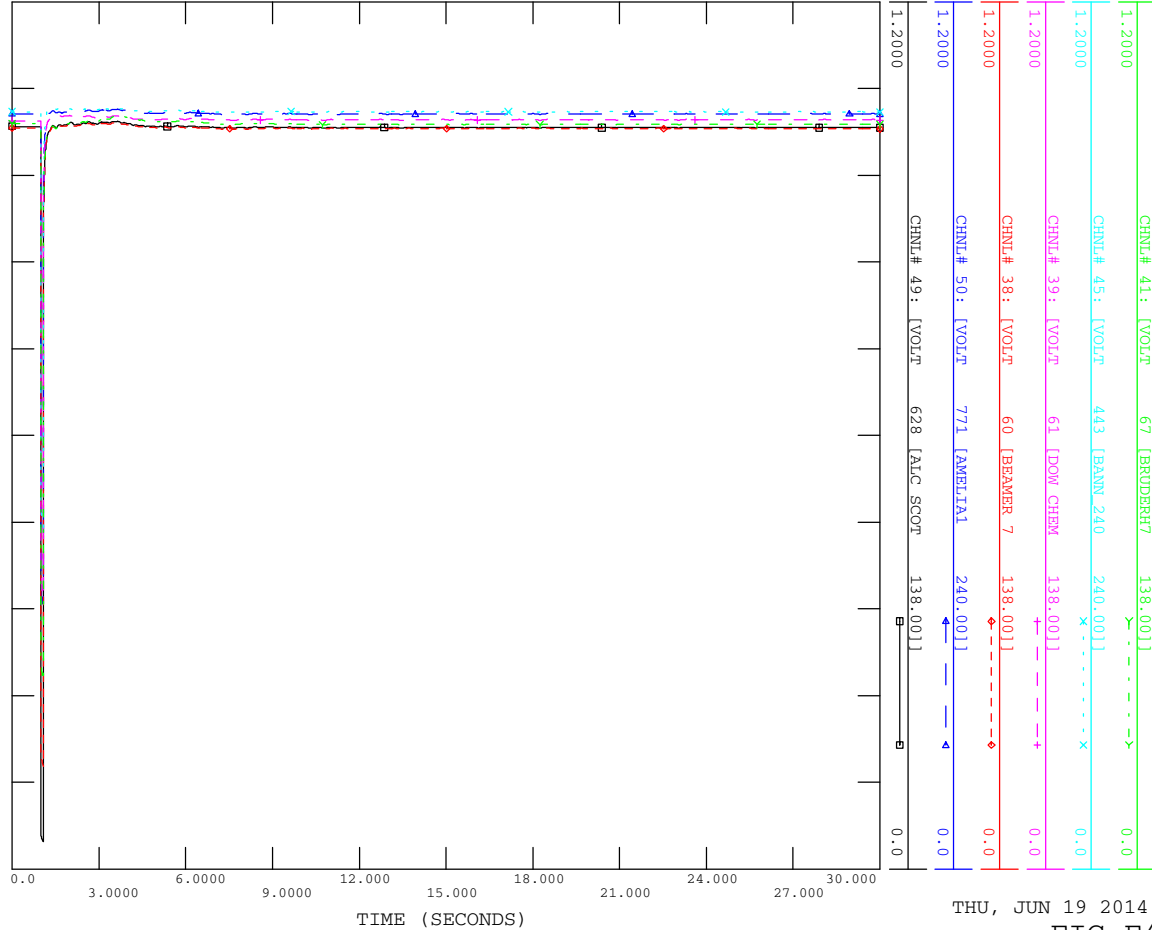


THU, JUN 19 2014 15:03  
FIG F4-20



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT

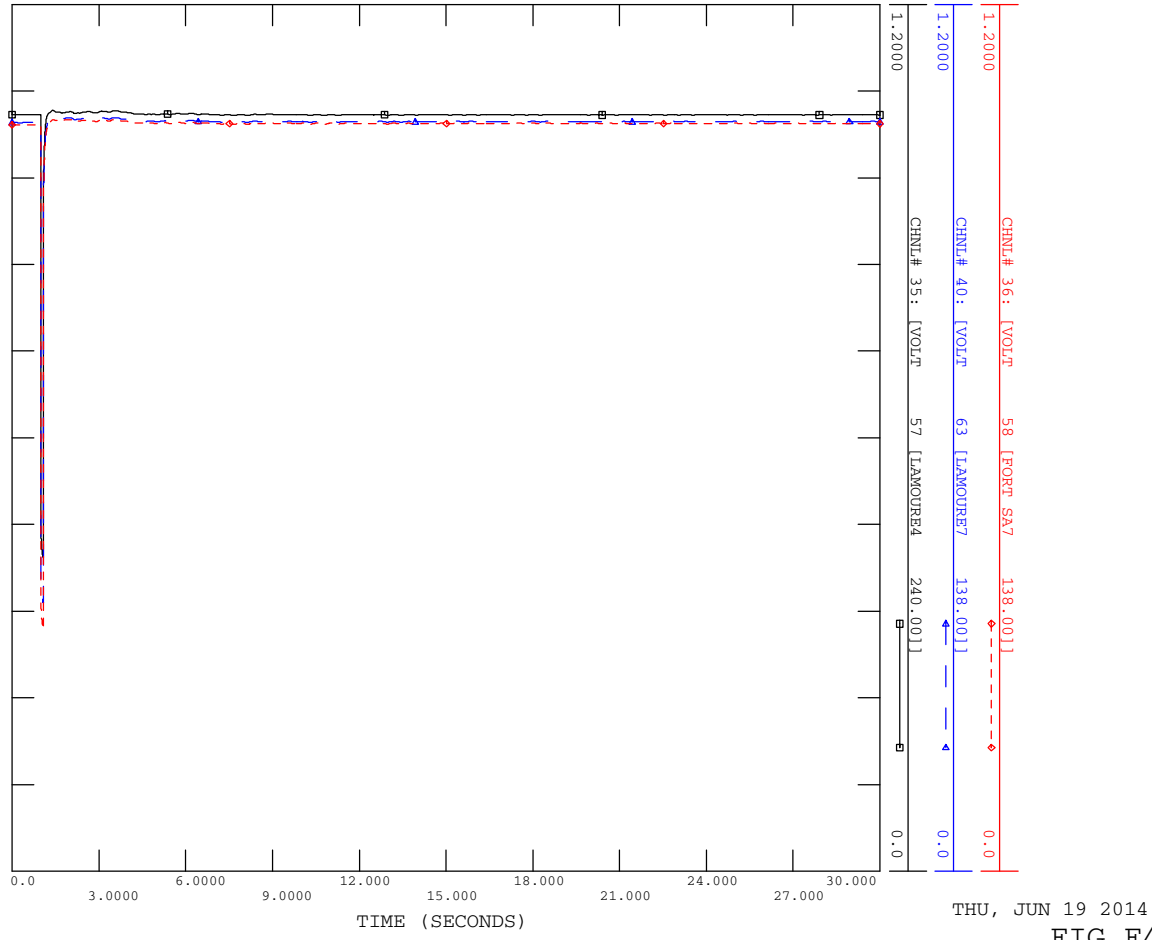


THU, JUN 19 2014 15:03  
FIG F4-20A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 706L 3PH FAULT AT 410S

FILE: CON20.OUT



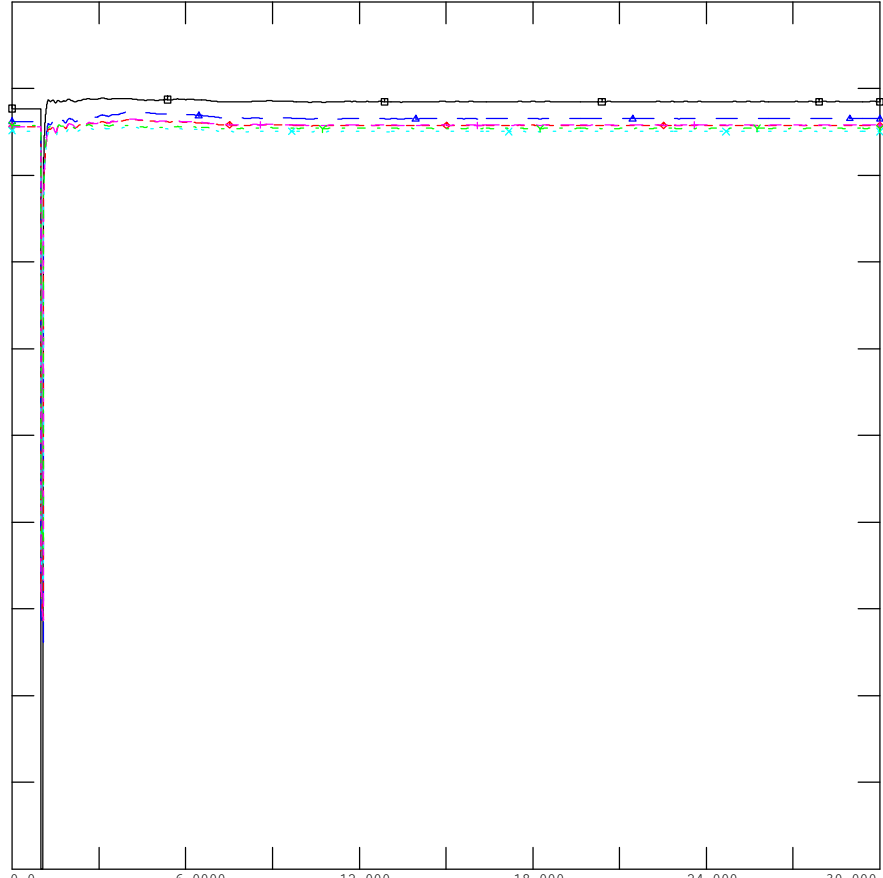
THU, JUN 19 2014 15:04  
FIG F4-20B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
CHNL# 44	[VOLT]	189 [SCOT4 8]	138.001	0.0
CHNL# 37	[VOLT]	59 [BRDERRH7]	138.001	0.0
CHNL# 52	[VOLT]	1420 [WASBFL1]	138.001	0.0
CHNL# 51	[VOLT]	954 [ABBE 01]	138.001	0.0
CHNL# 42	[VOLT]	106 [DBERLAN7]	138.001	0.0
CHNL# 43	[VOLT]	109 [DBERLAN4]	240.001	0.0



TIME (SECONDS)

THU, JUN 19 2014 15:04

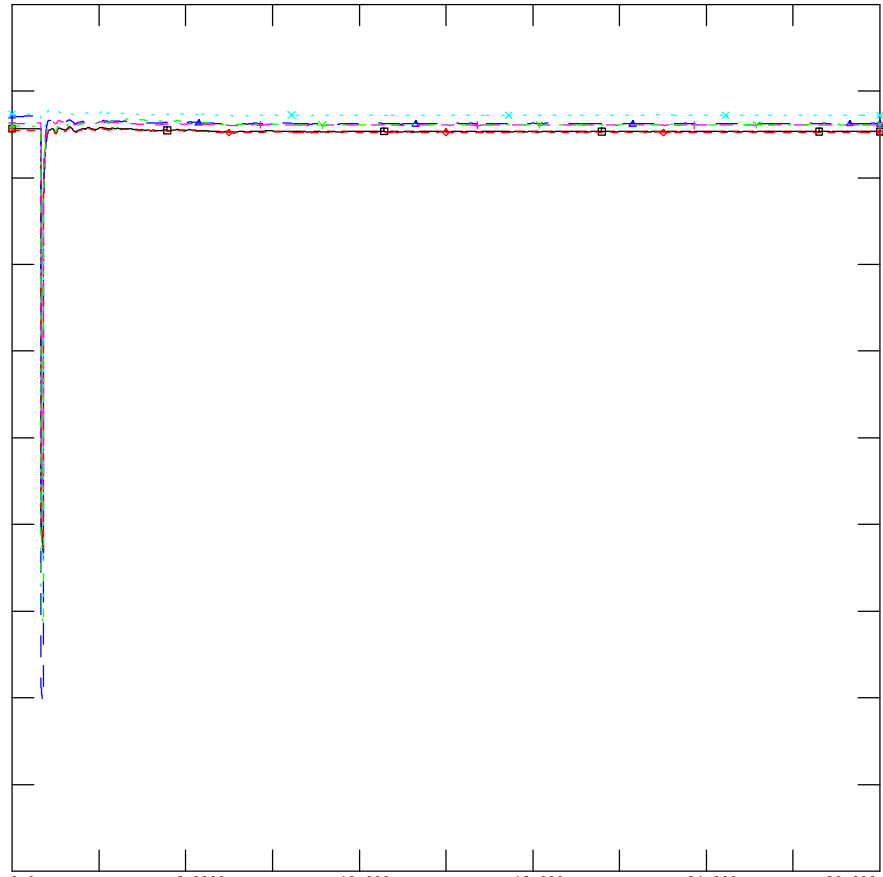
FIG F4-21



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

CHNL#	[VOLT]	[BRDERRH7]	[138.001]	[0.0]
CHNL# 41	[VOLT]	67 [BRDERRH7]	138.001	0.0
CHNL# 45	[VOLT]	443 [BANN 240]	240.001	0.0
CHNL# 39	[VOLT]	61 [DOW CHDM]	138.001	0.0
CHNL# 38	[VOLT]	60 [BEAMER 7]	138.001	0.0
CHNL# 50	[VOLT]	771 [AMELIA1]	240.001	0.0
CHNL# 49	[VOLT]	628 [ALC SCOT]	138.001	0.0



TIME (SECONDS)

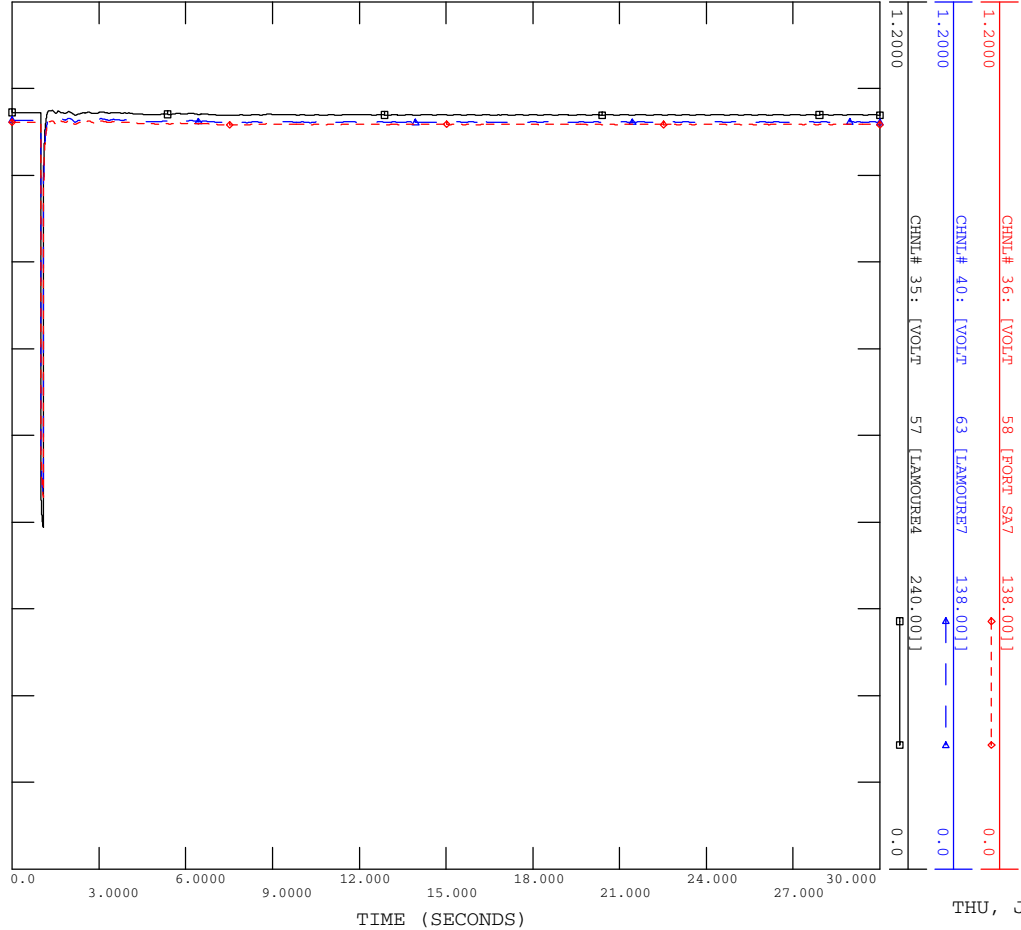
THU, JUN 19 2014 15:04

FIG F4-21A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAT B - 943L 3PH FAULT AT 410S

FILE: CON22.OUT

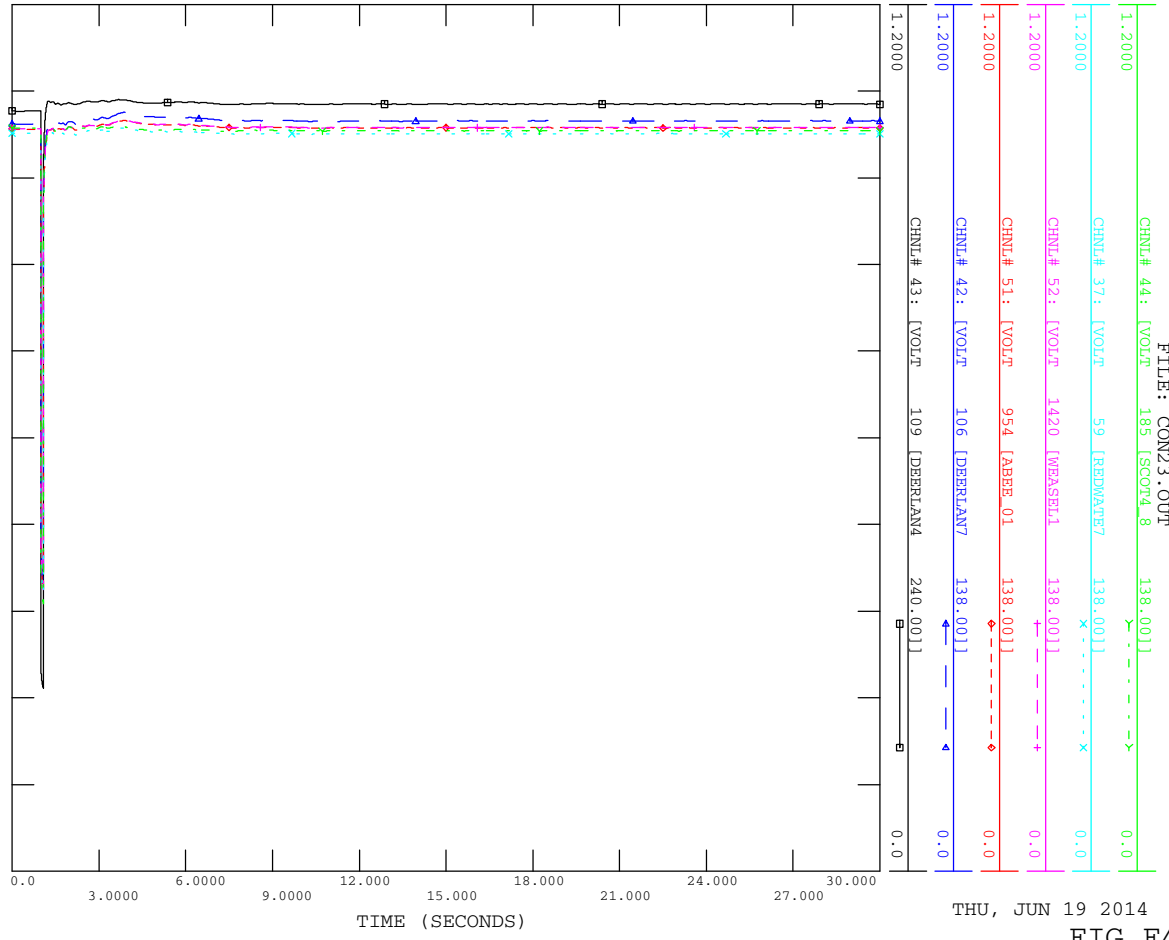


THU, JUN 19 2014 15:04  
 FIG F4-21B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAT B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

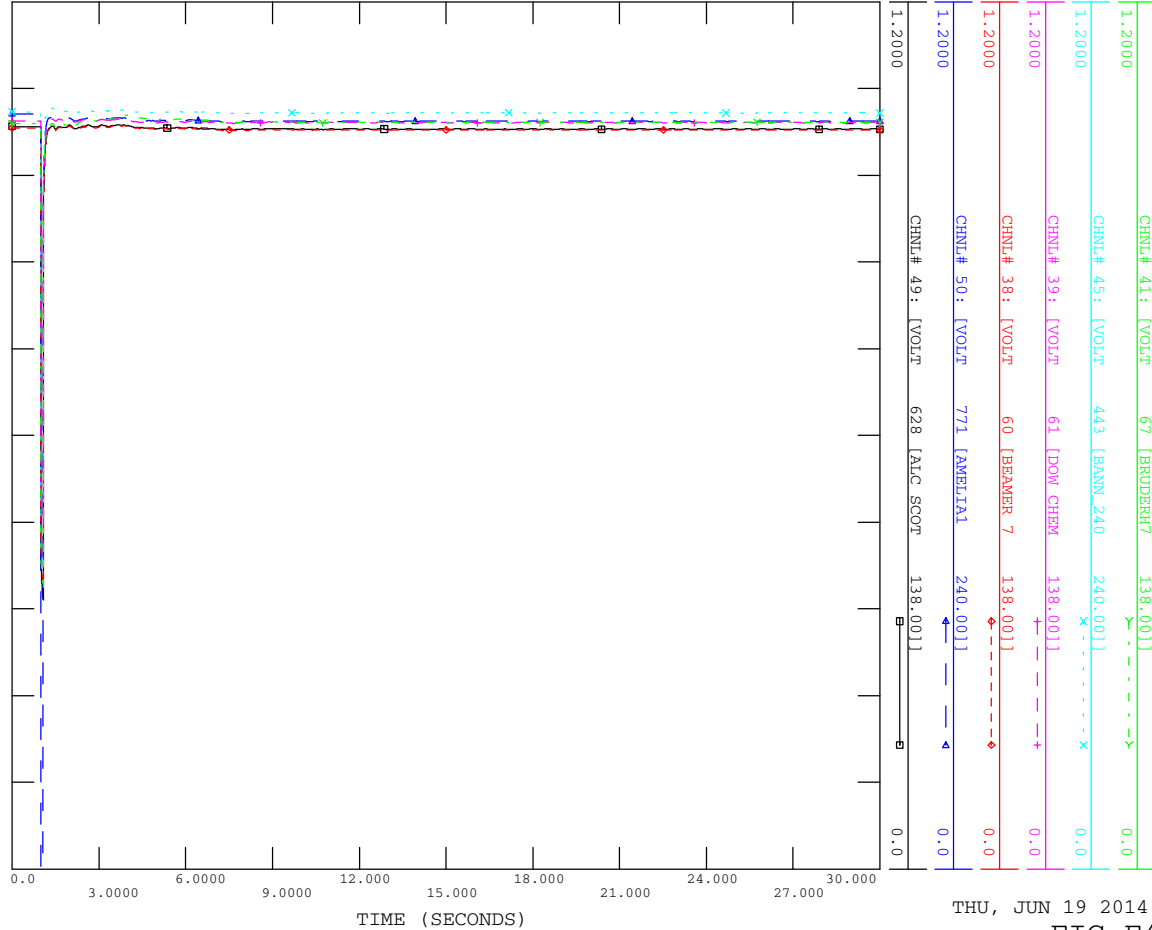


THU, JUN 19 2014 15:04  
 FIG F4-22



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT

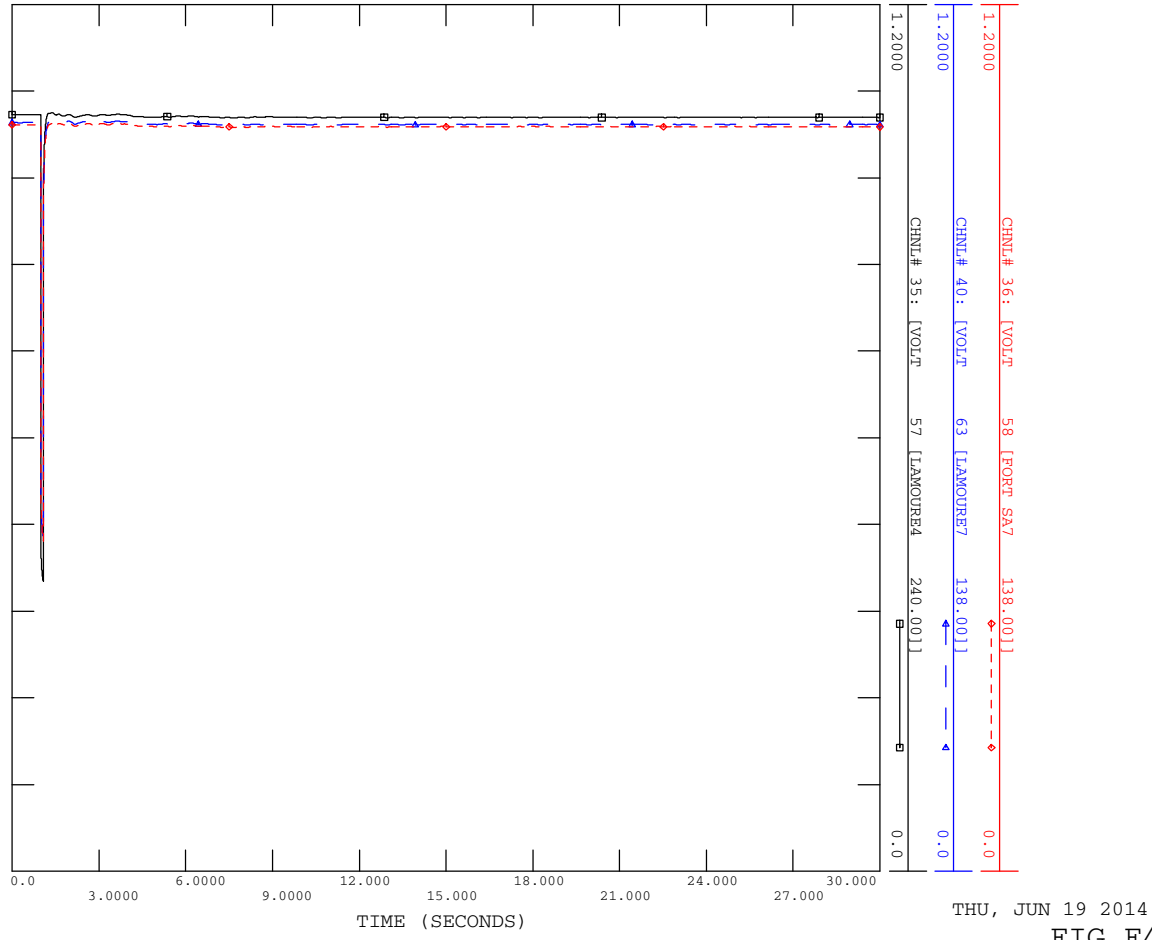


THU, JUN 19 2014 15:04  
FIG F4-22A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 943L 3PH FAULT AT 108S

FILE: CON23.OUT



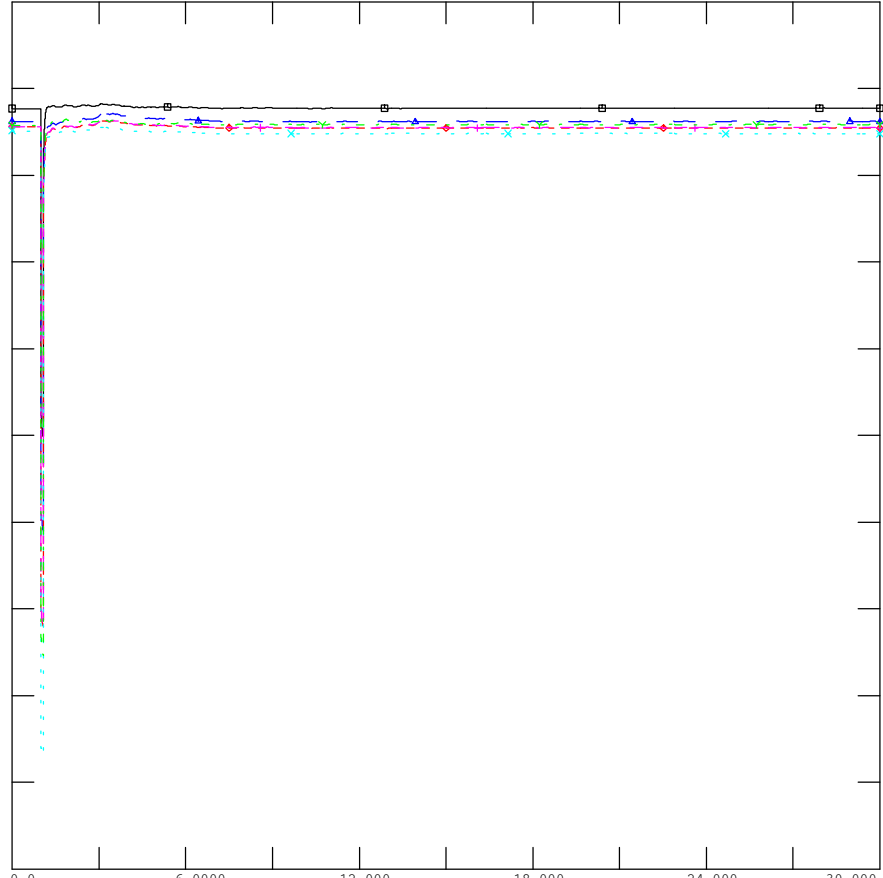
THU, JUN 19 2014 15:05  
FIG F4-22B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
44	189	59 [REDMATE7]	138.001	0.0
37	1420 [WEASST1]	138.001	0.0	0.0
52	954 [ABBE 01]	138.001	0.0	0.0
51	106 [DEBRLAN7]	138.001	0.0	0.0
42	109 [DEBRLAN4]	240.001	0.0	0.0
43				



TIME (SECONDS)

THU, JUN 19 2014 15:05

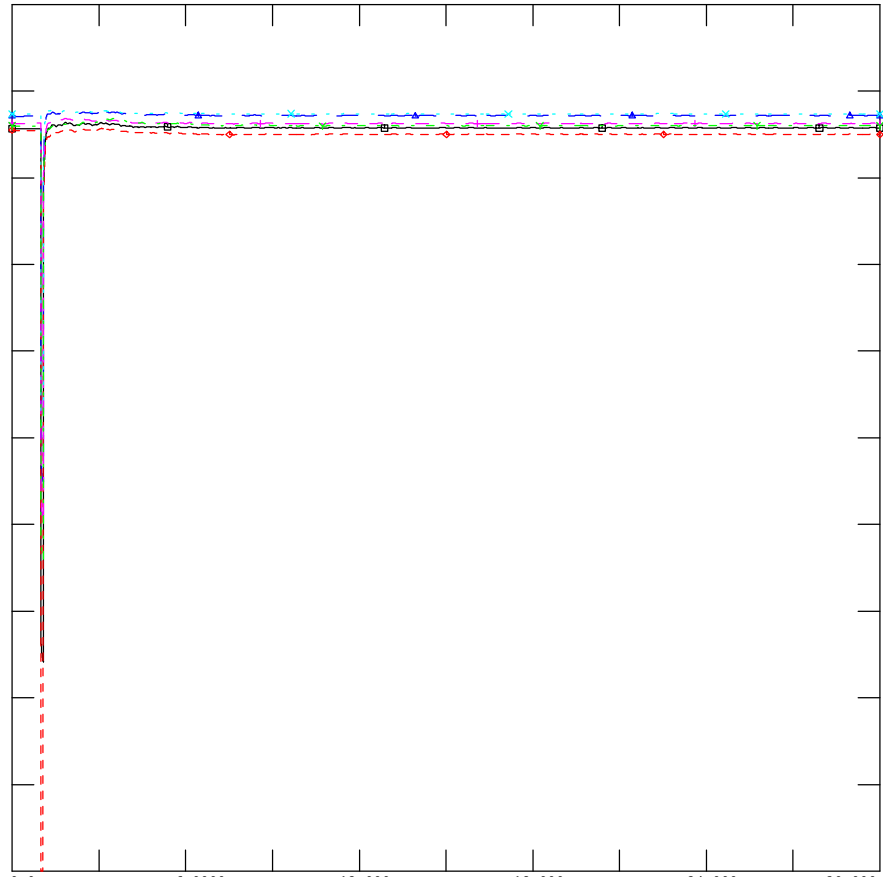
FIG F4-23



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

CHNL#	[VOLT]	[BRDERRH7]	[138.001]	[0.0]
41	67	443 [BANN 240]	240.001	0.0
45	61 [DOW CHDM]	138.001	0.0	0.0
39	60 [BEAMER 7]	138.001	0.0	0.0
38	771 [AMELIA1]	240.001	0.0	0.0
50	628 [ALC SCOT]	138.001	0.0	0.0
49				



TIME (SECONDS)

THU, JUN 19 2014 15:05

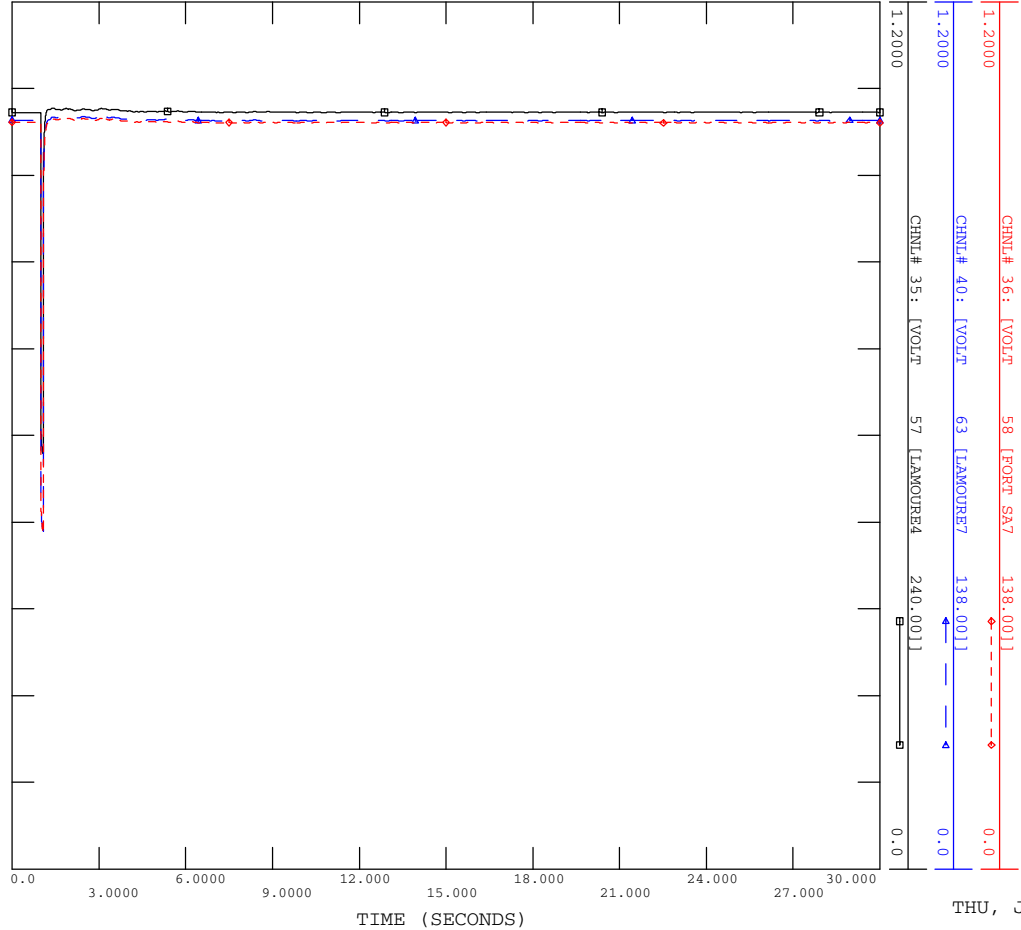
FIG F4-23A





TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 233S

FILE: CON25.OUT

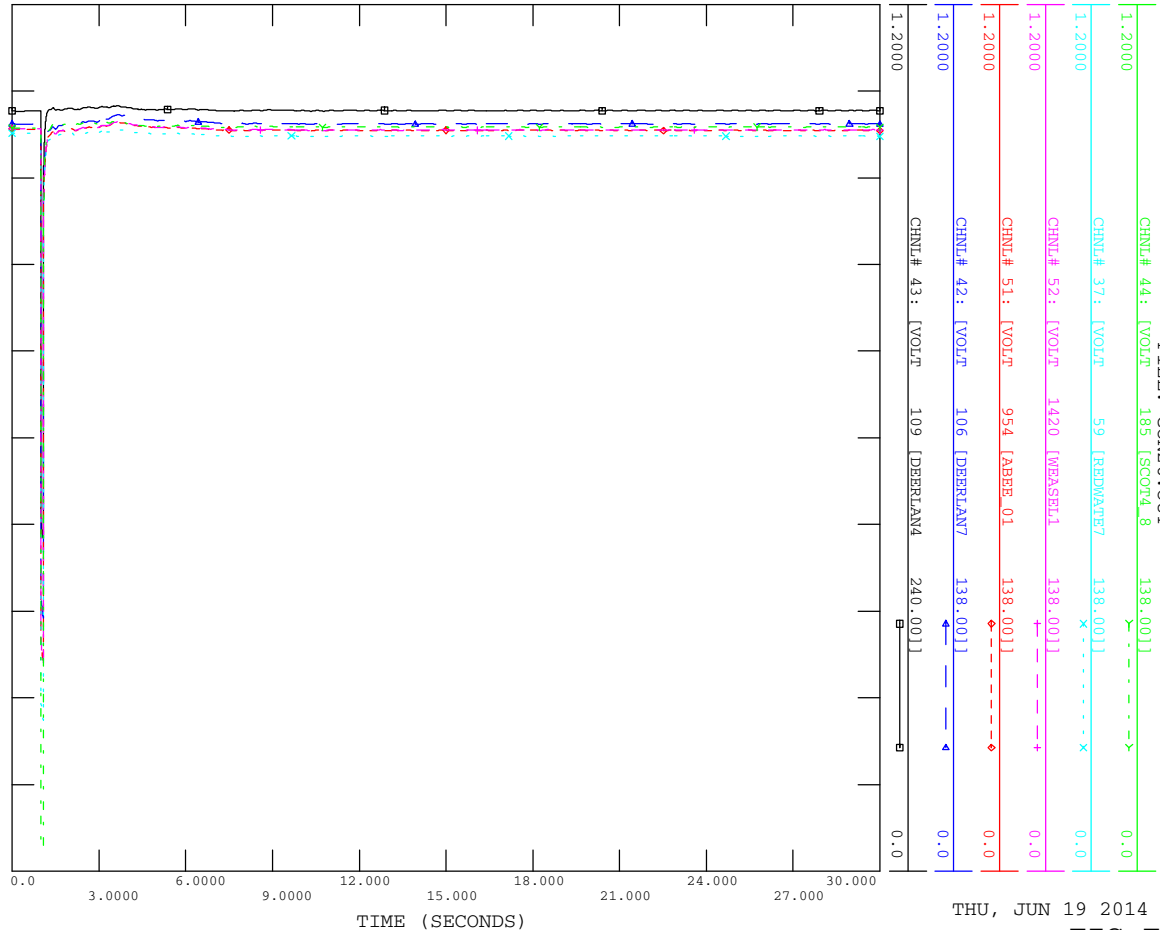


THU, JUN 19 2014 15:05  
 FIG F4-23B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT



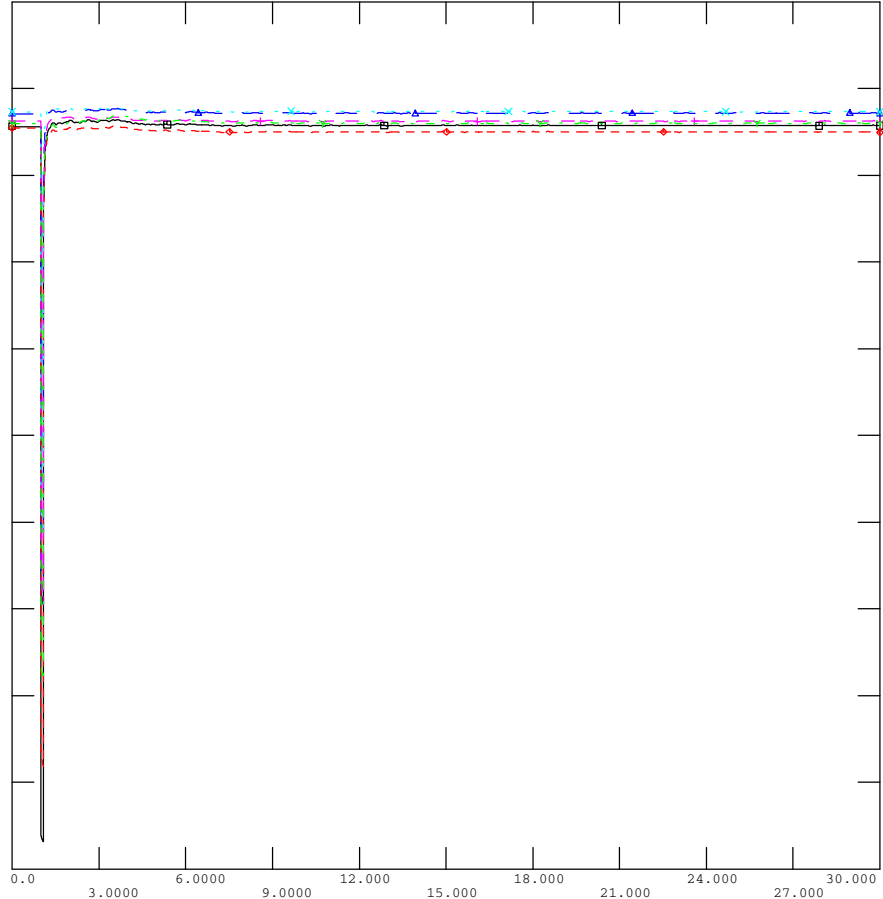
THU, JUN 19 2014 15:05  
 FIG F4-24



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

CHNL#	UNIT	VALUE
41	[VOLT]	67 [BRUDERH7] 138.001
45	[VOLT]	443 [BANNV_240] 240.001
39	[VOLT]	61 [DOH CHRM] 138.001
38	[VOLT]	60 [BEMBR 7] 138.001
50	[VOLT]	771 [AMELTA1] 240.001
49	[VOLT]	628 [ALC SCOR] 138.001



TIME (SECONDS)

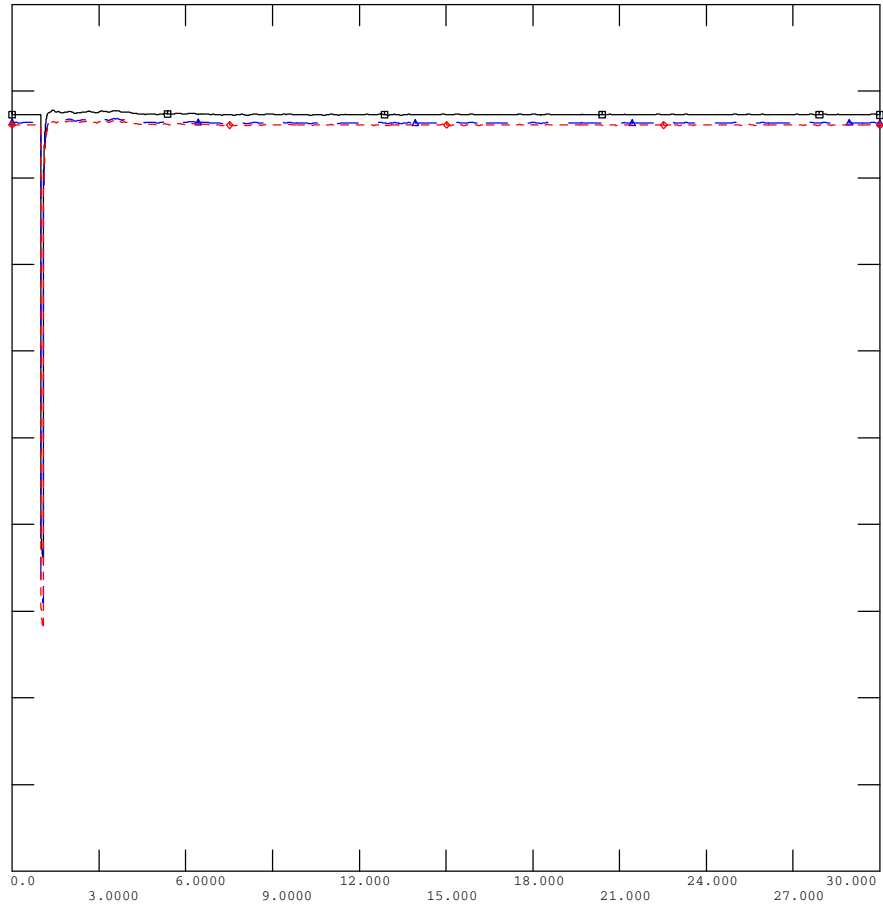
THU, JUN 19 2014 15:05  
FIG F4-24A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 410S

FILE: CON26.OUT

CHNL#	UNIT	VALUE
36	[VOLT]	58 [PORT SA7] 138.001
40	[VOLT]	63 [LAMOURB7] 138.001
35	[VOLT]	57 [LAMOURB4] 240.001



TIME (SECONDS)

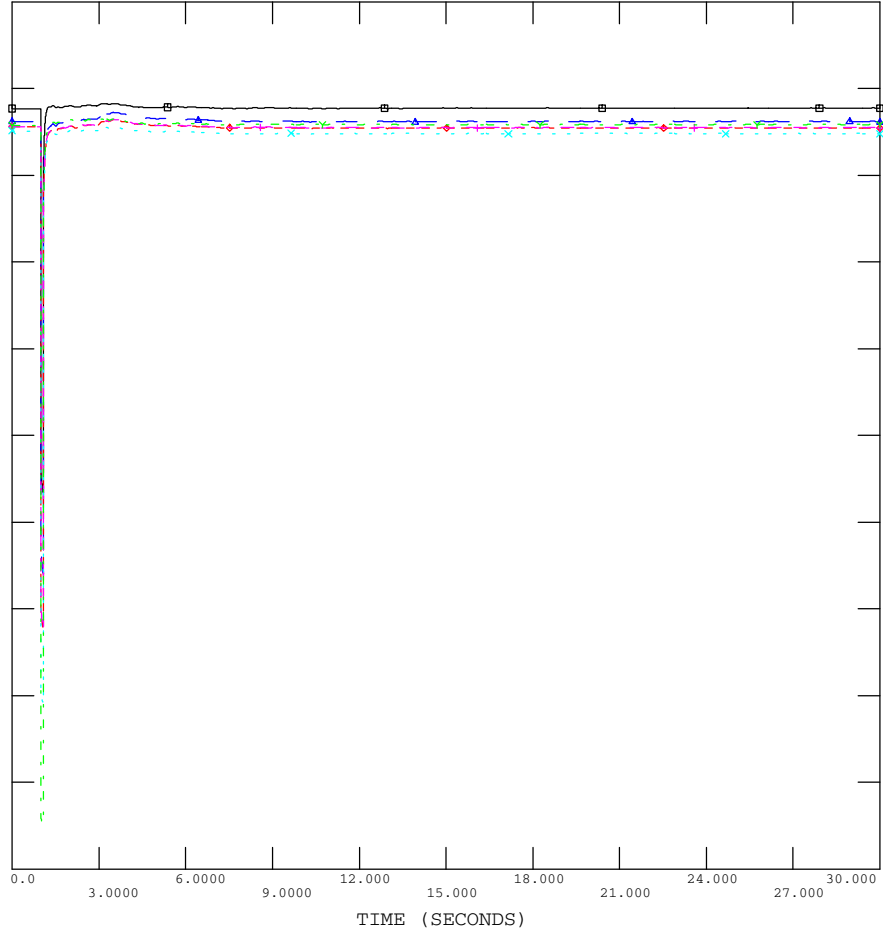
THU, JUN 19 2014 15:05  
FIG F4-24B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
1.2000	CHNL# 44:	189 [SCOT4 8]	138.001	0.0
1.2000	CHNL# 37:	59 [BRDERRH7]	138.001	0.0
1.2000	CHNL# 52:	1420 [WEASSEL1]	138.001	0.0
1.2000	CHNL# 51:	954 [ABBE 01]	138.001	0.0
1.2000	CHNL# 42:	106 [DBERLAN7]	138.001	0.0
1.2000	CHNL# 43:	109 [DBERLAN4]	240.001	0.0



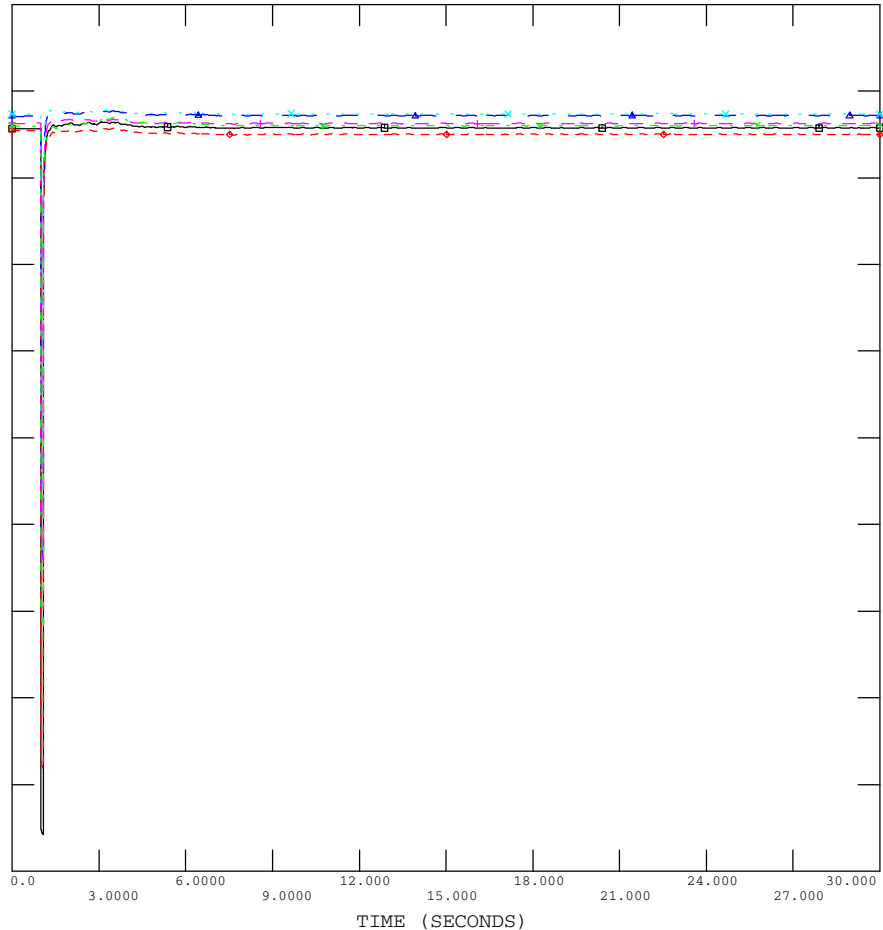
THU, JUN 19 2014 15:05  
FIG F4-25



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LTCU-1:2015-05-24:7:22--1-0-0-0  
CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

CHNL#	[VOLT]	[BRDERRH7]	[138.001]	[0.0]
1.2000	CHNL# 41:	67 [BRDERRH7]	138.001	0.0
1.2000	CHNL# 45:	443 [BANN 240]	240.001	0.0
1.2000	CHNL# 39:	61 [DOW CHDM]	138.001	0.0
1.2000	CHNL# 38:	60 [BEAMER 7]	138.001	0.0
1.2000	CHNL# 50:	771 [AMELIA1]	240.001	0.0
1.2000	CHNL# 49:	628 [ALC SCOT]	138.001	0.0

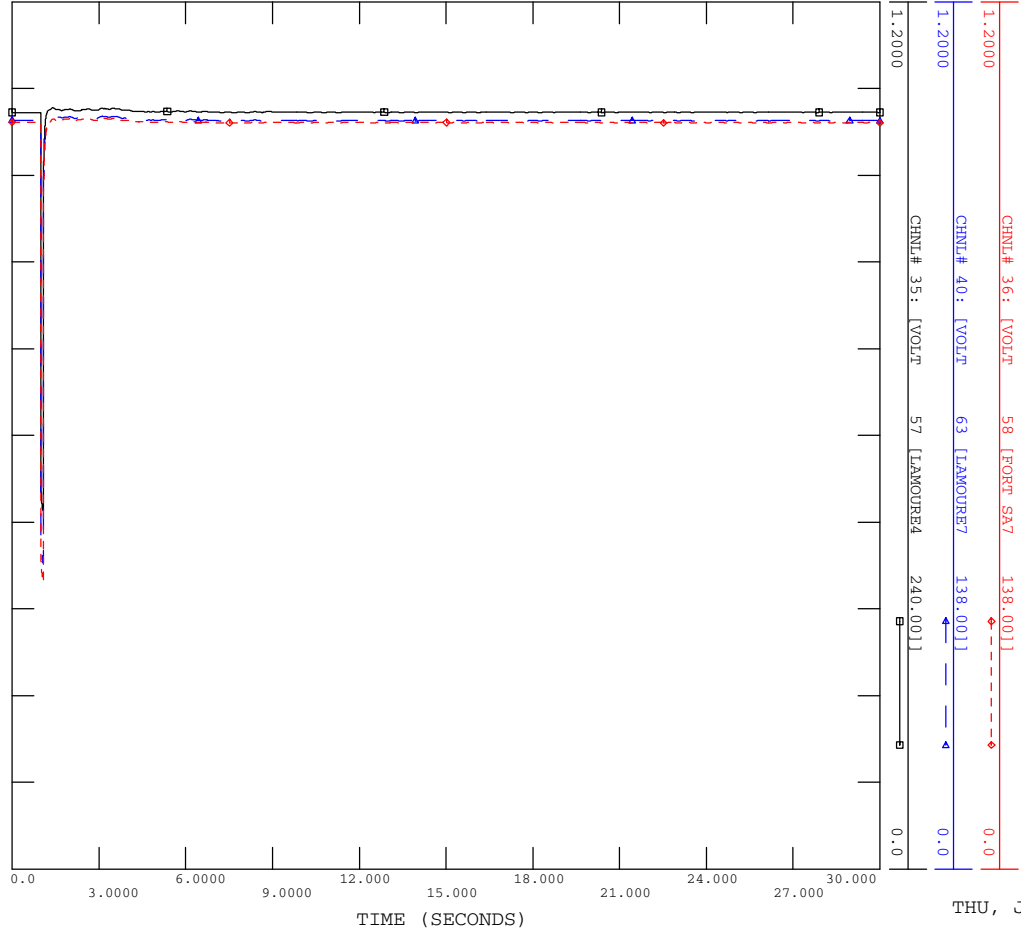


THU, JUN 19 2014 15:05  
FIG F4-25A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 807L 3PH FAULT AT 402S

FILE: CON27.OUT

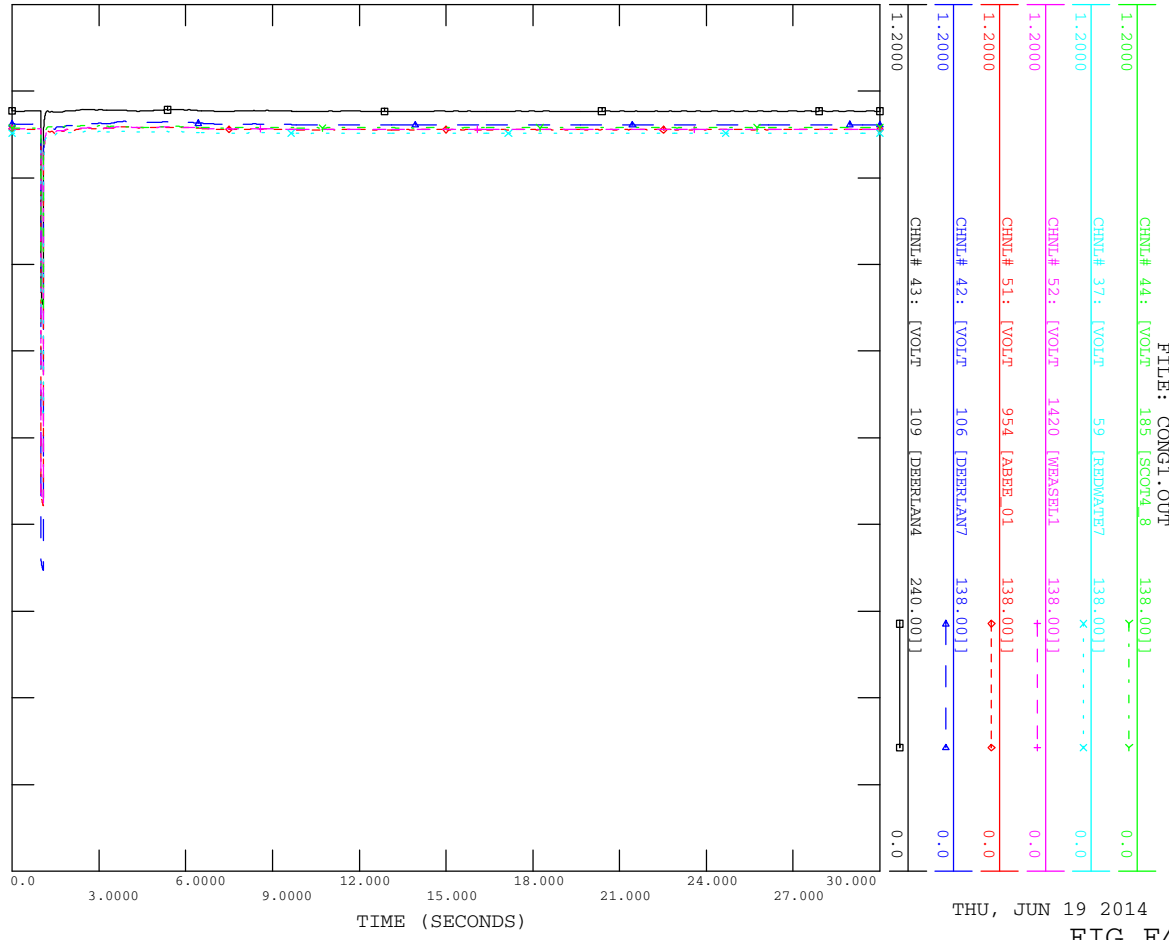


THU, JUN 19 2014 15:06  
 FIG F4-25B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LITOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT



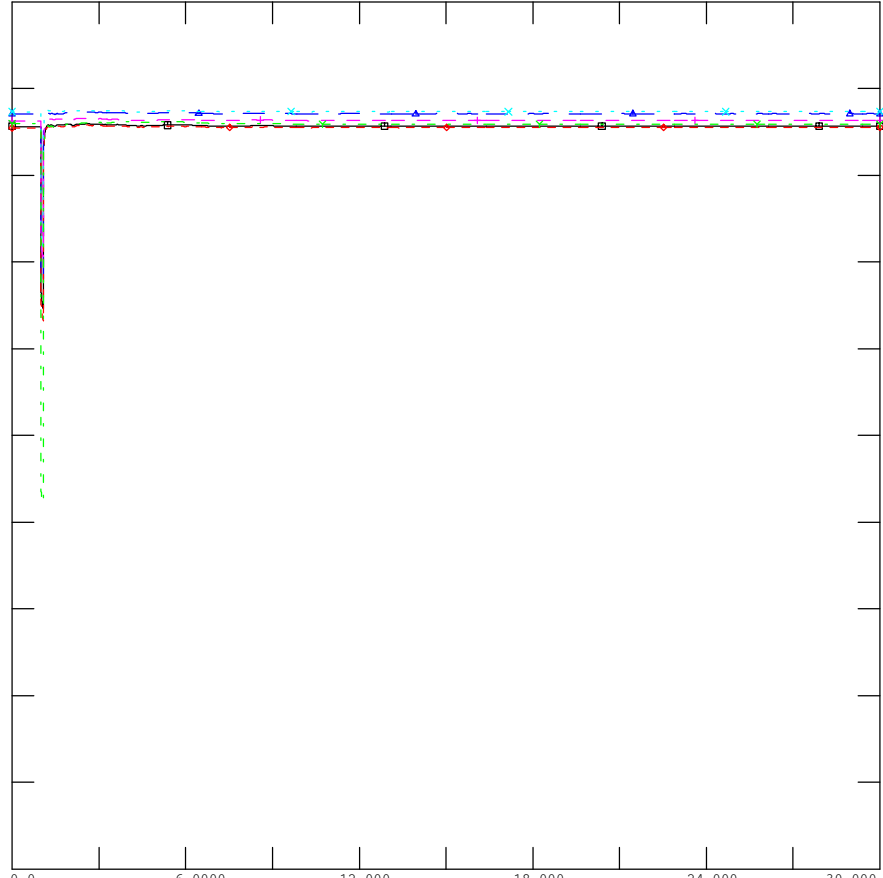
THU, JUN 19 2014 15:06  
 FIG F4-26



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT

CHNL#	[VOLT]	[BRUDBRHT]	[138.001]
41	[VOLT]	67 [BRUDBRHT]	138.001
45	[VOLT]	443 [BANNV_240]	240.001
39	[VOLT]	61 [DOH CHRM]	138.001
38	[VOLT]	60 [BPARAM 7]	138.001
50	[VOLT]	771 [AMETA1]	240.001
49	[VOLT]	628 [ALG SCOR]	138.001



TIME (SECONDS)

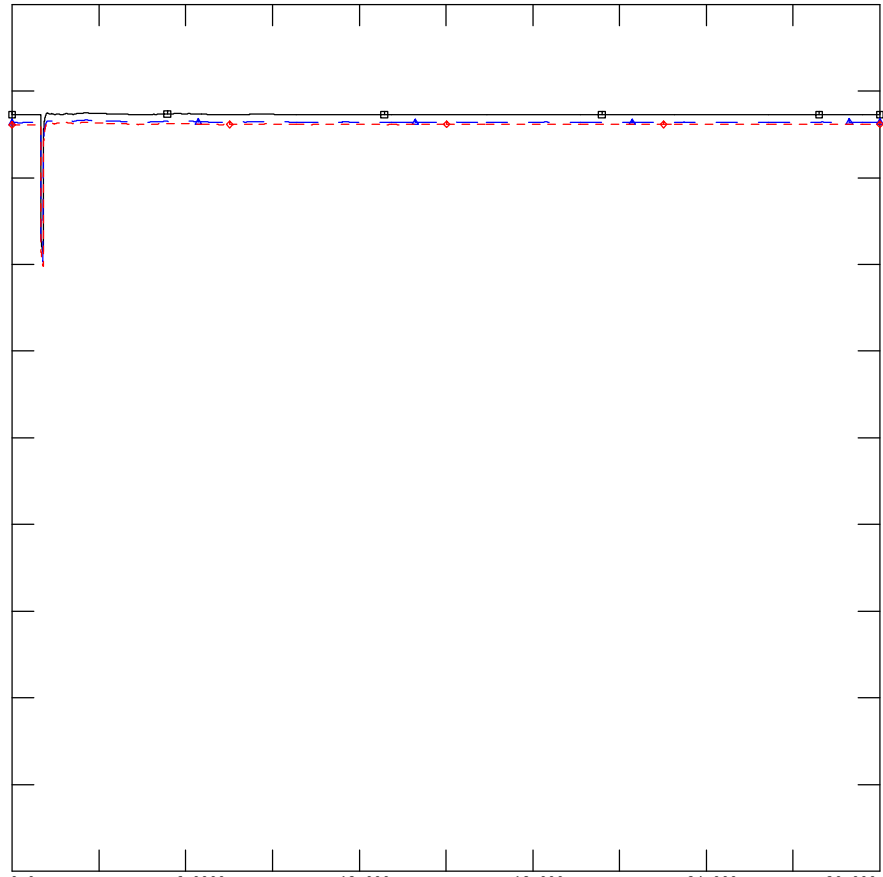
THU, JUN 19 2014 15:06  
 FIG F4-26A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 109S T1

FILE: CONG1.OUT

CHNL#	[VOLT]	[PORT SA7]	[138.001]
36	[VOLT]	58 [PORT SA7]	138.001
40	[VOLT]	63 [LAMOURB7]	138.001
35	[VOLT]	57 [LAMOURB4]	240.001



TIME (SECONDS)

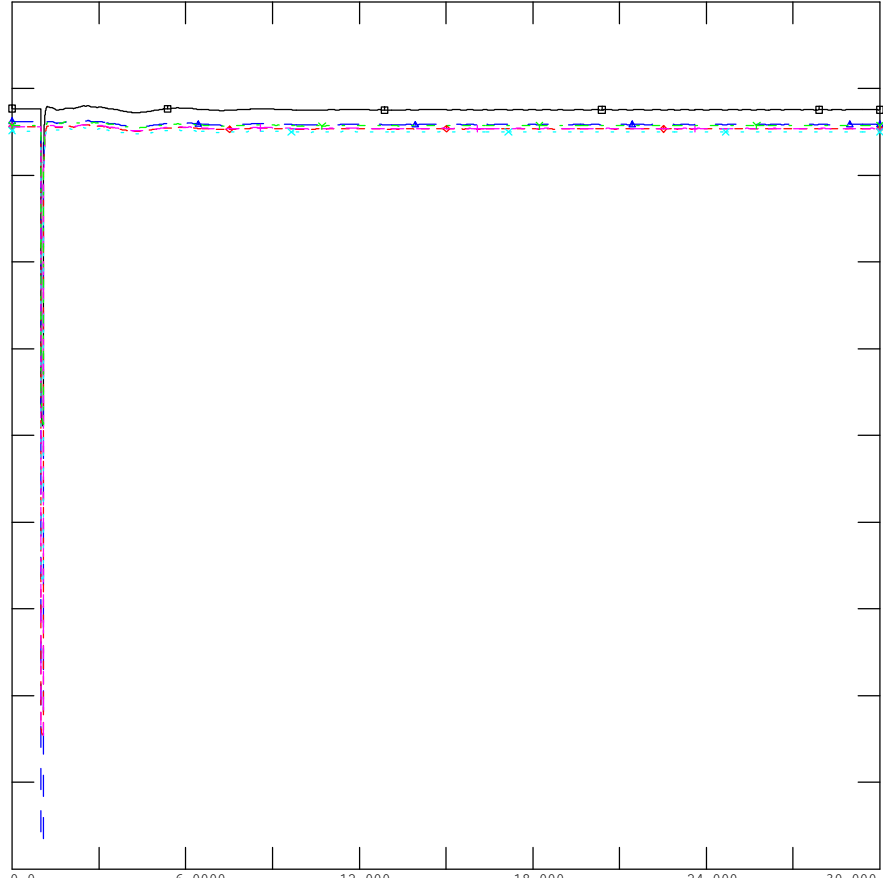
THU, JUN 19 2014 15:06  
 FIG F4-26B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

CHNL#	[VOLT]	[SCOT4 8]	[138.001]	[0.0]
44	189	59 [REBDATE7]	138.001	0.0
37	1420 [WEASB1]	138.001	138.001	0.0
52	954 [ABBE 01]	138.001	138.001	0.0
51	106 [DEBRLAN7]	138.001	138.001	0.0
42	109 [DEBRLAN4]	240.001	0.0	0.0
43				



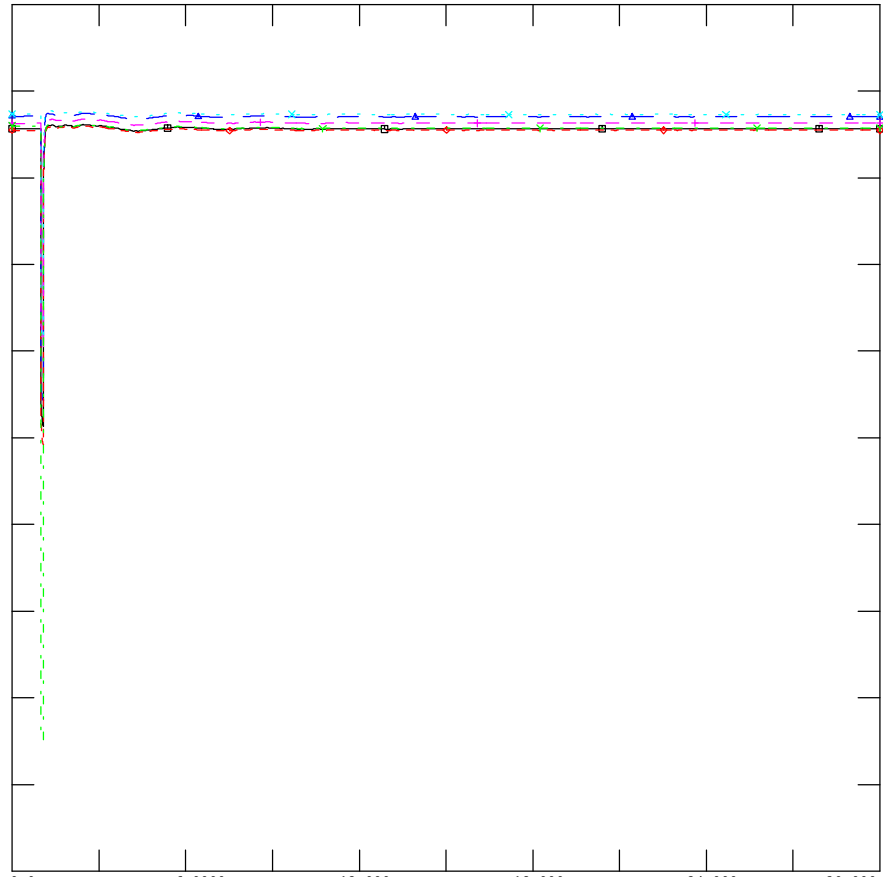
THU, JUN 19 2014 15:06  
 FIG F4-27



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

CHNL#	[VOLT]	[BRDDE7 7]	[138.001]	[0.0]
41	67	443 [BANN 240]	240.001	0.0
45	61 [DOW CHDM]	138.001	138.001	0.0
39	60 [BEAMER 7]	138.001	138.001	0.0
38	771 [AMELIA1]	240.001	0.0	0.0
50	628 [ALC SCOT]	138.001	0.0	0.0
49				

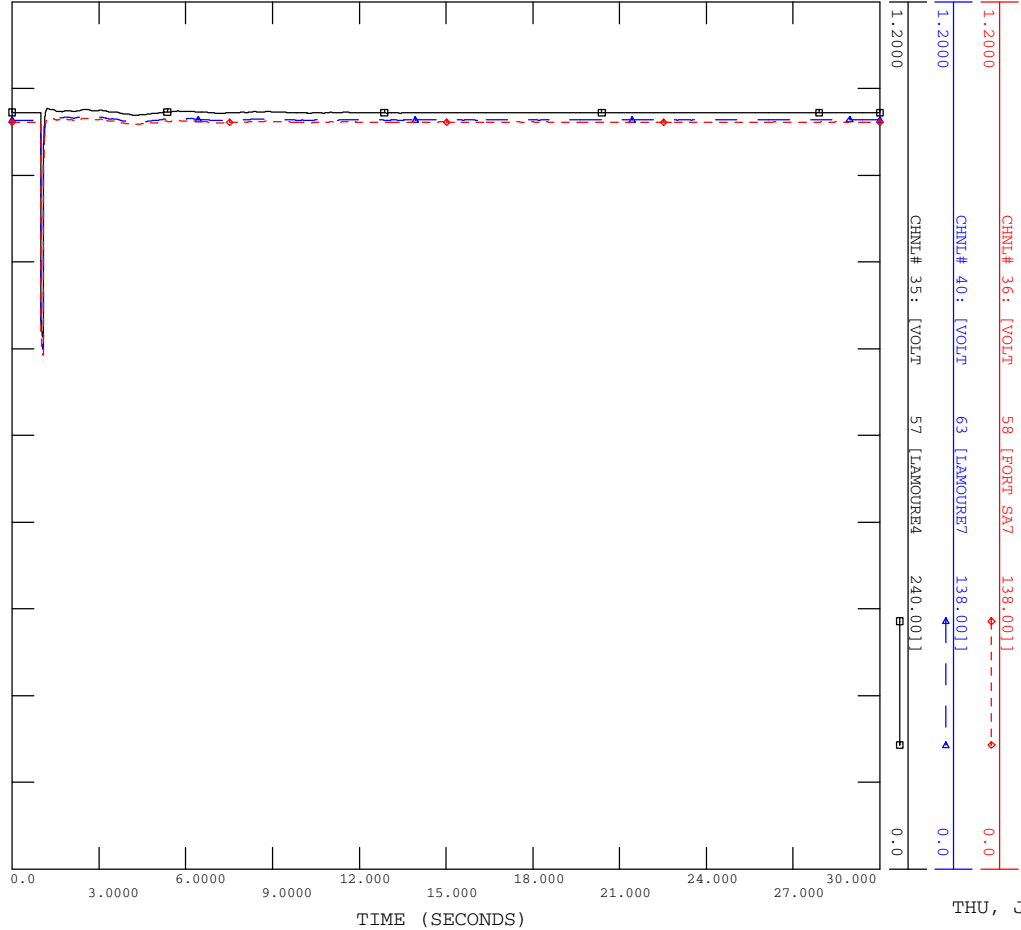


THU, JUN 19 2014 15:06  
 FIG F4-27A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP B - 480L 3PH FAULT

FILE: CONG2.OUT

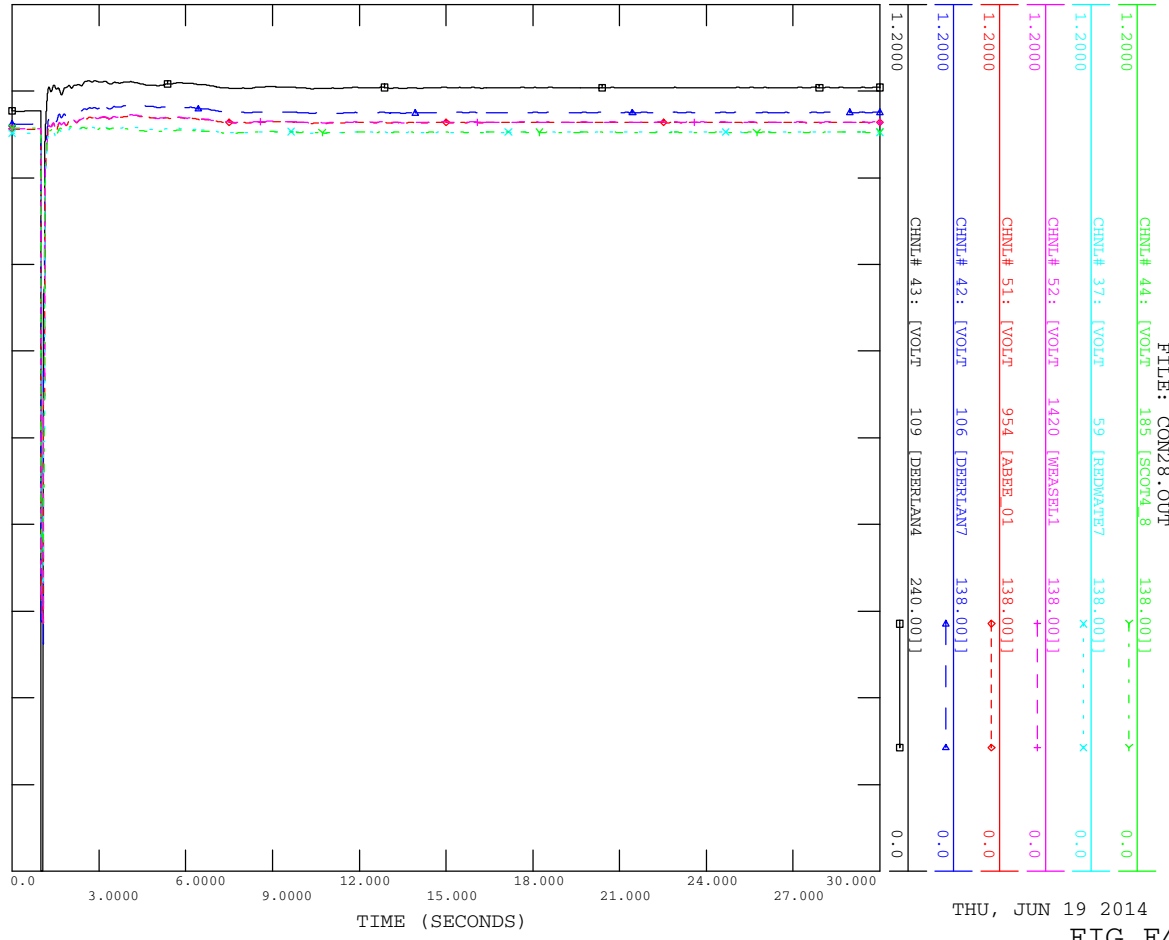


THU, JUN 19 2014 15:06  
 FIG F4-27B



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
 SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
 CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT



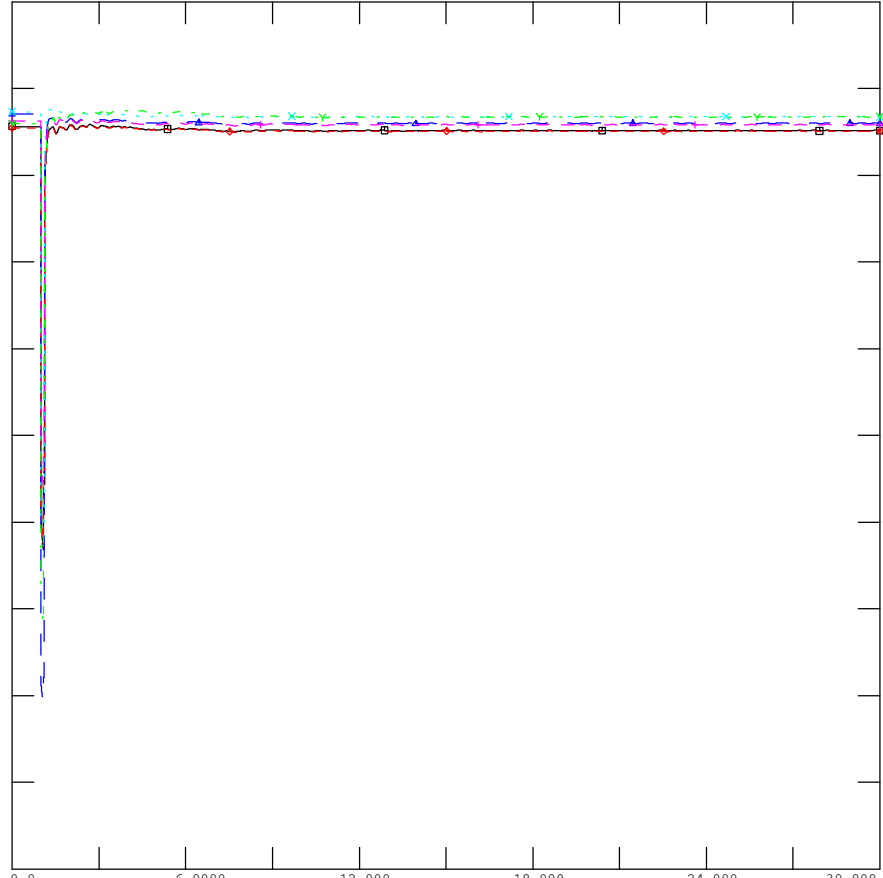
THU, JUN 19 2014 15:06  
 FIG F4-28



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT

CHNL#	[VOLT]	67 [BRUDERH7]	138.001]	0.0
1.2000				
CHNL# 41:	[VOLT]	67 [BRUDERH7]	138.001]	0.0
1.2000				
CHNL# 45:	[VOLT]	443 [BANNV_240]	240.001]	0.0
1.2000				
CHNL# 39:	[VOLT]	61 [DOH_CHEM]	138.001]	0.0
1.2000				
CHNL# 38:	[VOLT]	60 [BEMER_7]	138.001]	0.0
1.2000				
CHNL# 50:	[VOLT]	771 [AMETA1]	240.001]	0.0
1.2000				
CHNL# 49:	[VOLT]	628 [ALC_SCOR]	138.001]	0.0
1.2000				



TIME (SECONDS)

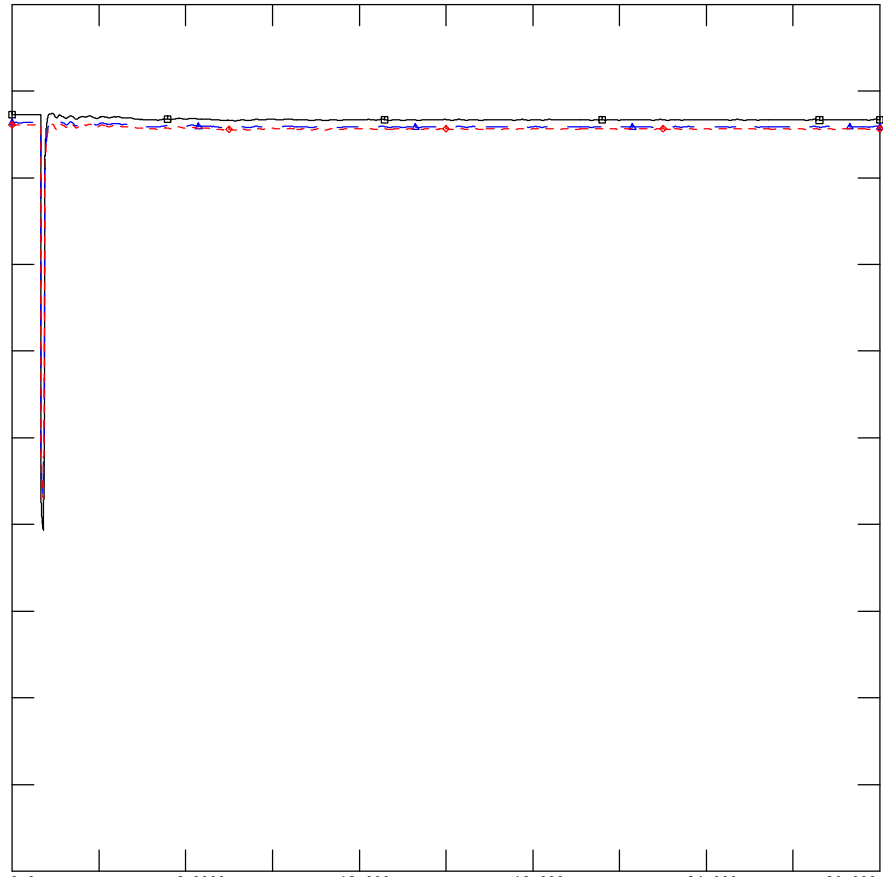
THU, JUN 19 2014 15:06  
FIG F4-28A



TASMO MODEL: OUTPUT GENERATED 2012-11-20 09:22:30  
SWINGBUS 1520 FOR 2012LPTOU-1:2015-05-24:7:22--1-0-0-0  
CAP C - 1054L & 943L 3PH FAULT AT 13S

FILE: CON28.OUT

CHNL#	[VOLT]	58 [PORT SA7]	138.001]	0.0
1.2000				
CHNL# 36:	[VOLT]	58 [PORT SA7]	138.001]	0.0
1.2000				
CHNL# 40:	[VOLT]	63 [LAMOURB7]	138.001]	0.0
1.2000				
CHNL# 35:	[VOLT]	57 [LAMOURB4]	240.001]	0.0
1.2000				



TIME (SECONDS)

THU, JUN 19 2014 15:06  
FIG F4-28B