

# ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION

ERDA Road, Makarpura Industrial Estate, Vadodara-390 010, India.

EPABX: +91 (0265) 2642942, 2642964, 2642377, 3043128 / 29 / 30 / 31 / 33,

Fax : +91 (0265) 2638382,




E-mail : erda@erda.org

Web : http://www.erda.org



## TEST REPORT

Sheet 1 of 10

<b>NAME &amp; ADDRESS OF CUSTOMER</b>  ASHIDA ELECTRONICS PVT. LTD.  PLOT NO. A-308, ROAD NO. 21,  WAGLE INDUSTRIAL ESTATE,  THANE-400604  MAHARASHTRA,INDIA	<b>TEST REPORT NO. : RP-1819-015629</b> <b>DATE :24/07/2018</b>	
	<b>CUSTOMER REF.NO.</b>	<b>DATED</b>
	LETTER	28/05/2018
	<b>DATE OF SAMPLE RECEIPT</b>	<b>DATE OF TESTING</b>
	29/05/2018	31/05/2018 to 24/07/2018
<b>SAMPLE DETAILS</b>  <b>ADR241B FEEDER PROTECTION RELAY</b>  Auxiliary voltage range : 24-230 VAC/DC Rated current : 1/5 A AC Rated Frequency : 50/60 Hz Binary input voltage : 18-230 VDC Binary input : 8 Nos. Binary output : 8 Nos.  Quantity (tested) :01 No.	<b>SAMPLE IDENTIFICATION</b>  <b>ERDA sample code no. : ERDA-00259959</b>  <b>Model number:</b> ADR241B-B-0-0-2-0-1-1-0-2-1-H  <b>Serial number: 17I241B0006</b>  <b>Make: ASHIDA ELECTRONICS PVT. LTD.</b>	
<b>TEST DETAILS</b> 1. File Transfer	<b>TEST SPECIFICATION</b> IEC 61850-7-2:2010 IEC 61850-8-1:2011 IEC 61850-10:2012	
<b>ENCLOSURE:</b> 1) Photograph No. :1819-003335/A to C 2) Oscillogram No. : Nil 3) Drawing No. : Nil		
<b>TEST WITNESSED BY:</b> Mr. Amol Dhuri of M/s. ASHIDA ELECTRONICS PVT. LTD.		
<b>REMARKS:</b> Sample has <b>not shown to be non-conforming</b> to the requirement of the standard for the tests carried out.		
 <b>Prepared By</b>	 <b>Checked By</b>	 <b>Approved By</b> (Dr.S.H.CHETWANI)

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## -Identification

DUT	SOFTWARE VERSION:V 2.2.0 HARWARE VERSION:V 1.0 FIRMWARE VERSION:V 3.02
PICS	"Protocol Implementation Conformance Statement for the IEC 61850 Ed.2"
MICS	"Model Implementation Conformance Statement for the IEC 61850 Ed.2"
TICS	"TISSUES Implementation Conformance Statement for the IEC 61850 Ed.2 "
PIXIT	"Protocol Implementation extra Information for Testing (PIXIT) the IEC 61850 Ed.2 "
CLIENT SIMULATOR	UNIGRID Substation automation version 1.4.401.76
ANALYZER	UniCA 61850 Analyzer 5.31.00.0
HMI	To monitor processed data: Avenue To configure DUT and force commands: RTV2 and GOOSE configurator
TIME SERVER	KemaSNTP.exe, DNV KEMA SNTP Master

Prepared By

Checked By

2234461



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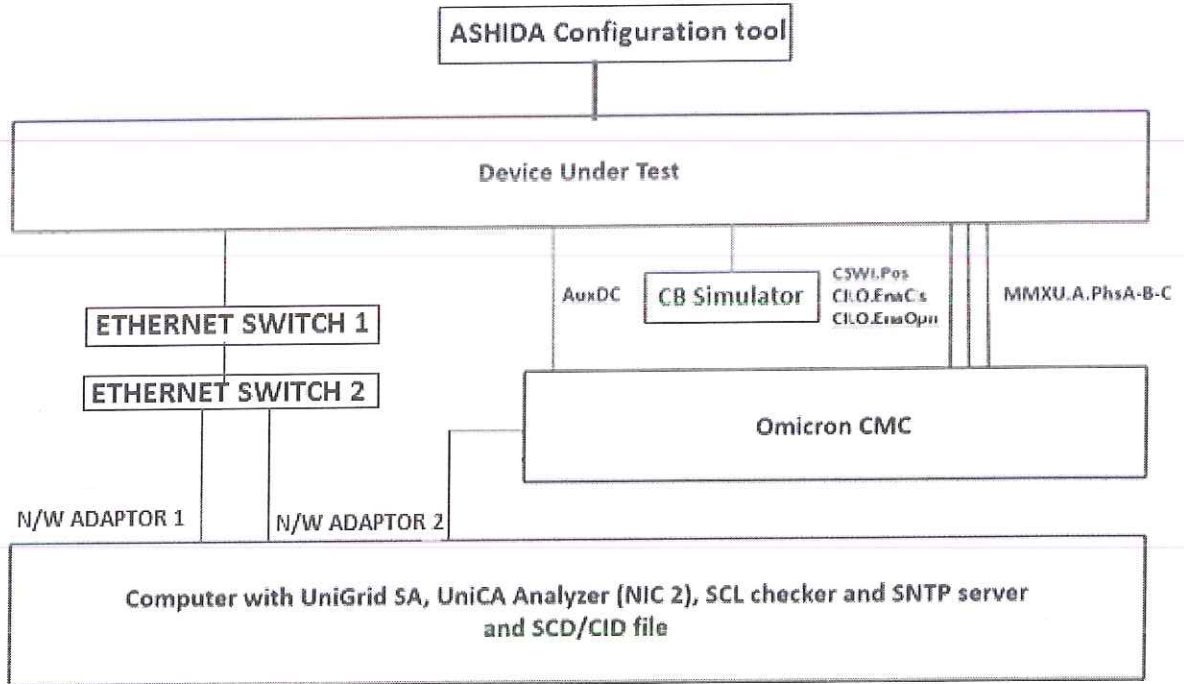
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## - Components in the test environment



*R. P. J.*  
Prepared By

*P. J.*  
Checked By

2234462





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## Abbreviation:

DUT	Device Under Test
HMI	Human machine interface
MICS	Model Implementation Conformance Statement
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
IID	Instantiated IED description
SCL	Substation Configuration Language
SNTP	Simple Network Time Protocol
TICS	TISSUES Implementation Conformance Statement
TISSUE	Technical issue

A handwritten signature in blue ink, appearing to read 'R. P. Jais'.

**Prepared By**

A handwritten signature in blue ink, appearing to read 'J. K. Jais'.

**Checked By**

2234463



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## 1.0 File transfer model

Ref.:Cl. No. 6.2.4.19 of IEC 61850-10:2012

## 1.1 Positive test cases

Ref.:Cl. No. 6.2.4.19.1 of IEC 61850-10:2012

Test case	Description
sFt1	Request a GetServerDirectory(FILE) with correct parameters and verify the response (IEC 61850-7-2:2010 clause 8.2.2, PIXIT)
sFt2	For each responded file: - request a GetFile with correct parameters and verify the response (IEC 61850-7-2:2010 clause 23.2.1) - request a GetFileAttributeValues with correct parameters and verify the response (IEC 61850-7-2 clause 23.2.4) - request a DeleteFile with correct parameters and verify the response (IEC 61850-7-2:2010 clause 23.2.3)
sFt4	Request a GetFile from several clients simultaneously if more than one client association will be supported(PIXIT)
sFt5	Request a GetServerDirectory(FILE) with wildchar parameter and verify the response (IEC 61850-7-2:2010 Subclause 7.2.2)

Prepared By

Checked By

2234464



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sFt1	GetServerDirectory(FILE)	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed <input type="checkbox"/> Inconclusive
IEC 61850-7-2:2010 clause 7.2.2,23.1.1 IEC 61850-8-1:2011 clause 23, PIXIT		
<u>Expected result</u> 1. DUT sends GetServerDirectory(FILE) response+ with a list of files. The MMS FileName shall consist of a sequence of file path and a name-of-a-file. Files names have up to 64 chars, a "." and a maximum 3 octet extension (max 255 chars in total inclusive path) 2. DUT ends GetServerDirectory(FILE) response+ with a list of files, continuing after the file specified in the request		
<u>Test description</u> 1. Client requests GetServerDirectory(FILE) with empty file specification 2. Client requests GetServerDirectory(FILE) with a continueAfter file specification		
<u>Comment</u>		

sFt2	GetFile, GetFileAttributeValues, DeleteFile	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed <input type="checkbox"/> Inconclusive
IEC 61850-7-2:2010 clause 23.2.1, 23.2.4, 23.2.3 IEC 61850-8-1:2011 clause 23.2.1, 23.2.3, 23.2.4 PIXIT		
<u>Expected result</u> a) DUT sends GetFile response+ and sends the contents of the file b) DUT sends GetFileAttributeValues response+		
<u>Test description</u> For each responded file: a) Client requests GetFile with correct parameters b) Client requests GetFileAttributeValues with correct parameters		
<u>Comment</u>		

*R.P. J's*

Prepared By

*[Signature]*

Checked By

2234465





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sFt4	Simultaneous GetFile from 2 clients	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed <input type="checkbox"/> Inconclusive
IEC 61850-7-2:2010 clause 23.2.1 IEC 61850-8-1:2011 clause 23.2.1 PIXIT		
<u>Expected result</u> 1. DUT sends GetFile response+ 2. DUT sends GetFile response+ or response- "file busy" (PIXIT)		
<u>Test description</u> 1. Client1 requests GetFile 2. Client2 requests GetFile of the same file while the first GetFile is still in progress		
<u>Comment</u>		

sFt5	Request a GetServerDirectory(FILE) with wildchar parameter and verify the response	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed <input type="checkbox"/> Inconclusive
IEC 61850-7-2:2010 subclause 7.2.2 IEC 61850-8-1:2011		
<u>Expected result</u> 1. DUT sends GetServerDirectory(FILE) response+ with list of all files		
<u>Test description</u> 1. Client1 requests GetServerDirectory(FILE) with file specification "*"		
<u>Comment</u>		

*R.P.jh*

Prepared By

*Johny*

Checked By

2234466



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## 1.2 Negative test cases

Ref.: Cl. No. 6.2.4.19.2 of IEC 61850-10:2012

Test case	Description
FtN1	Request following file transfer services with an unknown file name and verify the appropriate response service error - GetFile (IEC 61850-7-2:2010 clause 23.2.1) - GetFileAttributeValues (IEC 61850-7-2:2010 clause 23.2.4) - DeleteFile (IEC 61850-7-2:2010 clause 23.2.3)

FtN1	GetFile , GetFileAttributeValues , DeleteFile with unknown file name	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed <input type="checkbox"/> Inconclusive
IEC 61850-7-2:2010 clause 23.2.1, 23.2.4, 23.2.3 IEC 61850-8-1:2011 clause 23.2,		
<u>Expected result</u> 1. DUT sends GetFile response- with MMS service error "file file-non-existent" 2. DUT sends GetFileAttributeValues response with MMS service error "file file-non-existent" 3. DUT sends Deletefile response- with MMS service error "file file-non-existent"		
<u>Test description</u> 1. client requests GetFile with unknown file 2. Client request GetDataAttribute with unknown file 3. Client requests DeleteFile with unknown file		
<u>Comment</u>		

**REMARKS:** Sample has **not shown to be non-conforming** to the requirement of the standard for the tests carried out.

Prepared By

Checked By

2234467





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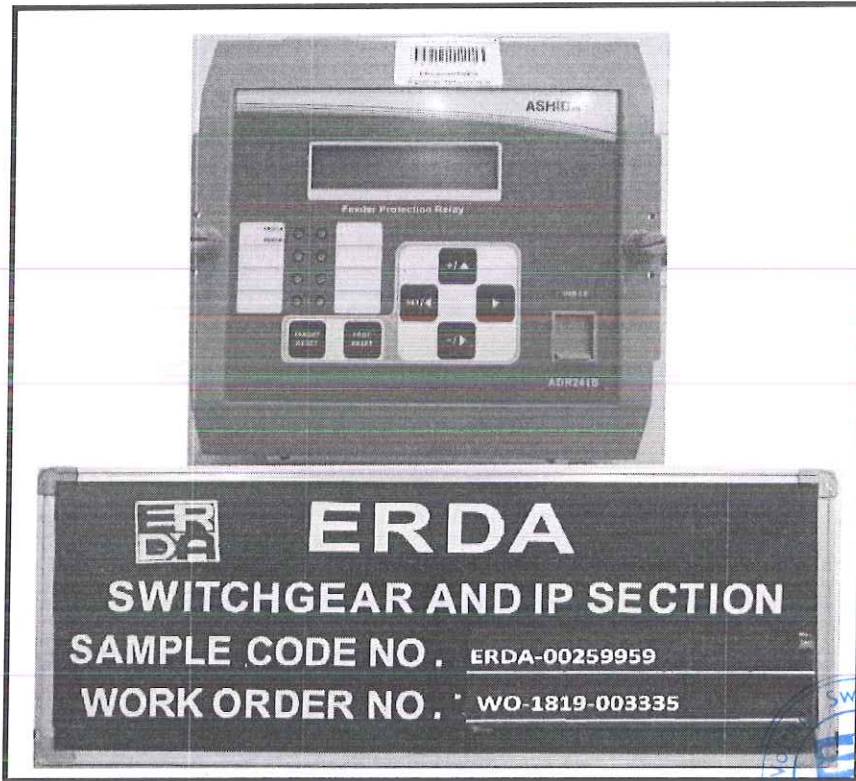
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**Photograph No.: 1819-003335/A**

**ADR241B FEEDER PROTECTION RELAY**

*R. P. J.*

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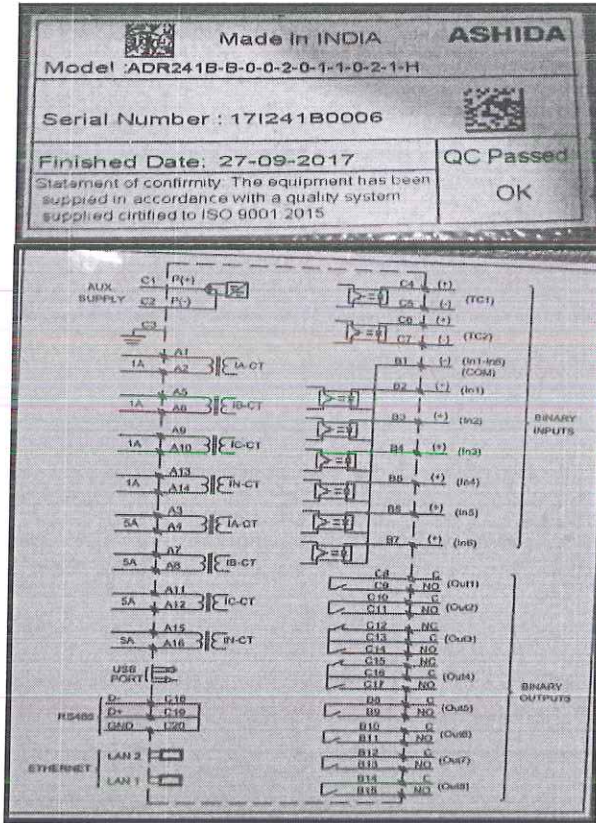
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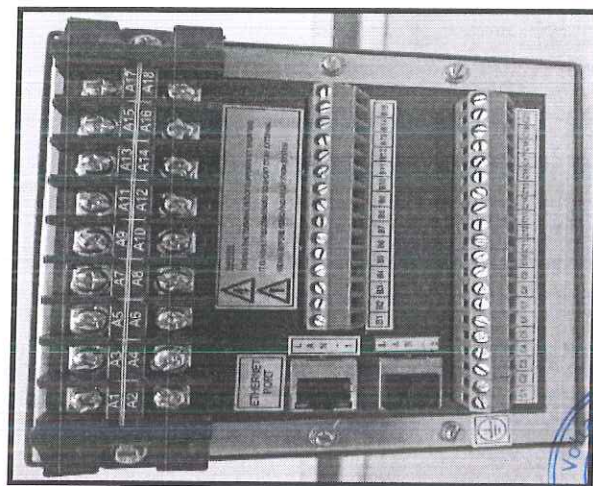


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**Photograph No.: 1819-003335/B**

**NAME PLATE OF ADR241B FEEDER PROTECTION**



*R.P.J's*

**Photograph No.: 1819-003335/C**

**REAR VIEW OF ADR241B FEEDER PROTECTION RELAY**

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