

No. 10163866-INC 19-2772

Issued to:

Advanced Power Technologies LLC
215 State Route 10 – Bldg. 2
Randolph, NJ 07869
United States

For the server product:

Total ECLIPSE
Transformer Monitoring System
IEC 61850 Software version: EC-01-01
S/N: TE0103

The server product has not been shown to be non-conforming to:

IEC 61850 Edition 2 Parts 6, 7-1, 7-2, 7-3, 7-4 and 8-1

Communication networks and systems for power utility automation

The conformance test has been performed according to IEC 61850-10 Edition 2, the UCA International Users Group Edition 2 Server Test Procedures version 1.0 with TPCL² 1.2.6 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in Advanced Power Technologies LLC Total ECLIPSE with IEC 61850 Server Firmware ver. EC-01-01, August 6, 2019", "Model Implementation Conformance Statement for the IEC 61850 interface in Advanced Power Technologies LLC Total ECLIPSE with IEC 61850 Server Firmware ver. EC-01-01, August 6, 2019" and "TISSUES Implementation Conformance Statement for the IEC 61850 Ed2 interface in Advanced Power Technologies LLC Total ECLIPSE with IEC 61850 Server Firmware ver. EC-01-01, August 6, 2019" and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 Edition 2 - interface in Advanced Power Technologies LLC Total ECLIPSE with IEC 61850 Server Firmware ver. EC-01-01, August 6, 2019".

The following IEC 61850 conformance blocks have been tested with a positive result (number of relevant and executed test cases / total number of test cases):

1 Basic Exchange (22/26)	9a GOOSE Publish (10/13)
2 Data Sets (4/7)	9b GOOSE Subscribe (12/14)
5 Unbuffered Reporting (18/21)	12a Direct Control (5/18)
6 Buffered Reporting (25/30)	12c Enhanced Direct Control (6/20)
	12d Enhanced SBO Control (12/28)
	13 Time Synchronization (3/7)

This certificate includes a summary of the test results as carried out at Advanced Power Technologies in the United States with UniGrid SA Simulator 1.5.0 with test suite 1.0.143 and UniCA 61850 Analyzer 5.34.02. This document has been issued for information purposes only, and the archived DNV GL verification report No. 10163866-INC 19-2771 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to DNV GL by Advanced Power Technologies. The manufacturer's production process has not been assessed. This certificate does not imply that DNV GL has approved any product other than the specimen tested.

Arnhem, August 6, 2019



N.A. Heijker
Business Leader
Interoperability of Smart Power Systems

Issued by:



DNV KEMA is now DNV GL



R. Schimmel
Verification Manager

¹ Level A - Independent test lab with certified ISO 9001 Quality System

² TPCL - Test procedures change list

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Applicable Test Procedures from the UCA International Users Group Edition 2 Server Test Procedures version 1.0 with TPCL 1.2.6

Conformance Block	Mandatory	Conditional
1: Basic Exchange	sAss1, sAss2, sAss3, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4	sAssN6, sSrv6, sSrv8, sSrv9, sSrv10, SrvN1e, sSrvN1f, sSrvN3
2: Data Sets	sDs1, sDs10a, sDsN1ae	sDs15
5: Unbuffered Reporting	sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp15, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8	sRp8, sRp10, sRp11, sRp12, sRpN5
6: Buffered Reporting	sBr1, sBr2, sBr3, sBr4, sBr5, sBr9, sBr14, sBr15, sBr20, sBr21, sBr22, sBr25, sBr26, sBr27, sBr28, sBrN1, sBrN2, sBrN3, sBrN4, sBrN5, sBrN8	sBr8, sBr10, sBr11, sBr12
9a: GOOSE publish	sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11	sGop1, sGop6, sGop7, sGopN1
9b: GOOSE subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6	
12a: Direct control	sCtl5, sCtl10, sDOns1, sDOns2	sCtl13
12c: Enhanced Direct Control	sCtl5, sCtl10, sDOes1, sDOes2	sCtl13, sCtl14
12d: Enhanced SBO Control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl4, sCtl6
13: Time sync	sTm1, sTm2, sTmN1	