

No. 74108226-OPE/INC 16-0015

**Issued to:**

Siemens AG, EM DG PRO  
Wernerwerkdam 5  
13629 Berlin  
Germany

**For the server product:**

SIPROTEC 5  
7SL82 Line Differential Protection  
Firmware version: V07.00  
S/N: BF1405082530

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 TPCL<sup>2</sup> 1.1.1 with product's protocol, model, technical issue implementation conformance statements and the extra information for testing: "SIPROTEC Model Implementation Conformance Statement (MICS) According to IEC 61850, Product 7SL82, Mapping version V07.00.02" and "SIEMENS SIPROTEC 5 PIXIT, PICS, TICS IEC 61850, version 06.00, C53000-G5040-C013-4".

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)
2+ Data Set Definition (24/24)	12a Direct Control (9/18)
3 Substitution (3/3)	12b SBO Control (16/27)
4 Setting Group Selection (4/4)	12c Enhanced Direct Control (11/20)
4+ Setting Group Definition (12/13)	12d Enhanced SBO Control (17/28)
5 Unbuffered Reporting (19/20)	13 Time Synchronization (6/7)
6 Buffered Reporting (28/29)	14 File Transfer (5/8)
	15 Service Tracking (2/17)

This certificate includes a summary of the test results as carried out at SIEMENS in Germany with UniCA 61850 Client Simulator 4.29.03 with test suite Ed2 v4.29.02 and UniCA 61850 Analyzer 5.29.02. This document has been issued for information purposes only, and the original paper copy of the DNV GL verification report No. 74108226-OPE/INC 16-0014 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to DNV GL by SIEMENS. 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, November 12, 2015



**M. Adriaensen**  
Head of Department  
Operational Excellence

Issued by:



DNV KEMA is now DNV GL



**R. Schimmel**  
Verification Manager

<sup>1</sup> Level A - Independent test lab with certified ISO 9001 Quality System

<sup>2</sup> TPCL - Test procedures change list

Applicable Test Procedures from the UCA International Users Group Edition 2 Server Test Procedures version 1.0 with TPCL 1.1.1

Conformance Block	Mandatory	Conditional
1: Basic Exchange	sAss1, sAss2, sAss3, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4	sSrv6, sSrv8, sSrv11, sSrv12, sSrv13, sSrvN1e, sSrvN1f, sSrvN3
2: Data Sets	sDs1, sDs10a, sDsN1ae	sDs15
2+: Data Set Definition	sDs2, sDs3, sDs4, sDs5, sDs6, sDs7, sDs8, sDs9, sDs11, sDs12, sDs13, sDs14, sDsN1cd, sDsN2, sDsN3, sDsN4, sDsN5, sDsN6, sDsN7, sDsN8, sDsN9, sDsN10	sDsN11, sDsN12
3: Substitution	sSub1, sSub2, sSub3	
4: Setting Group Selection	sSg1, sSg3, sSgN1	sSg11
4+: Setting Group Definition	sSg2, sSg4, sSg7, sSg8, sSg10, sSg12, sSgN2, sSgN3, sSgN4, sSgN5	sSg6, sSg9
5: Unbuffered Reporting	sRp1, sRp2, sRp3, sRp4, sRp9, sRp14, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8	sRp5, sRp6, sRp7, sRp8, sRp10, sRp11, sRp12, sRpN5
6: Buffered Reporting	sBr1, sBr2, sBr3, sBr4, sBr9, sBr14, sBr20, sBr21, sBr22, sBr25, sBr26, sBr27, sBr28, sBrN1, sBrN2, sBrN3, sBrN4, sBrN5, sBrN8	sBr5, sBr6, sBr7, sBr8, sBr10, sBr11, sBr12, sBr23, sBr24
9a: GOOSE publish	sGop2a, sGop3, sGop4, sGop7, sGop9, sGop10, sGop11	sGop1, sGop6, sGopN1
9b: GOOSE subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6	
12a: Direct control	sCtl5, sCtl10, sDOns1, sDOns2	sCtl7, sCtl13, sCtl16, sCtl17, sCtl19
12b: SBO control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOns1, sSBOns2, sSBOns6	sCtl4, sCtl6, sCtl7, sCtl16, sCtl17, sCtl19, sCtl27
12c: Enhanced Direct Control	sCtl5, sCtl10, sDOes1, sDOes2	sCtl7, sCtl13, sCtl14, sCtl16, sCtl17, sCtl19, sCtl26
12d: Enhanced SBO Control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl4, sCtl6, sCtl7, sCtl16, sCtl17, sCtl19, sCtl26
13: Time sync	sTm1, sTm2, sTmN1	sTm3, sTm4, sTm5
14: File transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	
15: Service tracking		sTrk7, sTrk17

All configuration file and data model tests have been successfully performed for the product variants using the same communication hardware and software version:

- 7SA82 Distance Protection Relay for Medium and Sub-Transmission
- 7SD82 Line Differential Protection
- 7UT82 Two Winding Transformer Differential Protection