

No. 10096707-INC 18-2526

Issued to:

EKRA (ЭКРА)
Research and Production Enterprise, Ltd
Office premises 541
3 Yakovlev prospect
428020 Cheboksary
Russian Federation

For the server product:

BE2704V019 (БЭ2704V019)
Line protection, automation and control IED
Firmware version: 306
S/N: 33912

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 1.2.4 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in BE2704, version 1.0", "Model Implementation Conformance Statement for the IEC 61850 interface in BE2704, version 1.0" and "TISSUES Implementation Conformance Statement for the IEC 61850 interface in BE2704, version 1.0" and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 interface in BE2704, version 1.0".

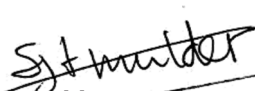
The following IEC 61850 conformance blocks have been tested with a positive result (number of relevant and executed test cases / total number of test cases):

1 Basic Exchange (21/26)	9a GOOSE Publish (9/13)
2 Data Sets (4/7)	9b GOOSE Subscribe (12/14)
4 Setting Group Selection (4/4)	12a Direct Control (5/18)
4+ Setting Group Definition (12/13)	12d Enhanced SBO Control (13/28)
5 Unbuffered Reporting (15/21)	13 Time Synchronization (4/7)
6 Buffered Reporting (22/30)	14 File Transfer (5/8)

This certificate includes a summary of the test results as carried out at NTC FSK UES in Russian Federation with UniGrid SA Simulator 1.4.397 with test suite 1.0.72 and UniCA 61850 Analyzer 5.34.01. This document has been issued for information purposes only, and the original paper copy of the DNV GL verification report No. 10096707-INC 18-2525 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to DNV GL by EKRA. 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, May 18, 2018


S.J.T. Mulder
Business Leader
Interoperability of Smart Power Systems

Issued by:

DNV-GL
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 1.2.4

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, sSrv12, sSrvN1f
2: Data Sets	sDs1, sDs10a, sDsN1ae	sDs15
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, sRp5, sRp9, sRp14, sRp15, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8	sRp10, 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	sBr10
9a: GOOSE publish	sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11	sGop1, sGop5, sGop7
9b: GOOSE subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6	
12a: Direct control	sCtl5, sCtl10, sDOns1, sDOns2	sCtl6
12d: Enhanced SBO Control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl4, sCtl16, sCtl26
13: Time sync	sTm1, sTm2, sTmN1	sTm3
14: File transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	