



IEC 61850 Certificate Level A¹

No. 74100457-MOC/INC 12-01469

Issued to:
ALSTOM GRID UK Ltd.
St. Leonards Avenue
Stafford ST17 4LX
United Kingdom

For the product:
MiCOM P545
Current Differential Protection Relay
Version 71C

Issued by:



The product has not shown to be non-conforming to:
IEC 61850-6, 7-1, 7-2, 7-3, 7-4 and 8-1
Communication networks and systems in substations

The conformance test has been performed according to IEC 61850-10, the UCA International Users Group Device Test Procedures version 2.3 with TPCL² version 1.5, the product's protocol, model and technical issue implementation conformance statements: "MiCOM Px4x PICS Protocol Implementation Conformance Statement, version A", "MiCOM P543, P545 MICS Model Implementation Conformance Statement, version 71C" and "MiCOM P543, P544, P545, P546 TICS Current Differential Protection Relays, version 61 and 71" and the extra information for testing: "MiCOM P543, P544, P545, P546 PIXIT Protocol Implementation eXtra Information for Testing for the IEC 61850 interface in P54x, version 61 and 71".

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 (18/24)	12a	Direct Control (5/12)
2	Data Sets (3/6)	12b	SBO Control (7/14)
4	Setting Group Selection (2/3)	12c	Enhanced Direct Control (5/13)
5	Unbuffered Reporting (16/19)	12d	Enhanced SBO Control (10/19)
6	Buffered Reporting (18/21)	13	Time Synchronization (3/5)
9a	GOOSE Publish (8/13)	14	File Transfer (6/7)
9b	GOOSE Subscribe (10/11)		

This certificate includes a summary of the test results as carried out at KEMA in Netherlands with UniCA 61850 client simulator version 3.25.02 with test suite 3.24.02b and UniCA 61850 analyzer 4.25.00. This document has been issued for information purposes only, and the original paper copy of the KEMA report: No. 74100457-MOC/INC 12-01468 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to KEMA by ALSTOM GRID. The manufacturer's production process has not been assessed. This attestation does not imply that KEMA has approved any product other than the specimen tested.

Arnhem, August 8, 2012

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Director Intelligent Networks & Communication

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Certification Manager

1 Level A - Independent Test lab with certified ISO 9000 or ISO 17025 Quality System
2 TPCL - test procedures change list

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Applicable Test Procedures from the UCA International Users Group Device Test Procedures version 2.3 with TPCL version 1.5

Conformance Block	Mandatory	Conditional
1: Basic Exchange	Ass1, Ass2, Ass3, AssN2, AssN3, AssN4, AssN5 Srv1, Srv2, Srv3, Srv4, Srv5, SrvN1abcd, SrvN4	Srv6, Srv7, Srv8, SrvN1e
2: Data Sets	Dset1, Dset10a, DsetN1ae	
4: Setting Group Selection	Sg1, SgN1a	
5: Unbuffered Reporting	Rp1, Rp2, Rp3, Rp4, Rp7, Rp10, Rp12 RpN1, RpN2, RpN3, RpN4	Rp5, Rp8, Rp9, RpN5, RpN6
6: Buffered Reporting	Br1, Br2, Br3, Br4, Br7, Br8, Br9, Br12, Br14 BrN1, BrN2, BrN3, BrN4, BrN5	Br5, Br10, Br11, BrN6
9a: GOOSE publish	Gop2, Gop3, Gop4, Gop7, Gop10a	Gop1, Gop6, GopN1
9b: GOOSE subscribe	Gos1a, Gos2, Gos3, GosN1, GosN2, GosN3, GosN4, GosN5, GosN6	Gos1b
12a: Direct control	CtlN3, CtlN8, DOns1, DOns3	CtlN11
12b: SBO control	Ctl3, CtlN1, CtlN2, CtlN3, CtlN4, SBOs2	CtlN11
12c: Enhanced Direct Control	CtlN3, CtlN8, DOes2, DOes5	CtlN11
12d: Enhanced SBO control	Ctl3, CtlN1, CtlN2, CtlN3, CtlN4, CtlN9 SBOes1, SBOes2, SBOes3	CtlN11
13: Time sync	Tm1, Tm2, TmN1	
14: File transfer	Ft1, Ft2ab, Ft4, FtN1ab	Ft2c, FtN1c