

No. 10027913-OPE/INC 16-2361

Issued to:

Mitsubishi Electric Corporation
1-1-2 Wadasaki-Cho, Hyogo-ku
652-8555 Kobe
Japan

For the server product:

MRD-HA Biased Differential Relay
IEC 61850 software version: PGKH81
Relay software version: PGKH82
Hardware version: 733PSA
S/N: 519611-50104

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

IEC 61850 First Edition Parts 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 Server Device Test Procedures version 3.03, the product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for MRD-HA, revision 1.01", "Model Implementation Conformance Statement for MRD-HA, revision 1.00" and "TISSUES Implementation Conformance Statement for MRD-HA, revision 1.01" and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 interface for MRD-HA, revision 1.00".


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 (20/24)	9a GOOSE Publish (9/12)
2 Data Sets (3/6)	9b GOOSE Subscribe (10/11)
4 Setting Group Selection (3/3)	12a Direct Control (4/11)
4+ Setting Group Definition (7/7)	12d Enhanced SBO Control (9/19)
5 Unbuffered Reporting (15/18)	13 Time Synchronization (4/5)
6 Buffered Reporting (23/27)	14 File Transfer (4/7)

This certificate includes a summary of the test results as carried out at Mitsubishi Electric in Japan with UniCA 61850 Client Simulator 4.29.03 with test suite 3.31.00 and UniCA 61850 Analyzer 5.31.00. This document has been issued for information purposes only, and the original paper copy of the DNV GL report No. 10027913-OPE/INC 16-2363 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to DNV GL by Mitsubishi Electric. 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, October 7, 2016



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R. Schimmel
Verification Manager

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



Applicable Test Procedures from the UCA International Users Group Server Device Test Procedures version 3.03

Conformance Block	Mandatory	Conditional
1: Basic Exchange	Ass1, Ass2, Ass3, AssN2, AssN4, AssN5 Srv1, Srv2, Srv3, Srv4, Srv5, SrvN1abcd, SrvN4	AssN3, Srv6, Srv7, Srv8, SrvN1e, SrvN1f, SrvN3
2: Data Sets	Dset1, Dset10a, DsetN1ae	
4: Setting Group Selection	Sg1, Sg3, SgN1a	
4+: Setting Group Definition	Sg2, Sg4, SgN1b, SgN2, SgN3, SgN4, SgN5	
5: Unbuffered Reporting	Rp1, Rp2, Rp3, Rp4, Rp9, RpN1, RpN2, RpN3, RpN4, RpN8	Rp5, Rp8, Rp10, Rp11, Rp12
6: Buffered Reporting	Br1, Br2, Br3, Br4, Br9, Br20, Br21, Br22, Br25, Br26, Br27, Br28, BrN1, BrN2, BrN3, BrN4, BrN5, BrN8	Br5, Br8, Br10, Br11, Br12
9a: GOOSE Publish	Gop2, Gop3, Gop4, Gop9, Gop10a	Gop1, Gop6, Gop7, GopN1
9b: GOOSE Subscribe	Gos1a, Gos2, Gos3, GosN1, GosN2, GosN3, GosN4, GosN5, GosN6	Gos1b
12a: Direct Control	CtIN3, DOns1	CtIN11, DOns3
12d: Enhanced SBO Control	CtIN1, CtIN2, CtIN3, CtIN4, CtIN9, SBOes1, SBOes2, SBOes3	CtIN11
13: Time Sync	Tm1, Tm2	Tm3, TmN1
14: File Transfer	Ft1, Ft2ab, Ft4, FtN1ab	