UCA International Users Group

IEC 61850 SVC

1KHL050099

IEC 61850 Certificate Level B[1]

Issued to:
ABB Oy
SA Distribution Automation
Vaasa, Finland

For the product:
REF615 Protection and Control Relay
Software Version: 5.1.3 (2015.12.22 16:07)
Serial No: 1VHR91211387

Issued by: ABB Switzerland Ltd, Power Systems, SVC Baden

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

IEC 61850-5 Edition 2 Performance class P1(3ms)

The performance test has been performed according to the UCA International Users Group GOOSE performance Test Procedures version 2.5 with product's protocol implementation conformance statements: *"1MRS756465 H, Protocol Implementation Conformance Statement for the IEC 61850 interface in 615 series"*, and product's extra information for testing: "*1MRS756464 L, Protocol Implementation extra Information for Testing (PIXIT) for the IEC 61850 interface in 615 series*".

The test has been carried out on one single specimen of the product as referred above and submitted to SVC Baden by ABB AB, SA Products. The manufacturer's production process has not been assessed. This certificate does not imply that SVC Baden has certified or approved any product other than the specimen tested.

This Certificate summaries test results as carried out at SVC in Switzerland with *Omicron Test Universe V3.01* and *Nethunter V2.2.33*. This document has been issued for information purposes only, and the original paper copy of the test report: No." *1KHL050098_IEC61850ConformanceTestProtocol_GoPerfEd2_Rev2.5_ABB REF615 5.1*" will prevail.

The GOOSE performance has been measured with Boolean and Double Point information.

Baden 2016-06-15

S.Gerspach
Responsible Test Manager

C. Vottis
Responsible Test Engineer

[1] ISO 9000 certified test lab, allowed to issue UCA® level B

Publication of this document is allowed. Publication in total or in part and/or reproduction in whatever way of the contents of the mentioned report(s) is not allowed unless permission has been explicitly given either in the report(s) or by previous letter.

ABB Switzerland Ltd
Power Systems, System Verification and Validation Center, SVC Baden
Bruggerstrasser 72, CH-5400 Baden

ABB

GOOSE Performance Measured Results:

Performance class = P1 (3ms)

Goose Performance Benchmark summary results (compensated for scan cycle delays if any)

Test ID	Large dataset	Correlated subscribed	Back-ground	Minimum Transfer time [ms]	Maximum Transfer time [ms]	Average Transfer time [ms]
Gpf1	-	-	-	1.09	1.21	1.14
Gpf2	X	-	-	1.40	1.50	1.40
Gpf3	-	X	-	1.09	1.30	1.20
Gpf4	X	X		1.40	1.40	1.41
Gpf5	-	-	X	1.09	1.21	1.15
Gpf6	X	-	X	1.40	1.50	1.40
Gpf7	-	X	X	1.09	1.30	1.19
Gpf8	X	X	X	1.40	1.40	1.39

Publication of this document is allowed. Publication in total or in part and/or reproduction in whatever way of the contents of the mentioned report(s) is not allowed unless permission has been explicitly given either in the report(s) or by previous letter.

ABB Switzerland Ltd
Power Systems, System Verification and Validation Center, SVC Baden
Bruggerstrasser 72, CH-5400 Baden