IEC 61850 Certificate Level A[1]

No. 10080975-INC 18-2427

Issued to:

NR Electric CO., Ltd.
69 Suyuan Avenue, Jiangning
211102 Nanjing
China

For the server product:

PCS-9705S
BAY CONTROL UNIT
Communication software version: Ed2 2.00
Application software version: 1.00
Hardware version: NR6106-3
S/N: 3P2318150350T

The server product has not been 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: "Protocol Implementation Statement for the IEC 61850 interface in PCS-S Product Family, version 1.0, Dated 18 April 2018", and product's extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 interface in PCS-S Product Family, version 1.0, Dated 18 April 2018".

This certificate includes a summary of the test results as carried out at NR Electric in China with the Omicron Test Universe version 3.20, UniCA GOOSE simulator version 2.27.01 and UniCA 61850 Analyzer version 5.34.01. This document has been issued for information purposes only, and the archived DNV GL report: No. 10080975-INC 18-2426 will prevail.

The GOOSE performance has been measured with boolean and double point values.

The test has been carried out on one single specimen of the product as referred above and submitted to DNV GL by NR 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, April 26, 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

GOOSE Performance Measured Results

Results of the GOOSE performance benchmark tests as specified in the UCA International Users Group GOOSE performance Test Procedures version 2.5.

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	-	-	-	0,25	0,53	0,37
Gpf2	X	-	-	0,45	0,71	0,57
Gpf3	-	X	-	0,25	0,58	0,42
Gpf4	X	X	-	0,43	0,77	0,63
Gpf5	-	-	X	0,25	0,51	0,37
Gpf6	X	-	X	0,42	0,69	0,57
Gpf7	-	X	X	0,25	0,56	0,42
Gpf8	X	X	X	0,46	0,78	0,63