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Protocollo B8016560

Data 07/08/2018

ABB S.P.A.

Department EP, EPPC, PCGBF

Via Italia, 58

23846 GARBAGNATE MONASTERO LC

Att.: Mr. Pierceleste Benedetti

pierceleste.benedetti@it.abb.com

Subject : End of seismic tests

Y/Ref : Order ABB No. 4501319130 of 11/04/2018 - 0070008473

We undersign CESI, structural testing laboratory in Italy, declare that:

- Unit 1: System pro E power switchboard, Dimensions [mm]: 2008 x 816 x 2214 (height), was submitted to the vibration and seismic tests from July 31st to August 2nd 2018 in our LPS laboratory in Seriate (BG – Italy).

Specimen was subjected at resonance frequencies search tests and Tri-Axial Multifrequency Seismic Tests, Freq. Range 1,96 ÷ 50,00 Hz with the following peak accelerations:

Tri-axial seismic tests at the following Required Response Spectrum and levels:

- Required Response Spectrum adopted on ABB indication envelop following spectra with damping at 5%: IEC 60068-2-57 and IEEE Std 693TM – 2005;
- One pulse at Seismic Level 1,00 g with ZPA at 1,00 g on horizontal directions and 0,80 vertical direction.

Reference doc. and Standards:

- Standard accredited: IEC 60068-2-57 (2013-04), Par, 8,1, 8,2, 8,3, 8,5 "Environmental testing Part 2-57: Test Ff: Vibration – Time-history and sine beat method";
- IEEE Std 693TM – 2005: "IEEE Recommended Practice for Seismic Design of Substations" – ed, 8, May 2006;

CESI S.p.A.

Via Rubattino 54
I-20134 Milano - Italy
Tel: +39 02 21251
Fax: +39 02 21255440
e-mail: info@cesi.it
www.cesi.it

Capitale sociale € 8.550.000 interamente versato
C.F. e numero iscrizione Reg. Imprese di Milano 00793580150
P.I. IT00793580150
N. R.E.A. 429222



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- Standard IEC Publication 60068-3-3, 1998: "Environmental testing. Part 3: Guidance seismic test methods for equipment".

During seismic test we obtained:

- the required ZPA,
- the strong part > 25 s;
- the complete envelop (or in tolerance) of RRS by TRS in X, Y and Z axes (represented in log-log scale);
- at a visual inspection, no damages have been detected on tested Unit.

Results of further checks on the tested equipment is of ABB responsibility.

The obtained results will be described in the following CESI Test Report: B8016561.

Best Regards


CESI S.p.A.
Testing & Certification Division