



FORELL/ELSESSER ENGINEERS, INC.
Structural Engineers

June 12, 2020

Lilia Foster
Sr. R&D Engineer
ABB Ltd.
6801 Industrial Dr.
Mebane, NC 27302

Re: ABB Limitamp MV Motor Control Center
ASCE 7-16, 2018 IBC, 2019 CBC and IEEE-693-2018 Seismic and Special Seismic Certification

Forell/Elmesser has reviewed shake table test report 47920-1 and 46293-1 prepared by Wyle Laboratories dated December 31, 2002 and August 11, 1997 respectively, which summarizes testing for the ABB Limitamp MV Motor Control Centers. The testing was performed according to both the requirements of ICC-ES AC156 and IEEE-693-2018 and demonstrated that the equipment satisfied testing requirements for $I_p=1.5$, Site Class D, $a_p=2.5$, $R_p=6.0$, and $Z/h = 1.0$. In accordance with ASCE 7-16, which contains the seismic provisions of the 2018 International Building Code [IBC] and 2019 California Building Code [CBC], AC156 is an acceptable test procedure for determining the seismic certification of equipment. ASCE 7-16, Section 13.2.1.2.b allows for testing alone to be used to satisfy IBC and CBC seismic qualification requirements for electrical equipment.

Using AC156 procedures, F/E determined that the test results demonstrate the adequacy of the ABB Limitamp MV Motor Control Centers up to the peak ground seismicity of $S_{DS} = 1.84g$. Therefore, F/E concludes that the test data demonstrates that the ABB Limitamp MV Motor Control Centers are certified for installation in accordance with the seismic provisions of the 2018 IBC and 2019 CBC for any site with a site-specific S_{DS} equal or less than 1.84g and at any location within a building. ABB Limitamp MV Motor Control Centers are seismically qualified to the IEEE-693-2018 high seismic level.

ABB LimitAmp MV Motor Control							
Test set up	Ampacity	Width	Depth	Height	Weight	Sds (g)	IEEE-693 Seismic Level
Random Multifrequency-Auto Transformer/Reactor starter	400-800A	32"	30"	90"	1500lbs	1.84g	High
Random Multifrequency-1 High Starter	800A	48"	30"	90"	1500lbs	1.84g	High
Random Multifrequency -2 High	400A	36"	30"	90"	2000lbs	1.84g	High

Should you any questions or need further information please do not hesitate to contact us.

Thank you.

Sincerely,

FORELL/ELSESSER ENGINEERS, INC.

Marco Scanu, SE #4454
Principal



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