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DAMPER SELECTION FOR 1272M 54/19 ACCR

OBJECTIVE	• To characterize 1707 and 1708 damper performance on 1272M 54/19 ACCR. • To select most appropriate damper for minimizing vibration on 1272M 54/19 ACCR.

COMPONENTS TESTED	ALCOA 1707-13 damper ALCOA 1708-13 damper

PROCEDURE	Damping efficiency was determined according to IEEE STD 664 using the standing wave ratio method and the following conditions: • conductor tension of 25% RBS • damper spaced 59.6” from fixed suspension shoe • damper spaced at 70% of the calculated loop length for 15 mph wind • peak-to-peak amplitude equal to 3/F, where “F” is the span vibration frequency in hertz • efficiency measurements at all undampened conductor harmonics between 4.72 and 35.44 hertz (equivalent of 2 to 15 mph wind speed)

REQUIREMENT	Minimum overall damper efficiency of 26% based on the 26% acceptance curve.

TEST RESULTS 1707-13 OVERALL EFFICIENCY BASED ON 26% CURVE – 31.5%	WIND SPEED (mph)	DAMPER EFFICIENCY (%)	WIND SPEED (mph)	DAMPER EFFICIENCY (%)	WIND SPEED (mph)	DAMPER EFFICIENCY (%)
	2.02	1.91	6.79	47.59	11.81	36.45
	2.69	23.73	7.49	36.47	12.58	42.57
	3.37	31.03	8.20	32.48	13.38	45.26
	4.04	33.76	8.90	31.47	14.15	64.44
	4.72	47.21	9.61	32.33	14.91	70.76
	5.41	87.18	10.35	35.51		
	6.10	60.58	11.07	31.58		

TEST RESULTS 1708-13 OVERALL EFFICIENCY BASED ON 26% CURVE – 15.9%	WIND SPEED (mph)	DAMPER EFFICIENCY (%)	WIND SPEED (mph)	DAMPER EFFICIENCY (%)	WIND SPEED (mph)	DAMPER EFFICIENCY (%)
	2.02	9.87	6.79	24.06	11.81	20.93
	2.69	25.00	7.49	17.65	12.58	22.77
	3.37	23.40	8.20	14.84	13.38	26.32
	4.04	38.85	8.90	16.08	14.15	33.70
	4.72	72.39	9.61	16.67	14.91	40.35
	5.41	47.23	10.35	18.70		
	6.10	33.01	11.07	21.74		

CALCULATION OF OVERALL EFFICIENCY	The overall efficiency is determined by dividing the measured efficiency at each frequency by the acceptance curve value for that frequency and multiplying by the acceptance curve basis (26%).

CONCLUSIONS	The 1707-13 damper provides the best damping performance over the range of frequencies equivalent to wind speeds between 2 and 15 mph based on its overall efficiency of 31.5%. The chart below provides a graphical presentation of the 1707-13 and 1708-13 damper performance relative to the 26% acceptance curve. The 26% curve applies to larger conductors like 1272M 54/19 ACCR.