

AFL Telecommunications

ACA Conductor Accessories

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DAMPER SELECTION FOR 1538M 57/19 ACCR

OBJECTIVE	<ul style="list-style-type: none"> To characterize 1707 and 1708 damper performance on 1538M 57/19 ACCR. To select most appropriate damper for minimizing vibration on 1538M 57/19 ACCR.
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COMPONENTS TESTED	ALCOA 1707-14 damper ALCOA 1708-14 damper
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PROCEDURE	<p>Damping efficiency was determined according to IEEE STD 664 using the standing wave ratio method and the following conditions:</p> <ul style="list-style-type: none"> Conductor tension of 25% RBS Damper spaced 67.5" 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 undamped conductor harmonics between 4.26 and 31.96 hertz (equivalent of 2 to 15 mph wind speed)
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REQUIREMENT	Minimum overall damper efficiency of 26% based on the 26% acceptance curve.
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TEST RESULTS 1707-14	WIND SPEED (mph)	DAMPER EFFICIENCY (%)	WIND SPEED (mph)	DAMPER EFFICIENCY (%)	WIND SPEED (mph)	DAMPER EFFICIENCY (%)
OVERALL EFFICIENCY BASED ON 26% CURVE – 10.83%	2.29	0.65	7.71	53.01	13.39	52.38
	3.04	17.06	8.49	56.63	14.18	61.62
	3.82	21.95	9.28	52.63	15.37	54.35
	4.59	19.87	10.08	45.71		
	5.36	26.72	10.89	39.53		
	6.13	73.04	11.72	38.33		
	6.92	57.64	12.55	41.59		

TEST RESULTS 1708-14	WIND SPEED (mph)	DAMPER EFFICIENCY (%)	WIND SPEED (mph)	DAMPER EFFICIENCY (%)	WIND SPEED (mph)	DAMPER EFFICIENCY (%)
OVERALL EFFICIENCY BASED ON 26% CURVE – 28.99%	2.29	5.52	7.71	28.94	13.39	44.94
	3.04	13.46	8.49	31.05	14.18	55.56
	3.82	18.48	9.28	30.26	15.37	35.51
	4.59	40.00	10.08	28.88		
	5.36	52.34	10.89	32.82		
	6.13	36.52	11.72	31.30		
	6.92	29.30	12.55	36.50		

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%).
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CONCLUSIONS	<p>The 1708-14 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 28.99%. The 1707-14 damper provided better damping performance between 3 to 15 mph, but hardly provided any damping effect at 2.29 mph.</p> <p>The chart below provides a graphical presentation of the 1707-14 and 1708-14 damper performance relative to the 26% acceptance curve. The 26% curve applies to larger conductors like 1538M 57/19 ACCR.</p>
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1707-14 vs. 1708-14 on 1538M 57/19 ACCR
Test Date: 8/9/05

