

Cold Capacitor Tests 06-07 Nov 2007, W.F.Jaskierny					
All capacitors were tested for C, D, and R warm prior to cold cycling.					
Capacitor were submerged in LN2 until all boiling stop and then allowed to warm up to room temperature by blowing room air on them until all frost and condensation was gone.					
This thermal cycling was done 5 times for all capacitors before cold measurements were done at LN2 temperatures.					
Capacitance measured with HP 4206A Universal Bridge at 1 kHz, calibrated in last year.					
Leakage resistance measured with Keithley 614 Electrometer at 350 VDC, calibrated in last year.					
CAPACITOR, CERAMIC DISC, GEN. APPLICATION, 1000 pF, 1000 WVDC, 10 PCT TOL, SPRAGUE P/N 10TS-D10, MIL-C-11015D, FNAL Stock #1415-217000					
This capacitor had no brand markings with what appears to be a conformal epoxy coating, orange in color.					
Warm Test before thermal cycling					
Cap #	C @ 1KHz	Dissipation	R @ 350VDC		
1	1.07 nF	0.0095	>200 GΩ		
2	1.06 nF	0.01	>200 GΩ		
3	1.02 nF	0.009	>200 GΩ		
4	1.055 nF	0.01	>200 GΩ		
5	1.03 nF	0.0087	>200 GΩ		
Cable capacitance to universal bridge is measured at C=0.104 nF, D=<0.001					
Capacitor value C include cable capacitance.					
Cold Test @ LN2 temperatures after thermal cycling					
Cap #	C @ 1KHz	Dissipation	R @ 350VDC		
1	0.42 nF	note 1	>200 GΩ		
2	0.39 nF	note 1	>200 GΩ		
3	0.10 nF	note 1	>200 GΩ		
4	0.415 nF	note 1	>200 GΩ		
5	0.42 nF	note 1	>200 GΩ		
note 1: unable to measure dissipation with capacitors at LN2 temp.					
Warm Test after thermal cycling and cold test.					
Cap #	C @ 1KHz	Dissipation	R @ 350VDC		
1	1.09 nF	0.0085	>200 GΩ		
2	1.08 nF	0.011	>200 GΩ		
3	0.10 nF	cap open	>200 GΩ		
4	1.08 nF	0.0115	>200 GΩ		
5	1.05 nF	0.0105	>200 GΩ		
CAPACITOR, CERAMIC DISC, GEN. APPLICATION, 1000 pF, 3000 WVDC, 20 PCT TOL, SPRAGUE P/N 30GA-D10, FNAL Stock #1415-240000					
This capacitor had no brand markings with what appears to be a conformal epoxy coating, orange in color. Had marking Z5U.					
Warm Test before thermal cycling					
Cap #	C @ 1KHz	Dissipation	R @ 350VDC		
1	1.04 nF	0.003	>200 GΩ		
2	0.965 nF	0.0047	>200 GΩ		
3	0.995 nF	0.0047	>200 GΩ		
4	0.995 nF	0.003	>200 GΩ		
5	1.015 nF	0.0025	>200 GΩ		
Capacitor value C include cable capacitance.					
Cold Test @ LN2 temperatures after thermal cycling					
Cap #	C @ 1KHz	Dissipation	R @ 350VDC		
1	0.12 nF	note 1	>200 GΩ		
2	0.13 nF	note 1	>200 GΩ		
3	0.125 nF	note 1	>200 GΩ		
4	0.14 nF	note 1	>200 GΩ		
5	0.115 nF	note 1	>200 GΩ		
note 1: unable to measure dissipation with capacitors at LN2 temp.					
Warm Test after thermal cycling and cold test.					
Cap #	C @ 1KHz	Dissipation	R @ 350VDC		
1	1.02 nF	0.008	>200 GΩ		
2	0.97 nF	0.0077	>200 GΩ		
3	0.98 nF	0.009	>200 GΩ		
4	0.99 nF	0.005	>200 GΩ		
5	0.99 nF	0.009	>200 GΩ		
CAPACITOR, SILVERED MICA, DIPPED, DIELECTRIC, 1000 pF, 500 WVDC, 5 PCT. TOL., MIL-C-5C, TYPE CMO6, FNAL Stock #1420-126000					
Capacitor marking was CDE CMO6FD.					
Warm Test before thermal cycling					
Cap #	C @ 1KHz	Dissipation	R @ 350VDC		
1	1.09 nF	<0.001	>200 GΩ		
2	1.10 nF	<0.001	>200 GΩ		
3	1.095 nF	<0.001	>200 GΩ		
4	1.085 nF	<0.001	>200 GΩ		
5	1.095 nF	<0.001	>200 GΩ		
Capacitor value C include cable capacitance.					
Cold Test @ LN2 temperatures after thermal cycling					
Cap #	C @ 1KHz	Dissipation	R @ 350VDC		
1	1.08 nF	<0.001	>200 GΩ		
2	1.09 nF	<0.001	>200 GΩ		
3	1.08 nF	<0.001	>200 GΩ		
4	1.08 nF	<0.001	>200 GΩ		
5	1.08 nF	<0.001	>200 GΩ		
Warm Test after thermal cycling and cold test.					
Cap #	C @ 1KHz	Dissipation	R @ 350VDC		
1	1.09 nF	<0.001	>200 GΩ		
2	1.10 nF	<0.001	>200 GΩ		
3	1.095 nF	<0.001	>200 GΩ		
4	1.085 nF	<0.001	>200 GΩ		
5	1.095 nF	<0.001	>200 GΩ		