

# Connector Reliability Test Recommendations, Phase 3

## Board Assembly

### Motivation:

- Address gaps in existing connector test coverage

### Objective:

- Define, develop a standardized reliability test framework for evaluating electrical connectors across types and use conditions.

### Strategy/Approach:

- Evaluate gaps in test coverage
- Develop test methods and/or test vehicle
- Conduct relevant testing
- Develop recommended test conditions

### Longer term:

- Additional research needed on effects of dust concentration, particle size, temperature, and humidity on connector contact resistance
- Feed into ECIA and standards

Test Order	Tests Required for All Connectors			Tests for Connectors w/ Precious Metal Finish	Tests for Connectors with Tin Plate (optional for <0.38 um Au plate)	Tests for Connectors with surface treatment or short wipe length (<0.127mm)	Tests for Connectors with more than 50 mate/unmate cycles
	1	2	3				
1	Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance	Dielectric Withstanding Voltage
2	Mate/Unmate Cycles (preconditioning)	Mate/Unmate Cycles (preconditioning)	Mate/Unmate Cycles (preconditioning)	Thermal Shock	Thermal Shock	Mate/Unmate Cycles (preconditioning)	Contact Resistance
3	Temperature Life	Dust (preconditioning)	Temperature Life (preconditioning)	Mate/Unmate Cycles (preconditioning)	Mate/Unmate Cycles (preconditioning)	Dust	Mate/Unmate Cycles
4	Contact Resistance	Thermal Shock	Dust (preconditioning)	Temperature Life (preconditioning)	Temperature Life (preconditioning)	Contact Resistance	Contact Resistance
5	Reseating (mate/unmate)	Contact Resistance	Vibration	Contact Resistance	Contact Resistance	Thermal Cycling (disturbance)	Dielectric Withstanding Voltage
6	Contact Resistance	Temp/Humidity Cycling	Shock	Mixed Flowing Gas	Thermal Cycling	Contact Resistance	
7		Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance	Reseating (mate/unmate)	
8		Reseating (mate/unmate)		Thermal Cycling (disturbance)	Reseating (mate/unmate)	Contact Resistance	
9		Contact Resistance		Contact Resistance	Contact Resistance		
10				Reseating (mate/unmate)			
11				Contact Resistance			

### Status:

- Statement of Work in definition
- Additional early participants encouraged
- Formal call for participation 3Q20
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