CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2008
DateRun:	10/01/2008
Experimenters:	Jason Marshall, Off Site, Heidi Wilcox
ClientType:	Electronics Manufacturer
ProjectNumber:	Project #1
Substrates:	Ceramics
PartType:	Part
Contaminants:	Carbon Deposits, Oxides
Cleaning Methods:	Plasma
Analytical Methods:	Visual
Purpose:	To evaluate laser ablation cleaning technology for removal of carbon deposits and oxides from ceramic parts.
Experimental Procedure:	An Adapt Laser Systems LLC CL 300 system was used to generate the power. This state-of-the-art 300-watt diode-pumped Nd:YAG q-switched portable laser cleaning system is ideal for a wide-range of laser cleaning and de-coating applications. The system was connected to a Laser Fume Extractors & Filter Unit to capture the contaminants as they were removed from the surface. In addition, a handheld end effector was used to deliver the laser to the part to be cleaned.
Results:	After adjusting the power settings and lens apertures, cleaning of the part required around a minute or two to clean a three-inch section of the ceramic ring. The part was cleaned down to the base material. There was no benefit observed for cleaning of sections that were previously cleaned using baking soda blasting. In addition, a water/acetone mix was applied to the part in an attempt to further improve cleaning times. However, no noticeable improvement was noted.

Summary:

Substrates:	Ceramics				
Contaminants:	Carbon Deposits, Oxides				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Adapt Laser Systems LLC	Laser Cleaning	100	0.00	☑	

Conclusion: The laser ablation cleaning process appears to be an ideal cleaning mechanism for the ceramic parts coated with carbon deposits and oxide layers. With further adjustments of the power and lens settings, the system could be even more effective requiring less time to clean. Moreover, the system has the potential to be automated.