

Infrared Thermography Survey

For

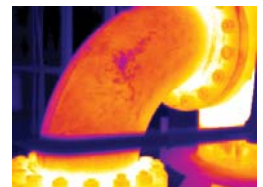
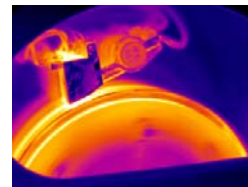
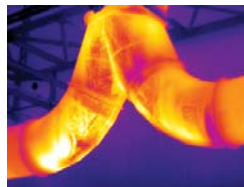
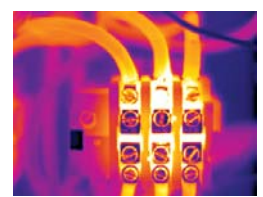
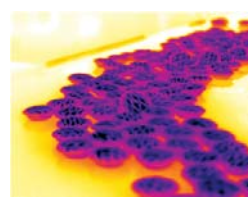
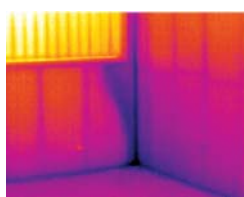
DEMO REPORT

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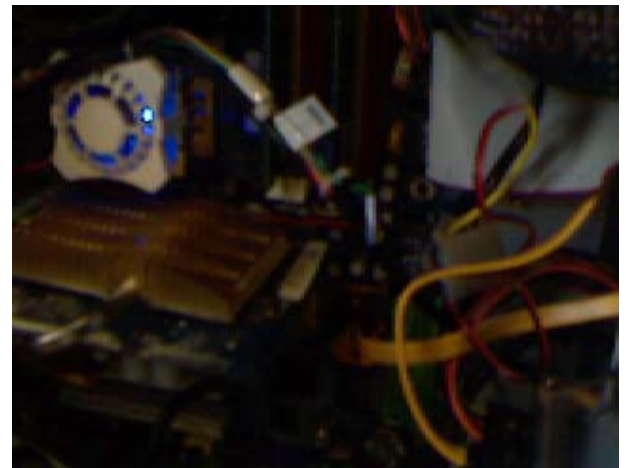
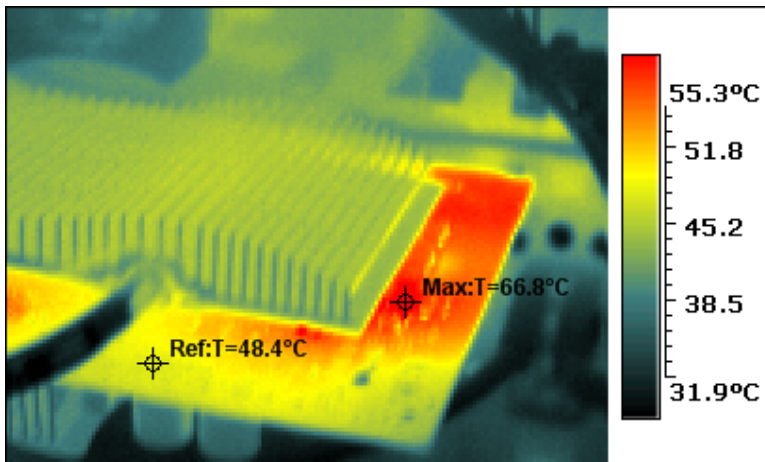


Monday, December 21, 2009



Summary of Images

Picture	Location	Equipment	Priority
1	Nerds Office	Graphics Card in Desktop PC	Example
2	Kitchen	Delonghi Benchtop Oven	Example
3	Kitchen	Sunbeam Stainless Steel Kettle	Example
4	Kitchen	Coffee cup with hot water	Example
5	Kitchen	IPI Mug with hot water	Example
6	Loading Bay Driveway	Volvo V8 Engine	Example



Information:

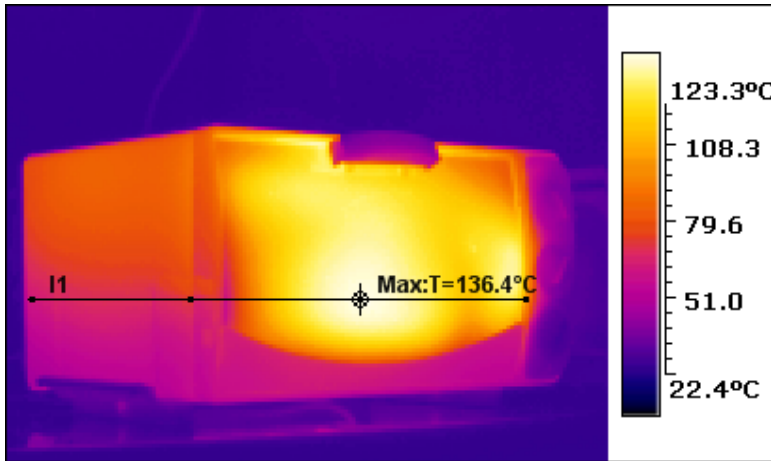
FileName	IR000022.JPG		
CreateTime	06/11/2009 11:56:39 AM		
Emissivity	0.98	Distance	1.8m
Max Temp	66.8°C	Min Temp	26.6°C
Lens	Standard	Filter	None
Background Temp	24.2°C		
Location:	Nerds Office		
Equipment:	Graphics Card in Desktop PC		

Analyses Table:

Object Parameter	Value
Min	26.6°C
Max	66.8°C
Ref	48.4°C

Comments:

Thermography is regularly used to identify performance issues on printed circuit boards (PCBs). Measuring tens of thousands of points in a single image, a thermal imager is able to identify very small components and/or areas that may not be conforming to the optimal design and operation of the device.

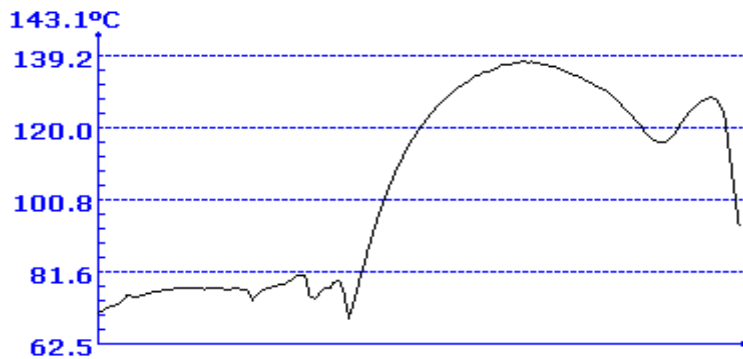


Information:

FileName	IR000006.JPG		
CreateTime	05/11/2009 11:45:09 AM		
Emissivity	0.98	Distance	1.8m
Max Temp	136.4°C	Min Temp	23.3°C
Lens	Standard	Filter	None
Background Temp	27.1°C		
Location:	Kitchen		
Equipment:	Delonghi Benchtop Oven		

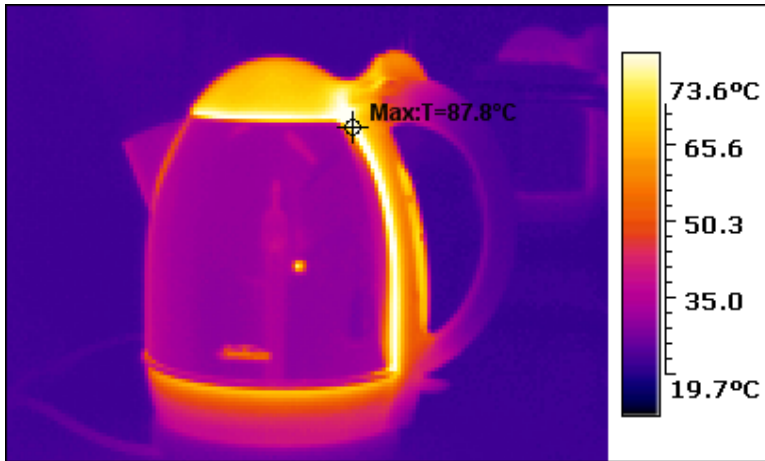
Analyses Table:

Object Parameter	Value
Max	136.4°C
Min	23.3°C
I1:AvgTemp	105.7°C
I1:MaxTemp	136.4°C
I1:MinTemp	69.3°C



Comments:

Thermography is an excellent tool for R&D and product design applications. In this image we are able to analyse the thermal efficiency of this oven. With thermal imaging you can see the uniformity of heating in both internal and external components of the oven. It can also highlight some dangerously hot surfaces that could pose potential hazards to users.



Information:

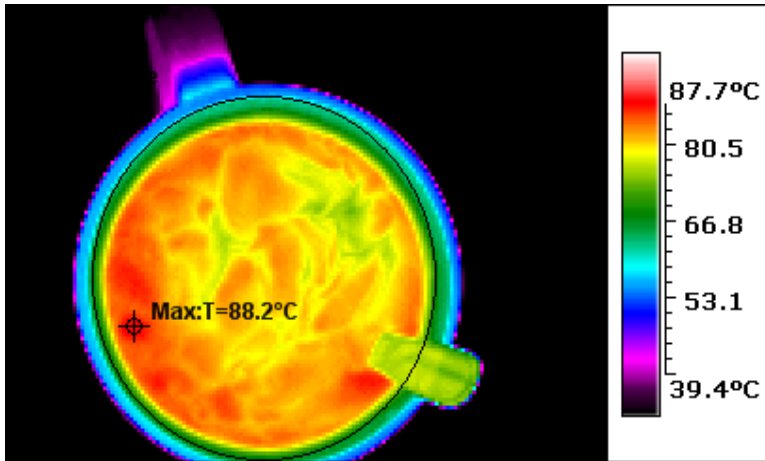
FileName	IR000009.JPG		
CreateTime	05/11/2009 11:53:05 AM		
Emissivity	0.98	Distance	1.8m
Max Temp	87.8°C	Min Temp	20.1°C
Lens	Standard	Filter	None
Background Temp	28.6°C		
Location:	Kitchen		
Equipment:	Sunbeam Stainless Steel Kettle		

Analyses Table:

Object Parameter	Value
Min	20.1°C
Max	87.8°C

Comments:

The image of this stainless steel kettle is a perfect example of the difficulties faced when imaging low emissivity targets. Surfaces such as these provide the thermographer with very little (if any) qualitative information. Low emissivity surfaces provide an enormous challenge for thermographers in the field. Also note it's highly reflective properties. In the center of the kettle's surface you can see the reflection of the thermographer and another hot object in the background environment.



Information:

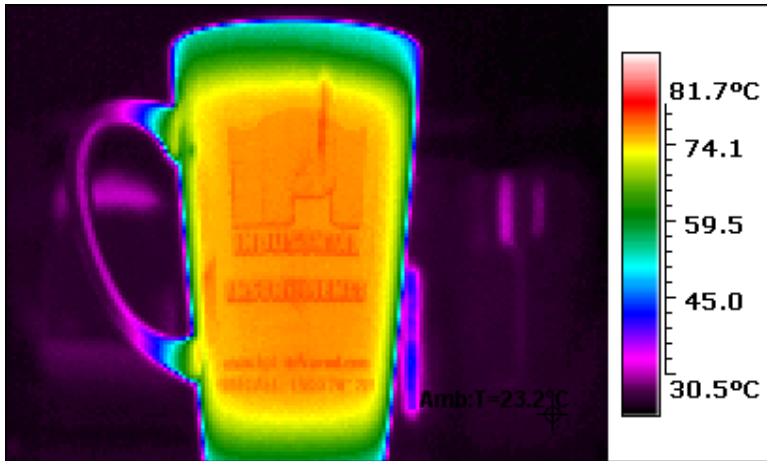
FileName	IR000012.JPG		
CreateTime	05/11/2009 12:03:37 PM		
Emissivity	0.98	Distance	1.8m
Max Temp	88.2°C	Min Temp	19.9°C
Lens	Standard	Filter	None
Background Temp	28.3°C		
Location:	Kitchen		
Equipment:	Coffee cup with hot water		

Analyses Table:

Object Parameter	Value
Max	88.2°C
Min	19.9°C
Circle:AvgTemp	80.9°C
Circle:MaxTemp	88.2°C
Circle:MinTemp	64.2°C

Comments:

In this image we are using a high contrast rainbow palette to clearly distinguish the convection currents in the hot water. This illustrates the exceptional sensitivity of modern thermal imagers and it is this sensitivity that makes the cameras so incredibly useful in many applications, such as building diagnostics, medical/veterinary, product development, and many scientific applications where we are wanting to observe very small temperature differentials.



Information:

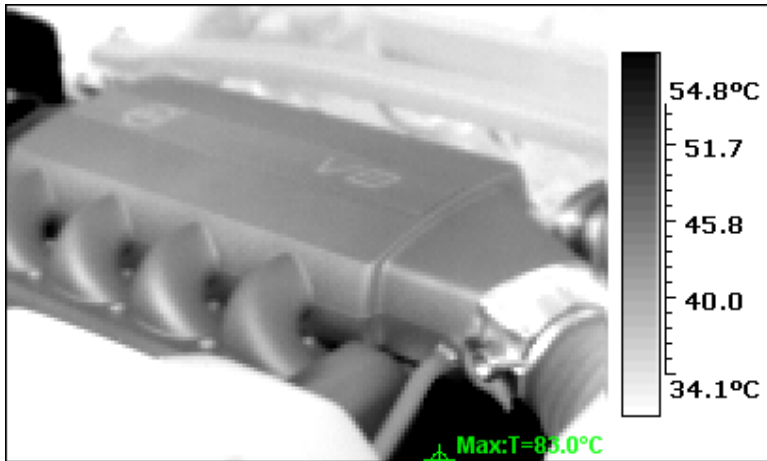
FileName	IR000013.JPG		
CreateTime	05/11/2009 12:18:47 PM		
Emissivity	0.98	Distance	1.8m
Max Temp	79.6°C	Min Temp	20.4°C
Lens	Standard	Filter	None
Background Temp	28.6°C		
Location:	Kitchen		
Equipment:	IPI Mug with hot water		

Analyses Table:

Object Parameter	Value
Min	20.4°C
Amb	23.2°C

Comments:

Using a Rainbow colour palette we are able to easily contrast the painted label on the cup surface due to an apparent emissivity difference between the label and the background material. This target provides a good comparison to test imager performance, showing up the qualities of resolution and sensitivity in the instrument being used. Be sure to compare this image against other models of cameras.



Information:

FileName	IR000019.JPG		
CreateTime	05/11/2009 2:09:58 PM		
Emissivity	0.98	Distance	1.8m
Max Temp	83.0°C	Min Temp	6.7°C
Lens	Standard	Filter	None
Background Temp	27.3°C		
Location:	Loading Bay Driveway		
Equipment:	Volvo V8 Engine		

Analyses Table:

Object Parameter	Value
Min	6.7°C
Max	83.0°C

Comments:

In this image of the V8 Volvo engine, we have used Grayscale palette with Black as HOT. Note the difference in emittance between the reflective badge and the cast aluminium finish on the manifold cover, enabling us to see the distinctive symbols. Thermal imaging is regularly used in the automotive industry for R&D, and quality assurance testing of components.