

**Notes on thermal meeting.**  
**23/4/04**  
**RAL**

**SPIRE-RAL-MOM-002002**

Chris Brockley Blatt, John Delderfield, Dave Smith, Peter Hargrave, Adam Woodcraft, Eric Sawyer, Anneso Goizel.

Summary of L0 straps by Anneso.  
Performance is dominated by cooler interface, using Lionels data, which may be a non gold plated strap.  
0.4 W/K is required at the spectrometer interface.  
2K strap is factor two too low.

L3

Needs correlation from CQM test, then analysis of FM.  
JFET power dissipation is not confirmed. More modelling required.  
Next CQM cold test should incorporate JFET tests at various power levels.  
Spec JFET mounting studs need correcting for next test.

L0

Torlon conductivity required. Pete to supply data.

Test samples supplied by SPIRE, triple R

OFHC 126

OFHC annealed 189

5 nines 33 This needs to be repeated.

New sample to be supplied by MSSL in 3mm sheet and 0.1 shim.

Compression or the copper under bolt loads may be an issue. The copper may yield.

Interface to Spectrometer box.

This is a major resistance. Gold plating may improve the joint but not guaranteed.

Could use large area epoxy joint in aluminium.

A new concept was discussed.

This involves substituting the small area copper to aluminium bolted joints with large area bonded joints. A gold plated copper plate is bonded to the side of the spectrometer box and formed to meet the straps at the original interface. This would also form the electrical isolation.

The same principal could be used on the photometer box, but using the flat area of the base.

If this is pursued then no gold plating of aluminium is required.

If this concept is agreed it should be incorporated into the CQM.

**Summary of actions.**

<b>Action</b>	<b>Due date</b>	
MSSL to investigate the concept of large areas of cooper sheet bonded to detector boxes to form the	30/4/04	

thermal interface.		
Cardiff to supply details of sample design.	28/4/04	
MSSL to send samples of 5 nines copper to Cardiff for tests, a sample of each different size/lot.	30/4/04	
Adam to retest the existing sample of 5 nines copper	30/4/04	
MSSL to distribute test results from CFRP thermal tests.	23/4/04	
MSSL to make up samples of brazed joints	7/5/04	
Cardiff to test brazed joints	14/5/04	
Cardiff to test the JD large area bonded joint sample	7/5/04	
Addition of Bellvilles to the cooler interface to be investigated by MSSL.	30/4/04	
Arrange mechanical tests on copper samples MSSL/RAL.	7/5/04	
Cardiff to perform repeated joint tests.	When joints available	