

**Document Name:** Jan 2003 Status of the RAL Update of the SPIRE BDA TMM

SPIRE-RAL-NOT-0001497

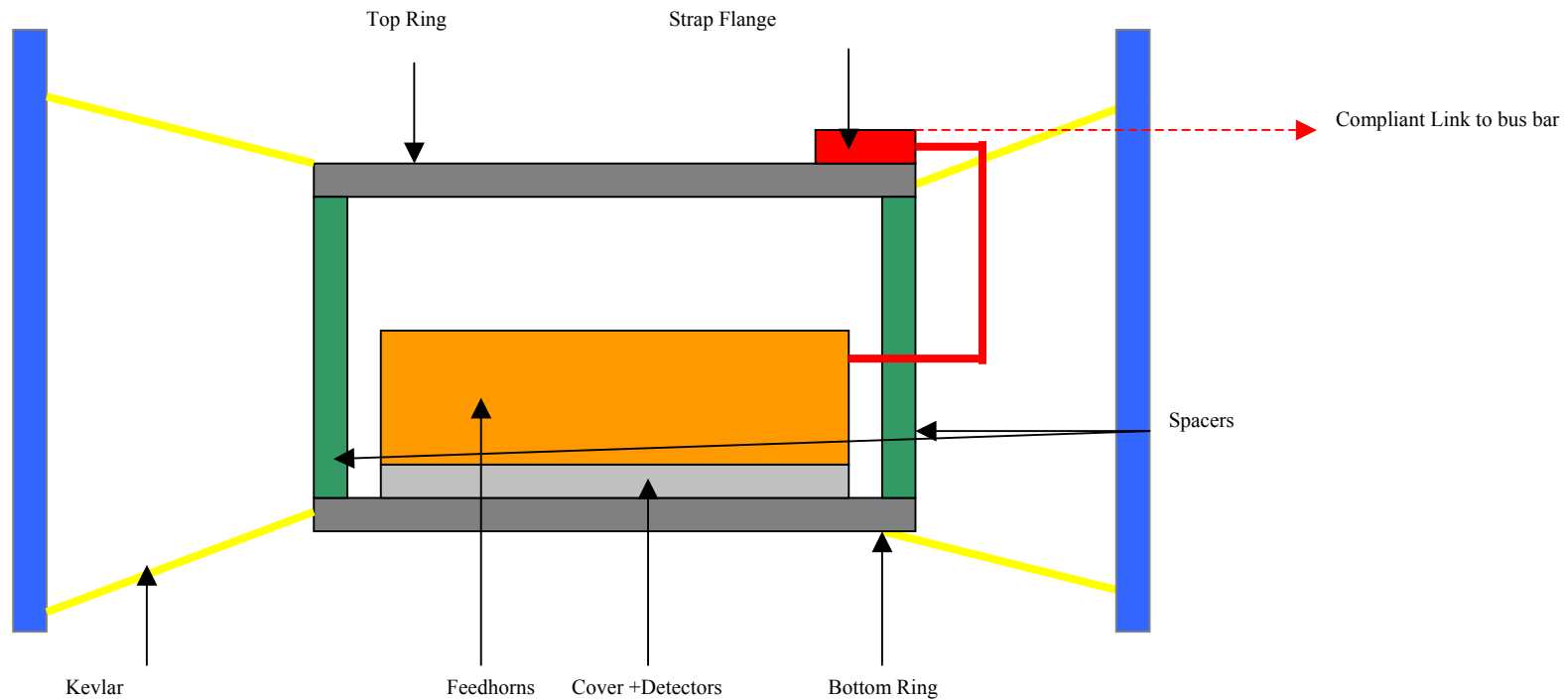
**Author:** Anne-Sophie Goizel

**Circulation:** Gary Park – for JPL Confirmation

Sam Heys, John Delderfield, Bruce Swinyard, Eric Sawyer, Doug Griffin – RAL Project

**Draft:** 0.1 (Friday, 17 January 2003)

Schematic of TMM Nodes and Links



## Current Assumptions

Table 1- List of major assumptions in the SPIRE BDA TMM. Text highlighted in *Blue* are known issues.

<b>Number</b>	<b>Item</b>	<b>A/L</b>	<b>Material</b>	<b>Interface</b>	<b>Contacting Area</b>	<b>Notes</b>
1	Spacer (2)	0.54 cm	Invar	Invar//Invar	0.33 cm <sup>2</sup> on either side with top and bottom ring	The A/L needs confirmation.
2	Top/Bottom Ring	-	Invar	Invar/copper	1 cm <sup>2</sup> contacting area with strap flange	
3	Cover	-	Invar	Invar/ Invar	5.7 cm <sup>2</sup> contacting area with bottom ring	
4	Feedhorn	-	Copper	Copper/Invar	0.4 cm <sup>2</sup> contacting area with cover	
5	Feedhorn Strap	1 mm cross section 60mm long	High Purity Copper	Invar/ copper	2.7 cm <sup>2</sup> total contacting area with feedhorn	We know that there are two different lengths; one length for the PLW/SLW and another length for the PMW/PSW/SSW. We need these lengths.
6	Feedhorn spacers	?	?	Between the feedhorns and the cover plate	?	We need more information on this interface.
7	Kevlar	0.029 cm	-	-	-	Jamies' info during grounding scheme meeting.
8	Internal BDA Kapton Harness	JPL tests indicated 0.4μW per Kapton harness between 1.7K and 0.3K. This corresponds to a conductance of 0.286μW/K per harness. The PSW will have 6x this value, PMW 4x etc.				
9	JFET Membrane	The conductance of the Silicon Nitride membrane in the JFET TMM will not be used to accurately predict the JFET temperature (i.e. Temperature at the centre of the membrane). The JFET dissipation will be set according to the JFET Noise vs. Dissipation curves.				

Note: All I/Fs are Gold Plated, hence Invar/Invar is Gold plated Invar to Gold plated Invar etc.