IMA SP Kernel Qualification Preparation

The purpose of this study was to prepare for future IMA Separation Kernel qualification, taking into account both the development process and the product.
The first phase of the preparation was to consolidate a requirements baseline for IMA Separation Kernels (for a single core and multicore processors).
Next, a conformance assessment of pre-selected candidate kernels, against the baselined IMA Separation Kernel requirements (including ECSS E40 and Q80 compliance) was performed. In addition an estimate of effort required for complete conformance was provided by the kernel suppliers.
When the baseline had been established the overall qualification strategy and a detailed test plan for qualification of IMA Separation Kernels were defined. An identification and analysis of the suitable methods and techniques for verification and validation of the IMA Separation Kernel was performed which included Model Based Techniques, Formal Method techniques and classical techniques.
The final phase of the study was to perform an evaluation of the adequacy and appropriateness of the selected verification and validation methods and techniques. This included a definition of the test environment and experimentation on the methods and techniques given in the test plan.
At the culmination of this study a complete set of documentation and test artefacts has been prepared for the start of the qualification of a selected IMA Separation Kernel for use in flight software.