

SPIRE

SUBJECT: SPIRE ICC Calibration Team Work Packages

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TABLE OF CONTENTS

1.	SCOPE.....	6
2.	DOCUMENTS.....	6
2.1	APPLICABLE DOCUMENTS.....	6
2.2	REFERENCE DOCUMENTS.....	6
3.	ICC CALIBRATION TEAM.....	7
3.1	CALIBRATION MEETINGS	8
3.1.1	<i>HCalSG.....</i>	9
3.1.2	<i>Management Meetings.....</i>	10
3.1.3	<i>Team Meetings.....</i>	11
3.1.4	<i>ICC Meetings.....</i>	12
3.1.5	<i>ICC configuration control board.....</i>	13
3.2	CALIBRATION TEAM MANAGEMENT	14
3.3	CALIBRATION TEAM INTERFACES	15
3.3.1	<i>Definition of Calibration Files/Information For IA.....</i>	16
3.3.2	<i>Definition of Calibration Files/Information For Time Estimator.....</i>	17
3.3.3	<i>Definition of Calibration Files/Information For Uplink.....</i>	18
3.3.4	<i>Definition of Calibration Specific Data Processing (IA for non-standard calibration data).....</i>	19
3.3.5	<i>Definition of a reporting system including problem reporting.....</i>	20
3.3.6	<i>Interface with SW Team to design, create, test and document calibration database</i>	21
3.3.7	<i>Interface With the Test Team to Agree Test Schedule.....</i>	22
3.3.8	<i>Training of Calibration Team Members by Members of Other Teams.....</i>	23
3.3.9	<i>Training Given by Calibration Team Members to Other ICC Team, Other Instrument Team or HSC Team Members</i>	24
3.4	CALIBRATION TESTING	25
3.4.1	<i>Definition of the Calibration Requirements</i>	26
3.4.2	<i>Definition of the Calibration Plan for ILT</i>	27
3.4.3	<i>Definition of the Calibration Tests</i>	28
3.4.4	<i>Definition and Production of the Calibration Database.....</i>	29
3.4.5	<i>Define and Write Test Observations.....</i>	30
3.4.6	<i>Analyse Test Data.....</i>	31
3.4.7	<i>Populate Calibration Database.....</i>	32
3.4.8	<i>Review test results, calibration plan and test plan</i>	33
3.5	CALIBRATION PREPARATORY PROGRAMME	34
3.6	FLIGHT PREPARATION.....	35
3.6.1	<i>Produce the PV phase calibration plan</i>	36
3.6.2	<i>Produce the Routine Phase Calibration Plan</i>	37
3.7	PV PHASE.....	38
3.8	ROUTINE PHASE.....	39

FIGURES**TABLES**

Glossary

AIV	Assembly Integration and Verification
CFDP	Calibration File Derivation Procedure
CQM	Cryogenic Qualification Model
CUS	Calibration Uplink System
FS	Flight Spare
FTE	Full Time Equivalent
HCalSG	Herschel Calibration Steering Group
HSC	Herschel Science Centre
IA	Interactive Analysis
ICC	Instrument Control Centre
MIB	Mission Information Base
PFM	Proto- Flight Model
PV	Performance Verification
QLA	Quick Look Analysis
SPIRE	Spectro-Photometric Imaging REceiver
TOPE	???
WP	Work Package

1. SCOPE

This document contains the work packages for the calibration team in the SPIRE ICC and fits into the larger work package structure for the entire ICC. For this first draft, only those work packages which are needed for SPIRE testing have been developed. The staffing estimates are more accurate in the short term (2003) than in the long term (2007) and may be subject to change as parameters such as team size and length and frequency of meetings become better established.

2. DOCUMENTS

2.1 Applicable Documents

2.2 Reference Documents

SPIRE-RAL-N-001327 Proposed ICC Organisation during the Development Phase

3. ICC CALIBRATION TEAM

WP Title: Participate and organize calibration meetings		WP Number					
		Version:	1.0				
WP Manager: ICC Manager		Date:	4 Oct 2002				
Description: This is a summary work package that covers all aspects related to the work of the ICC calibration team of the SPIRE instrument.							
Start Date: 1 Jan 2003	End Date: End of post-ops	Type: Continuous					
Inputs:							
<ul style="list-style-type: none"> ➤ Scientific requirements for SPIRE ➤ Instrument requirements document ➤ Calibration team terms of reference 							
Activities:							
Calibration Meetings Calibration Team Management Calibration Team Interfaces Calibration Testing Calibration Preparatory Programme Flight Preparation PV Phase Routine Phase							
Outputs:							
<ul style="list-style-type: none"> ➤ SPIRE calibration 							
Assumptions:							
<ul style="list-style-type: none"> ➤ The ICC calibration team are responsible for all aspects of SPIRE calibration ➤ The ICC calibration team is led by two co-leaders, all references to team leader in the work packages indicate only one of the two co-leaders is required for this task. 							
Notes:							
<ul style="list-style-type: none"> ➤ Resource estimates under the next section are likely to evolve. Current estimates account for continuous tasks and testing related tasks only. ➤ FTE's are calculated on the basis of a 44 week work year. 							
Resources:							
	2001	2002	2003	2004	2005	2006	2007
Meetings (fte)			0.34	0.34	0.34	0.57	0.57
Management (fte)			0.10	0.10	0.10	0.10	0.10
Interface Activities (fte)		0.05	1.63	1.22	1.07	0.73	0.63
Calibration Testing (fte)			1.22	0.82	0.6	0.4	0.34
Calibration Preparatory Prog			TBD	TBD	TBD	TBD	TBD
Flight Preparation					TBD	TBD	TBD
Equipment							
Travel							
Recurrent							
Total			3.29	2.48	1.57	1.8	1.64

3.1.2 Management Meetings

WP Title: Participate and organize managements meetings		WP Number																	
		Version:	1.0																
WP Manager: ICC calibration team leader		Date:	4 Oct 2002																
Description: The co-calibration team leaders oversee the work of the calibration team. To this aim they will organize regular progress meetings (could be tele/video conferences) to make sure calibration activities proceed as scheduled. This work package also covers "crisis" management.																			
Start Date: 1 Jan 2003		End Date: End of Post-Ops																	
		Type: continuous																	
Inputs:																			
<ul style="list-style-type: none"> ➤ SPIRE scientific requirements ➤ List of calibration team members ➤ Definition of responsibilities of various SPIRE instrument contributors 																			
Activities:																			
Overall management activities Define calibration activities/work packages Monitor progress on all calibration activities																			
Outputs:																			
<ul style="list-style-type: none"> ➤ Progress report to ICC and SPIRE project ➤ SPIRE calibration plan 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ The facilities of the SPIRE project office are available to the ICC calibration team leader. ➤ Management meetings will generally held jointly with regular calibration team meetings. Typically we expect one such meeting every two months, except when getting closer to launch. Only the meetings are accounted for in this WP. Management meetings will be held between the co-calibration team leaders. 																			
Notes:																			
<ul style="list-style-type: none"> ➤ This is mostly a management work package. The SPIRE calibration plan is listed as an output of this work package only in the sense that one of the duties of this WP manager is making sure the plan is being built. 																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.05</td> <td>0.05</td> <td>0.05</td> <td>0.10</td> <td>0.10</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.05	0.05	0.05	0.10	0.10
	2001	2002	2003	2004	2005	2006	2007												
Total			0.05	0.05	0.05	0.10	0.10												

3.1.3 Team Meetings

WP Title: Organize and participate in Calibration Team meetings		WP Number																	
		Version:	1.0																
WP Manager: ICC Calibration team leader		Date:	6 Oct 2002																
Description: To make sure progress is made toward the ultimate goal of the SPIRE calibration plan (i.e. understand the instrument behaviour, define the calibration needs and produce the calibration plan), regular meetings, teleconferences, videoconferences, will have to be organized.																			
Start Date: 1 Jan 2002		End Date: End of Post-Ops																	
		Type: Continuous																	
Inputs:																			
<ul style="list-style-type: none"> ➤ SPIRE science requirements: they define the ultimate goals of the calibration team. ➤ SPIRE calibration requirements: these should translate the previous documents into statements more precisely related to calibration. ➤ The calibration team terms of reference: they should hold the expectation of the SPIRE project with respect to the calibration team activities. ➤ SPIRE major milestone lists: these define a framework for the calibration activities to be scheduled. 																			
Activities:																			
Organize regular meetings of the calibration team Maintain and follow-up action lists originating from the meetings Produce and archive minutes of these meetings																			
Outputs:																			
<ul style="list-style-type: none"> ➤ Regular reports of the calibration team activities to the SPIRE project. ➤ SPIRE calibration plan. 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ The calibration team meetings will be help jointly with the calibration team management meetings. We foresee one such meeting every two months, except for 2006-7 where this frequency is doubled. These meetings last one day. We assume that the manpower needed for these meeting is 1 man.day per meeting to organize and follow-up, and 2 man.day per meeting as the co-leaders both attend the meeting. 																			
Notes:																			
<ul style="list-style-type: none"> ➤ Resources are estimated for co-leaders only, this will be revised as team personnel increases. 																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.08</td> <td>0.08</td> <td>0.08</td> <td>0.16</td> <td>0.16</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.08	0.08	0.08	0.16	0.16
	2001	2002	2003	2004	2005	2006	2007												
Total			0.08	0.08	0.08	0.16	0.16												

3.1.4 ICC Meetings

WP Title: Participate in ICC meetings		WP Number																	
		Version:	1.0																
WP Manager: Calibration team leader		Date:	4 Oct 2002																
Description: The SPIRE ICC holds regular (bi-monthly) progress meetings to which the calibration team participates. At these meetings the calibration team reports its activities to the rest of the ICC, and possibly to the whole SPIRE project or consortium when ICC meetings occur at consortium meetings.																			
Start Date: 1 Jan 2003		End Date: End of Post-Ops																	
		Type: Continuous																	
Inputs:																			
➤ None																			
Activities:																			
Report calibration team progress to the rest of the ICC, project or consortium																			
Outputs:																			
➤ Progress reports issued with the same frequency as the ICC meetings.																			
Assumptions:																			
➤ None																			
Notes:																			
➤ The exact amount of resources for this WP depends of the frequency of the ICC meetings, which is set outside of the Calibration team. We have assumed bi-monthly 2day meetings where the calibration team leader and deputy attend. In the year 2006-7, this frequency is increased to 1 meeting a month.																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.10</td> <td>0.10</td> <td>0.10</td> <td>0.20</td> <td>0.20</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.10	0.10	0.10	0.20	0.20
	2001	2002	2003	2004	2005	2006	2007												
Total			0.10	0.10	0.10	0.20	0.20												

3.3 Calibration Team Interfaces

WP Title: Interface with other ICC teams		WP Number																	
		Version:	1.0																
WP Manager: Calibration team leader		Date:	6 Oct 2002																
Description: As explicated in the calibration team terms of reference, this team has a large number of interfaces with the other teams of the ICC. This summary work-package lists all these interfaces and tie together the respective work-packages dealing with each interface.																			
Start Date: 1 Jan 2003		End Date: End of Post-Ops																	
		Type: Continuous																	
Inputs:																			
<ul style="list-style-type: none"> ➤ SPIRE Science requirements ➤ ICC teams terms of reference 																			
Activities:																			
Define calibration files and information required for Interactive Analysis Define calibration files and information required for the time estimator Define calibration files and information required for Uplink Define calibration-specific data processing (for non-standard calibration data) Define a reporting system including problem reporting Define and participate in ICC configuration control board Interface with SW team to design, create, test and document the calibration database Interface with Test team to agree test schedule Train Calibration team members to use ICC systems (CUS, MIB, TOPE, IA/QLA, other parts of the EGSE, HSC systems) Train other teams and HSC personnel in calibration specific activities																			
Outputs:																			
<ul style="list-style-type: none"> ➤ SPIRE Calibration requirement ➤ SPIRE Calibration Plan ➤ Calibration-specific IA module ➤ Test plans for all the instrument test campaigns ➤ Calibration database 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ 																			
Notes:																			
<ul style="list-style-type: none"> ➤ 																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td>0.05</td> <td>1.63</td> <td>1.22</td> <td>1.07</td> <td>0.73</td> <td>0.63</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total		0.05	1.63	1.22	1.07	0.73	0.63
	2001	2002	2003	2004	2005	2006	2007												
Total		0.05	1.63	1.22	1.07	0.73	0.63												

3.3.1 Definition of Calibration Files/Information For IA

WP Title: Define calibration items and information required by IA		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	9 Oct 2002																
<p>Description: A number of calibration items will be mandatory for Interactive Analysis to process SPIRE data to the level of scientific use. These items, their accuracies, and their format have to be defined. This work package deals with this joint activity between the Calibration Team and the Observations Team. Most of this activity will take place during the early development phases of both IA and the instrument. However new data reduction algorithms may require new specific calibrations to be performed.</p> <p>This WP also covers the possibility that the Calibration Team place constraints on the IA development, in case where the calibration item required by IA cannot be obtained for SPIRE.</p>																			
Start Date: 1 Jan 2003		End Date: End of Post-Ops																	
		Type: Continuous																	
<p>Inputs:</p> <ul style="list-style-type: none"> ➤ SPIRE observing modes ➤ ICC use-cases document 																			
<p>Activities:</p> <p>Extract IA-related use-cases from ICC use-cases document Analyse which use-cases require calibration information Define typical IA processing flows for these use-cases Agree on these typical flows with the Observations team Identify calibration items/information needed by these flows Define the format for these calibration items Agree on these identifications and format definitions with the Observations team Formalise these definitions into calibration requirements</p>																			
<p>Outputs:</p> <ul style="list-style-type: none"> ➤ SPIRE calibration requirements regarding IA ➤ Contribution to the SPIRE calibration plan 																			
<p>Assumptions:</p> <ul style="list-style-type: none"> ➤ There should exist a symmetric work-package in the Observations team. 																			
<p>Notes:</p> <ul style="list-style-type: none"> ➤ Although that work-package starts in 2003, some work as already been done in 2002, this has been listed in the resources table. ➤ This activity will probably decrease as we get to launch, since most of the IA calibration requirements will have been identified by then ➤ Only the calibration team manpower is listed here. 																			
<p>Resources:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td>0.05</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.1</td> <td>0.1</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total		0.05	0.2	0.2	0.2	0.1	0.1
	2001	2002	2003	2004	2005	2006	2007												
Total		0.05	0.2	0.2	0.2	0.1	0.1												

3.3.2 Definition of Calibration Files/Information For Time Estimator

WP Title: Define calibration items and information required by the Time Estimator		WP Number																					
		Version:		1.0																			
WP Manager: Calibration Team leader		Date:		9 Oct 2002																			
<p>Description: A number of calibration items will be mandatory to build the SPIRE time estimator (the ultimate responsibility of which lies in the Observations Team). These items, their accuracies and format have to be defined. This work-package deals with this joint activity between the Calibration Team and the Observations Team. Most of this activity will take place during the early phases of the project. It is not foreseen that major changes or addition will be brought on the Time Estimator after launch. Calibration items may/will be updated after launch, but the responsibility of reflecting that in the Time Estimator does not fall on the Calibration Team.</p>																							
Start Date: 1 Jan 2003		End Date: Call for Open Time			Type: Continuous																		
<p>Inputs:</p> <ul style="list-style-type: none"> ➤ SPIRE observing modes ➤ SPIRE time estimator use-cases document 																							
<p>Activities:</p> <p>Analyse which use-cases need calibration information Identify calibration information needed by these use-cases Define the format for these calibration items Agree on these identifications and format definitions with the Observations team Formalise these into calibration requirements</p>																							
<p>Outputs:</p> <ul style="list-style-type: none"> ➤ SPIRE calibration requirements regarding the Time Estimator ➤ Contribution to the SPIRE calibration plan 																							
<p>Assumptions:</p> <ul style="list-style-type: none"> ➤ There should exist a symmetric work-package in the Observations team 																							
<p>Notes:</p> <ul style="list-style-type: none"> ➤ The Call for Open Time is listed as the end date of this activity. This is because this calls indicates that the Time Estimator is delivered to the community. At this stage its calibration requirements should have been frozen and fulfilled. ➤ Only the manpower required from the Calibration Team is listed in the resources table. 																							
<p>Resources:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.05</td> <td>0.05</td> <td>0.05</td> <td></td> <td></td> </tr> </tbody> </table>									2001	2002	2003	2004	2005	2006	2007	Total			0.05	0.05	0.05		
	2001	2002	2003	2004	2005	2006	2007																
Total			0.05	0.05	0.05																		

3.3.3 Definition of Calibration Files/Information For Uplink

WP Title: Define calibration items and information required by the Uplink		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	9 Oct 2002																
<p>Description: A number of calibration items will be mandatory for the Uplink/Downlink of tele-commands to SPIRE. These items, their accuracies and format have to be defined. This work-package deals with this joint activity between the Calibration Team and the Operations Team. Most of this activity will take place during the early phases of the project, however it may happen that changes in the instrument operations require new calibration items.</p>																			
Start Date: 1 Jan 2003		End Date: End of Operations																	
		Type: Continuous																	
<p>Inputs:</p> <ul style="list-style-type: none"> ➤ SPIRE tele-commands list 																			
<p>Activities:</p> <p>Analyse which tele-commands need calibration information Identify calibration information needed by these tele-commands Define the format for these calibration items Agree on these identifications and format definitions with the Operations Team Formalise these into calibration requirements</p>																			
<p>Outputs:</p> <ul style="list-style-type: none"> ➤ SPIRE calibration requirements regarding the Uplink/Downlink ➤ Contribution to the SPIRE calibration plan 																			
<p>Assumptions:</p> <ul style="list-style-type: none"> ➤ There should exist a symmetric work-package in the Operations Team 																			
<p>Notes:</p> <ul style="list-style-type: none"> ➤ The document(s) that the Calibration Team can use as input is(are) ill-defined ➤ Only the manpower required from the Calibration Team is listed in the resources table ➤ We assume that this activity decreases close to launch 																			
<p>Resources:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.1</td> <td>0.1</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.2	0.2	0.2	0.1	0.1
	2001	2002	2003	2004	2005	2006	2007												
Total			0.2	0.2	0.2	0.1	0.1												

3.3.5 Definition of a reporting system including problem reporting

WP Title: Define a reporting and configuration control system		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
<p>Description: The Calibration Team will issue a large number of reports, most of them containing valuable information for the whole SPIRE project and possibly a wider audience. The Team will need a system to store these reports and make them available to the interested community. This work-package also deals with the necessity for the Calibration Team to have a problem report system. Finally, the definition of the ICC configuration control board, and its responsibilities, is also part of this work package as this board will have the final say on the availability of calibration reports and the fate of calibration problem reports</p>																			
Start Date: 1 Jan 2003		End Date: 31 Dec 2003																	
		Type:																	
<p>Inputs:</p> <ul style="list-style-type: none"> ➤ SPIRE Calibration requirements ➤ SPIRE ICC terms of reference 																			
<p>Activities:</p> <p>Specify the needs of the Calibration Team in terms of a reporting system Specify the needs of the Calibration Team in terms of a problem report system Agree with Software Team on the design of the reporting system Agree with Software Team on the design of the problem report system Define, with ICC Team leaders, the functioning and responsibilities of the ICC configuration control board</p>																			
<p>Outputs:</p> <ul style="list-style-type: none"> ➤ Calibration reporting system ➤ Calibration problem report system ➤ ICC configuration control board 																			
<p>Assumptions:</p> <ul style="list-style-type: none"> ➤ Participation of the Calibration Team leader to the ICC configuration control board is not part of this work-package. 																			
<p>Notes:</p> <ul style="list-style-type: none"> ➤ Most of the actual work in this work-package actually falls on the Software Team, the Calibration Team will participate in the specifications and tests of the systems. 																			
<p>Resources:</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.2</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.2				
	2001	2002	2003	2004	2005	2006	2007												
Total			0.2																

3.3.6 Interface with SW Team to design, create, test and document calibration database

WP Title: Design, create, test and document the calibration database		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
<p>Description: All the calibration information (test plans, observation descriptions, test procedures, observation procedures, data reduction procedures, calibration item formats, calibration items,...) will have to be stored in a way that allows both the Calibration Team to manage it, and the other ICC teams to access it in a way suiting their needs. This work-package deals with all actions related to the creation of this information storage system.</p>																			
Start Date: 1 Jan 2003		End Date: End of Post-Operations																	
		Type:																	
<p>Inputs:</p> <ul style="list-style-type: none"> ➤ SPIRE calibration requirements ➤ SPIRE calibration plan ➤ SPIRE test plan(s) 																			
<p>Activities:</p> <p>Define the elements that will be stored in the system Define the methods required to access the elements of the system Agree on these definitions with Software Team (for feasibility) Agree on these definitions with both the Operations Team and the Observations Team (so that they suit their needs as well) Review design documentation with Software Team Test the system produced by the Software Team Document the system Propose changes to the system in case calibration philosophy has evolved or new elements/methods are required</p>																			
<p>Outputs:</p> <ul style="list-style-type: none"> ➤ SPIRE calibration database ➤ SPIRE calibration database documentation 																			
<p>Assumptions:</p> <ul style="list-style-type: none"> ➤ A first version of the database will have to be operational for the first instrument-level tests (CQM test in 07/03). ➤ This work-package will peak during the preparatory phases, and decrease closer to launch 																			
<p>Notes:</p> <ul style="list-style-type: none"> ➤ The actual development of the system falls on the Software team. ➤ This work-package lasts till the end of the post-operations phase to cover the possible modifications to the system. New calibration information or a change in the calibration philosophy may indeed require a modification of the information storage system (which is different from both maintaining the system and updating its content). 																			
<p>Resources:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.3</td> <td>0.3</td> <td>0.2</td> <td>0.2</td> <td>0.1</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.3	0.3	0.2	0.2	0.1
	2001	2002	2003	2004	2005	2006	2007												
Total			0.3	0.3	0.2	0.2	0.1												

3.3.7 Interface With the Test Team to Agree Test Schedule

WP Title: Agree test schedules		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
<p>Description: The Calibration Team is responsible for coming up with the test schedules for the various test campaigns of SPIRE. The Calibration Team is however not going to perform the tests. This activity falls under the responsibility of the Test Team. This work-package covers the interface between these two teams needed to finalize the test plans.</p>																			
Start Date: 1 Jan 2003		End Date: 1 Mar 2004																	
		Type:																	
<p>Inputs:</p> <ul style="list-style-type: none"> ➤ Test schedules, as drafted by the Calibration Team 																			
<p>Activities:</p> <p>Provide test schedules to the Test Team Gather comments from the Test Team on the test schedule Modify the test schedule, if needed, to accommodate the comments from the Test Team</p>																			
<p>Outputs:</p> <ul style="list-style-type: none"> ➤ Agreed test schedules 																			
<p>Assumptions:</p> <ul style="list-style-type: none"> ➤ As no tests are foreseen after the PFM, this work-package ends at the start of this last test campaign. ➤ Drafting the test schedules is not part of this work package. 																			
<p>Notes:</p> <ul style="list-style-type: none"> ➤ It is unclear what the ICC will be doing with the Flight Spare. 																			
<p>Resources:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.05</td> <td>0.05</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.05	0.05			
	2001	2002	2003	2004	2005	2006	2007												
Total			0.05	0.05															

3.3.8 Training of Calibration Team Members by Members of Other Teams

WP Title: Train in ICC system use		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: To perform their duties nominally, the Calibration Team members will require some training in the various tools used and developed in the ICC.																			
Start Date: 1 Jan 2003		End Date: 31 Dec 2005																	
		Type:																	
Inputs:																			
<ul style="list-style-type: none"> ➤ Provision of CUS ➤ Provision of the MIB ➤ Provision of TOPE ➤ Provision of the IA and QLA ➤ Provision of the HSC systems (proposal handling system, mission planning system) 																			
Activities:																			
Receive training in use of CUS Receive training in use of the MIB Receive training in use of TOPE Receive training in use of the IA and QLA Receive training in use of the HSC systems (proposal handling and mission planning systems)																			
Outputs:																			
<ul style="list-style-type: none"> ➤ Proficiency in the use of all these systems 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ Each system will require 1 man.week of training. Although some systems may evolve (e.g. IA), we assume no re-training will be necessary ➤ To compute the resources needed we have assumed 4 members in the Calibration Team, and that training in CUS, MIB and TOPE takes place in 2003, IA/QLA in 2004 and HSC in 2005 																			
Notes:																			
<ul style="list-style-type: none"> ➤ The work package extends to the launch due to the fact that some of the systems considered here will only appear late in the mission. ➤ The exact amount of resources needed depends on the number of members in the Calibration Team. 																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.3</td> <td>0.09</td> <td>0.09</td> <td></td> <td></td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.3	0.09	0.09		
	2001	2002	2003	2004	2005	2006	2007												
Total			0.3	0.09	0.09														

3.4 Calibration Testing

WP Title: Calibration Testing		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This summary work-package describes all aspects of the calibration team work specifically in relation to SPIRE testing. Those aspects where other teams are involved are in the interface section.																			
Start Date: 1 Jan 2003	End Date: Launch		Type: Continuous																
Inputs:																			
<ul style="list-style-type: none"> ➤ Instrument Requirements Document ➤ Science Requirements Document ➤ AIV Plan 																			
Activities:																			
Definition of the Calibration Requirements Definition of the Calibration Plan for ILT Definition of Calibration Tests Definition and Production of the Calibration Database Write Test Observations Analyse Test Data Populate the Calibration Database Review the test results, calibration plan and test plan																			
Outputs:																			
<ul style="list-style-type: none"> ➤ SPIRE Ground Calibration 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ Where the responsibilities of the calibration team end and those of the test team start is still unclear. The assumption is currently made that the calibration team will specify tests and, if not already defined, define the observations in the CUS. The calibration team will not be producing test schedules, writing test scripts nor running tests. 																			
Notes:																			
<ul style="list-style-type: none"> ➤ 																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>1.22</td> <td>0.82</td> <td>0.6</td> <td>0.4</td> <td>0.34</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			1.22	0.82	0.6	0.4	0.34
	2001	2002	2003	2004	2005	2006	2007												
Total			1.22	0.82	0.6	0.4	0.34												

3.4.2 Definition of the Calibration Plan for ILT

WP Title: Definition of the Calibration Plan for ILT		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This WP describes all the steps necessary to produce the calibration plan for ground testing. It starts with the extracted requirements and then turns this into a set of calibration information. For each piece of information the tests and data analysis needed are derived. The data analysis schedule in terms of CFDPs is also derived.																			
Start Date: 1 Jan 2003		End Date: Launch																	
		Type: Continuous																	
Inputs:																			
<ul style="list-style-type: none"> ➤ Calibration Requirements Document ➤ IA, Time Estimator, Uplink Requirements as agreed with data processing and ops teams. 																			
Activities:																			
Combine agreed calibration file definitions into single master document Re-arrange calibration file definitions into 'calibration activities' Define test/instrument data needed for each activity Define data processing algorithm/method needed for each activity (including CFDPs) Definition of Calibration Specific Data Processing (IA for non-standard calibration data) Define timeline of data gathering activities																			
Outputs:																			
<ul style="list-style-type: none"> ➤ SPIRE Ground Test Calibration Plan ➤ SPIRE Calibration File/Object Definition Procedures (CFDPs) 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ Astronomical ground calibration is in the preparatory programme section. ➤ PV and Routine calibration plans are in a separate section 																			
Notes:																			
<ul style="list-style-type: none"> ➤ As defined by this WP the calibration plan may be a too large document and we may split the information currently defined as being in the calibration plan into separate documents. ➤ As this WP relates to the planning of the ground tests it is top loaded to 2003 assuming CQM testing 07/03 and PFM testing 03/04 and the bulk of the planning will be complete before CQM testing. ➤ Effort in years 2005-2007 relates to maintenance of CFDPs. ➤ IA definition covered in interface WP. 																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.5</td> <td>0.2</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.5	0.2	0.1	0.1	0.1
	2001	2002	2003	2004	2005	2006	2007												
Total			0.5	0.2	0.1	0.1	0.1												

3.4.3 Definition of the Calibration Tests

WP Title: Definition of the Calibration Tests		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This WP describes the extraction of the calibration information needed from the calibration plan and relates this to either currently existing tests or if necessary defines new test specifications																			
Start Date: 1 Jan 2003	End Date: Launch		Type: Continuous																
Inputs:																			
➤ Ground Calibration Plan																			
Activities:																			
Compare test requirements in calibration plan with pre-existing test specifications If necessary specify new tests Interface with the test team to confirm scheduling of all tests Code the observations in the CUS																			
Outputs:																			
➤ Approved test specification ➤ Approved test plan																			
Assumptions:																			
➤ The test team will expect the calibration team to be able to use the CUS but not TOPE.																			
Notes:																			
➤ The calibration plan may be a too large document and we may split the information currently defined as being in the calibration plan into separate documents.																			
➤ As this WP relates to the planning of the ground tests it is top loaded to 2003 assuming CQM testing 07/03 and PFM testing 03/04 and the bulk of the planning will be complete before CQM testing.																			
➤ Some effort is scoped for FS specifications and possible commissioning phase specifications.																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.2</td> <td>0.1</td> <td>0.04</td> <td>0.04</td> <td>0.04</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.2	0.1	0.04	0.04	0.04
	2001	2002	2003	2004	2005	2006	2007												
Total			0.2	0.1	0.04	0.04	0.04												

3.4.4 Definition and Production of the Calibration Database

WP Title: Definition and Production of the Calibration Database		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This work package describes the activities associated with defining the calibration database, interacting with the software team to produce and maintain the database and to populate the database.																			
Start Date: 1 Jan 2003		End Date: Launch																	
		Type: Continuous																	
Inputs:																			
➤ Ground Calibration Plan																			
Activities:																			
Agree set of calibration objects with other ICC teams																			
Determine what other data should be placed in the database																			
Agree with software team format and content of the data																			
Define and carry out acceptance procedure for the database																			
Produce/obtain the data needed to populate the database																			
Agree updates within the ICC																			
Update the database with the calibration data																			
Outputs:																			
➤ Populated, easily maintainable calibration database																			
Assumptions:																			
➤ The database for QLA and test data is a test team responsibility																			
➤ Obtaining data to populate the data base is covered by other work packages																			
Notes:																			
➤ Other data could include reports, documentation, models, astronomical data from non-SPIRE source etc																			
➤ Updates may be agreed via a ccb																			
➤ Slightly more work scoped in 2007 as some adjustments may be made for flight data																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.3</td> <td>0.1</td> <td>0.04</td> <td>0.04</td> <td>0.08</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.3	0.1	0.04	0.04	0.08
	2001	2002	2003	2004	2005	2006	2007												
Total			0.3	0.1	0.04	0.04	0.08												

3.4.5 Define and Write Test Observations

WP Title: Define and Write Test Observations		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This work package describes the writing of calibration test observations in the CUS.																			
Start Date: 1 Jan 2003	End Date: Launch	Type: Continuous																	
Inputs:																			
➤ Ground Calibration Plan																			
Activities:																			
Determine which tests arising from the calibration plan are not planned y the test team																			
Agree with the test team that the calibration observations are required																			
Define the observations in the CUS																			
Deliver them to the test team																			
Outputs:																			
➤ CUS observations																			
Assumptions:																			
➤ All other aspects of preparing and running the tests are the responsibility of the test team																			
Notes:																			
➤ No work is scoped at present as we are working with the baseline that the performance tests will be sufficient. If this is not the case this wp will be activated.																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0	0	0	0	0
	2001	2002	2003	2004	2005	2006	2007												
Total			0	0	0	0	0												

3.4.6 Analyse Test Data

WP Title: Analyse Test Data		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This work package describes the defining of the analysis needed, the setting requirements on analysis tools and the actual analysis of calibration test data.																			
Start Date: 1 Jan 2003	End Date: Launch		Type: Continuous																
Inputs:																			
➤ Ground Calibration Plan																			
Activities:																			
Determine which tests arising from the calibration plan are not planned y the test team																			
Agree with the test team that the calibration observations are required																			
Define the observations in the CUS																			
Deliver them to the test team																			
Outputs:																			
➤ CUS observations																			
Assumptions:																			
➤ All other aspects of preparing and running the tests, including monitoring QLA, are the responsibility of the test team																			
Notes:																			
➤ No work is scoped at present as we are working with the baseline that the performance tests will be sufficient. If this is not the case this wp will be activated.																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0	0	0	0	0
	2001	2002	2003	2004	2005	2006	2007												
Total			0	0	0	0	0												

3.4.7 Populate Calibration Database

WP Title: Populate Calibration Database		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This work package describes the steps needed to populate the calibration database.																			
Start Date: 1 Jan 2003	End Date: Launch		Type: Continuous																
Inputs:																			
<ul style="list-style-type: none"> ➤ Models of astronomical sources ➤ Data from other astronomical observatories ➤ Deliveries from sub-system teams (information and test data) ➤ Analysed test data ➤ Simulations of SPIRE data 																			
Activities:																			
<p>Check data meets database format requirements and re-format if necessary</p> <p>Use database interface to load the data into the database</p> <p>Inform ICC of update (if not done so automatically)</p>																			
Outputs:																			
<ul style="list-style-type: none"> ➤ Populated database 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ There will be a suitable user interface available to the entire calibration team 																			
Notes:																			
<ul style="list-style-type: none"> ➤ Most of the effort in this work package is concerned with reformatting data from a number of different sources into a format suitable for the database. This may include adding meta data and possibly expanding the database concept. ➤ The 2003 effort is estimated for subsystem data. The expected peak of this activity is in 2004 for the test data from both the CQM and PFM and 2005 where we will finalise the analysis of PFM data and may have to add FS data. The effort scoped for 2006 and 2007 concerns adding astronomical based data. 																			
Resources:																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0.2</td> <td>0.3</td> <td>0.3</td> <td>0.1</td> <td>0.1</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0.2	0.3	0.3	0.1	0.1
	2001	2002	2003	2004	2005	2006	2007												
Total			0.2	0.3	0.3	0.1	0.1												

3.4.8 Review test results, calibration plan and test plan

WP Title: Review test results, calibration plan and test plan		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This work package describes the activities associated with reviewing the calibration plan and test plan.																			
Start Date: 1 Jan 2003		End Date: 2006?																	
		Type: Continuous																	
Inputs:																			
<ul style="list-style-type: none"> ➤ Calibration plan ➤ Test plan (including test schedule) 																			
Activities:																			
Agree review dates with test team Agree review dates with the ICC Prepare review documentation Prepare review presentations Hold reviews																			
Outputs:																			
<ul style="list-style-type: none"> ➤ Reviewed progress 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ It is assumed that joint reviews of the calibration status involving both the test team and calibration teams will be held following both CQM and PFM testing. It is not expected that the calibration team will participate in any other joint reviews (e.g. test readiness reviews and ESA inspections). ➤ It is assumed that the calibration team will participate in separate ICC reviews, these may take the form of either an internal status update within the ICC or of a formal ICC review. ➤ Reviewing the status within the calibration team is considered a management activity and will be done via regular calibration team meetings. 																			
Notes:																			
<ul style="list-style-type: none"> ➤ The 2006 effort assumes we will be testing a flight spare. 																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>0</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0	0.1	0.1	0.1	0
	2001	2002	2003	2004	2005	2006	2007												
Total			0	0.1	0.1	0.1	0												

3.6 Flight Preparation

WP Title: Flight Preparation		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This work top level package describes the activities associated with pre-flight preparation of in-flight calibration activities																			
Start Date: 2005?	End Date: Launch		Type: Continuous																
Inputs:																			
<ul style="list-style-type: none"> ➤ Outline in-flight calibration requirements/plan ➤ Populated calibration database 																			
Activities:																			
<ul style="list-style-type: none"> • Produce the PV phase calibration plan • Produce the routine phase calibration plan 																			
Outputs:																			
<ul style="list-style-type: none"> ➤ Detailed PV phase calibration plan and schedule ➤ Routine phase calibration plan 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ This activity will not start until at least 2005 																			
Notes:																			
<ul style="list-style-type: none"> ➤ The calibration database may continue to be populated with astronomical data for the duration of this activity. 																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0</td> <td>0</td> <td>TBD</td> <td>TBD</td> <td>TBD</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0	0	TBD	TBD	TBD
	2001	2002	2003	2004	2005	2006	2007												
Total			0	0	TBD	TBD	TBD												

3.6.1 Produce the PV phase calibration plan

WP Title: Produce the PV phase calibration plan		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This is work package describes the activities associated with preparation of the PV phase plan																			
Start Date: 2005?	End Date: Launch		Type: Continuous																
Inputs:																			
<ul style="list-style-type: none"> ➤ Outline in-flight calibration requirements/plan ➤ Calibration database status 																			
Activities:																			
<ul style="list-style-type: none"> • Check outline plan and calibration database population status • Determine what calibration information is needed and obtainable in PV phase • Determine the types of observations needed • Select objects • Agree PV phase plan with other ICC groups and HSC • Schedule the PV phase observations using the mission planning system 																			
Outputs:																			
<ul style="list-style-type: none"> ➤ Detailed PV phase calibration plan ➤ PV phase schedule 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ 																			
Notes:																			
<ul style="list-style-type: none"> ➤ This activity will not start until at least 2005 ➤ The detailed PV phase plan will evolve models and knowledge about available astronomical sources into a detailed plan including information about how the calibration will be derived, what sources will be used, how the data will be analysed and an observing schedule. 																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0</td> <td>0</td> <td>TBD</td> <td>TBD</td> <td>TBD</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0	0	TBD	TBD	TBD
	2001	2002	2003	2004	2005	2006	2007												
Total			0	0	TBD	TBD	TBD												

3.6.2 Produce the Routine Phase Calibration Plan

WP Title: Flight Produce the Routine Phase Calibration Plan		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This is work package describes the activities associated with preparation of the routine phase calibration plan																			
Start Date: 2005?	End Date: Launch	Type: Continuous																	
Inputs:																			
<ul style="list-style-type: none"> ➤ Outline in-flight calibration requirements/plan ➤ Calibration database status 																			
Activities:																			
<ul style="list-style-type: none"> • TBW 																			
Outputs:																			
<ul style="list-style-type: none"> ➤ Routine phase calibration plan 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ 																			
Notes:																			
<ul style="list-style-type: none"> ➤ This activity will not start until at least 2005 ➤ 																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0</td> <td>0</td> <td>TBD</td> <td>TBD</td> <td>TBD</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0	0	TBD	TBD	TBD
	2001	2002	2003	2004	2005	2006	2007												
Total			0	0	TBD	TBD	TBD												

3.7 PV Phase

WP Title: PV Phase		WP Number																	
		Version:	1.0																
WP Manager: Calibration Team leader		Date:	10 Oct 2002																
Description: This is work package describes the activities associated with PV phase																			
Start Date: Launch	End Date: End of PV phase	Type: Continuous																	
Inputs:																			
<ul style="list-style-type: none"> ➤ PV phase calibration plan ➤ PV phase schedule 																			
Activities:																			
<ul style="list-style-type: none"> • Check quality of PV phase data • Analyse PV phase data • Produce calibration information required for uplink • Produce calibration information required for IA • Produce calibration information required for the time estimator • Produce the PV Phase Calibration Report • Update the Routine Phase Calibration Plan • Liase with other groups to recommend AOTs to be released based on Calibration information obtained. 																			
Outputs:																			
<ul style="list-style-type: none"> ➤ Instrument ready for scientific verification 																			
Assumptions:																			
<ul style="list-style-type: none"> ➤ 																			
Notes:																			
<ul style="list-style-type: none"> ➤ This activity will not start until at least 2007 ➤ 																			
Resources:																			
<table border="1"> <thead> <tr> <th></th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>TBD</td> </tr> </tbody> </table>					2001	2002	2003	2004	2005	2006	2007	Total			0	0	0	0	TBD
	2001	2002	2003	2004	2005	2006	2007												
Total			0	0	0	0	TBD												

3.8 Routine Phase

WP Title: Routine Phase		WP Number					
		Version:	1.0				
WP Manager: Calibration Team leader		Date:	10 Oct 2002				
Description: This is work package describes the activities associated with routine calibration							
Start Date: Start of routine phase	End Date: End of operations	Type: Continuous					
Inputs:							
➤ Routine phase calibration plan							
Activities:							
<ul style="list-style-type: none"> • Update the calibration plan in routine phase • Definition of calibration observation • Schedule the observations • Retrieve observations and associated data from HCSS data base and check quality • Data reduction of relevant observations for each calibration time period • Update relevant calibration artifacts • Determine which updates will be made persistent this period • Verify the planned updates for this time period and update the HSC system with the calibration artefact • Update the calibration report 							
Outputs:							
➤ Maintenance of instrument calibration							
Assumptions:							
➤							
Notes:							
➤ This activity will not start until at least 2007							
➤ End date might be end of post-operations							
Resources:							
	2001	2002	2003	2004	2005	2006	2007
Total			0	0	0	0	TBD