SMOS L1 Prototype Software Verification and Validation Plan

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1. INTRODUCTION

1.1. Purpose and Scope

This document describes the methodology proposed to verify and validate the SMOS L1 Processor Prototype. It lists all the tests designed to test SW performance, module and inter module integration, system performance and final acceptance tests. Unit tests are no longer covered or described in this document since the L1PP code is now stable enough so that low level testing is not needed anymore.

A description of the test data used in system and acceptance tests is also provided.

1.2. Acronyms and Abbreviations

For the list of acronyms, please refer to the "Directory of Acronyms and abbreviations" [RD.1].

CRS Calibration Long Term File
CST Calibration Short Term File

1.3. Applicable and Reference Documents

1.3.1. Applicable Documents

Ref.	Code	Title	Issue *(Date)*
AD.1	SO-SOW-CASA-PLM-0855	Level 1 Processor Prototype Development Phase 3, Support and Analysis Activities. Statement of Work	*1.0*
AD.2	ECSS-E-40B	ECSS E-40 Software Engineering Standards	
AD.3	SO-DS-DME-L1PP-0006	SMOS L1PP System Concept	*2.9 29/10/10*
AD.4	SO-DS-DME-L1PP-0007	SMOS L1 Processor L0 to L1a Data Processing Model	*2.16~~5~~ 29/11/12*
AD.5	SO-DS-DME-L1PP-0008	SMOS L1 Processor L1a to L1b Data Processing Model	*2.16~~5~~ 29/11/12*
AD.6	SO-DS-DME-L1PP-0009	SMOS L1 Processor L1c Data Processing Model	*2.11~~0~~*

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Ref.	Code	Title	Issue (Date)
			29/11/12
AD.7	SO-DS-DME-L1PP-0012	SMOS L1 Processor Prototype ADD (obsolete, included in DPMs)	1.3
AD.8	SMOS-DMS-TN-3400	SMOS L1 User/System Requirement Document	1.1 06/02/04
AD.9	SO-TN-CASA-PLM-0839	Calibration requirements, Constraints and Strategy	3.1 17/11/06
AD.10	SO-UM-DME-L1PP-0016	SMOS L1 Processor Prototype User Manual	2.187 29/11/12
AD.11	SO-UM-DME-L1PP-0113	SMOS L1PP Visualization Tool User Manual	3.5.6 12/12/08
AD.12	SO-SRN-DME-L1PP-0144	SMOS L1PP Visualization Tool 3.5.4 Software Release Note	1.0
AD.13	SO-SOW-ESA-GS-6647	SMOS Expert Support Laboratories for the period 2010-2014 - ESL Level 1 Calibration and Reconstruction	1.2 07/05/10

Table 1: Applicable Documents

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1.3.2. Reference Documents

Ref.	Code	Title	Issue
RD.1	SO-LI-CASA-PLM-0094	Directory of Acronyms and abbreviations	
RD.2	SO-SRN-DME-L1PP-0192	SEPS Ground Segment 2.1 Software Release Note	1.0

Table 2: Reference Documents

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2. OVERVIEW

This document specifies the integration, system and acceptance tests required to formally verify that the SMOS L1 Processor Prototype satisfies all the criteria based on the requirements. In addition to these tests, there are also the Scientific Validation tests, used to validate the Prototype against the SMOS End-to-End Performance Simulator Ground Segment (SEPS-GS) [RD.2].

While the Integration, System and Acceptance Tests are mainly focused on the verification of the prototype performance and robustness, the Scientific Validation tests' objective is to validate the scientific quality of L1PP results by comparing them with SEPS-GS outputs.

In order to meet the objectives presented above, this document has been organised as follows:

- Section 3 provides the testing methodology description that will be followed in the rest of the sections;
- Section 4 is devoted to the integration tests between the low level processing units;
- Section 5 presents the full system tests, that include L1 Processor operation and performance tests;
- Section 6 describes the foreseen acceptance tests to be run in the client facilities;
- Section 7 describes the scientific validation tests;
- Section 8 describes a set of tests for validating the support tools;

Following SMOS launch in November 2009 in-orbit data has become available and L1PP has been used extensively to process it. A subset of that data has been selected and integrated in the list of tests to perform the validation of the upcoming versions of L1PP.

From the tests described in this document, the subset executed for each campaign will be made available to all users through the SMOS L1PP webpage (www.smos.com.pt). All registered users will be able to download, install and run the tests. Please refer to [AD.10].

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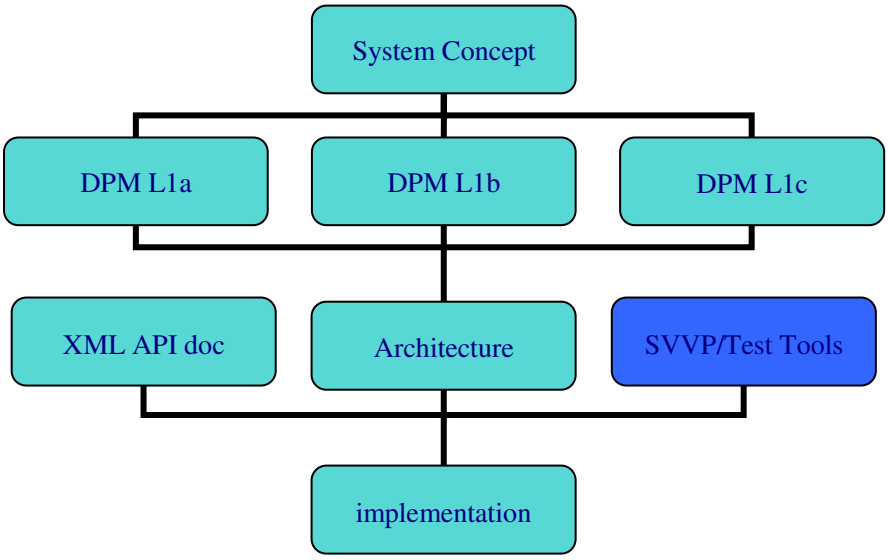

Figure 1. Design documents

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3. TESTING METHODOLOGY

The testing methodology applied together with the L1PP requirements [AD.1][1] and definition documents [AD.3], [AD.4], [AD.5], and [AD.6] will result in the preparation of an acceptance test plan for all the required architectural levels. As minimum, the functionalities, characteristics and performances of the full SMOS Level 1 Processor Prototype are included in this acceptance test plan.

The employed testing methodology in the generation of an acceptance test plan is composed of three main steps. First, the requirements review, extracting and classifying them in order to cover all of them with dedicated tests[2]. Second is the identification of the tests from the requirements and, finally, the specification of these tests in a pre-established format.

According to the expected L1PP architecture, the identification of the tests shall cover all the architecture levels and they will be classified into:

- Unit testing: Each individual architecture element will be tested according to the requirements for this unit architectural level (where applicable) and the minimum features and characteristics that assure a correct output for the next element in the architecture. Two types of outputs will be tested, the data produced by the function and the return value of the function (error code). The first will be compared against a value which the programmer knows in advance. The second will be compared against the expected value known by the programmer. These type of tests, done at development level, will not be detailed in this document;

- Integration testing: After the joining of two or more unitary elements, the assembly set will be tested according to the requirements for this intermediate architectural level and the minimum features and characteristics that assure a correct output for the next element or set of elements in the breadboard architecture;

- System Test: The requirements for the full Level 1 Processor Prototype, including characteristics and features will be tested;

- Acceptance Test: Several overall tests will be proposed at this point. The compliance of these specific tests and the previous ones will support the complete acceptance of the prototype by EADS CASA Espacio and ESA.

The adopted format for the specification of the test within this acceptance test plan will include for each proposed test case the following data:

- Identifier: The identifier contains the ID of the test and defined as follows: SMOS-L1PP-TST-xx, where xx is the test number;

- Purpose: Short description of the purpose of the test;

[1] Since the last issue of [AD.1], changes were introduced in the prototype. These changes came up mainly from discussions taken in Progress Meetings. As a consequence of that some of the requirements stated in [AD.1] are not applicable anymore.

[2] Note that due to the high-level description of the requirements, most of them are mapped to the System Testing

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- Test Items: software tools, input data including the requirement (in case it is applicable);
- Pre-requisites: describe the dependency to the other processing unit and for some cases it also describes the pre-conditions to be fulfilled before running the test;
- Steps Description: explain step-by-step procedures done by each of the test;
- Success Condition: the requirement(s) imposed by testing-function to be fulfilled by the tested-function;
- Failure Condition: the requirement(s) failed to be fulfilled by the tested-function

All of these data will be shown in the form of table, as shown in Table 3

Scientific validation of the results shall be obtained by comparing the processed data with the originating one simulated in SEPS-GS, when applicable.

Identifier	**SMOS-L1PP-TST-XX**
Purpose	……
Test Items	Requirements: …… Input file(s): xxxx
Pre-requisites	.....
Steps description	1) …… a) …….. b) …….. 1. …… 2. ……
Success condition	For all products step 2 and/or 3 comparison succeeds
Failure Condition	Step 2 and/or 3 comparison fails

Table 3 Example of Test Specification

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4. INTEGRATION TESTS

These tests are conceived to prove the correctness of all the interfaces existing between the components defined in the Architectural Design. The high-level modules integration is defined, in which all the interfaces between its subordinate modules are tested.

4.1. L1A Module Integration

The following tests were marked deleted:

1) SMOS-L1PP-TST-1030, SMOS-L1PP-TST-1040.

Identifier	**SMOS-L1PP-TST-1000**
Purpose	Test the generation of HKTM L1a auxiliary data from L0 ancillary data by Unit Converter module
Test Items	Requirements: SML1-FUN-020-V1 L0 ancillary data packet
Pre-requisites	Unit Converter, File Accessor and Data Provider modules
Steps description	1) Put the L0 ancillary data into L1a input directory 2) Launch GUI 3) Set L0 input directory path using GUI 4) Set output directory path using GUI 5) Check L0-L1a checkbox and uncheck the L1a-L1b and L1b-L1c checkboxes 6) Press start processor button in the main window 7) When the processing is done check in the output directory if there is a new HKTM file
Success condition	Step 7 comparison/check succeeds
Failure Condition	Step 7 fails

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Identifier	**SMOS-L1PP-TST-1010**
Purpose	Test the generation of L1a auxiliary data by correlated noise injection from the corresponding L0 science data packets
Test Items	Requirements: NA L0 science data packet
Pre-requisites	Correlated Noise Injection, File Accessor, Complex Correlation Processor, Auto Calibration and Data Provider modules
Steps description	1) Put the L0 Correlated Noise Injection data into L1a input directory 2) Launch GUI 3) Set L0 input directory path using GUI 4) Set output directory path using GUI 5) Check L0-L1a checkbox and uncheck the L1a-L1b and L1b-L1c checkboxes 6) Press start processor button in the main window 7) When the processing is done check in the output directory if there is a new Correlated Noise Injection (COR) file
Success condition	Step 7 comparison/check succeeds
Failure Condition	Step 7 fails

Identifier	**SMOS-L1PP-TST-1020**
Purpose	Test the generation of L1a auxiliary data by uncorrelated noise injection from the corresponding L0 science data packets
Test Items	Requirements: NA L0 science data packet
Pre-requisites	Correlated Noise Injection, File Accessor, Complex Correlation Processor, Auto Calibration and Data Provider modules
Steps description	1) Put the L0 Uncorrelated Noise Injection data into L1a input directory 2) Launch GUI 3) Set L0 input directory path using GUI 4) Set output directory path using GUI 5) Check L0-L1a checkbox and uncheck the L1a-L1b and L1b-L1c checkboxes 6) Press start processor button in the main window 7) When the processing is done check in the output directory if there is a new Correlated Noise Injection (COR) file
Success condition	Step 7 comparison/check succeeds
Failure Condition	Step 7 fails

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Identifier	SMOS-L1PP-TST-1030 – Deleted
Purpose	Test the generation of L1a auxiliary data (NIR calibration) from L0 science data packet during external target observation in dual polarization mode
Test Items	Requirements: NA L0 science data packet
Pre-requisites	NIR Calibration, File Accessor and Data Provider modules
Steps description	1) Put the L1a HKTM data into L1a input directory 2) Launch GUI 3) Set L0 input directory path using GUI 4) Set output directory path using GUI 5) Check L0-L1a checkbox and uncheck the L1a-L1b and L1b-L1c checkboxes 6) Press start processor button in the main window 7) When the processing is done check in the output directory if there is a new Nir calibration (NIR_1A) product file
Success condition	Step 7 comparison/check succeeds
Failure Condition	Step 7 fails

Identifier	SMOS-L1PP-TST-1040– Deleted
Purpose	Test the generation of L1a auxiliary data (NIR calibration) from L0 science data packet during external target observation in full polarization mode
Test Items	Requirements: NA L0 science data packet
Pre-requisites	NIR Calibration, File Accessor, Complex Correlation Processor, Auto Calibration and Data Provider modules
Steps description	1) Put the L1a HKTM data into L1a input directory 2) Launch GUI 3) Set L0 input directory path using GUI 4) Set output directory path using GUI 5) Check L0-L1a checkbox and uncheck the L1a-L1b and L1b-L1c checkboxes 6) Press start processor button in the main window 7) When the processing is done check in the output directory if there is a new Nir calibration (NIR_1A) product file
Success condition	Step 7 comparison/check succeeds
Failure Condition	Step 7 fails

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Identifier	**SMOS-L1PP-TST-1050**
Purpose	Test the generation of L1a nominal observation data from L0 science data packet during nominal observation in dual polarization mode
Test Items	Requirements: SML1-FUN-030-V1, SML1-FUN-040-V1 L0 science data packet
Pre-requisites	Error Correction, File Accessor, Complex Correlation Processor, Auto Calibration and Data Provider modules
Steps description	1) Put the L0 Science (dual pol) data into L1a input directory 2) Launch GUI 3) Set L0 input directory path using GUI 4) Set output directory path using GUI 5) Check L0-L1a checkbox and uncheck the L1a-L1b and L1b-L1c checkboxes 6) Press start processor button in the main window 7) When the processing is done check in the output directory if there is a new Science Product (SC_D1A) product file
Success condition	Step 7 comparison/check succeeds
Failure Condition	Step 7 fails

Identifier	**SMOS-L1PP-TST-1060**
Purpose	Test the generation of L1a nominal observation data from L0 science data packet during nominal observation in full polarization mode
Test Items	Requirements: SML1-FUN-030-V1, SML1-FUN-050-V1 L0 science data packet
Pre-requisites	Error Correction, File Accessor, Complex Correlation Processor, Auto Calibration and Data Provider modules
Steps description	1) Put the L0 Science (full pol) data into L1a input directory 2) Launch GUI 3) Set L0 input directory path using GUI 4) Set output directory path using GUI 5) Check L0-L1a checkbox and uncheck the L1a-L1b and L1b-L1c checkboxes 6) Press start processor button in the main window 7) When the processing is done check in the output directory if there is a new Science Product (SC_F1A) product file
Success condition	Step 7 comparison/check succeeds
Failure Condition	Step 7 fails

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4.2. L1B Module Integration

The following tests were marked deleted:

1. SMOS-L1PP-TST-1080, SMOS-L1PP-TST-1081: The algorithm was not implemented.

Identifier	SMOS-L1PP-TST-1070
Purpose	Test the generation of L1b nominal brightness temperatures map in dual polarization mode. J^+ matrix will be generated using Theoretical approach
Test Items	Requirements: SML1-FUN-140-V1, SML1-FUN-160-V1 Input Files: Theoretical G matrix
Pre-requisites	Image Reconstruction, Foreign sources correction, J^+ matrix generator, Theoretical GMatrix Generator
Steps description	1) Put the L1A Science data into L1a input directory 2) Launch GUI 3) Set L1B input directory path using GUI 4) Set output directory path using GUI 5) Check L1a-L1b checkbox and uncheck the L0-L1a and L1b-L1c checkboxes 6) In the algorithms tab set the Theoretical G Matrix check box. 7) Press start processor button in the main window 8) When the processing is done check in the output directory if there is a new Science Product (SC_D1B) product file
Success condition	Step 8 comparison/check succeeds
Failure Condition	Step 8 fails

Identifier	SMOS-L1PP-TST-1071
Purpose	Test the generation of L1b nominal brightness temperatures map in full polarization mode. J^+ matrix will be generated using Theoretical approach
Test Items	Requirements: SML1-FUN-140-V1, SML1-FUN-160-V1 Input Files: Theoretical G matrix
Pre-requisites	Image Reconstruction, Foreign sources correction, J^+ matrix generator, Theoretical GMatrix Generator
Steps description	1) Put the L1A Science data into L1a input directory 2) Launch GUI 3) Set L1B input directory path using GUI 4) Set output directory path using GUI 5) Check L1a-L1b checkbox and uncheck the L0-L1a and L1b-L1c checkboxes

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	6) In the algorithms tab set the Theoretical G Matrix check box. 7) Press start processor button in the main window 8) When the processing is done check in the output directory if there is a new Science Product (SC_F1B) product file
Success condition	Step 8 comparison/check succeeds
Failure Condition	Step 8 fails

Identifier	**SMOS-L1PP-TST-1080 – Deleted**
Purpose	Test the generation of L1b nominal brightness temperatures map in dual polarization mode. J^+ matrix will be generated using Parametric approach
Test Items	Requirements: SML1-FUN-140-V1, SML1-FUN-160-V1 Input Files: UPC G matrix
Pre-requisites	Image Reconstruction, Foreign sources correction, J^+ matrix generator, Parametric Generator
Steps description	1) Put the L1A Science data into L1a input directory 2) Launch GUI 3) Set L1B input directory path using GUI 4) Set output directory path using GUI 5) Check L1a-L1b checkbox and uncheck the L0-L1a and L1b-L1c checkboxes 6) In the algorithms tab set the Parametric G Matrix check box. 7) Press start processor button in the main window 8) When the processing is done check in the output directory if there is a new Science Product (SC_D1B) product file
Success condition	Step 8 comparison/check succeeds
Failure Condition	Step 8 fails

Identifier	**SMOS-L1PP-TST-1081 –Deleted**
Purpose	Test the generation of L1b nominal brightness temperatures map in full polarization mode J^+ matrix will be generated using Parametric approach
Test Items	Requirements: SML1-FUN-140-V1, SML1-FUN-160-V1 Input Files: UPC G matrix
Pre-requisites	Image Reconstruction, Foreign sources correction, J^+ matrix generator, Parametric Generator
Steps description	1) Put the L1A Science data into L1a input directory 2) Launch GUI 3) Set L1B input directory path using GUI 4) Set output directory path using GUI

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	5) Check L1a-L1b checkbox and uncheck the L0-L1a and L1b-L1c checkboxes 6) In the algorithms tab set the Parametric G Matrix check box. 7) Press start processor button in the main window 8) When the processing is done check in the output directory if there is a new Science Product (SC_D1B) product file
Success condition	Step 8 comparison/check succeeds
Failure Condition	Step 8 fails

Identifier	**SMOS-L1PP-TST-1090**
Purpose	Test the generation of L1b nominal brightness temperatures map (dual polarization mode) using previously generated J^+ matrix
Test Items	Requirements: SML1-FUN-140-V1, SML1-FUN-160-V1 Input Files: Auxiliary file containing J^+ matrix
Pre-requisites	Image Reconstruction, Foreign sources correction
Steps description	1) Put the L1A Science data into L1a input directory 2) Launch GUI 3) Set L1B input directory path using GUI 4) Set output directory path using GUI 5) Check L1a-L1b checkbox and uncheck the L0-L1a and L1b-L1c checkboxes 6) Press start processor button in the main window 7) When the processing is done check in the output directory if there is a new Science Product (SC_D1B) product file
Success condition	Step 7 comparison/check succeeds
Failure Condition	Step 7 fails

Identifier	**SMOS-L1PP-TST-1091**
Purpose	Test the generation of L1b nominal brightness temperatures map (full polarization mode) using previously generated J^+ matrix
Test Items	Requirements: SML1-FUN-140-V1, SML1-FUN-160-V1 Input Files: Auxiliary file containing J^+ matrix
Pre-requisites	Image Reconstruction, Foreign sources correction
Steps description	1) Put the L1A Science data into L1a input directory 2) Launch GUI 3) Set L1B input directory path using GUI 4) Set output directory path using GUI 5) Check L1a-L1b checkbox and uncheck the L0-L1a and L1b-L1c checkboxes 6) Press start processor button in the main window 7) When the processing is done check in the output directory if there is a new Science Product (SC_F1B) product file

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Success condition	Step 7 comparison/check succeeds
Failure Condition	Step 7 fails

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4.3. L1C Module Integration

Identifier	**SMOS-L1PP-TST-1100**
Purpose	Test the generation of L1c nominal brightness temperatures swath (dual polarization) during nominal observation
Test Items	Requirements: SML1-FUN-200-V1 Input Files: L1b product
Pre-requisites	GeolocationProcessor, Ionospheric Correction
Steps description	1) Put the L1B Science data into L1a input directory 2) Launch GUI 3) Set L1a input directory path using GUI 4) Set output directory path using GUI 5) Check L1b-L1c checkbox and uncheck the L0-L1a and L1a-L1b checkboxes 6) Press start processor button in the main window 7) When the processing is done check in the output directory if there is a new Science Product (SC_D1C) product file
Success condition	Step 7comparison/check succeeds
Failure Condition	Step 7 fails

Identifier	**SMOS-L1PP-TST-1101**
Purpose	Test the generation of L1c nominal brightness temperatures swath (full polarization) during nominal observation
Test Items	Requirements: SML1-FUN-200-V1 Input Files: L1b product
Pre-requisites	GeolocationProcessor, Ionospheric Correction
Steps description	1) Put the L1B Science data into L1a input directory 2) Launch GUI 3) Set L1a input directory path using GUI 4) Set output directory path using GUI 5) Check L1b-L1c checkbox and uncheck the L0-L1a and L1a-L1b checkboxes 6) Press start processor button in the main window 7) When the processing is done check in the output directory if there is a new Science Product (SC_F1C) product file
Success condition	Step 7comparison/check succeeds
Failure Condition	Step 7 fails

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4.4. Integration Tests Summary

Table 4: Summary of Integration Tests

Test Id	Description
SMOS-L1PP-TST-1000	Test the generation of HKTM L1a auxiliary data from L0 ancillary data by Unit Converter module
SMOS-L1PP-TST-1010	Test the generation of L1a auxiliary data by correlated noise injection from the corresponding L0 science data packets
SMOS-L1PP-TST-1020	Test the generation of L1a auxiliary data by uncorrelated noise injection from the corresponding L0 science data packets
SMOS-L1PP-TST-1030	DELETED
SMOS-L1PP-TST-1040	DELETED
SMOS-L1PP-TST-1050	Test the generation of L1a nominal observation data from L0 science data packet during nominal observation in dual polarization mode
SMOS-L1PP-TST-1060	Test the generation of L1a nominal observation data from L0 science data packet during nominal observation in full polarization mode
SMOS-L1PP-TST-1070	Test the generation of L1b nominal brightness temperatures map in dual polarization mode. J+ matrix will be generated using Theoretical approach
SMOS-L1PP-TST-1071	Test the generation of L1b nominal brightness temperatures map in full polarization mode. J+ matrix will be generated using Theoretical approach
SMOS-L1PP-TST-1080	DELETED
SMOS-L1PP-TST-1081	DELETED
SMOS-L1PP-TST-1090	Test the generation of L1b nominal brightness temperatures map (dual polarization mode) using previously generated J+ matrix
SMOS-L1PP-TST-1091	Test the generation of L1b nominal brightness temperatures map (full polarization mode) using previously generated J+ matrix
SMOS-L1PP-TST-1100	Test the generation of L1c nominal brightness temperatures swath (dual polarization) during nominal observation
SMOS-L1PP-TST-1101	Test the generation of L1c nominal brightness temperatures swath (full polarization) during nominal observation

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5. SYSTEM TESTS

The integrated and complete system is verified in order to evaluate the agreement of the system with its requirement specifications. System test should cover the maximum number of functional and non-functional requirements [AD.8]. Furthermore a set of tests have been specified allowing the assessment of the performance of the prototype in terms of CPU load and memory usage.

The following validation procedure is applicable to all system tests. In case any of the steps described below is not applicable, it will be explained in the steps description of each test.

Validation Procedure

1. When a message is displayed informing the processing is finished:
   a) Check the status of the directories:
      i) l1a-in: Should be empty
      ii) l1b-in: Should contain files with patternSM_TEST_MIR_CRSD1A_*, SM_TEST_MIR_UNCD1A_* and SM_TEST_TLM_MIRA1A. _*, _*_*
      iii) l1c-in: Should be empty
      iv) processed-data: Should contain files with pattern SM_TEST_MIR_CORN0_* SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_SC_D1A_* or SM_TEST_MIR_SC_F1A_*, SM_TEST_MIR_SC_D1B_* or SM_TEST_MIR_SC_F1B_*, SM_TEST_MIR_UNCD0_*, SM_TEST_TLM_MIRA0_*
      v) unprocessed-data: Should be empty

      Note: Depending on the test scenario the directories may contain more than one file of the same type.
2. Check if the sensing time of the products generated by the prototype are consistent with the products of a previous level of processing
   a) For each product that was generated check if the start sensing time is equal or greater than the product of a previous level of processing with the same type.
   b) For each product that was generated check if the stop sensing time is equal or less than the product of a previous level of processing with the same type.
   c) Check the header field NUM_DSR and see if the stop sensing time is consistent: Multiply the number obtained from the header field by the sensing period and add to start sensing time,i.e NUM_DSR*1.2+start_sensing_time
   d) In case the stop sensing time in the filename is lower than the value computed, check in the log if scenes were discarded. If this is the case then subtract the value computed by the value N_Discarded_Scenes *1.2. The value computed should then be the same as the stop sensing time in the filename.
   e) Analyse the log file (log.txt):
      i) Search for messages with log level ERROR, WARNING
      ii) Check if the number of scenes processed at each level is consistent with the number of scenes in the product SC_D0 (refer to Test Data Description)
3. Visualize with Matlab or the L1PP-Visualization Tool the L1C breakpoints/products created in the breakpoint directory.

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5.1. Nominal Processing Tests

Identifier	**SMOS-L1PP-TST-1110**
Purpose	Test the processing from L0 to L1c, in constant mode measurement Dual polarisation during several scenes (10-20).
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1,SML1-OPE-110-V1 Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1110/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_*_* or SM_TEST_MIR_SC_F0_*_*, SM_TEST_MIR_UNCN0_*_*, SM_TEST_MIR_CORN0_*_* b) logs/test-1110/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

Identifier	**SMOS-L1PP-TST-1120**
Purpose	Test the processing from L0 to L1c, in constant mode measurement Full polarisation during several scenes (10-20).
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1,SML1-OPE-110-V1 Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1120/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*_*, SM_TEST_MIR_SC_D0_*_* or SM_TEST_MIR_SC_F0_*_*, SM_TEST_MIR_UNCN0_*_*, SM_TEST_MIR_CORN0_*_* b) logs/test-1120/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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Identifier	**SMOS-L1PP-TST-1130**
Purpose	Test mode switch from dual to full polarisation within a product, processing from L0 to L1c
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1, SML1-OPE-110-V1 Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1130/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*_*, SM_TEST_MIR_SC_D0_*_* or SM_TEST_MIR_SC_F0_*_*, SM_TEST_MIR_UNCN0_*_*, SM_TEST_MIR_CORN0_*_* b) logs/test-1310/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

Identifier	**SMOS-L1PP-TST-1140**
Purpose	Test mode switch between products (from Dual to Full Polarisation), processing from L0 to L1c
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1,SML1-OPE-110-V1 Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1140/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*_*, SM_TEST_MIR_SC_D0_*_* or SM_TEST_MIR_SC_F0_*_*, SM_TEST_MIR_UNCN0_*_*, SM_TEST_MIR_CORN0_*_* b) logs/test-1140/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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Identifier	**SMOS-L1PP-TST-1150**
Purpose	Test processing from L0 to L1c, in constant mode measurement Dual polarisation during several scenes (100-200) with internal calibration measurement
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1,SML1-OPE-110-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1150/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*_*, SM_TEST_MIR_SC_D0_*_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs/test-1150/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

Identifier	**SMOS-L1PP-TST-1160**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during several scenes (100-200) with internal calibration measurement in the switch
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1,SML1-OPE-110-V1 Input files: : L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1160/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs/test-1160/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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Identifier	**SMOS-L1PP-TST-1170**
Purpose	Test processing from L0 to L1b using external calibration (dual pol) data covering moon and covering galaxy for several scenes (300). Scenario includes instrument transition manoeuvre from nominal to external observation. External calibration timeline fully implemented (including PMS external calibration).
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1,SML1-OPE-110-V1 Input files: L0 external and nominal data (includes transition manoeuvre)
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1170/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_TARD0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs/test-1170/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

Identifier	**SMOS-L1PP-TST-1171**
Purpose	Test processing from L0 to L1b using external calibration data (full pol) covering moon and covering galaxy for several scenes (300).
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1,SML1-OPE-110-V1 Input files: L0 external data only
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1171/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_TARF0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs/test-1171/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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Identifier	**SMOS-L1PP-TST-1180**
Purpose	Test processing from L0 to L1c, in constant mode measurement Dual polarisation during several scenes (100-200) with intermittent gaps
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1,SML1-OPE-110-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1180/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs/test-1180/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

Identifier	**SMOS-L1PP-TST-1190**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during several scenes (100-200) with intermittent gaps.
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1,SML1-OPE-110-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1190/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs/test-1190/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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Identifier	**SMOS-L1PP-TST-1200**
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during several scenes (100-200) with duplicated data.
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1,SML1-OPE-110-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1200/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs/test-1200/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

Identifier	**SMOS-L1PP-TST-1210**
Purpose	Test processing from L0 to L1c in Constant mode measurement Full polarisation during several scenes (100-200) with duplicated data.
Test Items	Requirements: SML1-OPE-020-V1, SML1-OPE-070-V1, SML1-OPE-100-V1,SML1-OPE-110-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-1210/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs/test-1210/: Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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Identifier	**SMOS-L1PP-TST-1220**
Purpose	Test simultaneous execution of at least two official operational versions of the modules on the same computer
Test Items	Requirements: SML1-FUN-210-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verifications succeed
Failure Condition	Step 4 verifications fail

Identifier	**SMOS-L1PP-TST-1230**
Purpose	Test the concurrent execution of different versions of the modules on the same computer (This test will use only Unit Converter module, but in fact it can also be applied to other modules as well)
Test Items	Requirements: SML1-FUN-220-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires L1PP components
Steps description	1) Copy L0 data into first input directory 2) Set the L1a input directory for the first Unit Converter 3) Set the L1a input directory for the second Unit Converter 4) Execute the first Unit Converter module 5) Check if the appropriate product file(s) is generated inside the first L1a input directory 6) The process which executes Step 2 will keep on running, waiting for the new data 7) While the first process still wait for the new data , executes the second Unit Converter module 8) Check if the appropriate product file(s) is generated inside the second L1a input directory
Success condition	Steps 5 and 8 verifications succeed
Failure Condition	Steps 5 or 8 verifications fail

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Identifier	**SMOS-L1PP-TST-1240**
Purpose	Test simulated module in case the module is not yet developed
Test Items	Requirements: SML1-FUN-230-V1 Input files: : L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires L1PP components
Steps description	1) Copy L0 data into input directory 2) Execute the Unit Converter module 3) Check if the appropriate product file(s) is generated 4) Execute the simulated-version[3] of Correlated Noise Injection module 5) Check if the appropriate product file(s) is generated
Success condition	Steps 3 and 5 verifications succeed
Failure Condition	Steps 3 or 5 verifications fail

Identifier	**SMOS-L1PP-TST-1250**
Purpose	Test the generated quality flag for each product file
Test Items	Requirements: SML1-FUN-250-V1, SML1-FUN-260-V1, SML1-FUN-270-V1 Input files: L0 Correlated , uncorrelated files and measurements files (one of these file contains some inconsistencies so that it will generate different quality flags)
Pre-requisites	Requires L1PP components
Steps description	1) Copy L0 data into input directory 2) Execute the Unit Converter module 3) Check if the quality flag exist in the product file being generated 4) Execute the Correlated Noise Injection module 5) Check if the quality flag exist in the product file being generated 6) Execute the Uncorrelated Noise Injection module 7) Check if the quality flag exist in the product file being generated
Success condition	Steps 3, 5 and 7 verifications succeed
Failure Condition	Steps 3, 5 or 7 verifications fail

[3] The simulated version of a module is a function with the correct interface, but return temporary result

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Identifier	SMOS-L1PP-TST-1260
Purpose	Test the execution of L1 prototype on more than one CPU
Test Items	Requirements: SML1-IF-060-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Copy L0 data into input directory 2) Launch GUI 3) Set L0 input directory path using GUI 4) Set output directory path using GUI 5) Press setup processor button in the main window 6) Select the miscellaneous tab 7) Choose the "Number of Active CPU" and press apply button 8) Press start processor button in the main window 9) Using standard UNIX utility, for example "top" command, inspect the amount of active CPU executing the l1pp processes
Success condition	Step 9 verification succeeds
Failure Condition	Step 9 verifications fails

Identifier	SMOS-L1PP-TST-1270
Purpose	Test the execution of L1 Processor from command
Test Items	Requirements: SML1-OPE-010-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires L1PP components
Steps description	1) Copy L0 data into input directory 2) Set L0 input directory path inside the configurationFile.xml file 3) Set output directory path inside the configurationFile.xml file 4) Execute the unit converter module from command line with the appropriate input file as parameter 5) Check if the product file is generated properly 6) Execute the Correlated Noise Injection module from command line with the appropriate input file as parameter 7) Check if the product file is generated properly 8) Execute the Uncorrelated Noise Injection module from command line with the appropriate input file as parameter 9) Check if the product file is generated properly
Success condition	Steps 5, 7 and 9 verifications succeed
Failure Condition	Steps 5, 7 or 9 verifications fail

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Identifier	SMOS-L1PP-TST-1280 - DELETED
Purpose	Test the generation of L1a product file from L0 product
Test Items	Requirements: SML1-OPE-040-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires L1PP components
Steps description	1) Set L0 input directory path inside the file configurationFile.xml 2) Copy L0 data into input directory 3) Set L1a input directory path inside the file configurationFile.xml 4) Execute the l1pp from the GUI. 5) When the processing is finished, check if the L1a product file is generated on L1a input directory
Success condition	Step 5 verification succeeds
Failure Condition	Step 5 verification fail

Identifier	SMOS-L1PP-TST-1290
Purpose	Test the generation of L1b product file from L0 product
Test Items	Requirements: SML1-OPE-040-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires L1PP components
Steps description	1) Set L0 input directory path inside the file configurationFile.xml 2) Copy L0 data into L0 input directory 3) Set L1a input directory path inside the file configurationFile.xml 4) Copy L1a data into L1a input directory 5) Set L1b input directory path inside the file configurationFile.xml 6) Execute the l1pp processor using the GUI. 7) When the processing is finished, check if the L1b product file is generated on L1b input directory
Success condition	Steps 7 verification succeeds
Failure Condition	Step 7 verification fails

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Identifier	SMOS-L1PP-TST-1300 - DELETED
Purpose	Test the generation of L1c product file from L0 product
Test Items	Requirements: SML1-OPE-040-V1 Input files: L0 Correlated , uncorrelated files and measurements files
Pre-requisites	Requires L1PP components
Steps description	1) Set L0 input directory path inside the file configurationFile.xml 2) Copy L0 data into L0 input directory 3) Set L1a input directory path inside the file configurationFile.xml 4) Copy L1a data into L1a input directory 5) Set L1b input directory path inside the file configurationFile.xml 6) Copy L1b data into L1b input directory 7) Execute the l1pp from the GUI. 8) When the processing is finished, check if the L1c product file is generated on L1c input directory
Success condition	Step 8 verification succeeds
Failure Condition	Step 8 verification fails

Identifier	SMOS-L1PP-TST-1310 - DELETED
Purpose	Test the generation of L1b product file from L1a product file
Test Items	Requirements: SML1-OPE-040-V1 Input files: Calibrated visibilities, calibration data (fwf,etc)
Pre-requisites	Requires L1PP components
Steps description	1) Set L1a input directory path inside the file configurationFile.xml 2) Copy L1a data into L1a input directory 3) Execute the Image Reconstruction module 4) When the processing is finished, check if the L1b product file is generated on L1b input directory
Success condition	Step 4 verification succeeds
Failure Condition	Step 4 verification fails

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Identifier	**SMOS-L1PP-TST-1320**
Purpose	Test the generation of L1c product file from L1a product file
Test Items	Requirements: SML1-OPE-040-V1 Input files: Calibrated visibilities, calibration data (fwf,etc)
Pre-requisites	Requires L1PP components
Steps description	1) Set L1a input directory path inside the file configurationFile.xml 2) Copy L1a data into L1b input directory 3) Set L1b input directory path inside the file configurationFile.xml 4) Set L1c input directory path inside the file configurationFile.xml 5) Copy L1b data into L1c input directory 6) Execute the l1pp from GUI. 7) When the processing is finished, check if the L1c product file is generated on L1c input directory
Success condition	Step 7 verification succeeds
Failure Condition	Step 7 verification fails

Identifier	**SMOS-L1PP-TST-1330 – DELETED**
Purpose	Test the generation of L1c product file from L1b product file
Test Items	Requirements: SML1-OPE-040-V1 Input files: Brightness temperatures frequencies files
Pre-requisites	Requires L1PP components
Steps description	1) Set L1b input directory path inside the file configurationFile.xml 2) Copy L1b data into L1b input directory 3) Set L1c input directory path inside the file configurationFile.xml 4) Execute the l1pp from GUI. 5) When the processing is finished, check if the L1c product file is generated on L1c input directory
Success condition	Step 5 verification succeeds
Failure Condition	Step 5 verification fails

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Identifier	**SMOS-L1PP-TST-1340**
Purpose	Test the generation of report for the generated products and quality indicators
Test Items	Requirements: SML1-OPE-060-V1 Input files: L0 Ancillary, correlated, uncorrelated and measurements files
Pre-requisites	Requires L1PP components
Steps description	1) Copy the L0 data into L0 input directory 2) Set L1a input directory path inside the file configurationFile.xml 3) Copy L1a data into L1b input directory 4) Set L1b input directory path inside the file configurationFile.xml 5) Set L1c input directory path inside the file configurationFile.xml 6) Execute the l1pp processor 7) When the processing is finished, the GUI containing the report will be automatically generated 8) Check if the items in the report is correct
Success condition	Step 8 verification succeeds
Failure Condition	Step 8 verification fails

Identifier	**SMOS-L1PP-TST-1350 - DELETED**
Purpose	Test the run-time logging mode of l1pp processor
Test Items	Requirements: SML1-OPE-080-V1 Input files: L0 Ancillary, correlated, uncorrelated and measurements files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Copy L0 data into input directory 2) Launch GUI 3) Set L0 input directory path using GUI 4) Set output directory path using GUI 5) Press setup processor button in the main window 6) Select the logging tab 7) Choose the logging levels (debug, info, error or fatal) either per-module or for all modules and press apply button 8) Press start processor button in the main window 9) When a message is displayed informing the processing is finished: a. Click “View Log” button b. Verify if the generated logging is in accordance with the level set in step 7
Success condition	Step 9b verification succeeds
Failure Condition	Step 9b verifications fails

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Identifier	SMOS-L1PP-TST-1360
Purpose	Test the execution flow in case there is an error in one of the module execution
Test Items	Requirements: SML1-OPE-090-V1 Input files: L0 Ancillary, correlated, uncorrelated and measurements files
Pre-requisites	Requires L1PP components
Steps description	1) Copy corrupted L1a HKTM product file into L1a input directory 2) Execute the Correlated Noise Injection module 3) Verify that there is no product generated by Correlated Noise Injection module 4) Execute the Uncorrelated Noise Injection module 5) Verify that there is no product generated by Uncorrelated Noise Injection module 6) Replace the corrupted L1a HKTM product file with the uncorrupted one 7) When the processing is finished, verify that there are other product generated by Correlated Noise Injection and Uncorrelated Noise Injection inside the L1a input directory
Success condition	Steps 3, 5 and 7 verification succeed
Failure Condition	Steps 3, 5 or 7 verifications fail

Identifier	SMOS-L1PP-TST-1370
Purpose	Test the reprocessing using new auxiliary file
Test Items	Requirements: SML1-OPE-120-V1 Input files: L0 Ancillary, correlated, uncorrelated and measurements files plus new auxiliary file
Pre-requisites	Requires L1PP components
Steps description	1) Copy Ancillary L0 product file (including auxiliary file) into input directory 2) Set L0 input directory path inside the configurationFile.xml file 3) Set output directory path inside the configurationFile.xml file 4) Activate L0-L1a toggle in the GUI, and deactivate L1a-L1b and L1b-L1c toggle 5) Start the L1PP 6) Check if the L1a HKTM product file is generated properly 7) Copy and replace the auxiliary file inside the input directory with the new version 8) Move the Ancillary L0 (referred in step 1) product file from the processed data directory to L1a input directory 9) Verify if the new L1a HKTM product file is generated with different version in its file name compare to the previous generated product. 10) Compare the content of the new generated L1a HKTM product file with the reference values
Success condition	Steps 9 and 10 verifications succeed
Failure Condition	Steps 9 or 10 verifications fail

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Identifier	**SMOS-L1PP-TST-1380**
Purpose	Test the selection of auxiliary file using the best version available
Test Items	Requirements: SML1-OPE-130-V1 Input files: L0 Ancillary, correlated, uncorrelated and measurements files and auxiliary files
Pre-requisites	Requires L1PP components
Steps description	1) Copy L0 data (including auxiliary file) into input directory 2) Set L0 input directory path inside the configurationFile.xml file 3) Set output directory path inside the configurationFile.xml file 4) Execute the unit converter module from command line with some future time-stamp (different than the one available in auxiliary file name) as parameter 5) Check if the L1a HKTM product file is generated properly and the product reference in the header clearly indicates that the auxiliary file being used is the latest available in the input directory 6) Compare the content of the new generated L1a HKTM product file with the reference values
Success condition	Steps 5 and 6 verifications succeed
Failure Condition	Steps 5 or 6 verifications fail

Identifier	**SMOS-L1PP-TST-1390 – DELETED**
Purpose	Test the clean-up process of L1 processor after execution
Test Items	Requirements: SML1-OPE-150-V1 Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Copy L0 data into input directory 2) Launch GUI 3) Set L0 input directory path using GUI 4) Set output directory path using GUI 5) Press start processor button in the main window 6) When a message is displayed informing the processing is finished verify inside the l1a input directory if the intermediate files (being generated during the processing, such as xml file, data-block file, etc) do not exist anymore
Success condition	Steps 6 verification succeeds
Failure Condition	Steps 6 verification fails

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Identifier	**SMOS-L1PP-TST-1400 – DELETED** Note: This GUI testing is performed already in the previous system tests
Purpose	Test the Human-Machine Interface (HMI) of l1pp processor
Test Items	Requirements: SML1-DES-020-V1 Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Copy L0 data into input directory 2) Launch GUI 3) Set L0 input directory path using GUI 4) Set output directory path using GUI 5) Press start processor button in the main window 6) While the processing is in progress, click the stop processor button 7) When a message is displayed informing the processing is finished: a. Click "View Log" button b. Verify if the generated logging is in accordance with the one expected
Success condition	Step 7b verification succeeds
Failure Condition	Step 7b verification fails

Identifier	**SMOS-L1PP-TST-1401**
Purpose	Test Generation of G and J Matrices
Test Items	Requirements: NA Input files: FWF L1A
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain the file with pattern SM_TEST_MIR_AFWD1A_*_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure 5) Verify if l1c-in directory contains a JMAT and a GMAT Auxiliary data Files 6) Use the generated matrices as ADFs for the execution of test similar to SM-L1PP-TST-1630. 7) Apply test SM-L1PP-TST-1630 validation procedure to outcome of step 6.
Success condition	Steps 4, 5 and 7 verifications succeed
Failure Condition	Steps 4, 5 or 7 verifications fail

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Identifier	**SMOS-L1PP-TST-1402**
Purpose	Test Generation of G Matrix for IVT
Test Items	Requirements: NA Input files: FWF L1A
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain the file with pattern SM_TEST_MIR_AFW1A_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure 5) Verify if l1c-in directory contains a GMAT Auxiliary data Files 6) Use the generated matrix as ADFs for the execution of a scientific validation test, if possible, with simulated IVT data. 7) Apply scientific validation tests procedure to outcome of step 6 (compare reconstructed images with original image used for generating the IVT simulated data).
Success condition	Steps 4, 5 and 7 verifications succeed
Failure Condition	Steps 4, 5 or 7 verifications fail

Identifier	**SMOS-L1PP-TST-1401b**
Purpose	Test Generation of G and J Matrices from SEPS L0 data
Test Items	Requirements: NA Input files: SEPS L0 data with a Long calibration sequence
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure 5) Verify if l1c-in directory contains a JMAT and a GMAT Auxiliary data Files 6) Use the generated matrices as ADFs for the execution of test similar to SM-L1PP-TST-1630. 7) Apply test SM-L1PP-TST-1630 validation procedure to outcome of step 6.
Success condition	Steps 4, 5 and 7 verifications succeed
Failure Condition	Steps 4, 5 or 7 verifications fail

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Identifier	**SMOS-L1PP-TST-1402b**
Purpose	Test Generation of G Matrix for IVT
Test Items	Requirements: NA Input files: SEPS L0 data with a Long calibration sequence
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure 5) Verify if l1c-in directory contains a JMAT and a GMAT Auxiliary data Files 6) Use the generated matrices as ADFs for the execution of test similar to SM-L1PP-TST-1630. 7) Apply test SM-L1PP-TST-1630 validation procedure to outcome of step 6.
Success condition	Steps 4, 5 and 7 verifications succeed
Failure Condition	Steps 4, 5 or 7 verifications fail

Identifier	**SMOS-L1PP-TST- genMatr**
Purpose	Test Generation of G and J Matrices from In-Orbit Data with Long Calibration sequence.
Test Items	Requirements: NA Input files: SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-genMatr/l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs/test-genMatr/ Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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Identifier	**SMOS-L1PP-TST- genFTTD**
Purpose	Test processing from L0 to L1b using external calibration (dual pol), , data covering external flat target for several scenes.
Test Items	Requirements: NA Input files: SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*, SM_TEST_MIR_UNCU0*, SM_TEST_MIR_CORU0* and SM_TEST_MIR_TARD0*
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test- genFTTD /l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*, SM_TEST_MIR_UNCU0*, SM_TEST_MIR_CORU0* and SM_TEST_MIR_TARD0* b) logs/test- genFTTD / Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

Identifier	**SMOS-L1PP-TST- genFTTF**
Purpose	Test processing from L0 to L1b using external calibration (full pol), using , data covering external flat target for several scenes.
Test Items	Requirements: NA Input files: SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*, SM_TEST_MIR_UNCU0*, SM_TEST_MIR_CORU0* and SM_TEST_MIR_TARF0*
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test- genFTTF /l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*, SM_TEST_MIR_UNCU0*, SM_TEST_MIR_CORU0* and SM_TEST_MIR_TARF0* b) logs/test- genFTTF / Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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5.2. Calibration Processing and Consolidation Tests

The calibration processing and consolidation tests were defined in order to validate, from a system point of view, the implementation of the different calibration sequences, as defined in the documents [AD.4] and [AD.9].

Identifier	**SMOS-L1PP-TST-1403**
Purpose	Test the processing of the Short Calibration Sequences
Test Items	Requirements: Short Calibration Sequence defined in Section 3.11 of [AD.4] Input files: L0 Ancillary, correlated, uncorrelated and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	1) All HKTM is processed to L1A and times are consistent 2) All CORN0 is processed to CORN1A 3) All UNCN0 is processed to UNCN1A 4) First ACNN1A contains 1 MDR for PMS Coefficients, 1 MDR for FWF0 and 1 MDR for long PMS. No MDR for sensitivities 5) Second ACNN1A contains 2 MDR for PMS Coefficients, 2 MDR for FWF0 and 2 MDR for long PMS. No MDR for sensitivities 6) Third ACNN1A contains 3 MDR for PMS Coefficients, 3 MDR for FWF0 and 3 MDR for long PMS. No MDR for sensitivities 7) Fourth ACNN1A contains 4 MDR for PMS Coefficients, 4 MDR for FWF0 and 4 MDR for long PMS. No MDR for sensitivities 8) Fifth ACNN1A contains 4 MDR for PMS Coefficients, 4 MDR for FWF0 and 5 MDR for long PMS. No MDR for sensitivities 9) First AUNN1A contains 1 MDR for averaged offsets 10) Second AUNN1A contains 2 MDR for averaged offsets 11) Third AUNN1A contains 3 MDR for averaged offsets 12) Fourth AUNN1A contains 4 MDR for averaged offsets 13) Fifth AUNN1A contains 5 MDR for averaged offsets 14) Averaging of unoise happens because minimum is set to 1 epoch, and each sequence is apart from more than the separation time so it gets a different averaged sequence each time
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-1403b**
Purpose	Test the processing of the Short Calibration Sequences, including LO phase calibration
Test Items	Requirements: Short Calibration Sequence defined in Section 3.11 of [AD.4] Input files: L0 Ancillary, correlated, uncorrelated and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	1) All HKTM is processed to L1A and times are consistent 2) All CORN0 is processed to CORN1A 3) All UNCN0 is processed to UNCN1A 4) First ACNN1A contains 1 MDR for PMS Coefficients, 1 MDR for FWF0 and 1 MDR for long PMS. 3 MDRs for FWF sensitivities (LO calibration). No MDR for PMS sensitivities 5) Second ACNN1A has same validity as previous ACNN1A, contains 1 MDR for PMS Coefficients, 1 MDR for FWF0 and 1 MDR for long PMS. 5 MDRs for FWF sensitivities (LO calibration). No MDR for PMS sensitivities 6) Third ACNN1A contains 1 MDR for PMS Coefficients, 2 MDR for FWF0 and 2 MDR for long PMS. 9 MDRs for FWF sensitivities (LO calibration). No MDR for PMS sensitivities 7) Fourth ACNN1A has same validity as previous ACNN1A, contains 1 MDR for PMS Coefficients, 2 MDR for FWF0 and 2 MDR for long PMS. 11 MDRs for FWF sensitivities (LO calibration). No MDR for PMS sensitivities 8) Fifth ACNN1A has same validity as previous ACNN1A, contains 1 MDR for PMS Coefficients, 2 MDR for FWF0 and 2 MDR for long PMS. 14 MDRs for FWF sensitivities (LO calibration). No MDR for PMS sensitivities 9) The validity of ACNN1a is not extended when new LO phase calibration sequences are processed, since their validity is lower than the PMS or FWF(0) calibration data. With the new calibration strategy, PMS sensitivities are no longer computed.
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-1404**

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Purpose	Test the processing of the NIR Calibration Sequences
Test Items	Requirements: NIR Calibration Sequence defined in Section 3.11 of [AD.4] Input files: L0 Ancillary, correlated, uncorrelated and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	1) All HKTM is processed to L1A and times are consistent 2) All CORU0 is processed to CORU1A 3) All UNCN0 is processed to UNCU1A 4) First ACNU1A contains 1 MDR for PMS Coefficients, 1 MDR for FWF0 and 1 MDR for long PMS. No MDR for sensitivities 5) Second ACNU1A contains 1 MDR for PMS Coefficients, 1 MDR for FWF0 and 2 MDR for long PMS. No MDR for sensitivities, calibration happened on the same bin 6) First AUNN1A contains 1 MDR for averaged offsets 7) Second AUNN1A contains 1 MDR for averaged offsets and includes the average of the previous consolidated product 8) First ANIR1A contains 1 MDR for NIR-A External and 1 MDR for NIR-R External 9) Second ANIR1A contains 2 MDR for NIR-A External and 2 MDR for NIR-R External 10) All TAR data is processed up to L1b ONLY 11) (FUTURE VALIDATION V3.5) FLAT TARGET PRODUCT IS PRODUCED
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-1405**
Purpose	Test the processing of the Long Calibration Sequences
Test Items	Requirements: Long Calibration Sequence defined in Section 3.11 of [AD.4] Input files: L0 Ancillary, correlated, uncorrelated and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) 11a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	1) All HKTM is processed to L1A and times are consistent 2) All CORU0 is processed to CORU1A and FWAS1A 3) All UNCN0 is processed to UNCU1A 4) First ACNN1A contains 3 MDR for PMS Coefficients, 3 MDR for FWF0 and 21 MDR for long PMS. It also contains 1 MDR for PMS and FWF0 sensitivities 5) Second ACNN1A contains 4 MDR for PMS Coefficients, 4 MDR for FWF0 and 43 MDR for long PMS. It also contains 1 MDR for PMS and FWF0 sensitivities 6) Third ACNN1A contains 4 MDR for PMS Coefficients, 4 MDR for FWF0 and 45 MDR for long PMS. It also contains 1 MDR for PMS and FWF0 sensitivities 7) First AUNN1A contains 1 MDR for averaged offsets 8) Second AUNN1A contains 1 MDR for averaged offsets and includes the average of the previous consolidated product 9) Third AUNN1A contains 1 MDR for averaged offsets and includes the average of the previous consolidated product 10) First AFWS1A contains 60 MDR for FWF Measurements, and 1 MDR for FWF coefficients 11) Second AFWS1A contains 126 MDR for FWF Measurements, and 1 MDR for FWF coefficients 12) Third AFWS1A contains 132 MDR for FWF Measurements, and 1 MDR for FWF coefficients
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-1406**
Purpose	Test the processing of the Uncorrelated Noise Injection Long Calibration Sequences
Test Items	Requirements: Long Calibration Sequence defined in Section 3.11 of [AD.4] Input files: L0 Ancillary, correlated, uncorrelated and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	1) All HKTM is processed to L1A and times are consistent 2) All UNCN0 is processed to UNCU1A 3) First AUNN1A contains 1 MDR for averaged offsets 4) Second AUNN1A contains 1 MDR for averaged offsets and includes the average of the previous consolidated product 5) Third AUNN1A contains 1 MDR for averaged offsets and includes the average of the previous consolidated product 6) Due to lack of CORN data, all PMS values are processed with the PMS ADF file values
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST- genANIR**
Purpose	Test processing from L0 to L1a using external calibration (dual pol), using L1PP 3.3 Gibbs v0, for data covering the FTR and containing the NIR Calibration sequences.
Test Items	Requirements: NA Input files: SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*, SM_TEST_MIR_UNCU0*, SM_TEST_MIR_CORU0* and SM_TEST_MIR_TARD0*
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-genANIR /l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*, SM_TEST_MIR_UNCU0*, SM_TEST_MIR_CORU0* and SM_TEST_MIR_TARD0* b) logs/test- genANIR / Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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Identifier	**SMOS-L1PP-TST- genANIR-OPS**
Purpose	Test processing from L0 to L1a using external calibration data containing NIR Calibration sequences
Test Items	Requirements: NA Input files: SM_TEST_TLM_MIRA0 * and SM_TEST_MIR_TARD0*
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-genANIR /l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0* and SM_TEST_MIR_TARD0* b) logs/test- genANIR / Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

Identifier	**SMOS-L1PP-TST- genLongCal**
Purpose	Test the processing of the Long Calibration Sequence.
Test Items	Requirements: NA Input files: SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*
Pre-requisites	Requires GUI plus L1PP components
Steps description	4) Check the status of the directories: a) test-genANIR /l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*, SM_TEST_MIR_UNCU0*, SM_TEST_MIR_CORU0* and SM_TEST_MIR_TARD0* b) logs/test- genLongCal / Should be empty 5) Launch the test with the GUI or with a test script; 6) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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5.3. System Performance Tests

Identifier	**SMOS-L1PP-TST-1410**
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during complete pass (half-orbit).
Test Items	Requirements: SML1-PRF-010-V1 Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-1420**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during complete pass (half-orbit).
Test Items	Requirements: SML1-PRF-010-V1 Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Steps 4 verification succeed
Failure Condition	Step 4 verifications fail

Identifier	**SMOS-L1PP-TST-1430**

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Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during complete pass, for a period equivalent to 24 hours processing
Test Items	Requirements: SML1-PRF-010-V1, SML1-PRF-020-V1 Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Steps 4 verification succeed
Failure Condition	Step 4 verification fail

5.4. System Tests Summary

Table 5: Summary of System Tests

Type of Test	Test Id	Description
	SMOS-L1PP-TST-1110	Test the processing from L0 to L1c, in constant mode measurement Dual polarisation during several scenes (20).
	SMOS-L1PP-TST-1120	Test the processing from L0 to L1c, in constant mode measurement Full polarisation during several scenes (20).
System Tests / Nominal Processing	SMOS-L1PP-TST-1130	Test mode switch from dual to full polarisation within a product, processing from L0 to L1c
	SMOS-L1PP-TST-1140	Test mode switch between products, processing from L0 to L1c
	SMOS-L1PP-TST-1150	Test processing from L0 to L1c, in constant mode measurement Dual polarisation during several scenes (400) with internal calibration measurement
	SMOS-L1PP-TST-1160	Test processing from L0 to L1c in constant mode measurement Full polarisation during several scenes (400) with internal calibration measurement in the switch
	SMOS-L1PP-TST-1170	Test processing from L0 to L1b using external calibration (dual pol) data covering moon and covering galaxy for several scenes (300). Scenario includes instrument transition manoeuvre from nominal to external observation. External calibration timeline fully implemented (including PMS external calibration).
	SMOS-L1PP-TST-1171	Test processing from L0 to L1b using external calibration data (full pol) covering moon and covering galaxy for several scenes (300).
	SMOS-L1PP-TST-1180	Test processing from L0 to L1c, in constant mode measurement Dual polarisation during several scenes (100-200) with intermittent gaps.
	SMOS-L1PP-TST-1190	Test processing from L0 to L1c in constant mode measurement Full polarisation during several scenes (100-200) with intermittent gaps.
	SMOS-L1PP-TST-1200	Test processing from L0 to L1c in constant mode measurement Dual polarisation during several scenes (100-200) with duplicated data.
	SMOS-L1PP-TST-1210	Test processing from L0 to L1c in Constant mode measurement Full polarisation

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Type of Test	Test Id	Description
		during several scenes (100-200) with duplicated data.
	SMOS-L1PP-TST-1220	Test simultaneous execution of at least two official operational versions of the modules on the same computer
	SMOS-L1PP-TST-1230	Test the concurrent execution of different versions of the modules on the same computer (This test will use only Unit Converter module, but in fact it can also be applied to other modules as well)
	SMOS-L1PP-TST-1240	Test simulated module in case the module is not yet developed
	SMOS-L1PP-TST-1250	Test the generated quality flag for each product file
	SMOS-L1PP-TST-1260	Test the execution of L1 prototype on more than one CPU
	SMOS-L1PP-TST-1270	Test the execution of L1 Processor from command line with the appropriate file as input parameter
	SMOS-L1PP-TST-1280	DELETED
	SMOS-L1PP-TST-1290	Test the generation of L1b product file from L0 product
	SMOS-L1PP-TST-1300	DELETED
	SMOS-L1PP-TST-1310	DELETED
	SMOS-L1PP-TST-1320	Test the generation of L1c product file from L1a product file
	SMOS-L1PP-TST-1330	DELETED
	SMOS-L1PP-TST-1340	Test the generation of report for the generated products and quality indicators
	SMOS-L1PP-TST-1350	DELETED
	SMOS-L1PP-TST-1360	Test the execution flow in case there is an error in one of the module execution
	SMOS-L1PP-TST-1370	Test the reprocessing using new auxiliary file
	SMOS-L1PP-TST-1380	Test the selection of auxiliary file using the best version available
	SMOS-L1PP-TST-1390	DELETED
	SMOS-L1PP-TST-1400	DELETED
	SMOS-L1PP-TST-1401	Test Generation of G and J Matrices from SEPS FWAS1A
	SMOS-L1PP-TST-1401b	Test Generation of G and J Matrices from SEPS L0
	SMOS-L1PP-TST-1402	Test Generation of G Matrix for IVT from SEPS FWAS1A
	SMOS-L1PP-TST-1402b	Test Generation of G Matrix for IVT from SEPS L0
	SMOS-L1PP-TST-genMatr	Test Generation of G and J Matrices from L0 data
	SMOS-L1PP-TST-genFTTD	Test processing from L0 to L1b using external calibration data and external target manoeuvre, including FTR in Dual polarisation.
	SMOS-L1PP-TST-genFTTF	Test processing from L0 to L1b using external calibration data and external target manoeuvre, including FTR in Full polarisation.
System Tests / Calibration Consolidation	SMOS-L1PP-TST-1403	Test the processing of the Short Calibration Sequences
	SMOS-L1PP-TST-1404	Test the processing of the NIR Calibration Sequences
	SMOS-L1PP-TST-1405	Test the processing of the Long Calibration Sequences
	SMOS-L1PP-TST-1406	Test the processing of the Uncorrelated Noise Injection Long Calibration Sequences
	SMOS-L1PP-TST-genCalFiles	Test the processing of all the calibration files for the full test campaign
	SMOS-L1PP-TST-genANIR	Test processing from L0 to L1a using external calibration and NIR Calibration.
	SMOS-L1PP-TST-genANIR-OPS	Test processing from L0 to L1a using NIR Calibration.
System Tests /	SMOS-L1PP-TST-1410	Test processing from L0 to L1c in constant mode measurement Dual polarisation during complete pass (half-orbit).
	SMOS-L1PP-TST-1420	Test processing from L0 to L1c in constant mode measurement Full polarisation

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Type of Test	Test Id	Description
Performance Tests		during complete pass (half-orbit).
	SMOS-L1PP-TST-1430	Test processing from L0 to L1c in constant mode measurement Full polarisation during complete pass, for a period equivalent to 24 hours processing

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6. ACCEPTANCE TESTS

Several overall tests of the complete prototype are proposed here. The compliance of these specific acceptance tests and the report of the previous ones will imply the complete acceptance of the prototype.

The following validation procedure is applicable to all acceptance tests. In case any of the steps described below is not applicable, it will be explained in the steps description of each test.

Validation Procedure

1) When a message is displayed informing the processing is finished:
   a) Check the status of the directories:
      i) l1a-in: Should be empty
      ii) l1b-in: Should contain files with pattern SM_TEST_MIR_CORN1A_*, SM_TEST_MIR_UNCN1A_*, SM_TEST_TLM_MIRA1A_*
      iii) l1c-in: Should be empty
      iv) processed-data: Should contain files with pattern SM_TEST_MIR_CORN0_* SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_SC_D1A_* or SM_TEST_MIR_SC_F1A_*, SM_TEST_MIR_SC_D1B_* or SM_TEST_MIR_SC_F1B_*, SM_TEST_MIR_UNCN0_*, SM_TEST_TLM_MIRA0_*
      v) unprocessed-data: Should be empty

      Note: Depending on the test scenario the directories may contain more than one file of the same type.
2) Check if the sensing time of the products generated by the prototype are consistent with the products of a previous level of processing
   a) For each product that was generated check if the start sensing time is equal or greater than the product of a previous level of processing with the same type.
   b) For each product that was generated check if the stop sensing time is equal or less than the product of a previous level of processing with the same type.
   c) Check the header field NUM_MDR (inside each product or use the html produced by the sink tool) and see if the stop sensing time is consistent: Multiply the number obtained from the header field by the sensing period and add to start sensing time,i.e NUM_MDR*1.2+start_sensing_time
   d) In case the stop sensing time in the filename is lower than the value computed, check in the log if scenes were discarded. If this is the case then subtract the value computed by the value NUMBER_SCENES_DISCARDED*1.2. The value computed should then be the same as the stop sensing time in the filename.
   e) Analyse the log file (log.txt):
      i) Search for messages with log level ERROR, WARNING
      ii) Check if the number of scenes processed at each level is consistent with the number of scenes in the product SC_D0 (refer to Test Data Description)

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6.1. Scenario Tests

Identifier	**SMOS-L1PP-TST-1440**
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during complete pass (half-orbit).
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-1450**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during complete pass (half-orbit).
Test Items	Requirements: NA Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verifications succeed
Failure Condition	Step 4 verifications fail

Identifier	**SMOS-L1PP-TST-1440-CESBIO**

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Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during complete pass (half-orbit). CESBIO data.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-1450-CESBIO.**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during complete pass (half-orbit). CESBIO data.
Test Items	Requirements: NA Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verifications succeed
Failure Condition	Step 4 verifications fail

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Identifier	SMOS-L1PP-TST-1460
Purpose	Test processing from L0 to L1c, in constant mode measurement Dual polarisation during half-orbit with internal calibration measurement. FS and VTEC ADF shall be used for this test.
Test Items	Requirements: NA Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verifications succeed
Failure Condition	Step 4 verifications fail

Identifier	SMOS-L1PP-TST-1461
Purpose	Test processing from L0 to L1c, in constant mode measurement Full polarisation during half-orbit with internal calibration measurement.
Test Items	Requirements: NA Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verifications succeed
Failure Condition	Step 4 verifications fail

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Identifier	**SMOS-L1PP-TST-1470**
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during two complete passes (complete-orbit) with internal calibration measurement in the switch.
Test Items	Requirements: NA Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verifications succeed
Failure Condition	Step 4 verifications fail

Identifier	**SMOS-L1PP-TST-1480 - DELETED**
Purpose	Test processing from L0 to L1b using External calibration data covering moon and covering galaxy for one complete pass (half-orbit).
Test Items	Requirements: NA Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verifications succeed
Failure Condition	Step 4 verifications fail

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Identifier	SMOS-L1PP-TST-1490
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during complete pass (half-orbit) with intermittent gaps.
Test Items	Requirements: NA Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verifications succeed
Failure Condition	Step 4 verifications fail

Identifier	SMOS-L1PP-TST-1500
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during complete pass (half-orbit) with intermittent gaps.
Test Items	Requirements: NA Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verifications succeed
Failure Condition	Step 4 verifications fail

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Identifier	SMOS-L1PP-TST-1510
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during complete pass (half-orbit) with duplicated data.
Test Items	Requirements: NA Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verifications succeed
Failure Condition	Step 4 verifications fail

Identifier	SMOS-L1PP-TST-1520
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during complete pass (half-orbit) with duplicated data.
Test Items	Requirements: NA Input files:
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verifications succeed
Failure Condition	Step 4 verifications fail

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6.2. Acceptance Tests Summary

Table 6: Summary of Acceptance Tests

Test Id	Description
SMOS-L1PP-TST-1440	Test processing from L0 to L1c in constant mode measurement Dual polarisation during complete pass (half-orbit).
SMOS-L1PP-TST-1450	Test processing from L0 to L1c in constant mode measurement Full polarisation during complete pass (half-orbit).
SMOS-L1PP-TST-1440-CESBIO	Test processing from L0 to L1c in constant mode measurement Dual polarisation during complete pass (half-orbit). CESBIO data.
SMOS-L1PP-TST-1450-CESBIO	Test processing from L0 to L1c in constant mode measurement Full polarisation during complete pass (half-orbit). CESBIO data.
SMOS-L1PP-TST-1460	Test processing from L0 to L1c, in constant mode measurement Dual polarisation during half-orbit with internal calibration measurement. FS and VTEC ADF shall be used for this test.
SMOS-L1PP-TST-1461	Test processing from L0 to L1c, in constant mode measurement Full polarisation during half-orbit with internal calibration measurement.
SMOS-L1PP-TST-1470	Test processing from L0 to L1c in constant mode measurement Dual polarisation during two complete passes (complete-orbit) with internal calibration measurement in the switch.
SMOS-L1PP-TST-1480	DELETED
SMOS-L1PP-TST-1490	Test processing from L0 to L1c in constant mode measurement Dual polarisation during complete pass (half-orbit) with intermittent gaps.
SMOS-L1PP-TST-1500	Test processing from L0 to L1c in constant mode measurement Full polarisation during complete pass (half-orbit) with intermittent gaps.
SMOS-L1PP-TST-1510	Test processing from L0 to L1c in constant mode measurement Dual polarisation during complete pass (half-orbit) with duplicated data.
SMOS-L1PP-TST-1520	Test processing from L0 to L1c in constant mode measurement Full polarisation during complete pass (half-orbit) with duplicated data.

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7. SCIENTIFIC VALIDATION TESTS

This section describes the scientific validation tests. These tests, as explained previously, are focused on the assessment of the scientific quality of the results produced by the prototype. For this part of the validation, priority is given to the numerical accuracy of the results rather than to the performance or robustness of the prototype. Therefore, smaller scenarios, with typically 2 to 4 scenes should used in the scientific validation and only L1c outputs are compared.

The following validation procedure is applicable to all Scientific Validation Tests. In case any of the steps described below is not applicable, it will be explained in the steps description of each test.

Validation Procedure
1) When a message is displayed informing the processing is finished: a) Check the status of the directories: i) l1a-in: Should be empty ii) l1b-in: Should contain files with pattern SM_TEST_MIR_CORN1A_*, SM_TEST_MIR_UNCN1A_*, SM_TEST_TLM_MIRA1A_* iii) l1c-in: Should be empty iv) processed-data: Should contain files with pattern SM_TEST_MIR_CORN0_* SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_SC_D1A_* or SM_TEST_MIR_SC_F1A_*, SM_TEST_MIR_SC_D1B_* or SM_TEST_MIR_SC_F1B_*, SM_TEST_MIR_UNCN0_*, SM_TEST_TLM_MIRA0_* v) unprocessed-data: Should be empty 4. Compare the output results with previous L1PP data or against known quantities

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7.1. Scenario Tests

Identifier	**SMOS-L1PP-TST-1610**
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using real reconstruction and Flat Target Transformation and without sun/moon removal. Mixed Sea/Land Scenario
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix, Flat Target Transformation and neither Sun nor moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-1611**
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using ideal reconstruction and Flat Target Transformation and without sun/moon removal. Mixed Sea/Land Scenario
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix, Flat Target Transformation and neither Sun nor moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	SMOS-L1PP-TST-1620
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using real reconstruction, Earth and Sky removal and without sun/moon removal. Mixed Sea/Land Scenario.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files The L0 files, shall be generated from SEPS-GS using the G-Matrix and without Flat Target Transformation/Sun/Moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	SMOS-L1PP-TST-1621
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using ideal reconstruction, Earth and Sky removal and without sun/moon removal. Mixed Sea/Land Scenario.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files The L0 files, shall be generated from SEPS-GS using the G-Matrix and without Flat Target Transformation/Sun/Moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-1630**
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using real reconstruction with Sun/Moon effects removal. Mixed Sea/Land Scenario.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix and Sun/Moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-1640**
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using real reconstruction with Sun/Moon effects removal with Sun/Moon Brightness Temperatures read from an ADF. Mixed Sea/Land Scenario
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix and Sun/Moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	SMOS-L1PP-TST-1650
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 4 scenes using real reconstruction and Flat Target Transformation and without sun/moon removal. Only Sea Scenario
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix, Flat Target Transformation and neither Sun nor moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	SMOS-L1PP-TST-1660
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 4 scenes using real reconstruction, Earth and Sky removal and without sun/moon removal. Only Sea Scenario.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix and without Flat Target Transformation/Sun/Moon effects.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-1670**
Purpose	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 4 scenes using real reconstruction with Sun/Moon effects removal. Only Sea Scenario.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix and with Sun/Moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-1680**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during 2 scenes using real reconstruction and Flat Target Transformation and without sun/moon removal. Mixed Sea/Land Scenario
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix, Flat Target Transformation and neither Sun nor moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-1681**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during 2 scenes using ideal reconstruction and Flat Target Transformation and without sun/moon removal. Mixed Sea/Land Scenario
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix, Flat Target Transformation and neither Sun nor moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-1690**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during 2 scenes using real reconstruction, Earth and Sky removal and without sun/moon removal. Mixed Sea/Land Scenario.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix and without Flat Target Transformation/Sun/Moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-1691**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during 2 scenes using ideal reconstruction, Earth and Sky removal and without sun/moon removal. Mixed Sea/Land Scenario.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix and without Flat Target Transformation/Sun/Moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-1700**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during 2 scenes using real reconstruction with Sun/Moon effects removal. Mixed Sea/Land Scenario.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix and with Sun/Moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-1701**	
Purpose	Test the processing of IVT data in external target mode.	
Test Items	Requirements: NA Data acquired in IVT in external target mode.	
Pre-requisites	Requires GUI plus L1PP components	
Description Summary	1) Check the status of the directories: a) l1a-in: Should contain Xband file tagged with acquisition date 2007-06-04T17-13-48_PFM_IVT_[1].XBAND b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Check that all data is processed without errors and check that the average temperatures in all polarisations are within the expected values (100 scenes).	
Success condition	Step 4 verification succeed	
Failure Condition	Step 4 verification fail	

Identifier	**SMOS-L1PP-TST-1702**	
Purpose	Test the processing of IVT data in Stability test 4 (this data was collected during SMOS testing at ESTEC pre-launch)	
Test Items	Requirements: NA Data acquired in IVT in Stability test 4	
Pre-requisites	Requires GUI plus L1PP components	
Description Summary	1) Check the status of the directories: a) l1a-in: Should contain files in Dual Pol coming from the Xband file tagged with acquisition date 2007-06-01T12-44-34_PFM_EMC_[1].XBAND b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Check that all data is processed without errors and perform an in-depth analysis of the results	
Success condition	Step 4 verification succeed	
Failure Condition	Step 4 verification fail	

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Identifier	**SMOS-L1PP-TST-1703**
Purpose	Test the processing of IVT data in redundant mode.
Test Items	Requirements: NA Data acquired in IVT in redundant mode.
Pre-requisites	Requires GUI plus L1PP components
Description Summary	1) Check the status of the directories: a) l1a-in: Should contain Xband file tagged with acquisition date 2007-04-24T19-07-19_PFM_TV_[1].XBAND b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Check that all data is processed without errors and check that the average temperatures in all polarisations are within the expected values (100 scenes).
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-1710**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during 4 scenes using real reconstruction and Flat Target Transformation and without sun/moon removal. Only Sea Scenario.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix, Flat Target Transformation and neither Sun nor moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-1720**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during 4 scenes using real reconstruction, Earth and Sky removal and without sun/moon removal. Only Sea Scenario.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix and without Flat Target Transformation/Sun/Moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-1730**
Purpose	Test processing from L0 to L1c in constant mode measurement Full polarisation during 4 scenes using real reconstruction with Sun/Moon effects removal. Only Sea Scenario.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files. The L0 files, shall be generated from SEPS-GS using the G-Matrix and with Sun/Moon effects
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0_*, SM_TEST_MIR_SC_D0_* or SM_TEST_MIR_SC_F0_*, SM_TEST_MIR_UNCN0_*, SM_TEST_MIR_CORN0_* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-austD**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Dual polarisation with LO injection every 6 minutes. ~~Segment of 500 scenes in an ascending orbit over Australia.~~ Full ascending orbit over Australia.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-austF**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 6 minutes. Full ascending orbit over Australia.~~Segment of 749 scenes in an ascending orbit over Australia.~~
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-euroD**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Dual polarisation with LO injection every 6 minutes. Full ascending orbit ~~Segment of 600 scenes in an ascending orbit~~ over Europe.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-euroF**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 6 minutes. Full ascending orbit ~~Segment of 748 scenes in an ascending orbit~~ over Europe.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-indiD**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 600 scenes in a descending orbit over the Indian Ocean.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST-indiF**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 747 scenes in a descending orbit over the Indian Ocean.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	SMOS-L1PP-TST-pacfD
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Dual polarisation with LO injection every 6 minutes. ~~Segment of 600 scenes in a~~Full ascending orbit over the Pacific Ocean.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	SMOS-L1PP-TST-pacfF
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 6 minutes. ~~Segment of 600 scenes in a~~Full descending orbit over the ~~Indian~~ Pacific Ocean.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

7.1.1. Tests added in V13R Campaign

Below are the specific tests designed and performed for the V13R test campaign:

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Identifier	SMOS-L1PP-TST-sunCorrection
Purpose	Test processing from L1a to L1b science data in Full polarisation mode. Descending orbit over the Pacific and ascending orbit over Africa.
Test Items	Requirements: NA Input files: L1a Ancillary, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1b-in: Should contain files with pattern SM_TEST_TLM_MIRA1A* and SM_TEST_MIR_SC_F1A* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	SMOS-L1PP-TST-IoUnlock
Purpose	Test processing from L10 to L1a science data in Full polarisation mode using different correlated noise injection products .Ascending orbit over the Atlantic Ocean.
Test Items	Requirements: NA Input files: L10 measurements and L1a ancillary, correlated and uncorrelated calibration files and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_MIR_SC_F10* b) l1b-in: Should contain files with pattern SM_TEST_TLM_MIRA1A*, SM_TEST_MIR_CRSD1A* and SM_TEST_MIR_UAVD1A* c) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	SMOS-L1PP-TST-RFI-genRFILST

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Purpose	Test processing from L0 to L1a data acquired data in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 600 scenes in an ascending orbit over Europe.
Test Items	Requirements: NA Input files: L1a measurements, ancillary and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* a) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Generate AUX_RFILST ADF
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST- genMatr-AvgJ**
Purpose	Test Generation of G and J Averages Matrices from In-Orbit Data with Long Calibration sequence.
Test Items	Requirements: NA Input files: SM_OPER_TLM_MIRA0*, SM_OPER_MIR_SC_D0* or SM_OPER_MIR_SC_F0*, SM_OPER_MIR_UNCN0*, SM_OPER_MIR_CORN0*
Pre-requisites	Requires GUI plus L1PP components
Steps description	Test Generation of G and J Average Matrices from In-Orbit Data with Long Calibration sequence. 1. Check the status of the directories: a. l1a-in: Should contain files with pattern SM_OPER_TLM_MIRA0*, SM_OPER_MIR_SC_D0* or SM_OPER_MIR_SC_F0*, SM_OPER_MIR_UNCN0*, SM_OPER_MIR_CORN0* b. logs: Should be clean. 2. Launch the test with a test script; 3. Verify if l1c-in directory contains a GMAT Auxiliary data Files 4. Use the generated matrix as ADFs for the execution of a scientific validation test 5. Compare the JMAT Average with the JMAT Nominal using the GJ+ComparisonTool a. Select J+ Matrix Analysis b. Select reference J+ and averaged J+ c. Select "user specific licefs": [1,3] [4,47] [25,51] [26,50] d. Select "All (u,v) coordinates from LICEF selection (J+ Column)" e. Press "Do Analysis"
Success condition	Steps 3 and 4 succeed
Failure Condition	Step 3 or 4 fails

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Identifier	**SMOS-L1PP-TST-genShortCal-NewPMSOffset**
Purpose	Test the processing of the Short Calibration Sequence.
Test Items	Requirements: NA Input files: SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*
Pre-requisites	Requires GUI plus L1PP components
Steps description	Test the processing of the Short Calibration Sequences 1. Check the status of the directories: a. l1a-in: Should contain files with pattern SM_OPER_TLM_MIRA0*, SM_OPER_MIR_UNCD0*, SM_OPER_MIR_CORD0* b. logs: Should be clean. 2. Launch the test with a test script; 3. Apply validation procedure and use SMOS VT for opening the files. Validation Procedure: 4. All HKTM is processed to L1A and times are consistent; 5. All CORD0 is processed to CRSD1A; 6. First CRSD1A contains 2 MDR for FWF0 and 2 MDR for long PMS; 7. Second CRSD1A contains 2 MDR for FWF0 and 2 MDR for long PMS; 8. Third CRSD1A contains 2 MDR for FWF0 and 2 MDR for long PMS.
Success condition	Steps 4-8 succeed
Failure Condition	One of the Steps between 4 and 8 fail

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Identifier	**SMOS-L1PP-TST-austD-L1cFlags**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 500 scenes in an ascending orbit over Australia.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	Test processing from L0 to L1c data acquired in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 500 scenes in an ascending orbit over Australia. This test should be executed with L1PP v3.5.0 and L1PP v.5.0.0 1. Check the status of the directories: a. l1a-in: Should contain files with pattern SM_OPER_TLM_MIRA0*, SM_OPER_MIR_SC_D0* or SM_OPER_MIR_SC_F0*, SM_OPER_MIR_UNCN0*, SM_OPER_MIR_CORN0* b. logs: Should be empty 2. Launch GUI 3. Press start processor button in the main window 4. Apply validation procedure 5. Compare the L1c Flag FOV Border between the two L1PP versions the test-austD should have the border but also the alias circles, i.e, the suspenders and belt.
Success condition	Steps 4 and 5 succeed
Failure Condition	Step 4 or 5 fail

Identifier	**SMOS-L1PP-TST-pacfF-L1cFlags**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 600 scenes in a descending orbit over the Indian Ocean.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	Test processing from L0 to L1c data acquired data in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 747 scenes in an ascending orbit over the Pacific Ocean. This test should be executed with the Sun_Point_Flag_Size set to 0.01. 1. Check the status of the directories: a. l1a-in: Should contain files with pattern SM_OPER_TLM_MIRA0*, SM_OPER_MIR_SC_D0* or SM_OPER_MIR_SC_F0*, SM_OPER_MIR_UNCN0*, SM_OPER_MIR_CORN0* b. logs: Should be empty 2. Launch GUI 3. Press start processor button in the main window 4. Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-pacfF-SunCor**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 600 scenes in a descending orbit over the Indian Ocean.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	Test processing from L0 to L1c data acquired data in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 747 scenes in an ascending orbit over the Pacific Ocean. This test should be executed with the "Direct_Sun_Correction_Type" set to 1. 1. Check the status of the directories: a. l1a-in: Should contain files with pattern SM_OPER_TLM_MIRA0*, SM_OPER_MIR_SC_D0* or SM_OPER_MIR_SC_F0*, SM_OPER_MIR_UNCN0*, SM_OPER_MIR_CORN0* b. logs: Should be empty 2. Launch GUI 3. Press start processor button in the main window 4. Apply validation procedure 5. Run the Compare Sun Correction Tool
Success condition	Step 4 and 5 succeed
Failure Condition	Step 4 or 5 fail

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Identifier	**SMOS-L1PP-TST- Sky+LCF_AM**
Purpose	Test processing from L0 to L1b using external calibration (full pol), using L1PP 5.0.0 and L1PP 3.5.0.
Test Items	Requirements: NA Input files: SM_OPER_TLM_MIRA0*, SM_OPER_MIR_TARF0*, SM_OPER_MIR_TARD0*, SM_OPER_MIR_UNCD0*, SM_OPER_MIR_UNCU0*, SM_OPER_MIR_CORD0*, SM_OPER_MIR_CORU0*
Pre-requisites	Requires GUI plus L1PP components
Steps description	Test processing from L0 to L1b using external calibration (full pol), using L1PP 5.0.0 and L1PP 3.5.0. 1. Check the status of the directories: a. l1a-in: Should contain files with pattern SM_OPER_TLM_MIRA0*, SM_OPER_MIR_TARF0*, SM_OPER_MIR_TARD0*, SM_OPER_MIR_UNCD0*, SM_OPER_MIR_UNCU0*, SM_OPER_MIR_CORD0*, SM_OPER_MIR_CORU0* b. logs: Should be clean. 2. Launch the test with a test script; 3. Apply IVT methodology to analyse Sky: a. Run IVT_Scripts tool; b. Select Test Directory path; c. Select “Default Analysis”. 4. Run the compare_TimeAveragedScenes Tool to perform the difference between the plots.
Success condition	Step 4 and 5 succeed
Failure Condition	Step 4 or 5 fail

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7.1.2. Tests added in V14R Campaign

Below are the specific tests designed and performed for the V14R test campaign:

Identifier	**SMOS-L1PP-TST- genHexagonalMatr**
Purpose	Test Generation of Hexagonally Expanded G Matrix from In-Orbit Data with Long Calibration sequence.
Test Items	Requirements: NA Input files: SM_OPER_TLM_MIRA0*, SM_OPER_MIR_UNCN0*, SM_OPER_MIR_CORN0*
Pre-requisites	Requires GUI plus L1PP components
Steps description	Test Generation of Hexagonally Expanded G In-Orbit Data with Long Calibration sequence. 1. Check the status of the directories: a. l1a-in: Should contain files with pattern SM_OPER_TLM_MIRA0*, SM_OPER_MIR_UNCN0*, SM_OPER_MIR_CORN0* b. logs: Should be clean. 2. Launch the test with a test script; 3. Verify if l1c-in directory contains a GMAT Auxiliary data Files 4. Use the generated matrix as ADFs for the execution of a scientific validation test
Success condition	Steps 3 and 4 succeed
Failure Condition	Step 3 or 4 fails

Identifier	**SMOS-L1PP-TST-austF-Gibbs2**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 749 scenes in an ascending orbit over Australia. This test should be executed with the "Earth_Contribution_Correction_Type" set to 2 (CNF file) and "Use Expanded Hexagonal Domain G-Matrix" set to true (configuration file) and after genHexagonalMatr is processed.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Run the difference tool to get the difference wrt test-austF (ran with Gibbs 1).
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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Identifier	**SMOS-L1PP-TST-austD-CircularApodisation**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 500 scenes in an ascending orbit over Australia. This test should be executed with the Circular Apodisation Window ADF, provided by ESA.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Run the difference tool to get the difference wrt test-austD (ran with Blackman Apodisation).
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

Identifier	**SMOS-L1PP-TST- genLongCal-Split**
Purpose	Test the processing of the Long Calibration Sequence.
Test Items	Requirements: NA Input files: SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-genANIR /l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*, SM_TEST_MIR_UNCU0*, SM_TEST_MIR_CORU0* and SM_TEST_MIR_TARD0* b) logs/test- genLongCal / Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure: • Check if the number of MDRs of the 5.5.0 calibration files is the same as in 5.0.0, i.e, that the split in two types of file has no effect on the data itself. The calibration files are the CRS and CST files for version 5.5.0 and CRS for version 5.0.0
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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7.1.3. Tests added in V15R Campaign

Below are the specific tests designed and performed for the V15R test campaign:

Identifier	SMOS-L1PP-TST-test-RFI
Description Summary	Test detection of RFI sources with L1 algorithms. Process 3 orbits and check the performance of the RFI detection algorithms: 1. Check the status of the directories: a. l1a-in: Should contain files with pattern SM_OPER_TLM_MIRA0*, SM_OPER_MIR_UNCD0*, SM_OPER_MIR_CORD0* b. logs: Should be clean. 2. Launch the prototype, as explained in the SUM, for the directory where the test is installed ; 3. Plot NIR BT and Tsys, together with the flagged pixels for each orbit and algorithm;
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

Step	Comment	SPR
3.	The plots presented show good performance from both algorithms.	

Identifier	SMOS-L1PP-TST-test-L1-calib
Description Summary	Test calibration of L1 attenuation. Process the External manoeuvre of 28/06/2011: 1. Check the status of the directories: c. l1a-in: Should contain files with pattern SM_OPER_TLM_MIRA0*, SM_OPER_MIR_UNCD0*, SM_OPER_MIR_CORD0* d. logs: Should be clean. 2. Launch the prototype, as explained in the SUM, for the directory where the test is installed ; 3. Plot L1PP results against MTS results for the same orbit
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

Step	Comment	SPR
3.	The plots presented show good performance from both algorithms.	

7.2. Scientific Validation Tests Summary

Table 7: Summary of Scientific Validation Tests

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Test Id	Description
SMOS-L1PP-TST-1610	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using real reconstruction and Flat Target Transformation and without sun/moon removal. Mixed Sea/Land Scenario.
SMOS-L1PP-TST-1611	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using ideal reconstruction and Flat Target Transformation and without sun/moon removal. Mixed Sea/Land Scenario.
SMOS-L1PP-TST-1620	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using real reconstruction, Earth and Sky removal and without sun/moon removal. Mixed Sea/Land Scenario.
SMOS-L1PP-TST-1621	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using ideal reconstruction, Earth and Sky removal and without sun/moon removal. Mixed Sea/Land Scenario.
SMOS-L1PP-TST-1630	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using real reconstruction with Sun/Moon effects removal. Mixed Sea/Land Scenario.
SMOS-L1PP-TST-1640	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 2 scenes using real reconstruction with Sun/Moon effects removal with Sun/Moon Brightness Temperatures read from an ADF. Mixed Sea/Land Scenario.
SMOS-L1PP-TST-1650	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 4 scenes using real reconstruction and Flat Target Transformation and without sun/moon removal. Only Sea Scenario.
SMOS-L1PP-TST-1660	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 4 scenes using real reconstruction, Earth and Sky removal and without sun/moon removal. Only Sea Scenario.
SMOS-L1PP-TST-1670	Test processing from L0 to L1c in constant mode measurement Dual polarisation during 4 scenes using real reconstruction with Sun/Moon effects removal. Only Sea Scenario.
SMOS-L1PP-TST-1680	Test processing from L0 to L1c in constant mode measurement Full polarisation during 2 scenes using real reconstruction and Flat Target Transformation and without sun/moon removal. Mixed Sea/Land Scenario.
SMOS-L1PP-TST-1681	Test processing from L0 to L1c in constant mode measurement Full polarisation during 2 scenes using ideal reconstruction and Flat Target Transformation and without sun/moon removal. Mixed Sea/Land Scenario.
SMOS-L1PP-TST-1690	Test processing from L0 to L1c in constant mode measurement Full polarisation during 2 scenes using real reconstruction, Earth and Sky removal and without sun/moon removal. Mixed Sea/Land Scenario.
SMOS-L1PP-TST-1691	Test processing from L0 to L1c in constant mode measurement Full polarisation during 2 scenes using ideal reconstruction, Earth and Sky removal and without sun/moon removal. Mixed Sea/Land Scenario.
SMOS-L1PP-TST-1700	Test processing from L0 to L1c in constant mode measurement Full polarisation during 2 scenes using real reconstruction with Sun/Moon effects removal. Mixed Sea/Land Scenario.
SMOS-L1PP-TST-1701	Test processing of IVT data collected with instrument in External Target mode
SMOS-L1PP-TST-1702	Test processing of IVT data collected in stability tests
SMOS-L1PP-TST-1703	Test processing of IVT data set in redundant mode
SMOS-L1PP-TST-1710	Test processing from L0 to L1c in constant mode measurement Full polarisation during 4 scenes using real reconstruction and Flat Target Transformation and without sun/moon removal. Only Sea Scenario.
SMOS-L1PP-TST-1720	Test processing from L0 to L1c in constant mode measurement Full polarisation during 4 scenes using real reconstruction, Earth and Sky removal and without sun/moon removal. Only Sea Scenario.
SMOS-L1PP-TST-austD	Test processing from L0 to L1c data acquired in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 500 scenes in an ascending orbit over Australia.
SMOS-L1PP-TST-austF	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 749 scenes in an

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Test Id	Description
	ascending orbit over Australia.
SMOS-L1PP-TST-euroD	Test processing from L0 to L1c data acquired data in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 600 scenes in an ascending orbit over Europe.
SMOS-L1PP-TST-euroF	Test processing from L0 to L1c data acquired data in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 748 scenes in an ascending orbit over Europe.
SMOS-L1PP-TST-indiD	Test processing from L0 to L1c data acquired data in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 600 scenes in a descending orbit over the Indian Ocean.
SMOS-L1PP-TST-indiF	Test processing from L0 to L1c data acquired data in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 747 scenes in a descending orbit over the Indian Ocean.
SMOS-L1PP-TST-pacfD	Test processing from L0 to L1c data acquired data in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 600 scenes in a ascending orbit over the Pacific Ocean.
SMOS-L1PP-TST-pacfF	Test processing from L0 to L1c data acquired data in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 747 scenes in a ascending orbit over the Pacific Ocean.
SMOS-L1PP-TST-sunCorrection	Test processing from L1a to L1b science data in Full polarisation mode. Descending orbit over the Pacific and ascending orbit over Africa.
SMOS-L1PP-TST-loUnlock	Test processing from L10 to L1a science data in Full polarisation mode using different correlated noise injection products .Ascending orbit over the Atlantic Ocean.
SMOS-L1PP-TST-RFI-genRFILST	Test processing from L0 to L1a data acquired data in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 600 scenes in an ascending orbit over Europe.
SMOS-L1PP-TST- genMatr-AvgJ	Test Generation of G and J Averages Matrices from In-Orbit Data with Long Calibration sequence.
SMOS-L1PP-TST-genShortCal-NewPMSOffset	Test the processing of the Short Calibration Sequence.
SMOS-L1PP-TST-austD-L1cFlags	Test processing from L0 to L1c data acquired in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 500 scenes in an ascending orbit over Australia.
SMOS-L1PP-TST-pacfF-L1cFlags	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 600 scenes in a descending orbit over the Indian Ocean.
SMOS-L1PP-TST-pacfF-SunCor	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 600 scenes in a descending orbit over the Indian Ocean.
SMOS-L1PP-TST- Sky+LCF_AM	Test processing from L0 to L1b using external calibration (full pol), using L1PP 5.0.0 and L1PP 3.5.0.
SMOS-L1PP-TST-genHexagonalMatr	Test Generation of Hexagonally Expanded G-Matrix from In-Orbit Data with Long Calibration sequence.
SMOS-L1PP-TST- austF-Gibbs2	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 6 minutes. Segment of 749 scenes in an ascending orbit over Australia. With Gibbs 2 selected and Hexagonal G
SMOS-L1PP-TST-austD-Circular-Apodisation	Test processing from L0 to L1c data acquired in measurement mode in Dual polarisation with LO injection every 6 minutes. Segment of 500 scenes in an ascending orbit over Australia. With Circular apodisation for APDL.
SMOS-L1PP-TST- genLongCal-Split	Test processing from L0 to L1a using long calibration sequences.

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8. REFERENCE VALIDATION TESTS

The following tests have been defined with L2-ESLs in order to support the development of L2 processors. As of L1PP v.5.5.0 (V14R) only Ocean Salinity ESLs have provided inputs wrt the data sets that should be made available for their test campaigns.

8.1. System and Calibration Tests

The following tests have been created to provide the calibration files needed to process the tests described in Section 8.2.

Identifier	**SMOS-L1PP-TST- genANIR**
Purpose	Test processing from L0 to L1a using external calibration data containing NIR Calibration sequences
Test Items	Requirements: NA Input files: SM_TEST_TLM_MIRA0 * and SM_TEST_MIR_TARD0* Test uses the NIR Calibration executed on 28-July-2010.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test-genANIR /l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0* and SM_TEST_MIR_TARD0* b) logs/test- genANIR / Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

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Identifier	**SMOS-L1PP-TST- genLongCal**
Purpose	Test the processing of the Long Calibration Sequence.
Test Items	Requirements: NA Input files: SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* Test uses the Long Calibration data acquired on 14-July-2010
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test- genLongCal /l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*, SM_TEST_MIR_UNCU0*, SM_TEST_MIR_CORU0* and SM_TEST_MIR_TARD0* b) logs/test- genLongCal / Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed
Failure Condition	Step 3 verifications fail

Identifier	**SMOS-L1PP-TST- genFTTF**
Purpose	Test processing from L0 to L1b using external calibration (full pol), data covering external flat target for several scenes.
Test Items	Requirements: NA Input files: SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*, SM_TEST_MIR_UNCU0*, SM_TEST_MIR_CORU0* and SM_TEST_MIR_TARF0* Test uses the external manoeuvre of 10-July-2010 to generate the FTTF.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) test- genFTTF /l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0*, SM_TEST_MIR_UNCU0*, SM_TEST_MIR_CORU0* and SM_TEST_MIR_TARF0* b) logs/test- genFTTF / Should be empty 2) Launch the test with the GUI or with a test script; 3) Apply validation procedure
Success condition	Step 3 verifications succeed

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8.2. Scientific Validation Tests

Identifier	**SMOS-L1PP-TST-pacfF-OS**
Purpose	Test processing from L0 to L1c data acquired in measurement mode in Full polarisation with LO injection every 10 minutes. Two ascending orbits with 3211 scenes over the Pacific Ocean from August 2010.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

8.2.1. Tests added in V15R Campaign

Below are the specific tests designed and performed for the V15R test campaign:

Identifier	**SMOS-L1PP-TST-Ideas-Integration**
Purpose	Test processing from L0 to L1c data acquired data in measurement mode in Full polarisation for 24 hours of acquisition betwee 4th and 5th of May 2011.
Test Items	Requirements: NA Input files: L0 Ancillary, correlated, uncorrelated, measurements and auxiliary files.
Pre-requisites	Requires GUI plus L1PP components
Steps description	1) Check the status of the directories: a) l1a-in: Should contain files with pattern SM_TEST_TLM_MIRA0*, SM_TEST_MIR_SC_D0* or SM_TEST_MIR_SC_F0*, SM_TEST_MIR_UNCN0*, SM_TEST_MIR_CORN0* b) logs: Should be empty 2) Launch GUI 3) Press start processor button in the main window 4) Apply validation procedure
Success condition	Step 4 verification succeed
Failure Condition	Step 4 verification fail

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9. SUPPORT TOOLS TESTS

This section describes the tests used to validate the support tools, and the L1PP-Visualization Tool (described in [AD.11] and [AD.12]).

9.1. Scenario Tests

These tools have been discontinued since the Commissioning Phase was over. The tests described below are for contract history.

Identifier	**SMOS-L1PP-TST-1810**
Purpose	Test the Execution of the Sink Tool.
Test Items	Requirements: NA Input files: L1PP L0 to L1c products
Pre-requisites	L1PP components
Steps description	1) Execute a simple Scientific Test Scenario (e.g. 1630); 2) Launch the Sink Tool; 3) Verify if the tool is able to find in the L1PP in and out directories and the L0, L1a, L1b and L1c files processed during the execution of the Scientific test scenario; 4) Verify if the tool checks correctly the information regarding the products.
Success condition	Steps 3, and 4 verification succeed
Failure Condition	Steps 3 or 4 verifications fail

Identifier	**SMOS-L1PP-TST-1820**
Purpose	Test the Execution of the L1PP Visualization Tool.
Test Items	Requirements: NA Input files: L1PP L1b to L1c products and breakpoints
Pre-requisites	L1PP components
Steps description	1) Execute a simple Scientific Test Scenario (e.g. 1630); 2) Launch the L1PP Visualization Tool; 3) Verify if tool is able to load and visualize the following products and breakpoints: L1b Science products, L1c Science and Browse Products, L1b breakpoints and L1c breakpoints; 4) Verify if the tool is able to export to a file the visualization of the products and breakpoints identified in the previous bullet.
Success condition	Steps 3, and 4 verification succeed
Failure Condition	Steps 3 or 4 verifications fail

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~~9.1.~~9.2. Support Tools Tests Summary

Table 8: Summary of Support Tools Tests

Test Id	Description
SMOS-L1PP-TST-1810	Test the Execution of the Sink Tool.
SMOS-L1PP-TST-1820	Test the Execution of the L1PP Visualization Tool.

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