BC-SIM-TR-001
SIMBIO-SYS NECP
Data Produced Analysis

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1. Document Change Record

Issue	Revision	Date	Affected Pages	Change description
1	1	12/02/2019	Section 3.X.5	Moved the failed TC list and description to the Annex
	2	18/02/2019	Section 3.X.4	Replaced in the table "*Telecommands*" with "*Sessions*"
			Section 3.22.8	Rewriten sentence
	3	16/04/2020	All	Addressing referee suggestions

2. Introduction

2.1. Scope

In this document we will describe all the tests performed during the Near Earth Commissioning Phase (NECP) for the Spectrometers and Imagers for MPO BepiColombo Integrated Observatory SYStem (SIMBIO-SYS). For each test will be reported a sheet with the pipeline report and a discussion eventually on the detected anomalies.

2.2. Reference Document

[RD.1] BC-SIM-PL-001 The Test Planning for the SIMBIO-SYS Near Earth Commissioning Phase (DOI: http://dx.doi.org/10.20371/INAF/TechRep/17);
[RD.2] Software User Manual, in preparation;
[RD.3] BC-SIM-GAF-IC-002_rev12 – SIMBIO-SYS Software Interface Control Document
[RD.4] The Flight Operation Procedures of the SIMBIO-SYS instrument aboard the BepiColombo ESA mission BC-ASD-SP-00176_1_4 SIMBIO URD, http://hdl.handle.net/20.500.12386/23810
[RD.5] BC-ASD-SP-00176_1_4 SIMBIO URD
[RD.6] BC-SIM-GAF-MA-002 10 001 – SIMBIO-SYS User Manual

2.3. PDOR sequences

In the document [RD.1] are attached the PDOR file released for the NECP phase.
Follow the list of the PDOR realesed for easy reference:

[PS.1] PDOR_BPSS_C_SS_SIMBIOSYS_stc_nominal_test_00151.BC
[PS.2] PDOR_BPSS_C_SS_SIMBIOSYS_stc_out_filters_test_00152.BC
[PS.3] PDOR_BPSS_C_SS_SIMBIOSYS_stc_reset_test_00153.BC
[PS.4] PDOR_BPSS_C_SS_SIMBIOSYS_stc_single_filters_test_00154.BC
[PS.5] PDOR_BPSS_C_SS_SIMBIOSYS_hric_comp_test_noOBCP_00166.BC
[PS.6] PDOR_BPSS_C_SS_SIMBIOSYS_hric_dc_test_noOBCP_00167.BC
[PS.7] PDOR_BPSS_C_SS_SIMBIOSYS_hric_reset_test_noOBCP_00168.BC
[PS.8] PDOR_BPSS_C_SS_SIMBIOSYS_hric_sc_test_noOBCP_00169.BC
[PS.9] PDOR_BPSS_C_SS_SIMBIOSYS_MAX_DR_test_noME_00175.BC
[PS.10] PDOR_BPSS_C_SS_SIMBIOSYS_MAX_STRESS_test_noME_00176.BC
[PS.11] PDOR_BPSS_C_SS_SIMBIOSYS_ORBIT_test_noME_00177.BC

2.4. Acronyms

APID	Application Process IDentifier
CSV	Comma Separated Values
FOP	Flight Operation Plan.
FPA	Focal Plane Assembly
HK	Housekeeping

HRIC	High spatial Resolution Imaging Channel
ME	Main Electronics
NECP	Near Earth Commissioning Phase
PDS	Planetary Data System
PDOR	Payload Direct Operation Request
PE	Proximity Electronics
PNG	Portable Network Graphics
PSC	Packet Sequence Control
SIMBIO-SYS	Spectrometers and Imagers for MPO BepiColombo Integrated Observatory SYStem
SSC	Source Sequence Count
STC	STereo imaging Channel
TC	Telecommand
TM	Telemetry
VIHI	VIsible and Hyper-spectral Imaging channel
XML	eXtensible Markup Language

2.5. The test plan

The NECP test was planned on three days. Follow the test schema from [RD.1].

Date	AOS10	LOS10	Start Time	Activity	Dur. [h]	Start Time	Outside pass activity	Dur. [h]
10/12/2018	07:56:53	19:06:32	AOS10+2h	P45 ME functional checkout	0.50	LOS10+2h	P42 HRIC commissioning - performance test	4,00
				P42 HRIC Com. main	2.30			
				P43 STC Com. main	2.30			
				P44 VIHI Com. main	2.30			
11/12/2018	07:53:57	19:02:42	AOS10+8h	P42 HRIC com. red	0.60	LOS10+2h	P43 STC Commissioning - performance test	9,00
				P43 STC Com. red	1.00			
				P44 VIHI Com. red	0.60			
12/12/2018	07:51:04	19:02:56	AOS10+1h	P45 SIMBIO Performance tests - max stress/max DR				
			AOS10+3h	P45 SIMBIO Performance tests- orb simulation	1.50			
			AOS10+4.5h	P44 VIHI Com. - Performance tests	1.30			

Table 1: Test schema of the NECP Commissioning plan Right columns describe outpass activities

During the test some results required a deep analysis, including additional tests.
The final tests plan was structured as follow:

Day	Test
DAY 1	01 - ME Functional Test 02 - HRIC Functional Test 03 - STC Functional Test

	04 - VIHI Functional Test 05 - HRIC Other Test
DAY 1 OutPass	HRIC Performance Test
DAY 2	01 - HRIC TEC test 02 - STC TEC test 03 - VIHI TEC test 04 - HRIC functional test redundant 05 - STC functional test redundant 06 - VIHI functional test redundant 07 - Other test
DAY 2 OutPass	STC Performance Test
DAY 3	01 - SIMBIO TEC INIT 02 - MAX STRESS Test 03 - MAX DR Test 04 - ORBIT Test 05 - VIHI Performance 1 Test 06 - VIHI Performance 2 Test 07 - STC Outpass 2 recovery 08 - VIHI Performance 1 Test backup

Table 2 Tests plan of the three days of the SIMBIO-SYS NECP.

2.6. Report schema

For each test the report will be formed by four sections created by an automatic procedure:

- a summary of all the data produced in that test;
- a report for the events and telecommand acknowledgments;
- a report of the PE events;
- a check on the lost packets.

The repost includes even two sections with the comparison between the TC and the data results. Eventual problems or discrepancies will be discussed.

The complete list of the Sections defined for each test is shown in Table 2 and described in subsections below.

Session Number	Session Name
1	Telecomands
2	Data Procedure
3	Events Check
4	PE Event
5	Lost packets
6	Discussion

Table 3 Section structure defined for each Test.

2.6.1. Telecommands

In this Section the telecommands used for the test will be reported. For each telecommand an analysis and a prevision of the data output will be performed.

2.6.2. Data produced

In this Section a table with the data produced will be reported. The output files are two different type of CSVs (one for the diagnostic housekeeping and one with all the housekeeping parameters related to a single image) and a file containing the image in binary format. All the data are in PDS4 format, that means that they include an XML file with all the parameters of each acquisition, both considering as source the instrument or the spacecraft. A complete description of the file structure and of the folder tree is reported in [RD.2]. For each image is present an extra file in PNG format as quick preview.
In the summary schema will be reported number and total size of the follow file types:

- Diagnostic HKs
- Acquisition HKs;
- Images

2.6.3. Events check

In the event checks are reported:

- all the negative telecommand acknowledgments,
- the rejected telecommands, TM(1,2),
- the failed telecommands, TM(1,8).

For each rejected or failed telecommand event is reported a sheet with all the information about the telecommand, mnemonic name, description, time of execution and all the parameters.
For each event is reported a list for the low severity (TM(5,2)), medium severity (TM(5,3)) and high severity (TM(5,4)) errors with a description of the event.
The complete list of event and telecommand acknowledgments is reported into the Event file stored in each test folder. All the information for the event and telecommand acknowledgments are from [RD.3].

2.6.4. PE Events

From an automatic analysis of the diagnostic HK, a list of the negative event alerts, sent by the PE, is created. Each alert is reported with the decimal ID and with the complete description. All the information for the PE events refers to [RD.3].

2.6.5. Lost packets

The automatic check on the lost packets is performed using the Packet Sequence Control number (see [RD.3]). The PSC is a progressive number associated to the TM packets and follows a different enumeration for different APID. A list of the used APID is reported in the following table:

APID	Description
801	TC Verification
804	HK Reports
807	Event Reports
828	HRIC Data High Priority
844	STC Data High Priority
860	VIHI Data High Priority
870	HRIC Data Low Priority
892	STC Data Low Priority
908	VIHI Data Low Priority

Table 4 List of the APIDs associated to each dataflow.

The PSC number is stored in 14 bits. This means that the maximum value is 16383, after that the counter is reinitialized.
NB: A manual check in required in order to evaluate if some packets are lost at the begin and at the end of the acquisition. The automatic check detects only holes in the PSC sequence.

2.6.6. Test Results

In this section we will discuss the results, the discrepancies and the errors if they are present.

3. NECP results analysis

3.1.General consideration

With reference to Table 2, we summarize the following satisfaction table:

Test satisfaction list	
01 - ME Functional Test	
02 - HRIC Functional Test on MAIN ME channel	
03 - STC Functional Test on MAIN ME channel	
04 - VIHI Functional Test on MAIN ME channel	
05 - HRIC Other Test	
HRIC Performance Test	
01 - HRIC TEC Test	
02 - STC TEC Test	
03 - VIHI TEC Test	
04 - HRIC Functional Test on REDUNDANT ME channel	
05 - STC Functional Test on REDUNDANT ME channel	
06 - VIHI Functional Test on REDUNDANT ME channel	
07 - Other Test	
STC Performance Test	
01 - TEC INIT Test	
02 - MAX STRESS Test	
03 - MAX DR Test	
04 - ORBIT TEST	
05 - VIHI Performance 1 Test	
06 - VIHI Performance 2 Test	
07 - STC Performance R	
08 - VIHI Performance 1 Test backup	

Where green is test passed, orange passed with problems and red failed.

3.2.ME Functional Test

3.2.1. Test scope

The scope of this test is to check the ME functionality on both MAIN and REDUNDANT channels after launch.

3.2.2. Test execution

Time Frame: 2018-12-10T08:28:51.1 ÷ 2018-12-10T08:57:13.9

This test has been performed through the execution of a pre-defined FOP named SS-TST-001 whose specifications can be found in [RD.4].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
OFF	OFF	OFF	OFF

We sent several TCs interleaved by HK rate generation variation (i.e., ZSS00329) to better follow the behavior of the channel.
In particular, the FOP commands:

- Switch on ME using the redundant electronics;
- Dump of memory area;
- Switch off ME
- Switch on ME using nominal electronics;
- Dump of memory area;

The initial status of ME was off and it has been turned-on by means of an OBCP (i.e., ZSSK4000) whose specifications can be found in [RD.4].

3.2.3. Science

Not Applicable.

3.2.4. Data Produced

Bundle	Miscellaneous		
File	CSV:		
		#:	1
		Size:	0.031 MB

Table 5: Data produced in miscellaneous bundle during the ME Functional Test.

3.2.5. ME Events

None.

3.2.6. PE Events

None.

3.2.7. Lost Packets

Telecommand Verification:	12	[lost packats: 0]
HK Report:	57	[lost packats: 0]
Event/Anomaly Report:	12	[lost packats: 0]

Table 6: Summary of the packets downloaded and lost during the ME Functional Test.

3.2.8. Test Results

Produced output is in line with what expected, and no anomaly was detected.

3.3.HRIC Functional Test on MAIN ME channel

3.3.1. Test scope

The scope of this test is to check the HRIC functionality on ME MAIN channel after launch.

3.3.2. Test execution

Time Frame 2018-12-10T09:00:00 ÷ 2018-12-10T10:35:00

This test has been performed through the execution of a pre-defined FOP named SS-TST-010 whose specifications can be found in [RD.4].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	OFF

We sent several TCs interleaved by HK rate generation variation (i.e., ZSS00329) to better follow the behavior of the channel.
In particular the FOP commands:

- Switch on of the PE
- Switch on of the Detector
- Switch on of the TEC
- Test of the reading and writing of a specific memory address
- Science acquisitions
- Switch off of the TEC
- Switch off of the Detector
- Switch off of the PE

3.3.3. Science

With reference to the Science TCs, the following three science sessions have been performed:

1. 2 minutes of 640x2048 window size acquisitions with:
   Repetition Time = 1s, Integration Time = 50 μs and IBR=32
2. 2 minutes of 640x2048 window size acquisitions with:
   Repetition Time = 1s, Integration Time = 315 ms and IBR=32
3. 10 acquisitions of 640x2048 window with:
   Repetition Time = 1s, Integration Time = 50 μs and IBR=32

Table 7 describes the duration and the number of images and frames expected for each TCs commanded during Functional Test.

N(TC)	Duration	ZSS	Mode	Repetition Time [s]	Expected Acquisitions	Expected Frames
1	2m	Science	continuous	1	120	120
2	2m	Science	continuous	1	120	120
3	10s	Science	limited	1	10	10
3	2m 30s	-	-	-	250	250

Table 7: Summary of the science telecommand used during the HRIC Functional Test.

3.3.4. Data Produced

Bundle	Miscellaneous		
File	CSV:		
		#:	2
		size	2.207 MB

Table 8: Summary of the data produced in the miscellaneous bundle for the HRIC Functional Test.

Bundle	RAW	HRIC	
File	CSV:		
		#:	250
		size:	0.977 MB
	DAT:		
		#:	250
		size:	625 MB
Science	Sections	#	3

Table 9:Summary of the data produced in the Raw bundle for the HRIC Functional Test.

3.3.5. ME Events

None.

3.3.6. PE Events

None.

3.3.7. Lost Packets

Telecommand Verification:	74	[lost packets: 0]
HK Report:	2732	[lost packets: 0]
Event/Anomaly Report:	8	[lost packets: 0]
HRIC low Priority:	20250	[lost packets: 0]
HRIC high Priority:	0	[lost packets: 0]

Table 10: Summary of the packets downloaded and lost during the HRIC Functional Test.

3.3.8. Test Results

Produced output is in line with what expected.
The details are reported in Table 11 with information from section 3.3.3 and 3.3.4.

	Commanded	From TM
Images	250	250
Science Sessions	3	3

Table 11: Comparison between Commanded and downloaded science during the HRIC Functional Test.

Minor anomaly was detected during TEC activation due to wrong TEC activation parameters. This "error" has been detected on all following tests (i.e., functional and performance ones of all channels) and a solution has been implemented almost in real time (i.e., before TEC activation a new set of Upload Parameters TCs have been used). Before being applied, this solution has been validated during a specific test (see section 3.8, 3.9 and 3.10).

3.4.STC Functional Test on MAIN ME channel

3.4.1. Test scope

The scope of this test is to check the STC functionality on ME MAIN channel after launch.

3.4.2. Test execution

Time Frame: 2018-12-10T10:40:00 ÷ 2018-12-10T13:45:00.

This test has been performed through the execution of a pre-defined FOP named SS-TST-020 whose specifications can be found in [RD.4].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	OFF

We sent several TCs interleaved by HK rate generation variation ones (i.e., ZSS00329) to better follow the behavior of the channel.
In particular the FOP commands:

- Switch on of the PE
- Switch on of the Detector
- Switch on of the TEC
- Test of the reading and writing of a specific memory address
- Science acquisitions
- Switch off of the TEC
- Switch off of the Detector
- Switch off of the PE

3.4.3. Science

With reference to the Science TCs, the following four science sessions have been performed:

1. 2 minutes of CM compressed acquisitions with:
   Repetition Time = 400 ns, Integration Time = 50 μs and IBR=63
2. 50 CM compressed acquisitions with:
   Repetition Time = 400 ms, Integration Time = 50 μs and IBR=63
3. 50 CM compressed acquisitions with:
   Repetition Time = 200 ms, Integration Time = 50 μs and IBR=63
4. 10 CM compressed acquisitions with:
   Repetition Time = 2s, Integration Time ~ 1s and IBR=63

Where “CM” (Color Mode) is the acquisition of the 4 Broadband filters and the mitigation window.

Table 12 describes the duration and the number of images and frames expected for each TCs commanded during Functional Test.

N(TC)	Duration	ZSS	Mode	Repetition Time [ms]	Expected Acquisitions	Expected Frames
1	2m	Science	continuous	400	300	1500
2	20s	Science	limited	400	50	250
3	10s	Science	limited	200	50	250
4	20s	Science (1ms)	limited	2000	10	50
4	2m 50s	4	-	-	410	2050

Table 12: Summary of the science telecommand used during the STC Functional Test.

3.4.4. Data Produced

Bundle	Miscellaneous		
File	CSV:		
		#:	2
		size:	3.672 MB

Table 13:Summary of the data produced in the miscellaneous bundle for the STC Functional Test.

Bundle	RAW	STC	
File	CSV:		
		#:	2050
		size:	8.008 MB
File	DAT		
		#:	2050
		size:	185.781 MB
Science:	Sessions	#	3

Table 14:Summary of the data produced in the Raw bundle for the STC Functional Test.

3.4.5. ME Events

None.

3.4.6. PE Events

None.

3.4.7. Lost Packets

Telecommand Verification:	88	[lost packets: 0]
HK Report:	4573	[lost packets: 0]
Event/Anomaly Report:	10	[lost packets: 0]
STC low Priority:	11890	[lost packets: 0]
STC high Priority:	0	[lost packets: 0]

Table 15: Summary of the packets downloaded and lost during the STC Functional Test.

3.4.8. Test Results

Produced output is in line with what expected, and no anomaly was detected.
The details are reported in Table 16 with information from section 3.4.3 and 3.4.4.

	Commanded	From TM
Images	2050	2050
Science Sessions	4	4

Table 16: Comparison between Commanded and downloaded science during the STC Functional Test.

As anticipated in section 3.3.8, before TEC activation a set of Upload Parameter TCs have been executed to properly set-up the TEC controller.

3.5.VIHI Functional Test on MAIN ME channel

3.5.1. Test scope

The scope of this test is to check the VIHI functionality on ME MAIN channel after launch.

3.5.2. Test execution

Time Frame: 2018-12-10T13:50:00 ÷ 2018-12-10T15:45:00.

This test has been performed through the execution of a pre-defined FOP named SS-TST-037 whose specifications can be found in [RD.4].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	OFF

We sent several TCs interleaved by HK rate generation variation ones (i.e., ZSS00329) to better follow the behavior of the channel.
In particular the FOP commands:

- Switch on of the PE
- Switch on of the Detector
- Switch on of the TEC
- Test of the reading and writing of a specific memory address
- Science acquisitions
- Switch off of the TEC
- Switch off of the Detector
- Switch off of the PE

3.5.3. Science

With reference to the Science TCs, the following four science sessions have been performed:

1. 5.2 s of full frame acquisitions with:
   Repetition Time = 0.1s, Integration Time = 205.5 μs and IBR=0
2. 5.2 s of full frame acquisitions with:
   Repetition Time = 0.1s, Integration time = 137 μs, Dark subtraction and IBR=0

Table 17 describes the duration and the number of frames expected for each TCs commanded during Functional Test.

N(TC)	Duration	ZSS	Mode	Repetition Time [ms]	Expected Frames
1	5.2 s	Science	continuous	100	52
2	5.2 s	Science	continuous	100	52
2	10s		-	-	104

Table 17: Summary of the science telecommand used during the VIHI Functional Test.

3.5.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#:	2
		size:	3.594 MB

Table 18: Summary of the data produced in the miscellaneous bundle for the VIHI Functional Test.

Bundle	RAW	VIHI	
File	CSV		
		#:	104
		size:	0.406 MB
File	DAT		
		#:	104
		size:	13 MB
Science	Sessions	#:	2

Table 19: Summary of the data produced in the Raw bundle for the VIHI Functional Test.

3.5.5. ME Events

None.

3.5.6. PE Events

None.

3.5.7. Lost Packets

Telecommand Verification:	98	[lost packets: 0]
HK Report:	2862	[lost packets: 0]
Event/Anomaly Report:	4	[lost packets: 0]
VIHI low Priority:	3432	[lost packets: 0]
VIHI high Priority:	0	[lost packets: 0]

Table 20: Comparison between Commanded and downloaded science during the VIHI Functional Test.

3.5.8. Test Results

Produced output is in line with what expected, and no anomaly was detected.

The details are reported in Table 21 with information from section 3.5.3 and 3.5.4.

	Commanded	From TM
Images	104	104
Science Sessions	2	2

Table 21: Comparison between Commanded and downloaded science during the VIHI Functional Test.

In the 2nd Science Acquisition the Dark Subtraction operational mode without Dark Image (to store in the PE buffer) acquired before, was tested. As a result, the obtained frames contain unpredictable negative values.

As anticipated in section 3.3.8, before TEC activation a set of Upload Parameter TCs have been executed to properly set-up the TEC controller.

3.6. HRIC Other Test

3.6.1. Test scope

The scope of this test is to understand in which configuration (i.e., ME on and HRIC PE off, ME and HRIC PE on and TEC off, etc.) the commanding TEC parameters must be given.

3.6.2. Test execution

Time Frame: 2018-12-10T16:25:00 ÷ 2018-12-10T18:05:00.

This test has been performed through the execution of a set of telecommands to load the TEC parameters and to switch-on/off of the HRIC PE, TEC and detector.

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	OFF

We execute the follwing TCs:

- 5 Upload + Confirm telecommands with the values indicated in Section 8.3.16 of [RD.6]
- Switch on of the PE
- 5 Upload + Confirm telecommands with the values indicated in Section 8.3.16 of [RD.6]
- Switch on of the detector
- Switch on of the TEC
- Switch off of the TEC
- Switch off of the detector
- Switch off of the PE
- Switch on of the PE
- 5 Upload + Confirm Telecommands with the values indicated in Section 8.3.16 of [RD.6]

3.6.3. Science

Not applicable.

3.6.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		size:	3.945 MB

Table 22: Summary of the data produced in the miscellaneous bundle for the HRIC Other Test.

3.6.5. ME Events

Rejected telecommand:	0
Failed telecommand:	10
Low severity error:	1
Medium severity error:	0
High severity error:	0

Table 23: Summary of negative events and awk during the HRIC Other Test.

3.6.5.1. Failed Telecommand

The list of the failed telecommand is reported in the section 4.1.1. For each telecommand all the parameters are reported.

3.6.5.2. Low Severity Error

```
[2018-12-10T16:59:59.841] - TM(5,2) - [APID 807] - Event 40800 - HK Discarted due to SpW
                            error on link from HRIC
```

3.6.6. PE Events

There is 1 HRIC PE event:

```
[2018-12-10T17:00:00.310400] TC Timer Overflow (16)
```

3.6.7. Lost Packets

Telecommand Verification:	84	[lost packets: 0]
HK Report:	4871	[lost packets: 0]
Event/Anomaly Report:	5	[lost packets: 0]

Table 24: Comparison between Commanded and downloaded science during the HRIC Other Test.

3.6.8. Test Results

With reference to Section 8.3.16 of [RD.6] we verified that TEC settings must be done once HRIC PE is switched on.

3.7.HRIC Performance Test

3.7.1. Test scope

The scope of this test is to perform a subset of calibration measurements for monitoring the HRIC performance after launch.

3.7.2. Test execution

Time Frame: 2018-12-10T18:45:00 ÷ 2018-12-10T22:15:00.

This test has been performed through the execution of 4 pre-defined PDORs ([PS.5], [PS.6], [PS.7] and [PS.8]) described in to [RD.1].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	ON	OFF	OFF

3.7.3. Science

We sent several telecommands performing the following 4 science sessions:

1. hric_comp_test: 5 512x512 pixels acquisitions with variable compression factor (i.e., IBR=0, 1, 16, 32, 56)
2. hric_dc_test: reduced dark current calibration campaign on FPAN and BB filters with low and high priority
3. hric_sc_test: several acquisitions of BB filters (complete and small version) read in different order and with different integration time
4. hric_reset_test: several acquisition of small region of the detector at different combination of integration and repetition time
5. hric_sc_test: several acquisitions of BB filters (complete and reduced version) read in different order and with different integration time

Table 25 describes the duration and the number of images and frames expected for each telecommands commanded during Functional Test.

PDOR	Number of telecommands	Duration [h:mm]	Expected Acquisition's	Expected Frames
hric_comp_test	5	0:05	5	5
hric_dc_test	68	0:24	680	1360
hric_reset_test	30	0:47	450	450
hric_sc_test	36	0:35	720	2160
Total	139	1:51	1855	3975

Table 25: Summary of the science telecommand used during the HRIC Performance Test.

3.7.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		size	6.336 MB

Table 26: Summary of the data produced in the miscellaneous bundle for the HRIC Performance Test.

Bundle	RAW	HRIC	
File	CSV		
		#	3975
		size	15.527 MB
File	DAT		
		#	3975
		size	2502.03 MB
Science	Sessions	#:	139

Table 27: Summary of the data produced in the Raw bundle for the HRIC Functional Test.

3.7.5. ME Events

None.

3.7.6. PE Events

None.

3.7.7. Lost Packets

Telecommand Verification:	278	[lost packets: 0]
HK Report:	13411	[lost packets: 0]
Event/Anomaly Report:	145	[lost packets: 0]
HRIC low Priority:	238975	[lost packets: 0]
HRIC high Priority:	20060	[lost packets: 0]

Table 28: Comparison between Commanded and downloaded science during the HRIC Performance Test.

3.7.8. Test Results

Produced output is in line with what expected, and no anomalies were detected.

The details are reported in Table 29 with information from section 3.7.3 and 3.7.4.

	Commanded	From TM
Images	3975	3975
Science Sessions	139	139

Table 29: Comparison between Commanded and downloaded science during the HRIC Performance Test.

3.8.HRIC TEC Test

3.8.1. Test scope

The scope of this test is to verify if TEC activation parameters survive to PE switch-off.

3.8.2. Test execution

Time Frame: 2018-12-11T10:05:00 ÷ 2018-12-11T10:45:00.

This test has been performed through the execution of a set of TC to load the correct TEC parameters and switch-on/off of the HRIC PE, TEC and detector.

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	OFF

We sent several TCs to upload the TEC parameters and to verify their survival in ME/PE buffers after HRIC PE switch-off. In particular we execute the follwing TCs:

- Switch on of the PE
- 5 Upload + Confirm telecommands with the values indicated in Section 8.3.16 of [RD.6]
- Switch on of the detector
- Switch on of the TEC
- Switch off of the TEC
- Switch off of the detector
- Switch off of the PE
- Switch on of the HRIC PE, detector and PE by OBCP whose specifications can be found in [RD.4].
- Switch off of the HRIC PE, detector and PE by OBCP whose specifications can be found in [RD.4].

3.8.3. Science

Not applicable.

3.8.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		Size	1.367 MB

Table 30: Summary of the data produced in the miscellaneous bundle for the HRIC TEC Test.

3.8.5. ME Events

None.

3.8.6. PE Events

None.

3.8.7. Lost Packets

Telecommand Verification:	34	[lost packets: 0]
HK Report:	1685	[lost packets: 0]
Event/Anomaly Report:	4	[lost packets: 0]

Table 31: Comparison between Commanded and downloaded science during the HRIC TEC Test.

3.8.8. Test Results

Produced output is in line with what expected, and no anomaly was detected.

3.9.STC TEC Test

3.9.1. Test scope

The scope of this test is to verify that TEC parameters setting survive to PE switch-off.

3.9.2. Test execution

Time Frame: 2018-12-11T10:45:00 ÷ 2018-12-11T11:44:00.

This test has been performed through the execution of a set of TC to load the correct TEC parameters and switch-on/off of the STC PE, TEC and detector.

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	OFF

We sent several TCs to upload the TEC parameters and to verify their survival in ME/PE buffers after STC PE switch-off. In particular we execute the follwing TCs:

- Switch on of the PE
- 5 Upload + Confirm telecommands with the values indicated in Section 8.3.16 of [RD.6]
- Switch on of the detector
- Switch on of the TEC
- Switch off of the TEC
- Switch off of the detector
- Switch off of the PE
- Switch on of the STC PE, detector and PE by OBCP whose specifications can be found in [RD.4].
- Switch off of the STC PE, detector and PE by OBCP whose specifications can be found in [RD.4].

3.9.3. Science

Not applicable.

3.9.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		Size	1.211 MB

Table 32: Summary of the data produced in the miscellaneous bundle for the STC TEC Test.

3.9.5. ME Events

None.

3.9.6. PE Events

None.

3.9.7. Lost Packets

Telecommand Verification:	36	[lost packet(s): 0]
HK Report:	1490	[lost packet(s): 0]
Event/Anomaly Report:	4	[lost packet(s): 0]

Table 33: Comparison between Commanded and downloaded science during the STC TEC Test.

3.9.8. Test Results

Produced output is in line with what expected, and no anomaly was detected.

3.10. VIHI TEC Test

3.10.1. Test scope

The scope of this test is to verify that TEC parameters setting survive to PE switch-off.

3.10.2. Test execution

Time Frame: 2018-12-11T11:44:00 ÷ 2018-12-11T12:31:00.

This test has been performed through the execution of a set of TC to load the correct TEC parameters and switch-on/off of the VIHI PE, TEC and detector.

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	OFF

We sent several TCs to upload the TEC parameters and to verify their survival in ME/PE buffers after VIHI PE switch-off. In particular we execute the follwing TCs:

- Switch on of the PE
- 5 Upload + Confirm telecommands with the values indicated in Section 8.3.16 of [RD.6]
- Switch on of the detector
- Switch on of the TEC
- Switch off of the TEC
- Switch off of the detector
- Switch off of the PE
- Switch on of the VIHI PE, detector and PE by OBCP whose specifications can be found in [RD.4].
- Switch off of the VIHI PE, detector and PE by OBCP whose specifications can be found in [RD.4].

3.10.3. Science

Not applicable.

3.10.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		Size	1.844 MB

Table 34: Summary of the data produced in the miscellaneous bundle for the VIHI TEC Test.

3.10.5. ME Events

None.

3.10.6. PE Events

None.

3.10.7. Lost Packets

Telecommand Verification:	44	[lost packet(s): 0]
HK Report:	1440	[lost packet(s): 0]
Event/Anomaly Report:	4	[lost packet(s): 0]

Table 35: Comparison between Commanded and downloaded science during the VIHI TEC Test.

3.10.8. Test Results

Produced output is in line with what expected, and no anomalies were detected.

3.11. HRIC Functional Test on REDUNDANT ME channel

3.11.1. Test scope

The scope of this test is to check the HRIC functionality on ME REDUNDANT channel after launch.

3.11.2. Test execution

Time Frame: 2018-12-11T13:40:00 ÷ 2018-12-11T14:03:00.

This test has been performed through the execution of a pre-defined FOP named SS-TST-011 whose specifications can be found in [RD.4].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (REDUNDANT channel)	OFF	OFF	OFF

We sent several telecommands interleaved by HK rate generation variation (i.e., ZSS00329) to better follow the behavior of the channel.
In particular the FOP commands:

- Switch on of the PE
- Switch on of the Detector
- Switch on of the TEC
- Test of the reading and writing of a specific memory address
- Science acquisitions
- Switch off of the TEC
- Switch off of the Detector
- Switch off of the PE

3.11.3. Science

With reference to the Science TCs, we acquired 640x2048 pixels windows with Repetition Time = 1s, Integration Time = 50 μs and IBR=32.

Table 36 describes the duration and the number of images and frames expected for each TC commanded during Functional Test.

N(TC)	Duration	ZSS	Mode	Repetition Time [s]	Expected Acquisitions	Expected Frames
1	2m	Science	continuous	1	120	120
1	2ms	-	-	-	120	120

Table 36: Summary of the science telecommand used during the HRIC Functional Test.

3.11.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		size	0.988 MB

Table 37: Summary of the data produced in the miscellaneous bundle for the HRIC Functional Test.

Bundle	RAW	HRIC	
File	CSV		
		#	120
		size	0.469 MB
File	DAT		
		#	120
		size	300 MB
Science	Sessions	#	1

Table 38: Summary of the data produced in the Raw bundle for the HRIC Functional Test.

3.11.5. ME Events

None.

3.11.6. PE Events

None.

3.11.7. Lost Packets

Telecommand Verification:	24	[lost packet(s): 0]
HK Report:	1238	[lost packet(s): 0]
Event/Anomaly Report:	4	[lost packet(s): 0]
HRIC low Priority:	9720	[lost packet(s): 0]
HRIC high Priority:	0	[lost packet(s): 0]

Table 39: Summary of the packets downloaded and lost during the HRIC Functional Test.

3.11.8. Test Results

Produced output is in line with what expected, and no anomalies were detected.

The details are reported in Table 40 with information from section 3.11.3 and 3.11.4.

	Commanded	From TM
Images	120	120
Science Sessions	1	1

Table 40: Comparison between Commanded and downloaded science during the HRIC Functional Test.

3.12. STC Functional Test on REDUNDANT ME channel

3.12.1. Test scope

The scope of this test is to check the STC functionality on ME REDUNDANT channel after launch.

3.12.2. Test execution

Time Frame: 2018-12-11T14:09:00 ÷ 2018-12-11T14:32:00.

This test has been performed through the execution of a pre-defined FOP named SS-TST-020 whose specifications can be found in [RD.4].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (REDUNDANT channel)	OFF	OFF	OFF

We sent several TCs interleaved by HK rate generation variation (i.e., ZSS00329) to better follow the behavior of the channel.
In particular the FOP commands:

- Switch on of the PE
- Switch on of the Detector
- Switch on of the TEC
- Test of the reading and writing of a specific memory address
- Science acquisitions
- Switch off of the TEC
- Switch off of the Detector
- Switch off of the PE

3.12.3. Science

With reference to the Science TCs, 2 minutes of CM in continuous mode with short integration time, compression (IBR=63), Repetition Time=400ms has been executed.

Table 41 describes the duration and the number of images and frames expected for each TC commanded during Functional Test.

N(TC)	Duration	ZSS	Mode	Repetition Time [ms]	Expected Acquisitions	Expected Frames
1	2m	Science	continuous	400	300	1500
1	2m					1500

Table 41:Summary of the science telecommand used during the STC Functional Test.

3.12.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		size:	0.961 MB

Table 42: Summary of the data produced in the miscellaneous bundle for the STC Functional Test.

Bundle	Raw	STC	
File	CSV		
		#	1500
		Size	5.859 MB
File	DAT		
		#	1500
		Size	135.938 MB
Science	Sessions	#	1

Table 43: Summary of the data produced in the Raw bundle for the STC Functional Test.

3.12.5. ME Events

None.

3.12.6. PE Events

None.

3.12.7. Lost Packets

Telecommand Verification:	24	[lost packet(s): 0]
HK Report:	1178	[lost packet(s): 0]
Event/Anomaly Report:	4	[lost packet(s): 0]
STC low Priority:	8700	[lost packet(s): 0]
STC high Priority:	0	[lost packet(s): 0]

Table 44: Comparison between Commanded and downloaded science during the STC Functional Test.

3.12.8. Test Results

Produced output is in line with what expected, and no anomalies were detected.

The details are reported in Table 45 with information from section 3.12.3 and 3.12.4.

	Commanded	From TM
Images	1500	1500
Science Sessions	1	1

Table 45: Comparison between Commanded and downloaded science during the STC Functional Test.

3.13. VIHI Functional Test on REDUNDANT ME channel

3.13.1. Test scope

The scope of this test is to check the VIHI functionality on ME REDUNDANT channel after launch.

3.13.2. Test execution

Time Frame: 2018-12-11T14:36:00 ÷ 2018-12-11T14:56:00.

This test has been performed through the execution of a pre-defined FOP named SS-TST-033 whose specifications can be found in [RD.4].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (REDUNDANT channel)	OFF	OFF	OFF

We sent several TCs interleaved by HK rate generation variation (i.e., ZSS00329) to better follow the behavior of the channel.
In particular the FOP commands:

- Switch on of the PE
- Switch on of the Detector
- Switch on of the TEC
- Test of the reading and writing of a specific memory address
- Science acquisitions
- Switch off of the TEC
- Switch off of the Detector
- Switch off of the PE

3.13.3. Science

With reference to the Science TCs, 35s of full frame acquisitions with Repetition Time = 0.505s has been performed.

Table 46 describes the duration and the number of frames expected for each TC commanded during Functional Test.

N(TC)	Duration	ZSS	Mode	Repetition Time [ms]	Expected Frames
1	35s	Science	continuous	505	45
1	**35s**	**-**	**-**	**-**	**45**

Table 46: Summary of the science telecommand used during the VIHI Functional Test.

3.13.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		Size	1.344 MB

Table 47: Summary of the data produced in the miscellaneous bundle for the VIHI Functional Test.

Bundle	RAW	VIHI	
File	CSV		
		#	45
		Size	0.176 MB
File	DAT		
		#	45
		Size	5.625 MB
Science	Sessions	#	1

Table 48: Summary of the data produced in the Raw bundle for the VIHI Functional Test.

3.13.5. ME Events

None.

3.13.6. PE Events

None.

3.13.7. Lost Packets

Telecommand Verification:	14	[lost packet(s): 0]
HK Report:	1032	[lost packet(s): 0]
Event/Anomaly Report:	2	[lost packet(s): 0]
VIHI low Priority:	1485	[lost packet(s): 0]
VIHI high Priority:	0	[lost packet(s): 0]

Table 49: Comparison between Commanded and downloaded science during the VIHI Functional Test.

3.13.8. Test Results

Produced output is in line with what expected, and no anomalies were detected.

The details are reported in Table 52 with information from section 3.13.3 and 3.13.4.

	Commanded	From TM
Images	45	45
Science Sessions	1	1

Table 50: Comparison between Commanded and downloaded science during the VIHI Functional Test.

3.14. Other Test

3.14.1. Test scope

The scope of this test is to upload the STC TEC parameters in preparation of the following STC performance test.

3.14.2. Test execution

Time Frame: 2018-12-11T15:00:00 ÷ 2018-12-11T17:58:00.

This test has been performed through the execution of a set of TC to load the correct TEC parameters and switch-on/off of the STC PE, TEC and detector.

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (REDUNDANT channel)	OFF	OFF	OFF

3.14.3. Science

Not applicable.

3.14.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	1
		Size	0.160 MB

Table 51: Summary of the data produced in the miscellaneous bundle for the Other Test.

3.14.5. ME Events

None.

3.14.6. PE Events

None.

3.14.7. Lost Packets

Telecommand Verification:	0	[lost packet(s): 0]
HK Report:	305	[lost packet(s): 0]
Event/Anomaly Report:	0	[lost packet(s): 0]

Table 52: Comparison between Commanded and downloaded science during the Other Test.

3.14.8. Test Results

Produced output is in line with what expected, and no anomaly was detected.

3.15. STC Performance Test

3.15.1. Test scope

The scope of this test is to perform a subset of calibration measurements for monitoring the STC performance after.

3.15.2. Test execution

Time Frame: 2018-12-11T18:25:00 ÷ 2018-12-11T23:40:00.

This test has been performed through the execution of 4 pre-defined PDORs ([PS.1], [PS.2], [PS.3] and [PS.4]) described in [RD.1].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	ON	OFF

3.15.3. Science

We sent several telecommands performing the following 4 science sessions:

1. *stc_nominal_test*: reduced dark current campaign for the Color Mode and Global Mapping operation modes (high priority).
2. *single_filters_test*: reduced dark current campaign for the separated filters (high priority).
3. *stc_out_filters_test*: reduced spurious charge calibration (low priority) campaign of the FPA.
4. *stc_reset_test*: several acquisitions of the mitigation windows (low priority) to test the reset capabilities of the detector.

Table 53 describes the duration and the number of images and frames expected for each telecommand commanded during Functional Test.

PDOR	Number of Telecommands	Duration [h:mm]	Expected Acquisition's	Expected Frames
stc_nominal_test	84	1:18	840	3360
single_filters_test	169	1:56	1690	3380
stc_out_filters_test	44	0:43	272	272
stc_reset_test	84	1:44	1680	1680
Total	**381**	**5:41**	4482	8692

Table 53: Summary of the science telecommand used during the STC Performance Test.

3.15.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		Size	0.531 MB

Table 54: Summary of the data produced in the miscellaneous bundle for the STC Performance Test.

Bundle	RAW	STC	
File	CSV		
		#	8524
		Size	33.297 MB
File	DAT		
		#	8524
		Size	1634.22 MB
Science	Sessions	#	353

Table 55: Summary of the data produced in the Raw bundle for the STC Functional Test.

3.15.5. ME Events

Rejected telecommand:	0
Failed telecommand:	28
Low severity error:	0
Medium severity error:	0
High severity error:	0

Table 56: Summary of negative events and awk during the STC Performance Test.

3.15.5.1. Failed Telecommand

The list of the failed telecommand is reported in the section 4.1.2. For each telecommand all the parameters are reported.

3.15.6. PE Events

None.

3.15.7. Lost Packets

Telecommand Verification:	786	[lost packet(s): 0]
HK Report:	1344	[lost packet(s): 0]
Event/Anomaly Report:	772	[lost packet(s): 0]
STC low Priority:	82365	[lost packet(s): -1]
STC high Priority:	286550	[lost packet(s): 0]

Table 57: Comparison between Commanded and downloaded science during the STC Performance Test.

The -1 code stay for a repeted packets in the telemetry.

3.15.8. Test Results

The output is **not** in line with what expected.
The packet repeated (see Session 3.15.7) has corrupted one image of the test: the image sim_img_stc_low_sc_0_filterx_NECP_20181211T201033269567, part of the *stc_reset_test*.
A set of science sessions are missing. The details are reported in table Table 58 with information from section 3.15.3 and 3.15.4.

	Commanded	From TM	Missing
Acqusitions	8692	8524	*168*
Science Sessions	381	353	*28*

Table 58: Comparison between Commanded and downloaded science during the STC Performance Test.

The missing science sessions are due to the 28 telecommands failed.
These telecommands are divided in:

- 12 full along track acquisitions (1 window and 10 acq/tc)
- 8 spurious charge test acqusitions (1 window and 3 acq/tc)

For a total of 168 images as verified.
Part of the telecommands (28 science telecommands) of the “stc_out_filters_test” were rejected by ME due to a wrong initialization of the window size. The tests were repeated successfully the day after in the so called, “STC outpass recovery” (see Section 3.22).

3.16. TEC INIT Test

3.16.1. Test scope

The scope of this test is to upload the TEC parameters of all SIMBIO-SYS channels in preparation of the following inter-channels performance tests.

3.16.2. Test execution

Time Frame: 2018-12-12T10:00:00 ÷ 2018-12-12T10:30:00.

This test has been performed through the execution of a set of TC to load the correct TEC parameters and switch-on/off of the all PEs, TECs and detectors.

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	OFF

3.16.3. Science

Not applicable.

3.16.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	4
		Size	0.176 MB

Table 59: Summary of the data produced in the miscellaneous bundle for the Init Test.

3.16.5. ME Events

None.

3.16.6. PE Events

None.

3.16.7. Lost Packets

Telecommand Verification:	74	[lost packet(s): 0]
HK Report:	319	[lost packet(s): 0]
Event/Anomaly Report:	12	[lost packet(s): 0]

Table 60: Comparison between Commanded and downloaded science during the Init Test.

3.16.8. Test Results

Produced output is in line with what expected and no anomaly was detected.

3.17. MAX STRESS Test

3.17.1. Test scope

The scope of this test is to command in science mode all the three channels of SIMBIO-SYS opportunely configured to stress at maximum all the units (i.e., PE and ME) involved during acquisitions.

3.17.2. Test execution

Time Frame: 2018-12-12T10:40:00 ÷ 2018-12-12T11:30:00.

This test has been performed through the execution of a pre-defined PDOR, [PS.10]

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	ON	ON	ON

3.17.3. Science

We sent 3 TCs performing for 10 minutes the following 3 science sessions:

1. 512x512 window HRIC acquisitions with:
   8x8 binning, IBR=63 and Repetition Time 0.5s
2. STC acquisitions in CM with:
   IBR=63 and Repetition Time 0.2s
3. VIHI in full frame acquisition with:
   dark subtraction and Repetition Time 0.04s

Table 61 describes the duration and the number of images and frames expected for each TC commanded during MAX STRESS Test.

N(TC)	Duration	ZSS	Mode	Repetition Time [s]	Expected Acquisitions	Expected Frames
1	10m	Science	continuous	0.5	1200	1200
2	10m	Science	continuous	0.2	3000	15000
3	10m	Science	continuous	0.04	15000	15000
3	10m	-	-	-	19200	31200

Table 61: Summary of the science telecommand used during the MAX STRESS Test.

3.17.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	4
		Size	5.762 MB

Table 62: Summary of the data produced in the miscellaneous bundle for the MAX STRESS Test.

Bundle	RAW	HRIC	
File	CSV		

		#	1200
		Size	4.688 MB
File	DAT		
		#	1200
		Size	75 MB
Science	Sessions	#	1

Table 63: Summary of the data produced in the Raw bundle for the MAX STRESS Test for the HRIC channel.

Bundle	RAW	STC	
File	CSV		
		#	7605
		Size	29.707 MB
File	DAT		
		#	7605
		Size	689.203 MB
Science	Sessions	#	1

Table 64: Summary of the data produced in the Raw bundle for the MAX STRESS Test for the STC channel.

Bundle	RAW	VIHI	
File	CSV		
		#	15000
		Size	58.594 MB
File	DAT		
		#	15000
		Size	468.75 MB
Science	Sessions	#	1

Table 65: Summary of the data produced in the Raw bundle for the MAX STRESS Test for the VIHI channel.

3.17.5. ME Events

None.

3.17.6. PE Events

None.

3.17.7. Lost Packets

Telecommand Verification:	14	[lost packet(s): 0]
HK Report:	7218	[lost packet(s): 0]
Event/Anomaly Report:	9	[lost packet(s): 0]
HRIC low Priority:	4800	[lost packet(s): 0]
STC low Priority:	44108	[lost packet(s): 0]
VIHI low Priority:	15000	[lost packet(s): 0]
HRIC high Priority:	0	[lost packet(s): 0]
STC high Priority:	0	[lost packet(s): 0]
VIHI high Priority:	0	[lost packet(s): 0]

Table 66: Comparison between Commanded and downloaded science during the MAX STRESS Test.

3.17.8. Test Results

Produced output, for HRIC and VIHI, is in line with what expected, and no anomaly was detected.

The details are reported in table Table 70 with information from section 3.17.3 and 3.17.4.

		Commanded	From TM	Missing
Images	HRIC	1200	1200	0
	STC	15000	7606	7394
	VIHI	15000	15000	0
Science Sessions	HRIC	1	1	0
	STC	1	1	0
	VIHI	1	1	0

Table 67: Comparison between Commanded and downloaded science during the Max Stress Test.

In the data were found the following problems that will be discussed in the report of each channel:

- **About half of the STC Science data are completely lost (1274 MB expected 689 MB obtained;**
- **Last available STC frame present an incomplete subframe (i.e., row=00, col=12) and a missing subframe (i.e., row=00, col=13) in F920;**
- **VIHI Science Acquisitions contain unknown values since Dark Subtraction flag has been used without previous acquisition of Dark Image;**

Aftrer a fast investigation we discovered that the STC lost data are due to the overwriting of the SSMM by the “STC Outpass 2 recovery” performed later the same day.

3.18. MAX DR Test

3.18.1. Test scope

The scope of this test is to command in science mode all the three channels of SIMBIO-SYS opportunely configured to evaluate ME behavior during acquisitions at maximum Data Rate.

3.18.2. Test execution

Time Frame: 2018-12-12T11:30:00 ÷ 2018-12-12T11:35:00.

This test has been performed through the execution of a pre-defined PDORs named "PDOR_BPSS_C_SS_SIMBIOSYS_MAX_DR_test_noME_00175.BC" whose specifications can be found in [RD.4].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	ON	ON	ON

3.18.3. Science

We sent 3 Telecommands performing for 1 minute the following 3 science sessions:

1. FPAN HRIC acquisitions with:
   IBR=63 and Repetition Time 1.115s
2. STC acquisitions in CM with:
   IBR=63 and Repetition Time 0.2s
3. VIHI in full frame acquisition with:
   IBR=1 and Repetition Time 0.04s

Table 68 describes the duration and the number of images and frames expected for each TC commanded during MAX DR Test.

N(TC)	Duration	ZSS	Mode	Repetition Time [s]	Expected Acquisitions	Expected Frames
1	1m	Science	continuous	1.115	55	55
2	1m	Science	continuous	0.2	300	1500
3	1m	Science	continuous	0.04	1508	1508
3	1m	-	-	-	1863	3063

Table 68: Summary of the science telecommand used during the MAX DR Test.

3.18.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	4
		Size	1.063 MB

Table 69: Summary of the data produced in the miscellaneous bundle for the MAX DR Test.

Bundle RAW	HRIC		
File	CSV		
		#	55
		Size	0.215 MB
File	DAT		
		#	55
		Size	137.5 MB
Science	Sessions	#:	1

Table 70: Summary of the data produced in the Raw bundle for the MAX DR Test for the HRIC channel.

Bundle	RAW	STC	
File	CSV		
		#	0
		Size	0 MB
File	DAT		
		#	0
		Size	0 MB
Science	Sessions	#:	0

Table 71: Summary of the data produced in the Raw bundle for the MAX DR Test for the STC channel.

Bundle	RAW	VIHI	
File	CSV		
		#	1508
		Size	5.891 MB
File	DAT		
		#	1508
		Size	188.5 MB
Science	Sessions	#:	1

Table 72: Summary of the data produced in the Raw bundle for the MAX DR Test for the VIHI channel.

3.18.5. ME Events

None.

3.18.6. PE Events

None.

3.18.7. Lost Packets

Telecommand Verification:	12	[lost packet(s): 0]
HK Report:	1200	[lost packet(s): 0]
Event/Anomaly Report:	6	[lost packet(s): 0]
HRIC low Priority:	8690	[lost packet(s): 0]
STC low Priority:	0	[lost packet(s): 0]
VIHI low Priority:	28652	[lost packet(s): 0]
HRIC high Priority:	0	[lost packet(s): 0]
STC high Priority:	0	[lost packet(s): 0]
VIHI high Priority:	0	[lost packet(s): 0]

Table 73: Comparison between Commanded and downloaded science during the MAX DR Test.

3.18.8. Test Results

Produced output received is in line with what expected.

The details are reported in table Table 78 with information from section 3.18.3 and 3.18.4.

		Commanded	From TM	Missing
Images	HRIC	55	55	0
	STC	1500	0	1500
	VIHI	1508	1508	0
Science Sessions	HRIC	1	1	0
	STC	1	0	1
	VIHI	1	1	0

Table 74: Comparison between Commanded and downloaded science during the Max DR Test.

Note that all STC Science data are lost (125 MB expected).

STC lost data are due to the overwriting of the SSMM by the “STC Outpass 2 recovery” performed later the same day.

3.19. ORBIT TEST

3.19.1. Test scope

The scope of this test is to command in science mode all the three channels of SIMBIO-SYS opportunely configured to evaluate ME behavior during acquisitions simulating the nominal operation mode of SIMBIO-SYS during the Global Mapping Phase.

3.19.2. Test execution

Time Frame: 2018-12-12T11:35:00 ÷ 2018-12-12T12:50:00.

This test has been performed through the execution of a pre-defined PDOR, [PS.11].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	ON	ON	ON

3.19.3. Science

The test simultated a nominal orbit of SIMBIO-SYS acquiring images with all the three channels; in particular:

1. STC acquired images continuously changing integration time, repetition time and crosstrack dimention for 9 different section of orbit. It acquired in Global Mapping mode lossy (IBR=32) changing its cross track window size from 128 px to 640 px.
2. VIHI acquired images continously changing integration time and repetition time for 8 different sections of orbit.
3. HRIC acquired images in target mode mode with PAN filter in lossy (IBR=32) compression.

The table below summarizes the ORBIT Test timeline for all the three channels.

Absolute Start Time	Duration [s]	Channel	NACQ	Orbit Section	Repetition Time [s]	Expected Acquisitions	Expected Frames
11:38:14	540	STC	Continous	STC1	12.3	43	129
11:38:16	240	VIHI	Continous	VIHI1	0.13	1847	1847
11:42:16	480	VIHI	Continous	VIHI2	0.1	4800	2400
11:47:14	300	STC	Continous	STC2	11.575	25	75
11:50:16	300	VIHI	Continous	VIHI3	0.08	3756	1878
11:50:18	240	HRIC	120	HRIC1	2	120	120
11:52:14	180	STC	Continous	STC3	10.32	17	51
11:55:14	300	STC	Continous	STC4	8.7	34	102
11:55:16	420	VIHI	Continous	VIHI4	0.06	6996	1749
12:00:14	780	STC	Continous	STC5	7.665	101	303
12:02:16	900	VIHI	Continous	VIHI5	0.04	22512	5628
12:02:18	120	HRIC	80	HRIC2	1.5	80	80
12:13:15	240	STC	Continous	STC6	7.97	30	90
12:17:15	180	STC	Continous	STC7	8.695	20	60
12:17:17	660	VIHI	Continous	VIHI6	0.05	13204	6602
12:20:15	240	STC	Continous	STC8	9.635	25	75
12:24:15	180	STC	Continous	STC9	11.24	16	48
12:28:17	180	VIHI	Continous	VIHI7	0.07	2572	1285
12:31:17	360	VIHI	Continous	VIHI8	0.08	2250	2250
12:31:19	2.5	HRIC	1	HRIC3	2.5	1	1

Table 75: ORBIT Test timeline.

PDOR	Number of Telecommands	Duration [h:mm]	Expected Acquisition's	Expected Frames
HRIC	3	1:00	201	201
STC	9	1:00	311	933
VIHI	8	1:00	60166	23639
Total	381	1:00		

Table 76: Summary of the science telecommand used during the ORBIT Test.

3.19.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	4
		Size	14.871 MB

Table 77: Summary of the data produced in the miscellaneous bundle for the ORBIT Test.

Bundle	RAW	HRIC	
File	CSV		
		#	201
		Size	0.785 MB
File	DAT		
		#	201
		Size	502.5 MB
Science	Sessions	#	3

Table 78: Summary of the data produced in the Raw bundle for the ORBIT Test for the HRIC channel.

Bundle	RAW	STC	
File	CSV		
		#	525
		Size	2.051 MB
File	DAT		
		#	525
		Size	127.234 MB
Science	Sessions	#	5

Table 79: Summary of the data produced in the Raw bundle for the ORBIT Test for the STC channel.

Bundle	RAW	VIHI	
File	CSV		
		#	18257
		Size	71.316 MB
File	DAT		
		#	18257
		Size	285.266 MB
Science	Sessions	#	5

Table 80: Summary of the data produced in the Raw bundle for the ORBIT Test for the VIHI channel.

3.19.5. ME Events

None.

3.19.6. PE Events

None.

3.19.7. Lost Packets

Telecommand Verification:	44	[lost packet(s): 0]
HK Report:	16908	[lost packet(s): 0]
Event/Anomaly Report:	12	[lost packet(s): 0]
HRIC low Priority:	16584	[lost packet(s): 0]
STC low Priority:	4160	[lost packet(s): 0]
VIHI low Priority:	18257	[lost packet(s): 0]
HRIC high Priority:	0	[lost packet(s): 0]
STC high Priority:	0	[lost packet(s): 0]
VIHI high Priority:	0	[lost packet(s): 0]

Table 81: Comparison between Commanded and downloaded science during the ORBIT Test.

3.19.8. Test Results

Produced output received is in line with what expected.

The details are reported in table Table 90 with information from section 3.19.3 and 3.19.4.

		Commanded	From TM	Missing
Images	HRIC	201	201	0
	STC	933	525	408
	VIHI	23639	18257	5382
Science Sessions	HRIC	3	3	0
	STC	9	5	4
	VIHI	8	5	3

Table 82: Comparison between Commanded and downloaded science during the Orbit Test.

The following anomalies were detected:

- **Data of first 4 STC Science TCs (low priority) are lost (226 MB expected, 127 MB obtained).**
- **First 19 Acqusitions of 5th STC Science TC (low priority) are incomplete.**
- **Data of first and last two VIHI Science TCs are lost <u>even if the Packet Sequence Count has no gap</u>.**

STC lost data are due to the overwriting of the SSMM by the “STC Outpass 2 recovery” performed later the same day.

3.20. VIHI Performance 1 Test

3.20.1. Test scope

The scope of this test is to perform a subset of calibration measurements for monitoring the VIHI performance after launch.

3.20.2. Test execution

Time Frame: 2018-12-12T12:51:00 ÷ 2018-12-12T13:24:00.

This test has been performed through the execution of a pre-defined FOP named SS-TST-031 whose specifications can be found in [RD.4].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	ON

3.20.3. Science

We sent several telecommands performing the following 4 science sessions:

- Dark acquisition
- Science acquisition
- Lamp acquisition with shutter open
- LED acquisition with shutter open

Table 83 describes the duration and the number of frames expected for each telecommand commanded during Functional Test.

Session	Number of Telecommands	Duration [hh:mm:ss]	Expected Acquisition's	Expected Frames
Dark Acquisition	4	00:01:00	60	60
Science Acquisition	4	00:08:00	240	240
Lamp Acquisition	5	00:08:00	300	300
LED acquisition	4	00:08:00	240	240
Total	**17**	**00:25:00**	**840**	**840**

Table 83: Summary of the science telecommand used during the VIHI Performance Test 1.

3.20.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		Size	1.785 MB

Table 84: Summary of the data produced in the miscellaneous bundle for the VIHI Performance Test 1.

Bundle	RAW	VIHI	
File	CSV		
		#	840
		Size	3.281 MB
File	DAT		
		#	840
		Size	101.25 MB
Science	Sessions	#	17

Table 85: Summary of the data produced in the Raw bundle for the VIHI Performance Test 1.

3.20.5. ME Events

None.

3.20.6. PE Events

There is 1 event:

```
[2018-12-12T12:52:51.880376] TC length not correct (4)
```

3.20.7. Lost Packets

Telecommand Verification:	78	[lost packet(s): 0]
HK Report:	2906	[lost packet(s): 0]
Event/Anomaly Report:	28	[lost packet(s): 0]
VIHI low Priority:	26760	[lost packet(s): 0]
VIHI high Priority:	0	[lost packet(s): 0]

Table 86: Comparison between Commanded and downloaded science during the VIHI Performace 1 Test.

3.20.8. Test Results

Produced output is partially in line with what expected. Second and third science sessions are correctly executed but with wrong “tag” (i.e., dark acquisitions instead of SCIENCE and LAMP ones) since OPEN SHUTTER TC failed due to an error on PE-ME SpW.

The details are reported in Table 87 with information from section 3.20.3 and 3.20.4.

	Commanded	From TM
Images	840	840
Science Sessions	17	17

Table 87: Comparison between Commanded and downloaded science during the VIHI Performace 1 Test.

N.B.: Each session has been commanded with the “Dark Acquisition” parameter set (=1) which is correct only for the first session.

3.21. VIHI Performance 2 Test

3.21.1. Test scope

The scope of this test is to perform a subset of calibration measurements for monitoring the VIHI performance after launch.

3.21.2. Test Execution

Time Frame: 2018-12-12T13:32:51 ÷ 2018-12-12T14:15:33.

This test has been performed through the execution of a pre-defined FOP named SS-TST-032 whose specifications can be found in [RD.4].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	ON

3.21.3. Science

We sent several telecommands performing the following 2 science sessions:

- Dark acquisition
- Science acquisition

Table 88 describes the duration and the number of frames expected for each telecommand commanded during Functional Test.

Session	Number of Telecommands	Duration [hh:mm:ss]	Expected Acquisition's	Expected Frames
Dark Acquisition	7	00:01:45	104	104
Science Acquisition	14	00:28:00	701	701
Total	**21**	**00:29:45**	**805**	**805**

Table 88: Summary of the science telecommand used during the VIHI Performance Test 2.

3.21.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		Size	1.824 MB

Table 89: Summary of the data produced in the miscellaneous bundle for the VIHI Performance Test 2.

Bundle	RAW	VIHI	
File	CSV		
		#	805
		Size	3.145 MB
File	DAT		
		#	805
		Size	82.578 MB
Science	Sessions	#	21

Table 90: Summary of the data produced in the Raw bundle for the VIHI Performance Test 2.

3.21.5. ME Events

None.

3.21.6. PE Events

None.

3.21.7. Lost Packets

Telecommand Verification:	78	[lost packet(s): 0]
HK Report:	3089	[lost packet(s): 0]
Event/Anomaly Report:	31	[lost packet(s): 0]
VIHI low Priority:	19635	[lost packet(s): 0]
VIHI high Priority:	0	[lost packet(s): 0]

Table 91: Comparison between Commanded and downloaded science during the VIHI Performace 2 Test.

3.21.8. Test Results

Produced output is in line with what expected from the number of frames expected.

The details are reported in Table 92 with information from section 3.21.3 and 3.21.4.

	Commanded	From TM
Images	805	805
Science Sessions	21	21

Table 92: Comparison between Commanded and downloaded science during the VIHI Performance 2 Test.

3.22. STC Performance Recovery

3.22.1. Test scope

The scope of this test is to recovery the Out of filters TCs (belonging to "PDOR PDOR_BPSS_C_SS_SIMBIOSYS_stc_out_filters_test") refused by the ASW during STC out of pass test. The scope of the test was acquiring a data bench to evaluate the STC spurious charge.

3.22.2. Test execution

Time Frame: 2018-12-12T14:22:00 ÷ 2018-12-12T15:04:00.

This test has been performed through the execution of a PDOR, [PS.2].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	OFF

3.22.3. Science

We sent several TCs performing a reduced spurious charge calibration (low priority) campaign of the FPA.

Table 93 describes the duration and the number of images and frames expected for the PDOR commanded during STC outpass recovery 2

PDOR	NTCs	Duration [h:mm]	Expected Acquisition's	Expected Frames
STC_outfilters_PDOR_bup	25	00:41:08	25	25
Total	25	00:41:08	25	25

Table 93: Summary of the science telecommand used during the STC Performance Recovery Test.

3.22.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		Size	1.641 MB

Table 94: Summary of the data produced in the miscellaneous bundle for the STC Performance Recovery Test.

Bundle	RAW	STC	
File	CSV		
		#	227
		Size	0.887 MB
File	DAT		
		#	227
		Size	533.062 MB
Science	Sessions	#	25

Table 95: Summary of the data produced in the Raw bundle for the STC Functional Recovery Test.

3.22.5. ME Events

None.

3.22.6. PE Events

None.

3.22.7. Lost Packets

Telecommand Verification:	50	[lost packet(s): 0]
HK Report:	3091	[lost packet(s): 0]
Event/Anomaly Report:	24	[lost packet(s): 0]
STC low Priority:	119563	[lost packet(s): 110]
	[2018-12-12T14:39:44.204000] [position: 19941] packet number(s): 300	
	[2018-12-12T14:39:44.204427] [position: 19942] packet number(s): -301	
	[2018-12-12T14:39:45.204732] [position: 20242] packet number(s): 1	
	[2018-12-12T14:45:38.204000] [position: 113374] packet number(s): 635	
	[2018-12-12T14:45:38.417669] [position: 113375] packet number(s): -636	
	[2018-12-12T14:45:38.753622] [position: 113697] packet number(s): 110	
	[2018-12-12T14:45:39.204717] [position: 113900] packet number(s): 1	
STC high Priority:	0	[lost packet(s): 0]

Table 96: Comparison between Commanded and downloaded science during the STC Performance Recovery Test.

3.22.8. Test Results

Produced output received is in line with what expected.

The details are reported in Table 100 with information from section 3.22.3 and 3.22.4.

	Commanded	From TM
Images	227	227
Science Sessions	25	25

Table 97: Comparison between Commanded and downloaded science during the STC Performance Recovery Test.

N.B. The Test produced an overwriting on the SSMM of the APID "STC low priority". This is due to a capacity limit reached of the SSMM. This means that the PDOR cancelled part of the images data acquired the same day as specified in Section 3.17, 3.18 and 3.19.

Two packets result peculiar. The packets are sorted using the Generation Time and the Source Sequence Count (SSC). The SSC is resetted each 16383 packets due to the nuber of bits used for the storage of the info. On the interval of the SSC between 0 and 16383 the SSC and the generation Time order must be the same. Those two packets don't follow this rule, and the Fine Time is setted to 0. See the results of Table 96 in section 3.22.7. The anomaly is under investigation.

3.23. VIHI Performance 1 Test backup

3.23.1. Test scope

The scope of this test is to re-run the VIHI Performance Test 1 to check the failed TC relative to the opening of the SHUTTER.

3.23.2. Text Execution

Time Frame: 2018-12-12T15:50:28 ÷ 2018-12-12T16:28:04.

This test has been performed through the execution of a pre-defined FOP named SS-TST-031 whose specifications can be found in [RD.4].

INSTRUMENT INITIAL STATUS			
ME	HRIC	STC	VIHI
ON (MAIN channel)	OFF	OFF	OFF

3.23.3. Science

We sent several telecommands performing the following 4 science sessions:

- Dark acquisition
- Science acquisition
- Lamp acquisition with shutter open
- LED acquisition with shutter open

Table 98 describes the duration and the number of frames expected for each telecommand commanded during Functional Test.

Session	Number of Telecommands	Duration [h:mm]	Expected Acquisition's	Expected Frames
Dark Acquisition	4	00:01:00	60	60
Science Acquisition	4	00:08:00	240	240
Lamp Acquisition	5	00:08:00	300	300
LED acquisition	4	00:08:00	240	240
Total	17	00:25:00	840	840

Table 98: Summary of the science telecommand used during the VIHI Performance Recovery Test 1.

3.23.4. Data Produced

Bundle	Miscellaneous		
File	CSV		
		#	2
		Size	2.641 MB

Table 99:Summary of the data produced in the miscellaneous bundle for the VIHI Performance Recovery Test 1.

Bundle	RAW	VIHI	
File	CSV		
		#	840
		Size	3.281 MB
File	DAT		
		#	840
		Size	101.25 MB
Science	Sessions	#	17

Table 100:Summary of the data produced in the Raw bundle for the VIHI Performance Recovery Test 1.

3.23.5. ME Events

None.

3.23.6. PE Events

None.

3.23.7. Lost Packets

Telecommand Verification:	76	[lost packet(s): 0]
HK Report:	4637	[lost packet(s): 0]
Event/Anomaly Report:	30	[lost packet(s): 0]
VIHI low Priority:	26760	[lost packet(s): 0]
VIHI high Priority:	0	[lost packet(s): 0]

Table 101: Comparison between Commanded and downloaded science during the VIHI Performance 1 Recovery Test.

3.23.8. Test Results

Produced output is in line with what expected, and no anomalies were detected.
The details are reported in Table 102 with information from section 3.23.3 and 3.23.4.

	Commanded	From TM
Images	840	840
Science Sessions	17	17

Table 102: Comparison between Commanded and downloaded science during the VIHI Performance 2 Test.

N.B.: Each session has been commanded with the "Dark Acquisition" parameter set (=1) which is correct only for the first session.

4. Annexes

4.1.Failed Telecommands

4.1.1. HRIC Other Test

```
[2018-12-10T16:27:18.965] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 7, APID: 812, Sequence n. 137]
  [2018-12-10T16:27:20.846292Z] SIMB HRIC Upload parameters [ZSS17105] [SSC: 137]
    HRIC param ID (PSS08007) = 1
    parameter value (PSS01604) = 77
```

```
[2018-12-10T16:27:24.091] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 7, APID: 812, Sequence n. 138]
  [2018-12-10T16:27:25.951107Z] SIMB HRIC Confirm Command [ZSS17104] [SSC: 138]
```

```
[2018-12-10T16:27:29.215] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 7, APID: 812, Sequence n. 139]
  [2018-12-10T16:27:31.075339Z] SIMB HRIC Upload parameters [ZSS17105] [SSC: 139]
    HRIC param ID (PSS08007) = 2
    parameter value (PSS01604) = 33
```

```
[2018-12-10T16:27:34.214] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 7, APID: 812, Sequence n. 140]
  [2018-12-10T16:27:36.139246Z] SIMB HRIC Confirm Command [ZSS17104] [SSC: 140]
```

```
[2018-12-10T16:27:39.215] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 7, APID: 812, Sequence n. 141]
  [2018-12-10T16:27:41.067163Z] SIMB HRIC Upload parameters [ZSS17105] [SSC: 141]
    HRIC param ID (PSS08007) = 3
    parameter value (PSS01604) = 112
```

```
[2018-12-10T16:27:44.215] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 7, APID: 812, Sequence n. 142]
  [2018-12-10T16:27:46.030097Z] SIMB HRIC Confirm Command [ZSS17104] [SSC: 142]
```

```
[2018-12-10T16:27:49.214] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 7, APID: 812, Sequence n. 143]
  [2018-12-10T16:27:51.091680Z] SIMB HRIC Upload parameters [ZSS17105] [SSC: 143]
    HRIC param ID (PSS08007) = 4
    parameter value (PSS01604) = 5
```

```
[2018-12-10T16:27:54.214] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 7, APID: 812, Sequence n. 144]
  [2018-12-10T16:27:56.092267Z] SIMB HRIC Confirm Command [ZSS17104] [SSC: 144]
```

```
[2018-12-10T16:27:59.215] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 7, APID: 812, Sequence n. 145]
```

```
  [2018-12-10T16:28:01.155430Z] SIMB HRIC Upload parameters [ZSS17105] [SSC: 145]
    HRIC param ID (PSS08007) = 5
    parameter value (PSS01604) = 3
```

```
[2018-12-10T16:28:04.340] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 7, APID: 812, Sequence n. 146]
  [2018-12-10T16:28:06.134585Z] SIMB HRIC Confirm Command [ZSS17104] [SSC: 146]
```

4.1.2. STC performance Test

```
 [2018-12-11T19:29:58.469] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 236]
  [2018-12-11T19:30:00.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 236]
    integration time (PSS01501) = 0
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 10
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 0
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 8
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:30:07.469] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 237]
  [2018-12-11T19:30:09.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 237]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 10
```

```
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 0
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 8
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:30:16.469] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 238]
  [2018-12-11T19:30:18.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 238]
    integration time (PSS01501) = 0
    repetition time STC (PSS01629) = 1000
    NbrAcq (PSS01602) = 10
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 0
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 8
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
```

```
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:31:08.469] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 239]
  [2018-12-11T19:31:10.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 239]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 1000
    NbrAcq (PSS01602) = 10
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 0
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 8
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:32:00.469] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 240]
  [2018-12-11T19:32:02.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 240]
    integration time (PSS01501) = 0
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 10
    number of windows (PSS00301) = 1
```

```
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 23
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 31
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:32:09.469] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 241]
  [2018-12-11T19:32:11.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 241]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 10
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 23
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 31
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
```

```
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:32:18.469] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 242]
  [2018-12-11T19:32:20.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 242]
    integration time (PSS01501) = 0
    repetition time STC (PSS01629) = 1000
    NbrAcq (PSS01602) = 10
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 23
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 31
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:33:10.468] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 243]
  [2018-12-11T19:33:12.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 243]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 1000
    NbrAcq (PSS01602) = 10
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
```

```
    start strip pixel w1 (PSS00501) = 23
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 31
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:34:02.468] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 244]
  [2018-12-11T19:34:04.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 244]
    integration time (PSS01501) = 0
    repetition time STC (PSS01629) = 240
    NbrAcq (PSS01602) = 10
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 9
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 23
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
```

```
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:34:16.468] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 245]
  [2018-12-11T19:34:18.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 245]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 240
    NbrAcq (PSS01602) = 10
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 9
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 23
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:34:30.468] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 246]
  [2018-12-11T19:34:32.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 246]
    integration time (PSS01501) = 0
    repetition time STC (PSS01629) = 1000
    NbrAcq (PSS01602) = 10
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 9
```

```
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 23
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:35:22.468] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 247]
  [2018-12-11T19:35:24.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 247]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 1000
    NbrAcq (PSS01602) = 10
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 9
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 23
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
```

```
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 1
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:40:38.467] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 256]
  [2018-12-11T19:40:40.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 256]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 11
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:40:43.467] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 257]
  [2018-12-11T19:40:45.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 257]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 128
    start strip pixel w1 (PSS00501) = 11
    end row pixel w1 (PSS01102) = 2047
```

```
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:40:48.467] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 258]
  [2018-12-11T19:40:50.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 258]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 256
    start strip pixel w1 (PSS00501) = 11
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
```

```
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:40:53.467] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 259]
  [2018-12-11T19:40:55.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 259]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 384
    start strip pixel w1 (PSS00501) = 11
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:40:58.467] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 260]
  [2018-12-11T19:41:00.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 260]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 512
    start strip pixel w1 (PSS00501) = 11
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
```

```
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:41:03.466] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 261]
  [2018-12-11T19:41:05.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 261]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 640
    start strip pixel w1 (PSS00501) = 11
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
```

```
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:41:08.467] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 262]
  [2018-12-11T19:41:10.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 262]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 768
    start strip pixel w1 (PSS00501) = 11
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:41:13.466] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 263]
  [2018-12-11T19:41:15.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 263]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 896
    start strip pixel w1 (PSS00501) = 11
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
```

```
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:41:58.466] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 272]
  [2018-12-11T19:42:00.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 272]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 12
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
```

```
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:42:03.466] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 273]
  [2018-12-11T19:42:05.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 273]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 13
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:42:08.466] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 274]
  [2018-12-11T19:42:10.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 274]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 14
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
```

```
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:42:13.466] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 275]
  [2018-12-11T19:42:15.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 275]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 15
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
```

```
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:42:18.466] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 276]
  [2018-12-11T19:42:20.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 276]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 16
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:42:23.466] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 277]
  [2018-12-11T19:42:25.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 277]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 17
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
```

```
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:42:28.466] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 278]
  [2018-12-11T19:42:30.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 278]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 18
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
```

```
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```

```
[2018-12-11T19:42:33.466] - TM(1,8) - [APID 801] - Event N/A - Telecommand Execution
Failure [Failure ID: 40000, APID: 812, Sequence n. 279]
  [2018-12-11T19:42:35.000000Z] SIMB STC SCIENCE [ZSS17202] [SSC: 279]
    integration time (PSS01501) = 500
    repetition time STC (PSS01629) = 140
    NbrAcq (PSS01602) = 3
    number of windows (PSS00301) = 1
    start row pixel w1 (PSS01101) = 0
    start strip pixel w1 (PSS00501) = 19
    end row pixel w1 (PSS01102) = 2047
    end strip pixel w1 (PSS00502) = 20
    start row pixel w2 (PSS01103) = 0
    start strip pixel w2 (PSS00503) = 0
    end row pixel w2 (PSS01104) = 0
    end strip pixel w2 (PSS00504) = 1
    start row pixel w3 (PSS01105) = 0
    start strip pixel w3 (PSS00505) = 0
    end row pixel w3 (PSS01106) = 0
    end strip pixel w3 (PSS00506) = 1
    start row pixel w4 (PSS01107) = 0
    start strip pixel w4 (PSS00507) = 0
    end row pixel w4 (PSS01108) = 0
    end strip pixel w4 (PSS00508) = 1
    start row pixel w5 (PSS01109) = 0
    start strip pixel w5 (PSS00509) = 0
    end row pixel w5 (PSS01110) = 0
    end strip pixel w5 (PSS00510) = 1
    start row pixel w6 (PSS01111) = 0
    start strip pixel w6 (PSS00511) = 0
    end row pixel w6 (PSS01112) = 0
    end strip pixel w6 (PSS00512) = 1
    Compression box dimensio (PSS00205) = 1
    Compression ratio w1 (PSS00601) = 0
    Compression ratio w2 (PSS00602) = 0
    Compression ratio w3 (PSS00603) = 0
    Compression ratio w4 (PSS00604) = 0
    Compression ratio w5 (PSS00605) = 0
    Compression ratio w6 (PSS00606) = 0
    LS bit1 PE mode (PSS00101) = 0
    Priority (PSS08008) = 0
```