



HIFI TEI TEST REPORT

Doc. no. : SRON-U/HIFI/RP/2001-023

Issue : Issue 1.0

Date : Dec 20, 2001

Category :

Page : 1 of 8

HIFI

Title **HIFI TEI test report**

Prepared by : Luc Dubbeldam

Date : 20 dec 2001

Checked by :

Date :

Agreed by :

Date :

Authorised by :

Date :

Filename: TEI test report.doc.

	<h1>HIFI TEI TEST REPORT</h1>	Doc. no. : SRON-U/HIFI/RP/2001-023 Issue : Issue 1.0 Date : Dec 20, 2001 Category : Page : 2 of 8
<h2>HIFI</h2>		

1 INTRODUCTION

This document reports the test of the TEI software as carried out according to AD 3.

2 DOCUMENT REFERENCES

2.1 Applicable documents

- AD 1. Test equipment interface URD SRON-U/HIFI/SP/2001-009
- AD 2. TEI TMTC ICD SRON-U/HIFI/SP/2001-011
- AD 3. HIFI TEI test procedure

2.2 Reference documents

- RD 1. TEI-FPU Software Specification Document
- RD 2. TEI MIB Attached as Annex A to this report

3 REPORT

3.1 Conclusion

The acceptance test has been carried out successfully.

Several Non-conformances have been detected and solved during the try-out on Dec 18, 2001.

No Non-conformances have been detected during the final test.

Open Item

The Software specification document is available in draft and will be issued as version 1 in January 2002.

3.2 Test details

The test has been carried out on Dec 18 and 20, 2001 by:

- Henri Hannink, Salland Engineering
- Luc Dubbeldam, SRON
- Leon Hiemstra, SRON

3.3 Test caveats

1. The connected Temperature Controller often returns 0-values in stead of correct values. The SW developer is convinced that this problem resides in the Temperature-controller, not in the TEI-SW.
2. The graphic display that shows the Alphanumeric display of SCOS-2000 does not work properly. By other means than displaying the packet it was demonstrated that SCOS-2000 does receive the HK-packet.
3. The OBS-ID of the House-keeping packet must be 00030000, as the packetizer of SCOS-2000 takes the MSB part of OBS-ID for the LSB-part of the SID. This is a shortcoming of the packetizer which will be resolved in the next version of SCOS. It has no impact on the SW under test
4. The PUS-Version number of the TM-packets has been adapted to fit the SCOS-2000 packetizer. This is a shortcoming of the packetizer which will be resolved in the next version of SCOS. It has no impact on the SW under test
5. The error message "inconsistent data" has not been implemented. This is more a shortcoming of the specification of inconsistent data, than of the SW-under test.

3.4 Software and Hardware overview

3.4.1 Overview of deliverable software

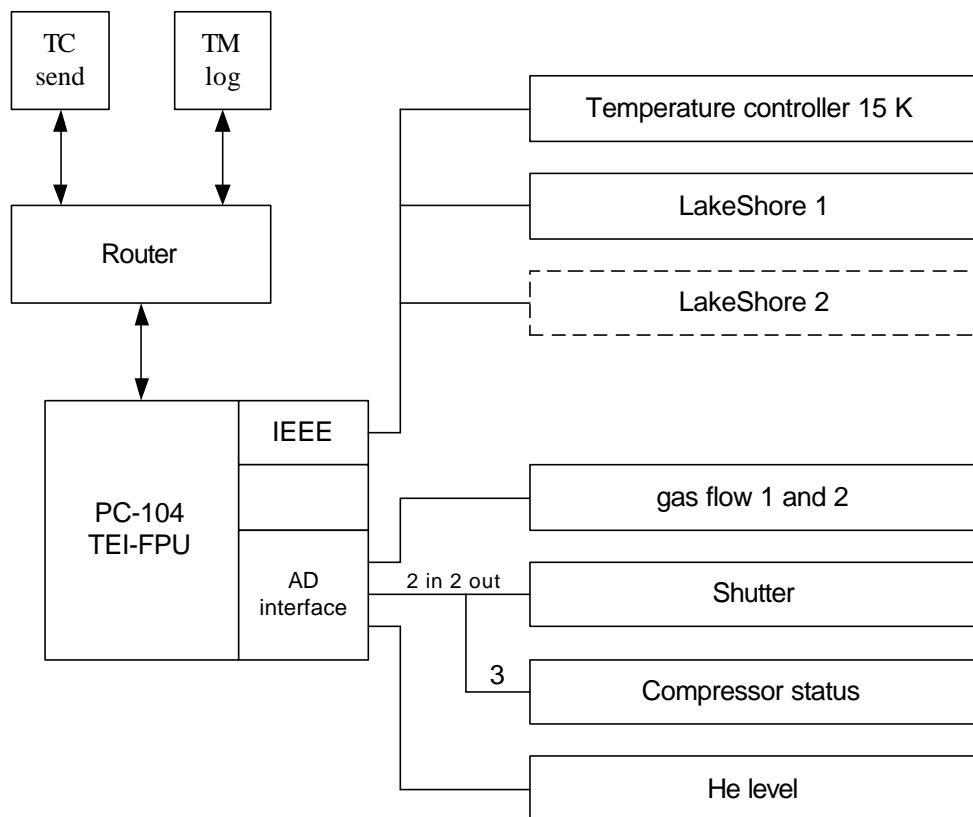
The delivered Software will be described in a separate document, RD 1.

	<h1>HIFI TEI TEST REPORT</h1>	Doc. no. : SRON-U/HIFI/RP/2001-023 Issue : Issue 1.0 Date : Dec 20, 2001 Category : Page : 3 of 8
<h2>HIFI</h2>		

3.4.2 Overview of test-clients

- TC Send, a module that connects to the Router, it reads a TC-packet from a specified file, extracts the application data and forwards a TC to the Router.
- FPU-log, a module that receives and displays the TM-packets of one APID.
- All TC-files listed in the testprocedure, Annex A

3.4.3 Overview of EGSE-context



TEI-FPU

Notes

- One Lakeshore unit was present. The TEI uses this one unit as both LS1 and LS2
- The compressor status can be injected with a BO-box.
- Gas flow pulses can be injected with a BO-box
- Analog output was generated with power supply to simulate He-level.
- Used Router: 0.92 + SCOS gateway
- Used SCOS-2000: Release 2.0, TTA-version
- Used MIB, as listed in RD 2



HIFI TEI TEST REPORT

Doc. no. : SRON-U/HIFI/FP/2001-023

Issue : Issue 1.0

Date : Dec 20, 2001

Category :

Page : 4 of 8

HIFI

Connection

step	description	TC number	result
4.2.1.-3	Connection test Expects: - acceptance report success - link report	TC2017_17_1	OK OK

Telecommand verification

step	description	TC number	result
4.2.2.-1	Illegal APID (not possible to deliver)	skip	skipped
4.2.2.-2	Wrong length Expects: acceptance report failure code 1	TC_wrong_length	OK
4.2.2.-3	Wrong checksum Expects: acceptance report failure code 2	TC_wrong_crc	OK
4.2.2.-4	Unknown type Expects: acceptance report failure code 3	TC_wrong_type	OK
4.2.2.-5	Known type with unknown subtype Expects: acceptance report failure code 4	TC_wrong_subtype	OK
4.2.2.-6	inconsistent data Expects: acceptance report failure code 5	TC_wrong_FID	Skipped

TM packets

step	description		result
4.2.3-1	Check the time-code in TM header		OK
4.2.3-2	Check the APID		OK
4.2.3-3	Check counter		OK
4.2.3-4	Check checksum		Accepted by SCOS-2000: OK

OBS ID and BB-ID

step	description	TC number	result
4.2.4-1	Set OBS-ID	TC2017_8_4_1_1	
4.2.4-2	Check acceptance report		cc70: OK
4.2.4-3	Check OBS-ID in TM packets		fedcba98: OK
4.2.4-4	Set BB-ID	TC2017_8_4_1_2	
4.2.4-5	Check acceptance report		cc71:OK
4.2.4-6	Check OBS-ID and BB-ID in TM packets		12345678: OK
4.2.4-7	Send TC with OBS-ID >0 in parameter field		OK
4.2.4-8	Send TC with OBS-ID =0 in		OK



HIFI

HIFI TEI TEST REPORT

Doc. no. : SRON-U/HIFI/FP/2001-023

Issue : Issue 1.0

Date : Dec 20, 2001

Category :

Page : 5 of 8

	parameter field		

Switch on

step	description	result
	Check activities at startup:	
4.2.5-1	Check OBS ID and BB ID	00 00 : OK
4.2.5-2	Configure equipment	Done manually for Temp controller
4.2.5-3	Start Monitor function	OK
4.2.5-4	TC to stand-by	
4.2.5-5	Close shutter	OK

Monitor function

The table below shows 5 subsequent FPU house-keeping packets as received by SCOS-2000:

Parameter	TM1	TM2	TM3	TM4	TM5
Packet ID	8fe1	8fe1	8fe1	8fe1	8fe1
Seq control	c467	c468	c469	c46a	c46b
Length	0053	0053	0053	0053	0053
spare/PUS/spare/Type	0003	0003	0003	0003	0003
Subtype/spare	1900	1900	1900	1900	1900
Time [s]	3c21	3c21	3c21	3c21	3c21
	c75d	c75f	c761	c762	c765
Time [sub-s]	deb4	7ecf	7ea2	ed25	4eff
SID	0000	0000	0000	0000	0000
Observation ID	0003	0003	0003	0003	0003
	0000	0000	0000	0000	0000
Building Block ID	0000	0000	0000	0000	0000
	0000	0000	0000	0000	0000
FPU Equipment status	387b	387b	3873	286b	387b
FPU TC1 status	0000	0000	0000	0000	0000
FPU TC2 status					
FPU TC1 set	0000	0129	0129	0000	0000
FPU TC2 set	0000	0000	0000	0000	0000
FPU TC1	649b	649b	649b	649b	649b
FPU TC2	0000	0000	0000	0000	0000
FPU LS1 sensor 1	3979	3981	3981	3984	3984
FPU LS1 sensor 2	3984	398a	398a	3989	398a
FPU LS1 sensor 3	3914	3914	3914	3914	3914
FPU LS1 sensor 4	3984	3984	3984	3986	3982
FPU LS1 sensor 5	3975	397f	397f	3989	3985
FPU LS1 sensor 6	3989	3992	3992	3997	3992
FPU LS1 sensor 7	397c	3981	3981	3984	397e
FPU LS1 sensor 8	3984	3984	3984	3986	3981
FPU LS2 sensor 1	3979	3981	3981	3981	3984
FPU LS2 sensor 2	3984	398a	3988	3988	398a
FPU LS2 sensor 3	3914	3914	3913	3913	3914
FPU LS2 sensor 4	3984	3984	3984	3984	3982



HIFI TEI TEST REPORT

Doc. no. : SRON-U/HIFI/FP/2001-023

Issue : Issue 1.0

Date : Dec 20, 2001

Category :

Page : 6 of 8

HIFI

Parameter	TM1	TM2	TM3	TM4	TM5
FPU LS2 sensor 5	3975	397f	3981	3981	3985
FPU LS2 sensor 6	3989	3992	3991	3991	3992
FPU LS2 sensor 7	397c	3981	397f	397f	397e
FPU LS2 sensor 8	3984	3984	3984	3984	3981
FPU He level	f25e	f13e	fb22	f975	f8b2
FPU He pressure	f0ab	efc3	f11f	f184	f1a9
FPU Hot/cold temp 1	0000	0000	0000	0000	0000
FPU Hot/cold temp 2	0000	0000	0000	0000	0000
FPU Heat switch1	0000	0000	0000	0000	0000
FPU Heat switch2	0000	0000	0000	0000	0000
FPU shutter status	0107	0107	0107	0107	0107
FPU compressor status					
FPU gas flow 1	0004	0004	0004	0004	0004
FPU gas flow 2	0000	0000	0000	0000	0000
Checksum	68fc	75b6	0b1c	87d1	8c9c

Commanding

step	description	TC number	result
4.2.7-1	Close the shutter	TC2017-8-4-4-1-close	
4.2.7-2	Check acceptance report		1fec cc68 : OK
4.2.7-3	Check BB-ID		7123 4003: OK
4.2.7-4	Check House-keeping		Shutter status 2: OK
4.2.7-5	Open the shutter	TC2017-8-4-4-1-open	
4.2.7-6	Check acceptance report		1fec cc67 : OK
4.2.7-7	Check BB-ID		7123 4002: OK
4.2.7-8	Check House-keeping		Shutter status 1: OK
4.2.7-9	Set shutter to wobble	TC2017-8-4-4-1-wobble	
4.2.7-10	Check acceptance report		1fec cc66 : OK
4.2.7-11	Check BB-ID		7123 4001: OK
4.2.7-12	Check House-keeping		Shutter status 3: OK
4.2.7-13	Set TC1 status stand-by	TC2017_8_4_2_1_0	
4.2.7-14	Check acceptance report		1fec cc6a : OK
4.2.7-15	Check BB-ID		61234004: Ok
4.2.7-16	Check House-keeping		TC1 status 0: Ok
4.2.7-17	Set TC1 status active	TC2017_8_4_2_1_1	
4.2.7-18	Check acceptance report		1fec cc6b : OK
4.2.7-19	Check BB-ID		61234005: Ok
4.2.7-20	Check House-keeping		TC1 status 1: Ok
4.2.7-21	Set TC2 status stand-by	TC2017_8_4_3_1_0	skipped, not connected
4.2.7-22	Check acceptance report		
4.2.7-23	Check BB-ID		
4.2.7-24	Check House-keeping		
4.2.7-25	Set TC2 status active	TC2017_8_4_3_1_1	
4.2.7-26	Check acceptance report		

	<h1>HIFI TEI TEST REPORT</h1>	Doc. no. : SRON-U/HIFI/RP/2001-023
<h1>HIFI</h1>		Issue : Issue 1.0 Date : Dec 20, 2001 Category : Page : 7 of 8

4.2.7-27	Check BB-ID		
4.2.7-28	Check House-keeping		
4.2.7-29	Set TC1 temperature	TC2017_8_4_2_2	
4.2.7-30	Check acceptance report		1fec cc6e : OK
4.2.7-31	Check BB-ID		41234008: Ok
4.2.7-32	Check House-keeping		TC1 set 129: Ok
4.2.7-33	Set TC2 temperature	TC2017_8_4_3_2	Skipped
4.2.7-34	Check acceptance report		
4.2.7-35	Check BB-ID		
4.2.7-36	Check House-keeping		

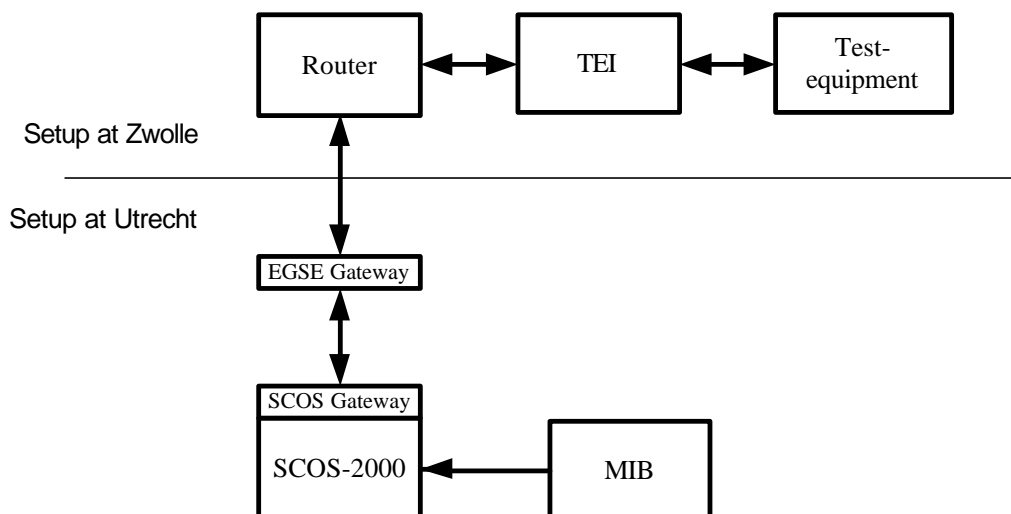
Anomalies

step	description	result
4.2.7-37	Set any of the digital inputs: I1:	An event-report is generated when the status changes
4.2.7-38	I2:	
4.2.7-39	I3:	

Gas-flow

step	description	result
4.2.7-40	Generate pulses at gas flow input 1	
4.2.7-41	Check House-keeping	OK
4.2.7-42	Generate pulses at gas flow input 2	
4.2.7-43	Check House-keeping	OK

TEI and SCOS



The figure shows the components and where they are running. On the PC in Zwolle the Manual Stack and the Desk-top could be displayed. There were difficulties with displaying the Alphanumeric displays.

A command could be issued by the Manual stack to the TEI. The command was accepted properly by the TEI.

The House-keeping packets were generated by TEI and received by SCOS-2000. When an OOL-value of the compressor status is generated, SCOS-2000 Desk-top displays the error-message KM066 out of range. This demonstrates that the TM-packets are received properly by SCOS-2000 and interpreted properly.

Error recovery Router restart

step	description	result
4.4.1-1	Start with normal connected system	The application generates error "error connecting, connection refused" Until the router is running Then the connection is normal
	Kill the router	
	Restart the router	
	Check the behaviour of application	

Ethernet connection disconnected

step	description	result
4.4.2-1	Start with normal connected system	The application reacts properly as soon as the connection is reestablished
	Disconnect ethernet	
	Send TC to TEI	
	Reconnect ethernet	
	Check the behaviour of application	

TEI restart

step	description	result
4.4.3-1	Start with normal connected system	The router complains about duplicate names. TEI: got broken pipe. After that the TEI is connected.
	Switch off TEI-power	
	Restart the TEI	
	Check the behaviour of application	