SRON **HIFI**	**HIFI TEI TEST PROCEDURE**	**Doc. no.** : SRON-U/HIFI/PR/2001-005 **Issue** : Issue 1.0 **Date** : Dec 19, 2001 **Category** : **Page** : 1 of 12

Title **HIFI TEI test procedure**

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Distribution

1 INTRODUCTION

The purpose of this note is to specify a the acceptance test for TEI-FPU Software

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

2.2 Reference documents

3 TEST OBJECTIVES

The purpose of the test is to demonstrate:

- All requirements of AD 1 have been implemented (sections 4.1, 4.3-4.8 are excluded)

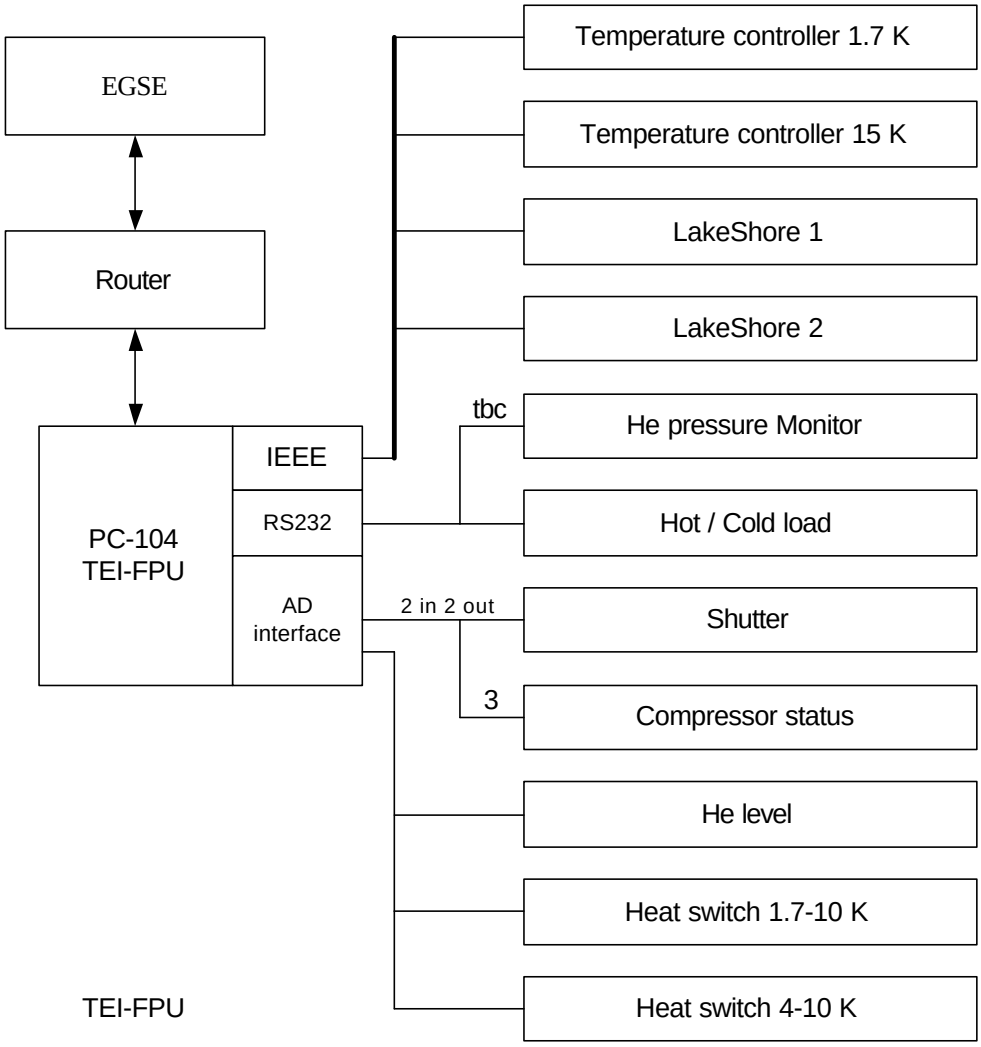


Figure 1 Test setup

4 ACCEPTANCE TEST STEPS

4.1 Software and Hardware overview

4.1.1 Overview of deliverable software

Step 4.1.1.-1 Make a complete overview or proper reference to the deliverable software.
Step 4.1.1.-2 Remove all irrelevant or obsolete files.
Step 4.1.1.-3 Remove all executables
Step 4.1.1.-4 Note the environment: path, used compilers, versions etc.
Step 4.1.1.-5 Compile new executables

4.1.2 Overview of test-clients

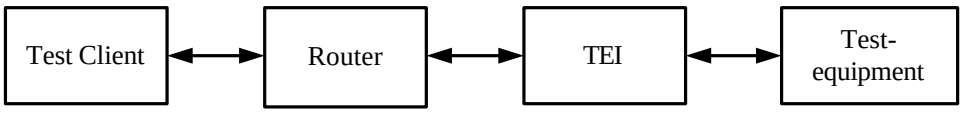
Step 4.1.2.-1 Make an overview of test-clients to be used for the tests.

4.1.3 Overview of EGSE-context

Step 4.1.3.-1 Make an overview of the EGSE context.

Used Router:
Used EGSE interface
Used SCOS-2000 version
Location of software + connections.
Hardware connected to TEI, possibly replaced by simulators

4.2 TEI local



4.2.1 Connect to router

The following test may be carried out with a Test-client or with SCOS-2000. The TM-packets must be adequately analyzed.

Step 4.2.1.-1 Start Router; Connect Test-Client(s)

The test-client shall be able to read a hex-file and forward this to the Router.
The test-client shall be able to monitor Telemetry Packets as generated by the TEI

Step 4.2.1.-2 Start TEI
Make sure the TEI connects to Router. Check this in router-base window. Check requested packet-address. Send the following packets to the TEI. Note the result.

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

4.2.2 Telecommand verification

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

4.2.3 TM packets

step	description		result
4.2.3-1	Check the time-code in TM header		
4.2.3-2	Check the APID		
4.2.3-3	Check counter		
4.2.3-4	Check checksum		

4.2.4 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		
4.2.4-3	Check OBS-ID in TM packets		
4.2.4-4	Set BB-ID	TC2017_8_4_1_2	
4.2.4-5	Check acceptance report		
4.2.4-6	Check OBS-ID and BB-ID in TM packets		
4.2.4-7	Send TC with OBS-ID >0 in parameter field		
4.2.4-8	Send TC with OBS-ID =0 in parameter field		

4.2.5 Switch on

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

4.2.6 Monitor function

4.2.6-1 Display the House-keeping packet as generated by TEI: Check for each parameter the correct correspondence with its source

Use the table below to check the parameters:

Position		Field	length	value
16	17	SID	16	
18	21	Observation ID	32	
22	25	Building Block ID	32	
26	27	FPU Equipment status	16	
28		FPU TC1 status	8	
29		FPU TC2 status	8	
30	31	FPU TC1 set	16	
32	33	FPU TC2 set	16	
34	35	FPU TC1	16	
36	37	FPU TC2	16	
38	39	FPU LS1 sensor 1	16	
40	41	FPU LS1 sensor 2	16	
42	43	FPU LS1 sensor 3	16	
44	45	FPU LS1 sensor 4	16	
46	47	FPU LS1 sensor 5	16	
48	49	FPU LS1 sensor 6	16	
50	51	FPU LS1 sensor 7	16	
52	53	FPU LS1 sensor 8	16	
54	55	FPU LS2 sensor 1	16	
56	57	FPU LS2 sensor 2	16	
58	59	FPU LS2 sensor 3	16	
60	61	FPU LS2 sensor 4	16	
62	63	FPU LS2 sensor 5	16	
64	65	FPU LS2 sensor 6	16	
66	67	FPU LS2 sensor 7	16	
68	69	FPU LS2 sensor 8	16	
70	71	FPU He level	16	
72	73	FPU He pressure	16	
74	75	FPU Hot/cold temp 1	16	
76	77	FPU Hot/cold temp 2	16	
78	79	FPU Heat switch1	16	
80	81	FPU Heat switch2	16	
82		FPU shutter status	8	
83		FPU compressor status	8	
84	85	FPU gas flow 1	16	
86	87	FPU gas flow 2	16	

4.2.7 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		
4.2.7-3	Check BB-ID		
4.2.7-4	Check House-keeping		
4.2.7-5	Open the shutter	TC2017-8-4-4-1-open	
4.2.7-6	Check acceptance report		
4.2.7-7	Check BB-ID		
4.2.7-8	Check House-keeping		
4.2.7-9	Set shutter to wobble	TC2017-8-4-4-1-wobble	
4.2.7-10	Check acceptance report		
4.2.7-11	Check BB-ID		
4.2.7-12	Check House-keeping		
4.2.7-13	Set TC1 status stand-by	TC2017_8_4_2_1_0	
4.2.7-14	Check acceptance report		
4.2.7-15	Check BB-ID		
4.2.7-16	Check House-keeping		
4.2.7-17	Set TC1 status active	TC2017_8_4_2_1_1	
4.2.7-18	Check acceptance report		
4.2.7-19	Check BB-ID		
4.2.7-20	Check House-keeping		
4.2.7-21	Set TC2 status stand-by	TC2017_8_4_3_1_0	
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 acitve	TC2017_8_4_3_1_1	
4.2.7-26	Check acceptance report		
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		
4.2.7-31	Check BB-ID		
4.2.7-32	Check House-keeping		
4.2.7-33	Set TC2 temperature	TC2017_8_4_3_2	
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:		
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

4.3 TEI and SCOS

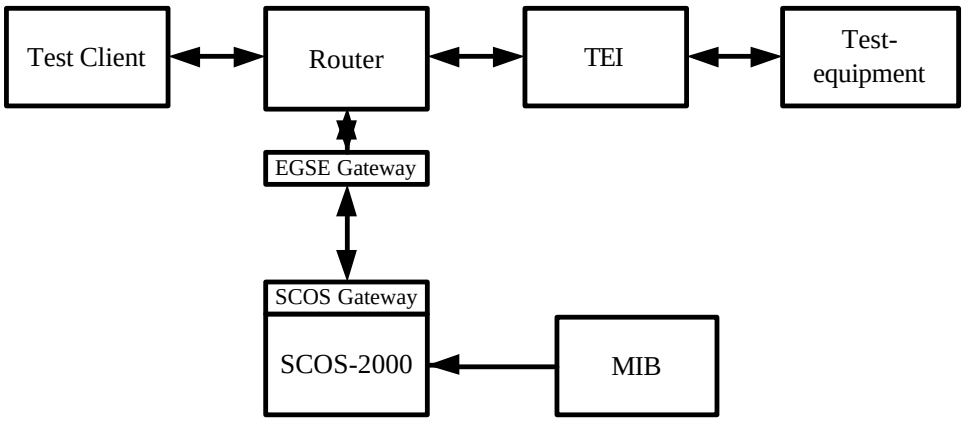


Figure 2 Context of acceptance test

4.4 Error recovery

4.4.1 Router restart

step	description		result
4.4.1-1	Start with normal connected system		
	Kill the router		
	Restart the router		
	Check the behaviour of application		

4.4.2 Ethernet connection disconnected

step	description		result
4.4.2-1	Start with normal connected system		
	Disconnect ethernet		
	Send TC to TEI		
	Reconnect ethernet		
	Check the behaviour of application		

4.4.3 TEI restart

step	description		result
4.4.3-1	Start with normal connected system		
	Switch off TEI-power		
	Restart the TEI		
	Check the behaviour of application		

A) OVERVIEW OF TC-PACKETS

Filename	**Octal dump** (result of od –x)
TC2017-8-4-4-1-close.hex	0000000 1fe1 cc68 000f 8008 0400 0401 0000 7123
	0000020 4003 0002 22ed
TC2017-8-4-4-1-open.hex	0000000 1fe1 cc67 000f 8008 0400 0401 0000 7123
	0000020 4002 0001 d000
TC2017-8-4-4-1-wobble.hex	0000000 1fe1 cc66 000f 8008 0400 0401 0000 7123
	0000020 4001 0003 b9f0
TC2017_17_1.hex	0000000 1fe1 cc45 0005 8011 0100 880a
TC2017_8_4_1_1.hex	0000000 1fe1 cc70 0011 8008 0400 0101 0000 0000
	0000020 0000 fedc ba98 6c04
TC2017_8_4_1_2.hex	0000000 1fe1 cc71 000d 8008 0400 0102 0000 1234
	0000020 5678 2df5
TC2017_8_4_2_1_0.hex	0000000 1fe1 cc6a 000f 8008 0400 0201 0000 6123
	0000020 4004 0000 cfc0
TC2017_8_4_2_1_1.hex	0000000 1fe1 cc6b 000f 8008 0400 0201 0000 6123
	0000020 4005 0001 f833
TC2017_8_4_2_2.hex	0000000 1fe1 cc6e 000f 8008 0400 0202 0000 4123
	0000020 4008 012a 577c
TC2017_8_4_3_1_0.hex	0000000 1fe1 cc6c 000f 8008 0400 0301 0000 5123
	0000020 4006 0000 8325
TC2017_8_4_3_1_1.hex	0000000 1fe1 cc6d 000f 8008 0400 0301 0000 5123
	0000020 4007 0001 b4d6
TC2017_8_4_3_2.hex	0000000 1fe1 cc6f 000f 8008 0400 0302 0000 3123
	0000020 4009 00f0 0371
TC_wrong_FID.hex	0000000 1fe1 cc74 0009 8008 0400 0908 0000 0844
TC_wrong_crc.hex	0000000 1fe1 cc4e 0005 8011 0100 25c3
TC_wrong_length.hex	0000000 1fe1 cc4e 0005 8011 0100 c325 0000
TC_wrong_subtype.hex	0000000 1fe1 cc52 0005 8008 0800 c15f
TC_wrong_type.hex	0000000 1fe1 cc51 0005 8007 0100 8f74