INCOMING INSPECTION AND TESTING PROCEDURE FOR FLIGHT REV D TRE CIRCUIT ON SAPPHIRE CARRIER

GP-B P0332 REV-A
ECO 812

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Incoming Inspection and Testing Procedure for Rev D TRE Flight Circuit on Sapphire Carrier
To Be Performed by all certified personnel. Certified Personnel: Howard Demroff

Step #	Step Title	Summary and Description of Step/Comments
1	Record Arrival of SC at Stanford U. **Sapphire Carrier #** _____ **Date** _____	Record Date of Arrival at S.U. for this Sapphire Carrier, SC. GSFC traveler and photos inserted in flight notebook. Store SC in locking cabinet in Cedar B8. **Performed by** _____
2	Magnetic screening of SC per P0057.	Magnet screening while in GelPak Carrier.
3	Visual Inspection of Circuit and Photodiode.	Remove SC from shipping container. Visually inspect SC and photodiode for cleanliness. Photograph SC and attach photos below. Record flaws and defects on diagram below. Check and record any damaged bonds from shipment. Damaged bonds are repaired in step 4. Verify correct SC#.
4	Temporary Mounting of SC	Mount SC in LCC holding fixture. Do a pull test on sample bonds to qualify bonding machine before making bonds on SC. Wire bond SC to LCC as per test fixture bonding diagram. Do a post pull test on sample bonds to again qualify bonding machine.
5	Perform Continuity Check on Circuit	Verify proper wiring.
6	TRE Electronics Test Unit Setup	Power up Test Rack prior to connecting to SC.
7	Room Temperature Test of SC	Operate at room temperature and check circuit balancing.
8	Low Temperature (77 K) Test of SC	Operate at low temperature and check circuit balancing. Measure leakage currents.
9	Second Thermal Cycle - Room Temp.	Operate at room temperature and record any changes.
10	Second Thermal Cycle - Low Temp.	Operate at low temperature and record any changes.
11	Removal of SC from Test Probe and Storage. Visual Inspection	Remove temporary bonds and store in clean dry box.
12	Mechanical Inspection	Measure photodiode location, SC diameter.

Final Buy Off RE _____ **Date** _____
Final Buy Off QA _____ **Date** _____

List of Test Equipment

Equipment	QA - Serial Number, Calib. date	Location
TRE FWD EU	Passed TRE EU Test - SN 2	Cedar B5
TRE Support Electronics	Calibration to be done. SN #1	“
Software Version	Squid.exe last modified 10/31/97	“
Multimeter	Lockheed Tool Bin with Cal. sticker	“
LCC holding fixture	Mag screen and Photographic documentation attached.	“
Probe	Photographic documentation attached.	“
Laminar Flow Bench	Class 100 Certification to be done	Cedar B13
Wire bonder	No Cal required (wirebonds are pull tested)	Cedar B13
Pull Tester	Calibrated by experiment attached. Appendix 1.	“
D 25 Breakout Box and cable	Continuity - To Be Done	“

Acronymn List

SC	**Spphire Carrier**	**GSFC**	**Goddard Space Flight Center**
TRE	**Telescope Readout Electronics**	**SU**	**Stanford University**
EU	**Engineering Unit**	**K,C**	**Kelvin, Centigrade**
LCC	**Leadless Chip Carrier**	**FWD**	**Forward**
DMA	**Detector Mount Assembly**	**ESD**	**Electrostatic discharge**

Magnetic Screening of SC Step # 2

With SC in Teflon shipping container and GelPak, double bag and submit SC for magnetic screening. After screening, John Mester will provide a Magnetic Screening Test Report for each SC. Use this Report to fill in the following information and attach copy of Magnetic Screening Test Report behind this page.

SC submitted by _____ Time/Date _____
Test conducted by: _____ Date: _____

Sapphire Carrier # _____

Pass Zone 3 Requirement ? [ ] Yes, Passes [ ] No, Fails

If Passes go on to step #3

If Fails, remove the SC from the Teflon carrier and inspect for contamination. Re-Test.

Pass Zone 3 Requirement on Re-Test ? [ ] Yes, Passes [ ] No, Fails

Comments: _____
_____
_____
_____
_____

Visual Inspection of SC and Photodiode - Step # 3

Verify SC# on circuit _____

Under certified class 100 laminar flow bench wipe off inspection area and outside of Gel Pak. Use ESD strap and clean gloves. With titanium tweezers slide SC out of shipping holder. Place SC in center of GelPak and gently apply pressure on edge so the SC is held in place. Photograph each side and attach photos below. The twobonds to be removed in Procedure # 4 are circled. These are on pin 11 and pin 22. **Circle and describe any defects on this diagram. Verify JFET numbers. Record on this page.**

Tweezer hold point

Attach First and Second Photographs of SC - Step #3

Date Time Inspected By: SC # Notes:

Attach Third and Fourth Photographs of SC (as needed) - Step #3

Date Time Inspected By: Notes:

Results of Visual Inspection - Step # 3
Photodiode Cleanliness

Inspector	Date/Time	Comments- Can the contaminants be removed with air?

Check here: Photodiode has no observable dust. [ ] **Photodiode needs further cleaning . [ ]**
Attach photograph of photodiode.

The following box must be checked just prior to installation into DMA.

Photodiode is clean for installation in DMA [ ] Inspected by _____ Time/Date _____

Results of Visual Inspection - Step #3
Damaged Bonds

Location of damaged or broken bond. Circle on SC diagram and list pin # and nearest part # (i.e. pin 14 part Q5)	Condition of damaged bond. Can the bond be straightened without permanent damage?	In Step 4, bonds are repaired. Record here date/time of fix and operator.	**Bond fixed Check here**

Temporary Mounting of SC - Step # 4

Check Cal sticker on bond tester and see Appendix 1 if needed. Place SC in holder as shown.. See photos next page. Secure set screws..

1) Make bond from pin # 1 to pin # 2 O.K.? _____

2) Make bond from pin # 23 to pin # 24

3) Step 3 Results table as each bond is repaired.

Discrepancy: If bonds are not stronger than 4 grams then all bonds made by this bonder must be removed and the machine adjusted and calibrated.

1) Make the 18 temporary bonds from SC to LCC as shown in diagram above.
2) Record time_____Date_____Operator_____

Photographs showing Mounting in LCC -Step #4

Photograph Showing Mounting in Probe

Continuity Check - Step # 5

Continuity Check Setup:

1) The operator wears a ESD wrist strap during the duration of this test.
2) Insert LCC under test to the test probe with the corner notch next to the socket notch. The connector on the top of this test probe should be connected to the D 25 pin breakout box using the approved cable.

Date/Time _____ Operator _____

3) A calibrated multi-meter is used to make the measurements. Use the Fluke 87 [ ]
Serial # _____Calibration date _____

Battery O.K. ? _____ (Change battery if battery light is on)

4) Check that the red lead goes to the V/Ohm input and the black lead goes to the ground input on the meter. **[ ]**

5) Touch probes together to verify proper set up. Resistance less than 1 ohm ? _____ If not inspect probes and multimeter settings.

Continuity Check Results - Step # 5

Operator _____ Date / Time _____ SC # _____

test #	Red Lead + Connects to	Black Lead Connects to	Fluke Meter Scale	Nominal Value	Measured Value	Comments
1	20	7	auto	15 kOhm		Heater resistor 30k ‖ 30k
2	24	23	"	35.1 k Ohm		Vdd to SRC1
3	2	14	"	.3 k Ohm		-DR to -DS
4	13	25	"	.3 k Ohm		+DR to +DS
5	11	2 14 13 25	"	20.1 k Ohm		Four separate tests 11 to 2, 23 to 14...
6	11	23	auto	o.l.		SRC1 to SRC2 reverse bias
7	23	11	"	3.6 MOhm		SRC1 to SRC2 forward bias
8	17	9	"	7.4 MOhm		Reset gate to RESV+
9	17	3	"	7.4 MOhm		Reset gate to RESV-

10	17	5	“	12.3 MOhm		Reset gate to PDK (+/- side)
11	17	23	“	20.6 MOhm		Reset gate to SRC1 (+/- side)
12	16	23	“	4.1 MOhm		VRG to SRC1 forward bias
13	23	16	“	o.l.		VRG to SRC1 reverse bias
14	19	8	diode check	.69 volts		Temp Sense diode
15	18	8	auto	120 Ohm		SDAI-SDAV
16	19	6	“	120 Ohm		SDKI-SDKV

Discrepancy Report - If any measurements are not within **10 % of the nominal value** then go back to procedure # 3 and inspect for any damaged or broken bonds and repeat this test indicating any problems. Record the re-test results on the next page.

Passes Continuity Check ? [ ] Operator _____ Time/Date_____

If Necessary to Repeat the Continuity Test due to Previous Failure Record Results Here

Reason for Failure :_____

_____

_____**Operator** _____**Date / Time** _____

Continuity Re-Check Results - Step # 5

Operator _____ Date / Time _____ Part # _____ SN # _____

test #	Red Lead + Connects to	Black Lead Connects to	Fluke Meter Scale	Nominal Value	Measured Value	Comments
1	20	7	auto	15 kOhm		Heater resistor 30k ‖ 30k
2	24	23	“	35.1 k Ohm		Vdd to SRC1
3	2	14	“	.3 k Ohm		-DR to -DS
4	13	25	“	.3 k Ohm		+DR to +DS

5	11	2	14	13	25	"	20.1 k Ohm					Four separate tests 11 to 2, 23 to 14...
6	11	23				auto	o.l.					SRC1 to SRC2 reverse bias
7	23	11				"	3.6 Mohm					SRC1 to SRC2 forward bias
8	17	9				"	7.4 MOhm					Reset gate to RESV+
9	17	3				"	7.4 MOhm					Reset gate to RESV-
10	17	5				"	12.3 MOhm					Reset gate to PDK (+/- side)
11	17	23				"	20.6 MOhm					Reset gate to SRC1 (+/- side)
12	16	23				"	4.1 MOhm					VRG to SRC1 forward bias
13	23	16				"	o.l.					VRG to SRC1 reverse bias
14	19	8				diode check	.69 volts					Temp Sense diode
15	18	8				auto	120 Ohm					
16	19	6				"	120 Ohm					

Passes Second Continuity Check ? _____ [ ]

Reject part if it fails to pass second check.

TRE Electronics Test Unit Setup - Step # 6

A number of temperature cycles will be performed on an operating TRE SC, mounted in a leadless chip carrier. The purpose of step #6 is to power-up and initialize the electronics boxes and associated software prior to connecting to the flight SC. The hardware consists of a TRE Forward Engineering Unit, power supply and oscilloscope which have been calibrated and approved for testing flight circuits.

Check for calibrated and approved equipment. [ ] Operator _____ Date/Time _____

1) Connect the equipment rack outputs to the four-channel scope.

a) xpsighi to scope channel 1
b) xnsighi to scope channel 2
c) xhskpsighi to scope channel 3
d) ATC to scope channel 4 (trigger)

2) Run TRE/SRE interface program

a) Run the test program squid.exe with date 10/31/97 Rev - 10_31_97 (use c:\squid\ dir sq*.* to verify this)
b) Start program and enter "Global" menu

c) Highlight "Enabled all Side A commands". Hit "Enter" resulting in flashing "Done"
d) Hit ESC and highlight "Commands" then hit "Enter" key.
e) Select and enter 0-TRE X

3) Turn on power supply and enter the following commands;

Command	Parameter
TRE X Control Enabled	1500
TRE X BIAS	0000
TRE X OFFSET	8080
TRE X CLAMP	8080
TRE X HEAT	0000
TRE X DTEMP	086F

DATE/TIME _____

OPERATOR _____

End of step #6

Room Temperature Tests of Flight SC - Step # 7

(Room Temperature between 15 and 25 C, Humidity no requirement)

1) Connect test probe to E.U. **Record time/date** _____

2) By adjusting the first two HEX values of the SBIAS parameter, balance the outputs on Engineering Channel 1 and 2.
3) By adjusting the last two HEX values of the SBIAS parameter, balance the outputs on Engineering Channel 5 and 6.
(**Balance - Implies making the voltages on the two channels the same to within 20 mV)**
Record SBIAS Parameter for first room temperature balance _____

4) Set X Control value to 1000 , XBIAS to 0080 and center the ramps using the OCLAMP parameter.

Record OCLAMP Parameter that centers the ramps . Record Si Temp (1029)_____

5) Use scope cursors to measure the room temperature dark current. Put cursor on middle 80 mS and average 10 times.
Acceptable Scopes TDS 540A Lockheed Equipment Pool or TDS 420A Calibration date _____

Record XPSIGHI, scope channel 1; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____

Record XNSIGHI, scope channel 2; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____

Room temperature slopes must be less than 200 Volts/Second

Is XPSIGHI Slope < 300 V/S ? Pass ____ Fail ____ Date/Time _____ Operator _____
Is XNSIGHI Slope < 300 V/S ? Pass ____ Fail ____ Date/Time _____ Operator _____

(If no ramps are evident or the circuit cannot be balanced then this SC must be rejected at this point.)

Attach a hardcopy printout of scope screen showing SC #, date, time and operator.

6) Step photodiode bias from 0000 to 00FF and back to 0000.
Do the ramps rail high and then return to same position? (no requirement - shows functionality)
_____
_

7) Set TRE X Temp to 0482 and monitor engineering channel 2D (Temp servo error voltage). Step heater from 000 to FFF. This voltage should decrease by at least 10 mV as the heater warms the platform. [ ]
Any significant changes in ramps ? _____
Set Heat to 0000 and XBIAS to 0080 .
Run the SC at room temperature for at least 3 hours.
Record start time _____

8) Re-balance by repeating steps 7-2, 7-3 and 7-4. **Record time _____**
Record Parameter for second room temperature balance _____
Record OCLAMP Parameter that centers the ramps for room temperature operation _____

9) Use scope cursors to measure the room temperature dark current after at least three hours running. Put cursor on middle 80 mS and average 10 times. **Record time** _____

Record XPSIGHI, scope channel 1; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____

Record XNSIGHI, scope channel 2; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____
Save to File 30 Seconds of ramps. [ ] Filename _____

Comments:_____
_____
__

Current Measurements - Step #7 continued

This test will measure any gate leakage greater than .1uA. Set command to 0000 and disconnect probe. Insert the D25 patch box in-line with the cable to probe. All switches shall be pointing away from the numbers making continuity through the box. Using a calibrated meter measure the current in the following lines by switching the toggle switches towards the numbers causing the current to flow through the meter. The circuit shall be balanced and at 1500 [ ].

Use a calibrated meter. Let meter warm up 1 hour. Meter calibration date: HP3457A
_____
Connect red banana jack to mA input and black lead to com.

test #	Red Lead + Connects to	Black Lead Connects	Nominal Value	Measured Value HP 3457A zero/measured	Measured Value Metex 4650 zero/measured	Comments

		to				
1	24 brown	24 yellow	100 uA			Vdd current
2	23 brown	23 yellow	100 uA			SRC1 current
3	16 brown	16 yellow	0.0 uA			VRG bias
4	3 brown	3 yellow	0.0 uA			Resv-
6	9 brown	9 yellow	0.0 uA			Resv+

Date / Time _____ Operator _____ SC # _____

Comments:_____
_____
__

End of Step # 7 - Room temperature tests. With circuit still operating continue to Step #8.

Low Temperature (77K) Tests of Flight SC - Step # 8

1) This section assumes SC passed test described in all previous steps. With circuit still operating set TRE X Control to 1500. [ ] Pump out air, backfill with He. Pumpout again. Backfill to 5 Pse.
2) Fill dewar with liquid nitrogen and wait 30 minutes. **Record Time** _____
2D (temperature servo error) is as close as possible to 0 volts [ ].

Record TRE X Temp parameter that minimizes channel 2D _____
Use Si diode calibration table to determine temperature and **Record SC Temp**_____
This temperature should be less than or equal to 79 K. Maintain this with a LN2 refill at this time. [ ]

4) By adjusting the first two HEX values of the XOFFSET parameter, balance the outputs on Engineering Channel 1 and 2.
5) By adjusting the last two HEX values of the parameter, balance the outputs on Engineering Channel 5 and 6.

(**Balance - Implies making the voltages on the two channels the same to within 20 mV**)
Record SBIAS Parameter for first low temperature balance _____

6) Set X Control value to 1000 and XBIAS to 80 [ ]
Adjust the OCLAMP parameter until the ramps are as close to gnd as possible given the parameter resolution.

Record OCLAMP Parameter that centers the ramps for low temperature operation _____

7) Use scope cursors to measure the low temperature dark current. Put cursor on middle 80 mS and average 10 times.

Record XPSIGHI, scope channel 1; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____
Record XNSIGHI, scope channel 2; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____

Attach a hardcopy printout of scope screen showing date, time, SC # and operator.
Notes:

8) Step photodiode XBIAS from 0000 to 00FF and back to 0000.
Do the Ramps rail high and then return?_____

9) Set TRE XDTEMP to value found in Step 8-3 and monitor engineering channel 2D (Temp servo error voltage). Step heater from 000 to FFF. This voltage should decrease by at least 10 mV as the heater warms the platform. [ ] Any significant changes in ramps ?_____

10) Set Heat to 0000 and PBIAS to AA80. Run the SC at liquid nitrogen temperature for at least 3 hours.
Record start time _____

11) Repeat Steps 8-2, 8-3 and 8-4. Record time _____
Record XOFFSET Parameter for second low temperature balance _____

Record OCLAMP Parameter that centers the ramps for low temperature operation _____
(Balance - Implies making the voltages on the two channels the same to within 20 mV)

12) Use scope cursors to measure the low temperature dark current after at least three hours running.
Set TRE X Control to 1400. Set scope for 10 seconds/div.Put cursor on middle 90 S. **Record time/date** _____

Record XPSIGHI, scope channel 1; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____
Record XNSIGHI, scope channel 2; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____
(Second Measurement)
Record XPSIGHI, scope channel 1; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____
Record XNSIGHI, scope channel 2; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____

Print hardcopy showing ramps and cursor measurements.
Save to File 30 Seconds of ramps. [ ] Filename _____

12) Use AN LED to test Photodiode response. Thye voltage supply controls an LED in the Dewar. Take at least 8 equally spaced values between 0300 and 0FFF.

LED VOLTAGE	X Channel pos side slope for middle 80 ms	X Channel neg side slope for middle 80 ms	Comments: Averaging, PBIAS, Temperature

13) Set TRE X Control to 1500, remove probe from LN2 and allow circuit to warm to room temperature. Keep all electrical connections as well as software and hardware running. **Record date/time _____**

Second Thermal Cycle - Room Temperature Tests of Flight SC - Step # 9

1) Start second room temperature tests. **Record time/date _____Gauge Pressure_____**

2) By adjusting the first two HEX values of the XOFFSET parameter, balance the outputs on Engineering Channel 1 and 2.
3) By adjusting the last two HEX values of the SBIAS parameter, balance the outputs on Engineering Channel 5 and 6.
(**Balance - Implies making the voltages on the two channels the same to within 20 mV)**
Record XOFFSET Parameter for second room temperature balance _____

4) Set X Control value to 1000 and center the ramps using the OCLAMP parameter.

Record OCLAMP Parameter that centers the ramps near Gnd for room temperature operation _____

5) Use scope cursors to measure the room temperature dark current. Put cursor on middle 80 mS and average 10 times.

Record XPSIGHI, scope channel 1; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____

Record XNSIGHI, scope channel 2; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____

6) Step photodiode XBIAS from 0000 to 00FF and back to 0000.
Do the Ramps rail high and then return?_____

7) Set TRE X Temp to 0482 and monitor engineering channel 2D (Temp servo error voltage). Step heater from 000 to FFF. This voltage should decrease by at least 10 mV as the heater warms the platform. **[ ]**
Any significant changes in Ramps ? _____

8) Set Heat to 0000 and XBIAS to 0000. Run the SC at room temperature for at least 3 hours.
Record start time _____

9) Re-balance by repeating Steps 9-2, 9-3 and 9-4. **Record time _____**
Record Parameter for third room temperature balance _____
Record XOFFSET Parameter that centers the ramps for room temperature operation _____

10) Use scope cursors to measure the room temperature dark current after at least three hours running. Put cursor on middle 80 mS and average 10 times.

Record time _____

Record XPSIGHI, scope channel 1; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____

Record XNSIGHI, scope channel 2; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____

End of Step # 9- Room temperature tests. With circuit still operating continue to Step #10.

Second Thermal Cycle - Low Temperature (77K) Tests of Flight SC - Step # 10

1) With circuit still operating set TRE X Control to 1500. [ ]
2) Fill dewar with liquid nitrogen and wait 30 minutes. **Record Time _____**

3) Set TRE XTEMP to 0832
Record TRE X Temp parameter that minimizes channel 2D _____
Use table to determine temperature and **Record SC Temp _____**
This temperature should be less than or equal to 79 K. Maintain this with a LN2 refill at this time. [ ]

4) By adjusting the first two HEX values of the XOFFSET parameter, balance the outputs on Engineering Channel 1 and 2.
5) By adjusting the last two HEX values of the XOFFSET parameter, balance the outputs on Engineering Channel 5 and 6.

Record XOFFSETParameter for second low temperature balance _____

6) Set X Control value to 1000 and PBIAS to AA80. **[ ]** Center the ramps using the OCLAMP parameter.
Record OCLAMP Parameter that centers the ramps for low temperature operation _____

7) Use scope cursors to measure the low temperature dark current. Set TRE X Copntrol to 1400. Record 100S ramp..

Record XPSIGHI, scope channel 1; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____
Record XNSIGHI, scope channel 2; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____
(second measurement)
Record XPSIGHI, scope channel 1; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____
Record XNSIGHI, scope channel 2; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____

Attach a hardcopy printout of scope screen showing date, time, SC # and operator. [ ]

8) Step photodiode bias from 0000 to 00FF and back to 0000.
Do the Ramps rail high and then return?_____

9) Set TRE X Temp to value found in step 3 and monitor engineering channel 2D (Temp servo error voltage). Step heater from 000 to FFF. This voltage should decrease by at least 10 mV as the heater warms the platform. [ ] Any significant changes in ramps ?_____

10) Set Heat to 0000 and XBIAS to AA80. Run the SC at liquid nitrogen temperature for at least 3 hours.
Record start time _____

11) Repeat steps 10-4, 10-5 and 10-6. **Record date/time _____**
Record Parameter for third low temperature balance _____
Record OFFSET Parameter that centers the ramps for low temperature operation _____

12) Use scope cursors to measure the low temperature dark current after at least three hours running.

Set TRE X Control to 1400. Set scope for 10 seconds/div. Put cursor on middle 90 S.
Record time/date _____

Record XPSIGHI, scope channel 1; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____
Record XNSIGHI, scope channel 2; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____
(second measurement)
Record XPSIGHI, scope channel 1; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____
Record XNSIGHI, scope channel 2; Δ Voltage _____ Δ Time _____ Δ V / Δ Time = _____

Print hardcopy showing ramps and cursor measurements, time date SC# and operator.

12) Use an LED to Test Photodiode response. The voltage supply controls an LED in the Dewar. Take at least 8 equally spaced values. **SAVE to FILE four data sets.**

LED Voltage	**X Channel pos side slope for middle 80 ms**	**X Channel neg side slope for middle 80 ms**	**Comments: Averaging, PBIAS, Temperature Save to File 30 Seconds of ramps. [ ] Record Filename.**

13) Set TRE X Control to 1500, remove probe from LN2 and allow circuit to warm to room temperature.
Record date/time _____

Removal of SC from Test Probe and Storage - Step #11

1) Allow probe to completely warm up until outside is dry and at room temperature.
2) Disconnect cable from Test Electronics and install shorting plug.
3) In Cleanroom remove end of probe. ESD strap is worn for this and all following steps [ ]
Record time/date _____ Operator _____
4) Loosen screws holding LCC in socket
5) Carefully remove LCC.
6) Under a microscope remove wirebonds from SC to LCC. First remove bond on the LCC pad. Then lift wire so it breaks at the foot of the SC bond.
7) Loosen set screws holding SC.
8) With titanium tweezers carefully remove SC at hold point (see step #3 figure) and store in GelPak in dry box room Cedar Hall B7.
9) Inspect wirebonds under microscope.

Comments:

_____
_____
_____
_____
____

Appendix 2 Testing and Verification of D25 Breakout Box Used in Step # 5

1) For both yellow and brown connector, verify the continuity of each D25 pin to the corresponding banana jack. Check box.
2) Verify that each banana jack is isolated (> 20 MOhm) from every other banana jack. Check box

Brown Connector

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13
Continuity													
Isolation													

Pin	14	15	16	17	18	19	20	21	22	23	24	25	
Continuity													
Isolation													

Yellow Connector

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13
Continuity													
Isolation													

Pin	14	15	16	17	18	19	20	21	22	23	24	25	
Continuity													
Isolation													

If Breakout Box passes these tests then label for "Flight Testing"