

AD-A260 182



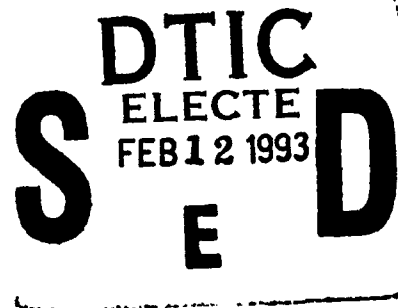
RL-TR-93-2I, Part 1 (of two)
Final Technical Report
February 1993



STEP STRESS TESTING OF RECEIVER/TRANSMITTER UNITS

Hughes Aircraft Company

Steve Burnett, David Huch, Larry James, Stephen Mueller,
Peggy Tran



APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.

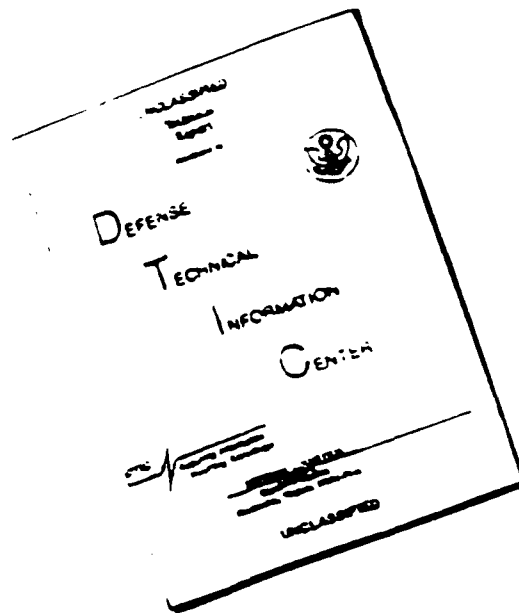
93-02510



Rome Laboratory
Air Force Materiel Command
Griffiss Air Force Base, New York

93 2 10 035

DISCLAIMER NOTICE



THIS DOCUMENT IS BEST
QUALITY AVAILABLE. THE COPY
FURNISHED TO DTIC CONTAINED
A SIGNIFICANT NUMBER OF
PAGES WHICH DO NOT
REPRODUCE LEGIBLY.

This report has been reviewed by the Rome Laboratory Public Affairs Office (PA) and is releasable to the National Technical Information Service (NTIS). At NTIS it will be releasable to the general public, including foreign nations.

RL-TR-93-21, Pt 1 (of two) has been reviewed and is approved for publication.

APPROVED:

T. Donovan

TIMOTHY J. DONOVAN
Project Engineer

DTIC QUALITY INSPECTED 3

FOR THE COMMANDER:

John J. Bart

JOHN J. BART
Chief Scientist, Reliability Sciences
Electromagnetics & Reliability Directorate

Accession For	
NTIS CRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution /	
Availability Codes	
Dist	Avail and/or Special
A-1	

If your address has changed or if you wish to be removed from the Rome Laboratory mailing list, or if the addressee is no longer employed by your organization, please notify RL (ERSR) Griffiss AFB NY 13441-5700. This will assist us in maintaining a current mailing list.

Do not return copies of this report unless contractual obligations or notices on a specific document require that it be returned.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave Blank)		2. REPORT DATE February 1993		3. REPORT TYPE AND DATES COVERED Final Jul 91 - Jun 92	
4. TITLE AND SUBTITLE STEP STRESS TESTING OF RECEIVER/TRANSMITTER UNITS				5. FUNDING NUMBERS C - F30602-89-D-0100, Task 9 PE - 33601F PR - 2487 TA - QB WU - 12	
6. AUTHOR(S) Steve Burnett, David Huch, Larry James, Stephen Mueller, Peggy Tran					
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Hughes Aircraft Company Ground Systems Group Fullerton CA 92634				8. PERFORMING ORGANIZATION REPORT NUMBER N/A	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Rome Laboratory (ERSR) 525 Brooks Rd Griffiss AFB NY 13441-4505				10. SPONSORING/MONITORING AGENCY REPORT NUMBER RL-TR-93-21, Pt 1 (of two)	
11. SUPPLEMENTARY NOTES Rome Laboratory Project Engineer: Timothy J. Donovan/ERSR/(315) 330-2608 Prepared for MIT Research Institute, Rome NY 13440-2069					
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited.				12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) This report has been prepared to summarize a test validation effort for an accelerated life testing model which uses a wide parametric Bayesian Analysis Methodology. Step stress testing was performed on seven (7) Joint Tactical Information Distribution System (JTIDS) Class 1 synthesizer - detector, radio frequency assemblies. Failure data and analyses are provided. The report addresses issues concerning how to demonstrate high reliability (Mean-Time-Between-Failure values of 10,000 hours or more) on procured Air Force systems without incurring excessive testing costs.					
14. SUBJECT TERMS Accelerated Life Testing, Failure Rate (MTBF) Step Stress Testing				15. NUMBER OF PAGES 184	
				16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UL		

CONTENTS

<u>Paragraph</u>	<u>Page</u>
1. INTRODUCTION	1
1.1 General	1
1.2 Scope	1
1.3 Applicable Documents	1
1.4 Test Objective	1
2. ACCELERATED LIFE TEST (ALT) SUMMARY	1
2.1 Methodology	1
2.2 Test Setup and Trial Run	3
2.3 Conformal Coating Analysis	3
2.4 Test Data/Results	3
2.5 Failure Analysis	3
3. RELIABILITY ANALYSIS	3
3.1 Prediction Methodology	3
3.1.1 MIL-HDBK-217 Predictions	3
3.1.1 Prediction Ground Rules and Assumption	5
3.1.2 Failure Rate Prediction Results	6
3.2 Field Estimates	7

FIGURES

<u>Figure</u>	<u>Page</u>
1.1-1 Project Schedule	2
2.1-1 Step-Stress Test Flow Diagram	4

TABLES

<u>Table</u>	<u>Page</u>
3.1.2-1 Predicted Test Article Reliability Summary	6

APPENDIX A	Reliability Predictions
APPENDIX B	Trial Step-Stress Test Run
APPENDIX C	Conformal Coating Analysis
APPENDIX D	Test Data/Results
APPENDIX E	Failure Analyses

1. INTRODUCTION

1.1 General. This test report is being prepared under Subcontract No. D000-07 in accordance with Para. 4.1.9 of the Revised Statement of Work for Task #9 dated 14 May 1991. The testing/analysis is part of an effort being conducted under prime contract No. F30602-89-D-0100 for Rome Labs. Modification No. 06 (23 August 1991) incorporated Delivery Order G0001 into the basic subcontract and provided partial funding. Modification No. 07 (10 September 1991) fully funded D/O G0001. Additionally, Hughes Aircraft Company internally funded a portion of the effort during the 4th quarter of 1991.

The project schedule is shown in Figure 1.1-1.

1.2 Scope. Since 1989, Hughes has participated on a Total Quality Management (TQM) panel with other industry and government representatives to attempt to resolve some of the issues concerning how to demonstrate high reliability (MTBF's of 10,000 hours or more) on procured Air Force systems without incurring excessive costs or putting a drain on personnel resources. The panel converged on a step-stress accelerated life testing (ALT) approach using a Bayesian modeling approach. Hughes Aircraft was tasked to establish a relatively short term step-stress testing method and conduct the testing on seven production (fielded) configuration Receiver/Transmitter (R/T) modules.

1.3 Applicable Documents.

1) MIL-HDBK-217
Rev. E

Military Handbook:
Reliability Prediction of Electronic
Equipment

2) CDRL J003-001A

R&D Test & Acceptance Plan
FINAL

1.4 Test Objective. The objective of this test was to gather data for incorporation in an overall validation study of the ALT approach as applied to electronic units. More specifically, the test results using the team-developed ALT were compared with actual field results. This activity serves as one of three model validation efforts scheduled previously by the team.

2. ACCELERATED LIFE TEST (ALT) SUMMARY

2.1 Methodology. Historical data on the test article from both airborne and ground environments were used to evaluate the ALT approach. Estimates of the "prior" reliability of the unit at each stress step for both environments were based on MIL-HDBK-217 (ref. 1 above) failure rates computed at a benign environment adjusted for the appropriate component stress ratios. As part of the test effort, failed components were analyzed to identify failure cause. The failure causes were checked to determine whether the design limits of the unit were exceeded or whether correlation, if any, with field failure modes could be established.

After all units have either failed or survived the final stress step (constituting a single pass), an estimate was generated for both airborne and ground environments to compare with the corresponding estimates using historical failure data.

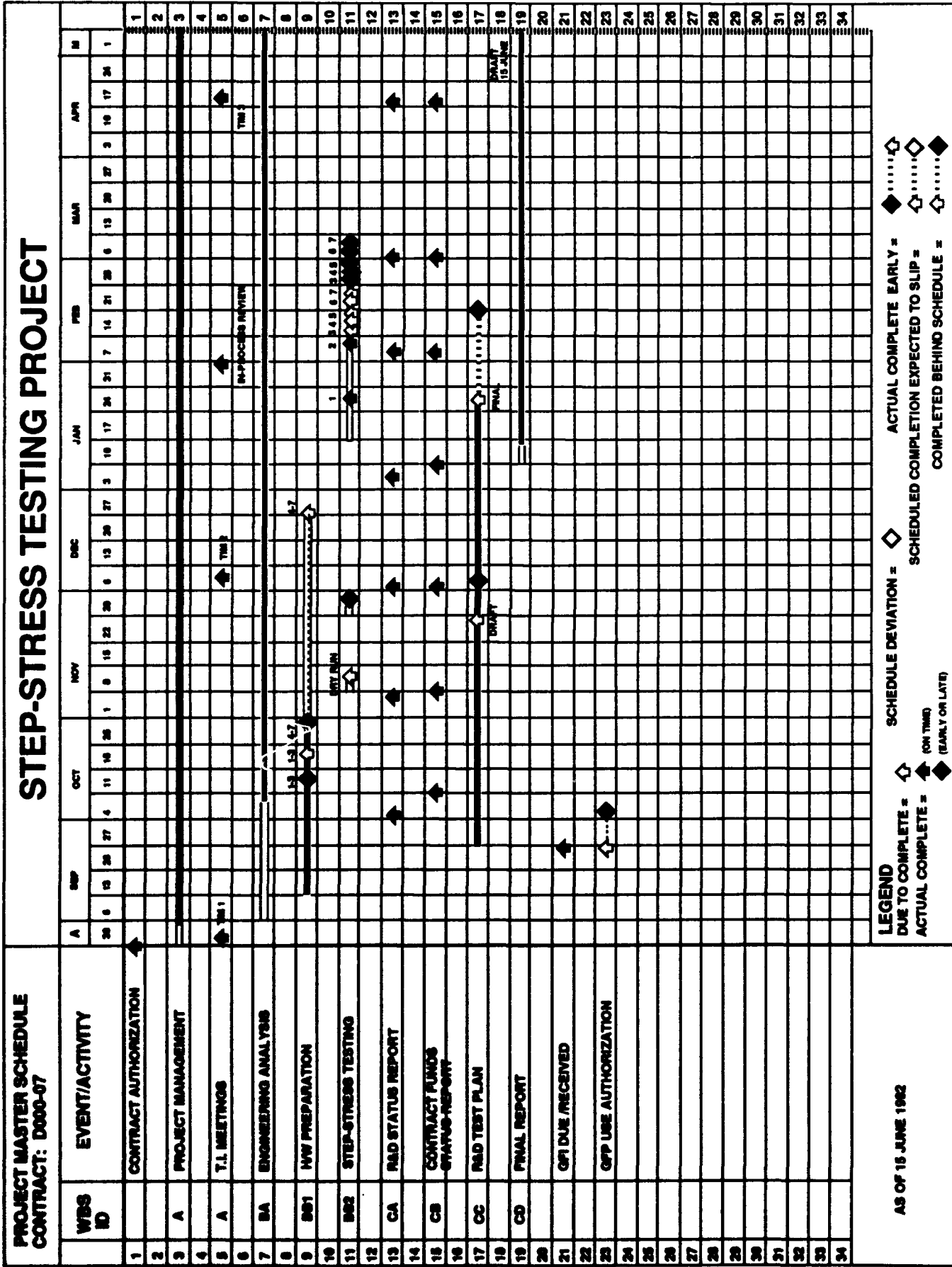


Figure 1.1-1 Project Schedule

The test items are residual production assets consisting of seven R/T units, hereafter referred to as Unit(s) Under Test (UUT). The units are production configuration identical to fielded units. Additionally, each UUT went through the same test and stress-screening as a production spare prior to being subjected to the step-stress testing. Each UUT was subjected to six cycles of powered and monitored temperature cycling at the next higher assembly level. Afterwards, each unit passed test at the next higher assembly and its own unit test (ref. 2 above) prior to being declared ready for step-stress testing. The overall Step-Stress Test Flow Diagram is shown in Figure 2.1-1.

2.2 Test Setup and Trial Run. A trial test of the step-stress testing was performed on a sample unit (not a UUT) during the November 1991 time frame. The information resulting from that trial test is contained in Appendix B and consists of the following:

- Text of Appendix D of the Test Plan (ref. 1 above), Trial Step-Stress Test Run
- Thermal Evaluation Test Journal
- Thermal Survey, Data Printout and Plots
- Test Data Sheets, Performance Monitoring
- Data Reduction, Tables and Plots
- Unit Modification & Equipment Setup

2.3 Conformal Coating Analysis. Severe discoloration of the conformal coating was observed on the UUT's after going through all test steps. An analysis was conducted following testing of the second unit to determine the integrity of the material; the results are contained in Appendix C.

2.4 Test Data/Results. The results of testing the seven UUT's is as follows:

<u>UNIT</u>	<u>RESULTS</u>
1	Passed all steps
2	Passed all steps
3	Passed all steps
4	Failed at Step 9
5	Failed at Step 10
6	Failed at Step 7
7	Failed at Step 10

The detailed test data/results are contained in Appendix D and consist of Step-Stress Test Data Sheets, data printouts, temperature plots, thermal log, and initial Trouble & Failure Report (if applicable).

2.5 Failure Analysis. The detailed failure analyses including photographs are contained in Appendix E.

3. RELIABILITY ANALYSIS

3.1 Prediction Methodology.

3.1.1 MIL-HDBK-217 Predictions. Reliability predictions were performed by computing and combining the stress failure rates of all the electronic components in the

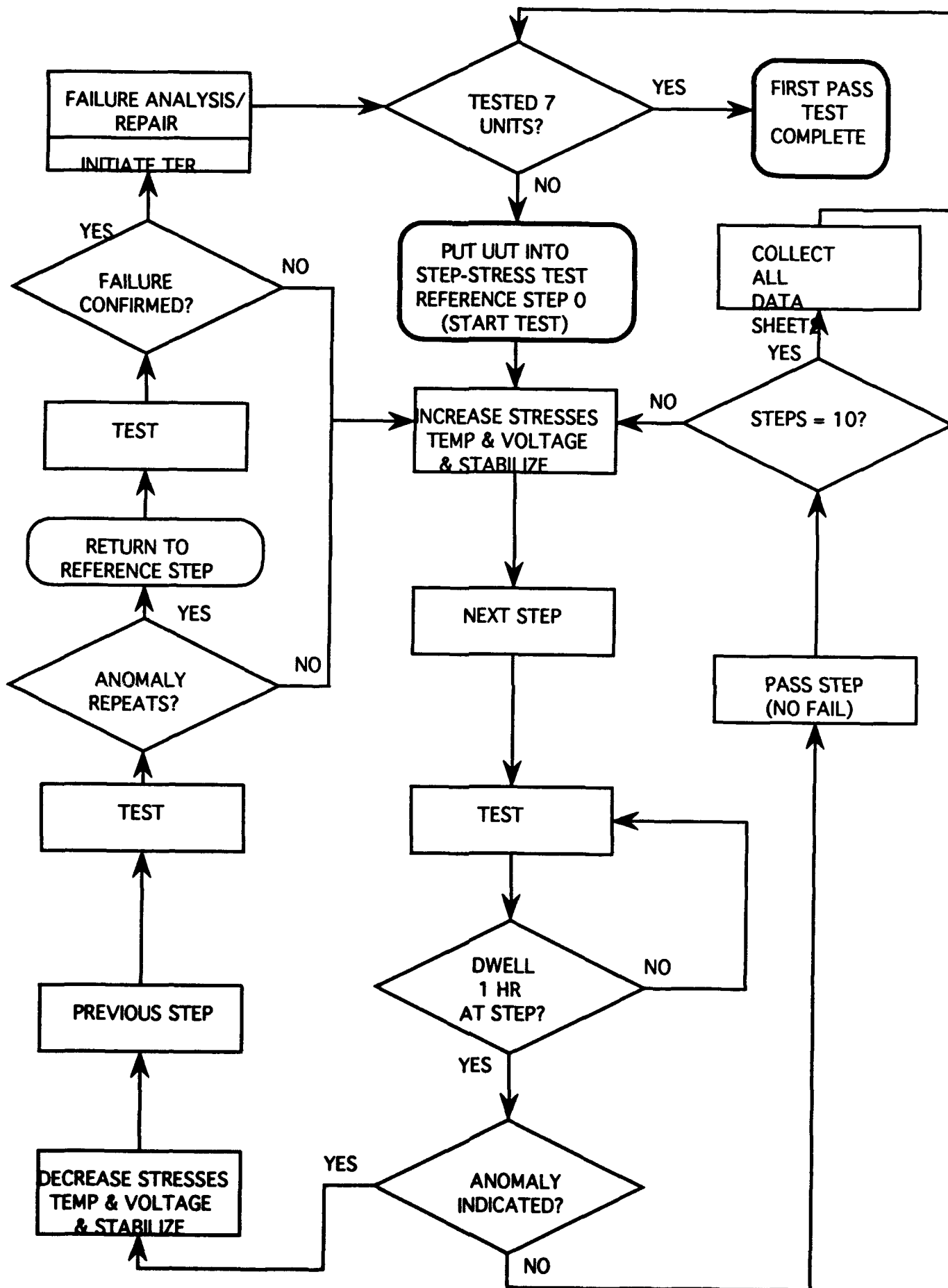


Figure 2.1-1 Step-Stress Test Flow Diagram

test unit. The stress failure rates were determined through the use of MIL-HDBK-217 and the results of thermal analyses (provided in Appendix B) and SPICE electrical analyses. The thermal and electrical stresses (in the form of case temperature, voltage, current, and power) were combined with the physical characteristics (e.g. number of pins, technology) and manufacturing features (e.g., quality level of screening program) of each component and entered into the applicable MIL-HDBK-217 failure rate equation. The equations were executed using a spreadsheet for each applied voltage, temperature, and environmental condition under study.

3.1.1 Prediction Ground Rules and Assumption. The following ground rules were used in calculating component failure rates:

- 1) The physical characteristics and manufacturing features of each component were determined through the use of the part list included on the test article drawings and MIL-HDBK-217 tables.
- 2) Electrical stress ratios were computed as the ratio of the applied stress (as determined by the electrical circuit analyses) to the maximum rating according to the component specification (commercial or military as appropriate). Stress ratios of less than 1% were rounded up to 1%.
- 3) Discrete R.F. filter failure rates were derived by the part count prediction method (Section 5.2 of MIL-HDBK-217) because there was insufficient data available to perform stress based failure rate predictions.
- 4) Inductive device (R.F. coils and transformers) failure rates were extrapolated proportionately to wirewound resistor R3 in the Detector module beyond Step 0. This was done because the MIL-HDBK-217 inductive device failure rate equations were not applicable to the range of test temperatures.
- 5) The quality factors for internal hybrid components were equated to the discrete components used in the test article.
- 6) The electrical stress ratios for internal hybrid components were assumed to be 30% (as supplier stress analysis was not available).
- 7) Measured thermocouple data was utilized to the maximum extent possible.
- 8) The temperatures of the internal hybrid components were assumed to be 10 degrees Centigrade above the hybrid case temperatures.
- 9) Discrete components were assumed to have case temperatures equal to the compartment temperatures.
- 10) Thermocouple data was extrapolated for steps 9 and 10 based on temperature differentials above the chamber temperature at step 8.
- 11) The VCO hybrid case temperature was assumed to be 20 degrees Centigrade above the environmental chamber temperature, and all other hybrids 10 degrees above, based on the thermocouple data.

3.1.2 Failure Rate Prediction Results. Predictions were established for each applied temperature and voltage condition under study. Predicted component failure rate summaries are provided in Appendix A, showing the total (for the entire part quantity) failure rates for each part at each condition. The predicted test article reliability summary (Table 3.1.2-1) shows predicted failure rates and Mean Times Between Failures (MTBF) at each stress condition.

Predictions are provided for the following conditions:

- 25 degrees Centigrade, Ground Benign (Gb) environment.
- 25 degrees Centigrade, Ground Fixed (Gf) environment.
- 25 degrees Centigrade, Airborne Inhabited Cargo (Aic) environment.
- Steps 1 through 10, the temperature and voltage conditions defined in the main body of this test report, in a Ground Benign (Gb) environment.

TABLE 3.2.1-1 - PREDICTED TEST ARTICLE RELIABILITY SUMMARY

<u>Condition</u>	<u>Failure Rate (per mil. hrs.)</u>	<u>MTBF (Hours)</u>
25C, Gb	8.68	115262
25C, Gf	32.07	31180
25C, Aic	48.16	20763
Step 0	22.04	45373
Step 1	24.80	40325
Step 2	28.39	35225
Step 3	32.07	31177
Step 4	39.96	25024
Step 5	48.48	20628
Step 6	56.01	17854
Step 7	67.82	14746
Step 8	84.93	11774
Step 9	113.59	8804
Step 10	144.63	6914

3.2 Field Estimates. Field failure experience for July of 1985 through July of 1989 was reviewed and it was determined that there had been four (4) failures of the test article. Field operating experience for July of 1985 through June of 1988 was obtained, which was then extrapolated through July of 1989. The equipment operating hours and failure data experience were then used to determine the observed MTBF in each field environment as summarized below:

	<u>Airborne Environment</u>	<u>Ground Environment</u>
Operating Hours	13,200	86,800
Failures	2 (a,b)	2 (b,c)
Observed MTBF	6600	43,400

Failure description:

- a) Replaced R40 and U3 in the detector.
- b) Failed fault isolation test, no repair data.
- c) Fractured solder joints.

APPENDIX A
Reliability Predictions

APPENDIX A

Reliability Abbreviations

Gf - Ground Fixed Environment

Aic - Airborne Inhabited Cargo Environment

Step - Temperature and voltage conditions as
defined in main body of test plan

REF DES - Reference Designator (Circuit Symbol)

PREDICTED COMPONENT FAILURE RATE SUMMARY (Per Million Hours)

SYNTHESIZER INTEGRATED CIRCUITS

QTY	REF	PARTS DES	NAME	P/N	TOTAL FAIL.RATE Z5C, Gf	TOTAL FAIL.RATE Z5C, A1C	TOTAL FAIL.RATE Step 0	TOTAL FAIL.RATE Step 1	TOTAL FAIL.RATE Step 2	TOTAL FAIL.RATE Step 3	TOTAL FAIL.RATE Step 4	TOTAL FAIL.RATE Step 5	TOTAL FAIL.RATE Step 6	TOTAL FAIL.RATE Step 7	TOTAL FAIL.RATE Step 8	TOTAL FAIL.RATE Step 9	TOTAL FAIL.RATE Step 10
2	U6-7	DIGITAL IC			0.0108018	0.031325	0.033335	0.043558	0.056422	0.072806	0.094302	0.119744	0.137284	0.159464	0.195317	0.254594	0.308560
1	U8	DIGITAL IC			0.0059715	0.018526	0.017615	0.022878	0.029492	0.037903	0.048926	0.061956	0.070931	0.082274	0.100593	0.130851	0.158371
1	U4	DIGITAL IC			0.0044593	0.017013	0.012333	0.016052	0.020806	0.026951	0.035128	0.044933	0.051757	0.060448	0.074621	0.098319	0.120123
2	U9-10	DIGITAL IC			0.0118590	0.036968	0.050717	0.073329	0.103003	0.145489	0.203820	0.279958	0.312572	0.391894	0.518188	0.729414	0.934242
3	U1-3	DIGITAL IC			0.0349651	0.110292	0.102790	0.136020	0.175896	0.229418	0.299408	0.384099	0.392535	0.480859	0.586921	0.764384	0.925963
1	U5	DIGITAL IC			0.0090235	0.034132	0.025050	0.032606	0.042257	0.054712	0.071295	0.091156	0.104972	0.122564	0.151237	0.199155	0.243218
1	U12	LINEAR IC			0.0110510	0.015206	0.010219	0.160127	0.249510	0.383532	0.590101	0.875173	1.095242	1.399149	1.946956	2.993350	4.085527
1	U11	HYBRID, VCO			0.0179662	0.118198	0.365173	0.489903	0.652992	0.863948	1.172060	1.523654	2.025161	2.586756	3.278828	4.129784	5.186581
		TOTAL CONNECTIONS			0.006724	0.015465	0.01681	0.006724	0.006724	0.006724	0.006724	0.006724	0.006724	0.006724	0.006724	0.006724	0.006724

SYNTHESIZER DISCRETE COMPONENTS

QTY	REF	PARTS DES	NAME	PART NO.	TOTAL FAIL.RATE Z5C, Gf	TOTAL FAIL.RATE Z5C, A1C	TOTAL FAIL.RATE Step 0	TOTAL FAIL.RATE Step 1	TOTAL FAIL.RATE Step 2	TOTAL FAIL.RATE Step 3	TOTAL FAIL.RATE Step 4	TOTAL FAIL.RATE Step 5	TOTAL FAIL.RATE Step 6	TOTAL FAIL.RATE Step 7	TOTAL FAIL.RATE Step 8	TOTAL FAIL.RATE Step 9	TOTAL FAIL.RATE Step 10
1	69	WPM TRANSISTOR		JANTX2N2222A	0.0000362	0.000210	0.000052	0.000057	0.000063	0.000071	0.000080	0.000090	0.000099	0.000108	0.000123	0.000157	0.000188
4	65-8	WPM TRANSISTOR		JANTX2N2369A	0.0001359	0.000788	0.000201	0.000221	0.000242	0.000267	0.000297	0.000325	0.000347	0.000369	0.000438	0.000529	0.000621
4	61-4	PMP TRANSISTOR		JANTX2N2907A	0.0000116	0.001227	0.000331	0.000366	0.000406	0.000461	0.000520	0.000589	0.000639	0.000704	0.000819	0.001045	0.001367
3	606-8	DIODE		JANTX1N4153-1	0.0000680	0.000265	0.000136	0.000158	0.000188	0.000218	0.000255	0.000296	0.000324	0.000361	0.000423	0.000540	0.000672
4	6X1-4	DIODE		JANTX1N5711	0.0001136	0.000443	0.000219	0.000261	0.000301	0.000359	0.000421	0.000494	0.000565	0.000640	0.000777	0.001123	0.001530
1	6X5	ZENER DIODE		JANTX1N5238	0.0003107	0.001211	0.000158	0.000199	0.000240	0.000281	0.000322	0.000363	0.000404	0.000445	0.000486	0.000527	0.000568
1	66	RESISTOR, FIXED		RLR05C1002GM	0.0006804	0.001633	0.001701	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
10	67-16	RESISTOR, FIXED		RLR05C1002GM	0.0068041	0.016330	0.017010	0.009920	0.010749	0.011704	0.012849	0.014107	0.014932	0.015941	0.017778	0.020333	0.022606
1	652, (46)	RESISTOR, FIXED		RLR05C1002GM	0.0006804	0.001633	0.001701	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
1	653	RESISTOR, FIXED		RLR05C1102GM	0.0006804	0.001633	0.001701	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
1	62, (60)	RESISTOR, FIXED		RLR05C1501GM	0.0007970	0.001912	0.001081	0.001173	0.001293	0.001434	0.001582	0.001770	0.001906	0.002042	0.002288	0.002675	0.002990

QTY	REF	PARTS	DES	NAME	PART NO.	TOTAL FAIL..RATE 25C, Gf	TOTAL FAIL..RATE 25C, Gf	TOTAL FAIL..RATE 25C, Afc	TOTAL FAIL..RATE Step 0	TOTAL FAIL..RATE Step 1	TOTAL FAIL..RATE Step 2	TOTAL FAIL..RATE Step 3	TOTAL FAIL..RATE Step 4	TOTAL FAIL..RATE Step 5	TOTAL FAIL..RATE Step 6	TOTAL FAIL..RATE Step 7	TOTAL FAIL..RATE Step 8	TOTAL FAIL..RATE Step 9	TOTAL FAIL..RATE Step 10
1	R21, (45)	RESISTOR, FIXED	RLR05C1801GM			0.0007447	0.001787	0.001861	0.001002	0.001085	0.001195	0.001322	0.001476	0.001648	0.001774	0.001926	0.002156	0.002517	0.002854
1	R49, (39)	RESISTOR, FIXED	RLR05C1801GM			0.0006804	0.001633	0.001701	0.000906	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
0	(R52)	RESISTOR, FIXED	RLR05C1802GM			0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	R23	RESISTOR, FIXED	RLR05C2000GM			0.0007447	0.001787	0.001861	0.001002	0.001100	0.001195	0.001322	0.001476	0.001648	0.001774	0.001926	0.002156	0.002517	0.002898
0	(R43, 58)	RESISTOR, FIXED	RLR05C2001GM			0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	R59	RESISTOR, FIXED	RLR05C2201GM			0.0006804	0.001633	0.001701	0.000906	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
1	R58, (37)	RESISTOR, FIXED	RLR05C2401GM			0.0006804	0.001633	0.001701	0.000906	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
0	(R53)	RESISTOR, FIXED	RLR05C2402GM			0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	R48, (43)	RESISTOR, FIXED	RLR05C2701GM			0.0020907	0.005017	0.005226	0.002928	0.003242	0.003650	0.004079	0.005072	0.005342	0.005784	0.006417	0.007344	0.008851	0.010303
2	R56-57	RESISTOR, FIXED	RLR05C2701GM			0.0006804	0.001633	0.001701	0.000906	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
0	(R56)	RESISTOR, FIXED	RLR05C3001GM			0.0006804	0.001633	0.001701	0.000906	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
1	R55	RESISTOR, FIXED	RLR05C3301GM			0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	R47	RESISTOR, FIXED	RLR05C3302GM			0.0006804	0.001633	0.001701	0.000906	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
1	R53	RESISTOR, FIXED	RLR05C3601GM			0.0006804	0.001633	0.001701	0.000906	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
8	R26-31	RESISTOR, FIXED	RLR05C3900GM			0.0058914	0.014139	0.014728	0.007921	0.008687	0.009560	0.010577	0.011810	0.013191	0.014194	0.015413	0.017253	0.020138	0.022833
2	R42, 45	RESISTOR, FIXED	RLR05C3901GM			0.0020907	0.005017	0.005226	0.002928	0.003285	0.003699	0.004191	0.004798	0.005496	0.006038	0.006704	0.007700	0.009265	0.011795
1	R50	RESISTOR, FIXED	RLR05C4700GM			0.0006804	0.001633	0.001701	0.000906	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
2	R4-5	RESISTOR, FIXED	RLR05C4700GM			0.0018673	0.004481	0.004668	0.002549	0.002849	0.003240	0.003660	0.004235	0.004906	0.005461	0.006143	0.007149	0.008851	0.010465
2	R22, 40	RESISTOR, FIXED	RLR05C4700GM			0.0018673	0.004481	0.004668	0.002517	0.002849	0.003198	0.003660	0.004235	0.004906	0.005461	0.006143	0.007149	0.008851	0.010465
4	R17-20	RESISTOR, FIXED	RLR05C5101GM			0.0027838	0.006681	0.006959	0.003626	0.003917	0.004243	0.004618	0.005069	0.005563	0.005887	0.006284	0.006903	0.007889	0.008765
2	R46, 54	RESISTOR, FIXED	RLR05C5601GM			0.0013608	0.003266	0.003402	0.001813	0.001958	0.002121	0.002309	0.002534	0.002781	0.002943	0.003142	0.003451	0.003944	0.004382
1	R49	RESISTOR, FIXED	RLR05C6200GM			0.0009025	0.002166	0.002256	0.001211	0.001335	0.001476	0.001642	0.001843	0.002069	0.002232	0.002432	0.002735	0.003212	0.003659
0	(R54)	RESISTOR, FIXED	RLR05C6200GM			0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	R32-39	RESISTOR, FIXED	RLR05C7501GM			0.0055677	0.013362	0.013919	0.007252	0.007834	0.008486	0.009237	0.010138	0.011126	0.011775	0.012568	0.013806	0.015778	0.017531
1	R51	RESISTOR, FIXED	RLR05C9101GM			0.0006804	0.001633	0.001701	0.000906	0.000979	0.001060	0.001154	0.001267	0.001390	0.001471	0.001571	0.001725	0.001972	0.002191
1	R1	RESISTOR, FIXED	RLR07C1201GM			0.0014672	0.003521	0.003668	0.002138	0.002452	0.002788	0.003233	0.003792	0.004451	0.004992	0.005665	0.006772	0.008396	0.010051
1	R41	RESISTOR, FIXED	RLR07C2201GM			0.0007118	0.001708	0.001779	0.000941	0.001031	0.001118	0.001235	0.001358	0.001493	0.001604	0.001714	0.001914	0.002194	0.002481
0	(R3)	RESISTOR, FIXED	RLR07C4700GM			0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	R3	RESISTOR, FIXED	RLR07C6800GM			0.0012957	0.003109	0.003239	0.001861	0.002183	0.002575	0.003062	0.003740	0.004515	0.005288	0.006273	0.007741	0.010082	0.012888
0	(R51)	RESISTOR, FIXED	RMC5H1402FM			0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	R44	RESISTOR, VAR	713177-1			0.2230141	0.646741	0.669042	0.269433	0.287893	0.310641	0.339575	0.375178	0.426171	0.468006	0.506854	0.587379	0.740043	0.914403
1	C28	CAPACITOR, FIXED	M39014-01-1219			0.0004432	0.000709	0.001329	0.000485	0.000496	0.000506	0.000517	0.000529	0.000540	0.000547	0.000555	0.000566	0.000581	0.001185
8	C1-8	CAPACITOR, FIXED	M39014-01-1237			0.0046535	0.007445	0.013960	0.005094	0.005204	0.005315	0.005429	0.005552	0.005672	0.005744	0.005871	0.005987	0.006149	0.006274
2	C26-27	CAPACITOR, FIXED	M39014-01-1455			0.0014766	0.002364	0.004432	0.001617	0.001652	0.001687	0.001729	0.001769	0.001807	0.001830	0.001856	0.001901	0.001952	0.001992
6	C15-20	CAPACITOR, FIXED	M39014-01-1473			0.01136899	0.018190	0.034106	0.012445	0.013370	0.013656	0.014682	0.015014	0.016151	0.017230	0.017475	0.018780	0.019287	0.020744

A-3

QTY	REF	PARTS	DES	NAME	PART NO.	TOTAL FAIL.RATE 25C, Gf	TOTAL FAIL.RATE 25C, Gf	TOTAL FAIL.RATE 25C, Aic	TOTAL FAIL.RATE Step 0	TOTAL FAIL.RATE Step 1	TOTAL FAIL.RATE Step 2	TOTAL FAIL.RATE Step 3	TOTAL FAIL.RATE Step 4	TOTAL FAIL.RATE Step 5	TOTAL FAIL.RATE Step 6	TOTAL FAIL.RATE Step 7	TOTAL FAIL.RATE Step 8	TOTAL FAIL.RATE Step 9	TOTAL FAIL.RATE Step 10
1	C25			CAPACITOR, FIXED	K59003-01-2254	0.0017358	0.004161	0.004334	0.000917	0.001091	0.001344	0.001733	0.002389	0.003453	0.004429	0.006043	0.009921	0.022230	0.046043
1	C25			CAPACITOR, FIXED	K59003-01-2258	0.0021907	0.005257	0.005476	0.003423	0.004410	0.005878	0.008199	0.012222	0.019089	0.026438	0.036913	0.068816	0.166082	0.369952
1	C9			CAPACITOR, FIXED	K59003-01-2504	0.0013761	0.003302	0.003440	0.000959	0.001141	0.001405	0.001811	0.002697	0.003609	0.004630	0.006317	0.010366	0.023238	0.048130
1	C24			CAPACITOR, FIXED	K59003-01-2312	0.0017355	0.004165	0.004338	0.001209	0.001439	0.001772	0.002285	0.003149	0.004552	0.005839	0.007967	0.013073	0.029305	0.060697
1	C14			CAPACITOR, FIXED	CR004C180000M	0.0000956	0.000229	0.000334	0.000406	0.000572	0.000806	0.001111	0.001622	0.002283	0.002808	0.003517	0.004813	0.007370	0.010166
2	C12-13			CAPACITOR, FIXED	CR004E310J00M	0.0003266	0.000784	0.001143	0.001388	0.001954	0.002739	0.003855	0.005514	0.007760	0.009488	0.011883	0.016260	0.024899	0.034345
1	C22			CAPACITOR, FIXED	CR004E620J00M	0.0001678	0.000402	0.000587	0.000713	0.001004	0.001407	0.001981	0.002833	0.003987	0.004875	0.006106	0.008355	0.012802	0.017658
1	C11, (12)			CAPACITOR, FIXED	CR004F101J00M	0.0001794	0.000430	0.000627	0.000762	0.001073	0.001504	0.002117	0.003028	0.004262	0.005210	0.006326	0.008930	0.013675	0.018862
1	C10			CAPACITOR, FIXED	CR004F221J00M	0.0002004	0.000481	0.000701	0.000852	0.001199	0.001680	0.002365	0.003383	0.004761	0.005821	0.007291	0.009976	0.015286	0.021084
1	C21			CAPACITOR, FIXED	CR004F331J00M	0.0002127	0.000510	0.000744	0.000904	0.001272	0.001784	0.002516	0.003598	0.005064	0.006191	0.007755	0.010639	0.016292	0.024722
1	T1			TRANSFORMER	712944-1	0.0608186	0.392266	0.309683	0.370777	0.396133	0.422538	0.452415	0.485568	0.521080	0.544929	0.583586	0.626436	0.691235	0.745813
1	L5			COIL, RF	MS75089-14	0.0004437	0.001597	0.001775	0.000794	0.000848	0.000904	0.000968	0.001039	0.001116	0.001167	0.001249	0.001341	0.001480	0.001597
4	L1-4			COIL, RF	712088-1	0.0355009	0.127803	0.142003	0.063529	0.067873	0.072398	0.077517	0.083197	0.089282	0.093368	0.099992	0.107334	0.118436	0.127788
1	J1			CONNECTOR	720809-1	0.0016064	0.005033	0.010709	0.003784	0.004581	0.005520	0.006654	0.008082	0.009727	0.010848	0.012261	0.014554	0.018414	0.022047
TOTAL CONNECTIONS						0.010373	0.023857	0.025932	0.010373	0.010373	0.010373	0.010373	0.010373	0.010373	0.010373	0.010373	0.010373	0.010373	0.010373

DETECTOR INTEGRATED CIRCUITS

QTY	REF	PARTS	DES	NAME	P/N	TOTAL FAIL.RATE 25C, Gf	TOTAL FAIL.RATE 25C, Gf	TOTAL FAIL.RATE 25C, Aic	TOTAL FAIL.RATE Step 0	TOTAL FAIL.RATE Step 1	TOTAL FAIL.RATE Step 2	TOTAL FAIL.RATE Step 3	TOTAL FAIL.RATE Step 4	TOTAL FAIL.RATE Step 5	TOTAL FAIL.RATE Step 6	TOTAL FAIL.RATE Step 7	TOTAL FAIL.RATE Step 8	TOTAL FAIL.RATE Step 9	TOTAL FAIL.RATE Step 10	
4	AR1-4			LINEAR IC	725000-846	0.0770147	0.129079	0.129079	0.687369	1.079768	1.675256	2.502761	3.754228	5.438978	6.941437	9.700145	13.45306	20.82801	28.56865	
1	U15			LINEAR IC	725000-958	0.0142422	0.033019	0.033019	0.121910	0.196740	0.305270	0.473245	0.724573	1.080086	1.37508	1.952523	2.75249	4.302080	5.941335	
4	U11-14			LINEAR IC	725004-42	0.0708435	0.158939	0.158939	0.647295	1.021975	1.594786	1.673459	3.796147	5.624473	6.698592	8.927262	13.28882	20.58336	28.24331	
2	U5-4			HYBRID	720000-47	0.0208889	0.184795	0.329029	0.491197	0.661715	0.888317	1.059733	1.626489	2.135742	2.871034	3.701508	4.731379	5.998033	7.541130	
2	U7-8			HYBRID	720000-48	0.0132359	0.087078	0.154113	0.092097	0.120196	0.157406	0.206172	0.278279	0.361597	0.481508	0.617276	0.785730	0.993396	1.246374	
2	U5-6			HYBRID	720000-112	0.0132359	0.087078	0.154113	0.092097	0.120196	0.157406	0.206172	0.278279	0.361597	0.481508	0.617276	0.785730	0.993396	1.246374	
2	FL3-4			HYBRID	730000-8	4.2	16.4	32	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	
TOTAL CONNECTIONS						0.004428	0.010184	0.011107	0.004428	0.004428	0.004428	0.004428	0.004428	0.004428	0.004428	0.004428	0.004428	0.004428	0.004428	0.004428

A-5

[illegible]

QTY	REF	PARTS	DES	NAME	PART NO.	TOTAL FAIL.-RATE 25C, 6f	TOTAL FAIL.-RATE 25C, 6f	TOTAL FAIL.-RATE AIC	TOTAL FAIL.-RATE Step 0	TOTAL FAIL.-RATE Step 1	TOTAL FAIL.-RATE Step 2	TOTAL FAIL.-RATE Step 3	TOTAL FAIL.-RATE Step 4	TOTAL FAIL.-RATE Step 5	TOTAL FAIL.-RATE Step 6	TOTAL FAIL.-RATE Step 7	TOTAL FAIL.-RATE Step 8	TOTAL FAIL.-RATE Step 9	TOTAL FAIL.-RATE Step 10
CONNECTIONS																			
3	C37-39			CAPACITOR, FIXED	K99014-01-1473	0.0028238	0.004518	0.008471	0.003091	0.003157	0.003221	0.003289	0.003359	0.003429	0.003473	0.003541	0.003611	0.003708	0.003784
2	C41-42			CAPACITOR, FIXED	K99014-01-1473	0.0018825	0.003012	0.005647	0.002060	0.002104	0.002147	0.002192	0.002239	0.002286	0.002315	0.002360	0.002407	0.002472	0.002522
1	C51			CAPACITOR, FIXED	K99014-01-1473	0.0018824	0.003011	0.005647	0.002060	0.002213	0.002258	0.002426	0.002478	0.002664	0.002843	0.002898	0.003115	0.003199	0.003440
8	C23-39			CAPACITOR, FIXED	K99014-02-1407	0.0100597	0.016095	0.030179	0.011012	0.011246	0.011475	0.011717	0.011967	0.012216	0.012373	0.012615	0.012865	0.013212	0.013639
4	C43-50			CAPACITOR, FIXED	K99014-02-1407	0.0100597	0.016095	0.030179	0.011012	0.011246	0.011610	0.011855	0.012278	0.012533	0.012695	0.013154	0.013415	0.014320	0.014320
4	C15-18			CAPACITOR, FIXED	C9904F151FD04	0.0010262	0.002462	0.003591	0.004361	0.006115	0.008435	0.011776	0.016507	0.022952	0.028176	0.038398	0.052540	0.080456	0.110977
1	C32			CAPACITOR, FIXED	K99003-01-2253	0.0016631	0.003991	0.004157	0.002528	0.002972	0.003579	0.004510	0.005971	0.008281	0.010883	0.016277	0.025243	0.061789	0.129753
2	C3-4			CAPACITOR, FIXED	K99003-01-2255	0.0034015	0.008163	0.008503	0.005172	0.006582	0.008578	0.011694	0.016743	0.025092	0.034223	0.055214	0.095862	0.224660	0.487636
2	C1-2			CAPACITOR, FIXED	K99003-01-2349	0.0016378	0.003930	0.004094	0.002490	0.003017	0.003632	0.004722	0.006253	0.008956	0.011693	0.017488	0.029147	0.063447	0.132579
12	L1-12			COIL, RF	72088-1	0.1046419	0.376711	0.418567	0.176916	0.189015	0.201614	0.215869	0.231688	0.248433	0.260013	0.278458	0.298904	0.329823	0.355865
1	J2			CONNECTOR	720809-1	0.0015038	0.004712	0.010025	0.003567	0.004313	0.005154	0.006189	0.007439	0.008895	0.009941	0.011762	0.013957	0.017650	0.021119
2	J6, 10			CONNECTOR	720340-1	0.0085704	0.026854	0.057136	0.017380	0.020521	0.024078	0.028468	0.033876	0.040257	0.044907	0.053135	0.063283	0.080878	0.097972
1	RY1			POWER DIVIDER	713466-2	0.0535579	0.352354	0.304267	0.770644	0.834794	0.905639	0.989219	1.091101	1.203392	1.311322	1.456636	1.626984	1.860776	2.097703
2	FL1-2			FILTER, RF	713772-1	0.044	0.092	0.24	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044
2	UT-2			MIXER, RF	723112-10	0.1070354	0.704180	0.609496	1.540166	1.668038	1.809152	1.975521	2.178125	2.401308	2.615107	2.903446	3.241646	3.707694	4.186320
2	UP-10			PHASE DETECTOR	723145-2	0.4726510	3.109546	2.545120	7.202460	7.835707	8.544558	9.388111	10.43580	11.59590	12.77148	14.31409	16.13600	18.60118	21.17095
TOTAL CONNECTIONS						0.011849	0.027252	0.029622	0.011849	0.011849	0.011849	0.011849	0.011849	0.011849	0.011849	0.011849	0.011849	0.011849	0.011849

SYNTHESIZER/DETECTOR MISCELLANEOUS COMPONENTS

[illegible]

APPENDIX B

Trial Step-Stress Test Run

HUGHES AIRCRAFT COMPANY

INTERDEPARTMENTAL CORRESPONDENCE

TO: Dept ENB
ORG: 1A-72-XX

SUBJECT: Trial Step-Stress Test Run
Test Data for Appendix D

cc: Project Distribution

DATE: 12 February 1992

REF: 92/1A72.30/001

FROM: S. D. Mueller 
BLDG: 675 MAIL STA: Z314
EXT: 1-8360 ORG.CODE: 1A-72-30

ABSTRACT: A trial test of the Step-Stress Testing of Receiver/Transmitter Units was performed on a sample unit (*part number*-100, MSN 349) on 25 November through 27 November 1991, with additional testing on 17 December 1992. The testing was performed to resolve requirements to be included in the R & D Test & Acceptance Plan (CDRL J003-001) being provided under contract F30602-89-D-0100/0009 (Subcontract No. D000-07 submitted to IIT Research Institute, Rome NY). The information contained in this ENB consists of data generated from the trial test and used in the preparation of *Appendix D Trial Step-Stress Test Run*; an integral part of the R & D Test & Acceptance Plan.

The contents of this ENB is as follows:

- Section 1: Text of Appendix D, Trial Step-Stress Test Run
- Section 2: Thermal Evaluation Test Journal
- Section 3: Thermal Survey, Data Printouts and Plots
- Section 4: Test Data Sheets, Performance Monitoring
- Section 5: Data Reduction, Tables and Plots
- Section 6: Unit Modification & Equipment Setup

The following individuals have provided contributions to this ENB and provided technical support in the trial test effort:

S. D. Mueller, B. J. Armstrong, J. R. Switzer, W. T. Clark.

Additional support with test equipment & facilities was provided by:

J. J. DeBellis, G. H. Kwan, D. E. Arter.

ENB Project Distribution:

B. J. Armstrong (Environmental Engineer)
S. R. Burnett (Reliability Engineer)
D. Huch (Program Manager)
L. E. James (Project Manager)
S. D. Mueller (Design Engineer)

R. A. Doctor*
W. T. Clark*
J. R. Switzer*

J. J. DeBellis*
G. H. Kwan*
D. E. Arter*

* Abstract only

SECTION 1

Text of Appendix D
Trial Step – Stress Test Run
written by S. D. Mueller
with the support of B. J. Armstrong

APPENDIX D. TRIAL STEP-STRESS TEST RUN

1.1 General. This *Appendix D* is prepared to fulfill the requirements for addition details specified within the body of text comprising the R & D Test & Acceptance Plan. The information contained herein is required for performing the Step-Stress test and constitutes an integral part of the test plan.

1.2 Scope. *Appendix D* completes the specification of test requirements and test procedures needed for implementation of the Step-Stress test plan. Provided in this *Appendix* are specific values requires by the test plan and which were previously unknown when drafted. A trial Step-Stress test run was conducted using a sample unit similar to those which will undergo the formal testing. Data accumulated and observations made during the course of the trial test run serve as the basis for all determinations and limitations represented herein. The investigation conducted by trial testing focused upon the following three topics of test implementation and are elaborated upon in subsequent paragraphs of this *Appendix*:

- A) The thermal chamber temperature setting for each step of the Step-Stress test required to obtain the Step-Stress levels specified for component temperature. The temperature differentials and/or tolerances characterizing the thermal chamber, UUT ambient air, and component/compartment air.
- B) The contribution to component/compartment air temperature as a result of the supply voltage stress levels increasing component power dissipation and heat generated. Increased confidence of supply voltage Step-Stress levels to accelerate UUT stress and effects upon UUT performance or limitations on design.
- C) The criteria and tolerances required to obtain environmental equilibrium of the UUT at each step of the Step-Stress test. The thermal ramp rate and UUT stability to achieve dwell at Step-Stress Level. The relationship between chamber/UUT ambient air and UUT chassis flange thermocouple readings.

1.3 Trial Test Sample Unit Defined. The trial test sample unit is similar in form, fit and function to the seven production (fielded) R/T modules assigned for formal Step-Stress testing per this test plan. The sample unit, identified as MSN 349, was of a *part number-100* configuration, which has been superseded through production upgrades, retrofit and stress screening process to the current *part number-103* configuration now fielded. The primary differences between the -100 and -103 configurations of the same

part number, and limitations on test data results within the scope of this *Appendix*, are listed below:

- A) Design changes: The design and processes changes which have evolved since the initial -100 version to the currently fielded -103 unit are as follows:

All carbon composition resistors (RCR-type) used on the -100 unit were upgraded to metal film resistors (RLR-type) on the current -103 version. The RLR-type resistors improve temperature and humidity stability and have greater reliability. This should have no impact on the average temperatures measured within the UUT.

The voltage controlled oscillator (VCO) hybrid on the -100 unit's Synthesizer card represents the greatest variation between the two configurations. The -100 unit's VCO has a greater operating frequency range than the -103 version hybrid, and was initially designed to accommodate a variety of circuit applications. The -103 version VCO hybrid improves RF operation over a smaller frequency range. Specified temperature extremes and power requirements remain similar between the two part versions, however, the internal layout and assembly processes of each VCO may be different. The LC-circuit elements to the control voltage input of the VCO have also been changed to accommodate the VCO's configuration.

The -103 unit Synthesizer incorporates a part change for transistor Q9 which was overstressed under the -100 version. The -100 employed Q9 was stressed under normal operating conditions and therefore can represent a worst case condition for this test. Also, zener diode CR5 was upgraded on the -103 unit to a better-than part to improve ramp discharge. No impact is anticipated upon temperatures measured.

The -100 Detector card lacks the two decibel (2-dB) resistive pi-attenuator at each synthesized signal input. These attenuators are included in the -103 design and were required to improve RF impedance matching with the next assembly. This absence was overcome for the -100 trial test run by providing this RF attenuation externally. Heat generated by the resistive attenuators are minute.

Also noteworthy is the variations in custom hybrid packaging found upon visual inspection of either -100 or -103 units. A specific part may have one of three typical packages employing hermetic seals by soldering or welding of the cover to the header. Covers and headers may vary in mass, plating, and surface area. The lower profile packages with welded seals are more prevalent on the -103 version units since they represent the latest in packaging design. However, all packaging techniques can be utilized in the current assembly.

- B) Conformal coating: The cards of the -100 are not conformally coated. The polyurethane coating applied to -103 units will impede convection of component heat to the compartment air and therefore the majority of heat transfer will be primarily conduction to the card's ground plain and chassis. Although this affects the process by which heat will be transferred, this should not pose a significant increase in compartment air temperature and should assist in a more uniform distribution of heat throughout the compartment.
- C) Stress screening: The sample unit (-100) lacks the stress screening for powered and monitored thermal cycling and unpowered random vibration. The current units (-103 configuration) undergo the stress screening process intended to seek out failures in parts and workmanship and prove unit reliability. The lack of stress screening of the -100 used did not impact the trial test as defined in the Scope of this Appendix.

2. Trial Test Run. A trial test run utilizing the Step-Stress test plan was conducted upon a *part number*-100 sample unit, MSN 349, on 25 November through 27 November 1991, with additional testing on 17 December 1991. Each of the four days of testing were conducted by the design engineer and environmental engineer, and concentrated upon those topics listed in the Scope of paragraph 1.2 above. The objective of the trial test run was to measure parameters to aid writing of the test plan. An investigative approach was used and deviations from the test plan and test profile were required to repeat measurements, or proof concepts. This trial test run was not intended to provide data sufficient for formal validation of the Step-Stress test method or ALT approach. The following paragraphs represent the culmination of the trial test run and the specific values affecting test implementation required for this test plan. Justifications are provided for values derived from the test data, with test data provided as required to demonstrate the concept or result. All raw data including temperature printouts, plots, test data sheets, observations, photographs, drawings, data analyses and notes generated through this trial test run will be collected and filed by the design engineer in an Engineering Notebook.

2.1 Step-Stress Test Requirements. The following establishes requirements for inclusion in the Step-Stress test plan:

2.1.1 Temperature and Supply Voltage Stresses. Table D-1 provides the *calibrated* chamber setting at each Step-Stress level to achieve the required component temperature stress. The byproduct of voltage stress has been removed. In addition, the accuracy of the particular thermal chamber used (HAC ID# H-B07567) has been factored in to these established settings. Table D-1 will be used throughout the Step-

chamber identified above. A discussion of technical approach and data analysis follows.

TABLE D-1: STEP-STRESS LEVEL CHAMBER SETTINGS

STEP STRESS LEVEL	COMPONENT TEMPERATURE STRESS (°C)	CALIBRATED CHAMBER SETTING (°C)
0	+ 70	+ 61
1	+ 78	+ 69
2	+ 86	+ 77
3	+ 94	+ 85
4	+102	+ 94
5	+110	+102
6	+118	+111
7	+126	+119
8	+134	+127
9	+142	+135
10	+150	+143

As stated in the Step-Stress test plan paragraph 2.2.1, a distinction was made between the temperature a component sees versus the temperature the UUT sees. The thermal chamber is set to maintain the UUT at a constant temperature for each Step-Stress level. The air temperature within the chassis' compartments, which the components experience, will be greater than the air surrounding the UUT, i.e., the temperature to which the chamber is set. Component temperature has been established as the baseline for determination of chamber setting.

The effects of increased supply voltage stress upon the UUT were found to be a measurable contributor to the air temperature through additional component heat dissipation within the chassis' compartments. An effort was required to quantify the thermal effects due to each incremental increases in voltage stress so that a clear distinction between stress environments (temperature stress or supply voltage stress) could be drawn. In other words, the two stress environments should be maintained as independent. In determining the component stress level due solely to temperature stress, the thermal byproduct of voltage stress had to be cancelled out in determining a proper chamber setting.

Figure D-1 shows the locations and identifies the thermocouples affixed to the trial test unit. For this discussion only thermocouples TC2 (chamber's UUT ambient air), TC1 (UUT chassis flange), TC3 (A3 component's compartment air), TC4 (A4 component's

compartment air), and TC5 (A2 component's compartment air) are being addressed. Thermocouples TC3, TC4, and TC5 are suspended above the components at the center of each compartment to record the ambient air. The remaining nine thermocouples served to provide case temperature data which was used to evaluate stability criteria (paragraph 2.1.2 of this *Appendix*) and for use in reliability predictions of *Appendix E*.

The data measured during each stress level dwell are summarized in Table D-2 and Table D-3. Table D-2 covers temperature data for cases where the temperature stress was changed to various Levels, *n*, while leaving the voltage stress at a constant nominal value (Level 0). Table D-3 applies to those cases where both temperature and voltage stresses were changes to the same stress Levels, *n/n*. Raw data used in computations are in the form of computer printouts taken every 4 or 5-minutes from the thermocouple readings. The plots of the thermocouple readings every 1-minute for each day of the trial run are provided by Figure D-2 through Figure D-5.

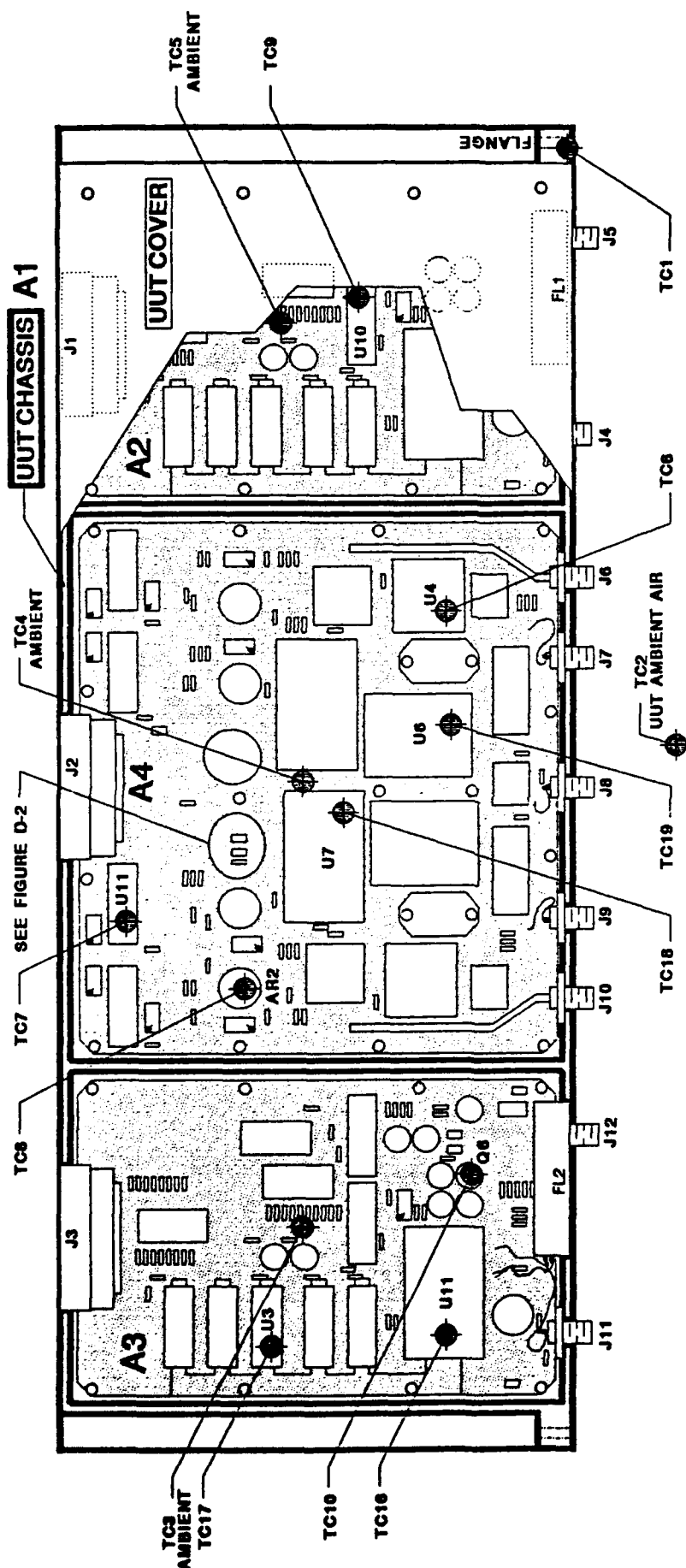
In Table D-2 and D-3, the average component's compartment air temperature, T_{cmp} , has been computed by averaging the data points of the suspended compartment thermocouples (TC3, TC4, and TC5) with the unit at dwell (environmental equilibrium). T_{cmp} is used to compute the calibrated chamber setting, T_{SET} , required to achieve a desired component stress level, T_{CSL} , for each incremental step of the Step-Stress profile. With no voltage stress applied the equation can be simplified (see Table D-2). To adjust the original trial test chamber setting, T_{set} , to the proper *calibrated* T_{SET} we need only determine the difference between the measured data, T_{cmp} , and the desired stress level, T_{CSL} and add accordingly:

$$T_{SET} = T_{set} + (T_{CSL} - T_{cmp}) \quad \text{for case without voltage stress.}$$

One resultant of the case without voltage stress is the constant that exists for any temperature level. The difference between the measured UUT ambient air temperature, T_{amb} , and the averaged component's compartment temperatures, T_{cmp} , is a constant 10.1 °C. Knowing this, we can find the contribution voltage stress has in increasing the average compartment air temperature. From Table D-3 we discover that at any stress Level *n*, where voltage and temperature stresses are at their designated Step-Stress Test Level per Table 2.3-1, that the heat generated by the components (due to voltage stress) is 0.6 °C times the stress Level *n*.

The trial test run on the sample UUT was only conducted through to stress Level 8. In the course of Day 4 testing, the unit experienced failure of the A2 Synthesizer (J5) RF power output at stress Level 6 without voltage stress applied. No noticeable effect upon average compartment temperature was observed so testing continued to the end of the

FIGURE D-1: UUT THERMOCOUPLE LOCATIONS



UUT THERMOCOUPLE (TC) IDENTIFICATION

TC1	UUT CHASSIS FLANGE	TC8	A4-AR2 CASE (LINEAR, VIDEO AMP)
TC2	UUT AMBIENT AIR TEMPERATURE (CHAMBER)	TC9	A2-U10 CASE (LINEAR, MULTIVIBRATOR)
TC3	A3 COMPARTMENT AMBIENT AIR (A3 COMPONENTS)	TC10	A3-Q6 CASE (SEMICONDUCTOR, TRANSISTOR)
TC4	A4 COMPARTMENT AMBIENT AIR (A4 COMPONENTS)	TC16	A3-U11 CASE (RF HYBRID, VOLTAGE CNTL OSC.)
TC5	A2 COMPARTMENT AMBIENT AIR (A2 COMPONENTS)	TC17	A3-U3 CASE (ECL INTEGRATED CKT; COUNTER)
TC6	A4-U4 CASE (RF HYBRID, AMPLIFIER)	TC18	A4-U7 CASE (RF HYBRID, LIMITER AMP)
TC7	A4-U11 CASE (LINEAR, COMPARATOR)	TC19	A4-U6 CASE (RF HYBRID, LIMITER AMP)

NOTES:

A2-SYNTHESIZER 1; A3-SYNTHESIZER 2; A4-DUAL DETECTOR OF DETECTOR 1 (LEFT) & DETECTOR 2 (RIGHT).
TC11 THRU TC15 WERE NOT USED.

TABLE D-2: TEMPERATURE STRESS LEVEL DATA WITHOUT VOLTAGE STRESS (n / 0)

Step Stress Level Temp/Vol	Date (Day) Time (Minutes)	Trial Chamber Setting T _{set}	UUT Ambient Air T _{amb} =TC2	Flange Chassis T _{fg} = TC1	Component's Compartment Air			Average $\bar{x}$ T _{cmp}	Component Stress Level T _{CSL}	7 * Data Reduction				Calibrated Chamber Setting T _{SET}	
					A3 TC3	A4 TC4	A2 TC5			$\Delta T_1 =$ cmp -amb	$\Delta T_2 =$ amb -set	$\Delta T_3 =$ CSL -cmp	$\Delta T_4 =$ fg -amb		
na / 0 ^{1*}	11/25/91 (Day 1) 23:49:00:24 (35)	8	40.9 ^{+0.6} -0.8	46.3 ^{+0.6} -0.3	52.0 ^{+0.2} -0.7	49.5 ^{+0.4} -0.4	51.9 ^{+0.4} -0.2	51.1 ^{+1.1} -2.0	70	+10.2 ^{1*}	+0.9	+18.9	+5.4		59
0 / 0 ^{2*}	11/26/91 (Day 1) 01:04:01:34 (36)	7	59.3 ^{+0.1} -0.1	64.5 ^{+0.1} -0.2	71.4 ^{+0.2} -0.3	67.9 ^{+0.4} -0.9	69.8 ^{+0.1} -0.3	69.7 ^{+1.9} -2.7	70	+10.4	-0.7	+0.3	+5.2		60 ^{3*}
0 / 0	11/28/91 (Day 2) 20:42:22:14 (62)	24	60.3 ^{+0.2} -0.1	65.6 ^{+0.2} -0.2	71.4 ^{+0.1} -0.3	68.8 ^{+0.2} -0.3	71.0 ^{+0.1} -0.3	70.4 ^{+1.1} -1.9	70	+10.1	-0.7	-0.4	+5.3		61
0 / 0	11/27/91 (Day 3) 17:17:17:37 (20)	6	60.5 ^{+0.1} -0.1	65.8 ^{+0.1} -0.1	71.8 ^{+0.1} -0.0	69.2 ^{+0.1} -0.1	70.6 ^{+0.1} -0.0	70.5 ^{+1.4} -1.4	70	+10.0	-0.5	-0.5	+5.3		61
4 / 0	11/27/91 (Day 3) 14:08:14:17 (08)	3	91.3 ^{+0.1} -0.1	97.0 ^{+0.0} -0.0	102.7 ^{+0.0} -0.0	100.2 ^{+0.1} -0.0	101.7 ^{+0.0} -0.0	101.5 ^{+1.2} -1.3	102	+10.2	-1.7	+0.5	+5.7		94
4 / 0	12/17/91 (Day 4) 13:38:14:34 (36)	15	91.2 ^{+0.2} -0.5	96.1 ^{+0.2} -0.5	101.8 ^{+0.1} -0.1	100.0 ^{+0.1} -0.2	101.3 ^{+0.1} -0.0	101.0 ^{+0.9} -1.2	102	+9.8	-1.8	+1.0	+4.9		94
5 / 0	12/17/91 (Day 4) 15:08:18:14 (08)	18	98.6 ^{+0.5} -0.5	103.0 ^{+0.2} -0.3	109.4 ^{+0.1} -0.3	107.5 ^{+0.1} -0.4	108.8 ^{+0.1} -0.3	108.6 ^{+0.9} -1.8	110	+10.0	-2.4	+1.4	+4.4		102
6 / 0	12/17/91 (Day 4) 16:46:18:02 (76)	17 ^{3*}	106.1 ^{+1.1} -0.7	108.8 ^{+0.4} -0.9	117.1 ^{+0.0} -0.3	115.2 ^{+0.1} -0.3	116.4 ^{+0.1} -0.3	116.2 ^{+0.9} -1.3	118	+10.1	-2.9	+1.8	+2.7		111
7 / 0	12/17/91 (Day 4) 18:34:19:34 (60)	16	113.8 ^{+1.1} -0.8	115.0 ^{+1.1} -2.7	124.9 ^{+0.0} -0.2	122.9 ^{+0.2} -0.2	123.8 ^{+0.8} -0.8	123.8 ^{+1.1} -1.1	126	+10.0	-3.2	+2.2	+2.0		119
8 / 0	12/17/91 (Day 4) 20:08:21:33 (64)	22 ^{5*}	121.7 ^{+1.1} -1.0	128.6 ^{+0.1} -0.0	132.6 ^{+0.1} -0.3	130.8 ^{+0.1} -0.3	131.7 ^{+0.7} -0.8	131.7 ^{+1.0} -1.2	134	+10.0	-3.3	+2.3	+2.3		127

NOTES: 1* Point of trial test origination to determine ΔT_1 .
2* First trial test setting to locate T_{CSL} and T_{SET}.
3* TC1 data Day 4 is unreliable; Bad TC1 contact with UUT.
4* No data printout 17:46-17:54 for TC1-TC5; Paper jam.
5* No data printout 20:28 for TC5 (21 pts); Paper jam.
6* Only data printout 20:34-21:30 used for TC1 (15 pts); Bad TC1.
7* ΔT_1 is a constant where no voltage stress is applied..

$$T_{CSL} - (T_{cmp} - T_{amb}) - (T_{amb} - T_{set}) = T_{SET}$$
$$T_{CSL} - \Delta T_1 - \Delta T_2 = T_{SET}$$

OR

$$T_{CSL} - (T_{cmp} - T_{amb}) - (T_{amb} - T_{set}) = T_{SET}$$
$$(T_{CSL} - T_{cmp}) + T_{set} = T_{SET}$$
$$\Delta T_3 + T_{set} = T_{SET}$$

TABLE D-3: TEMPERATURE STRESS LEVEL DATA INCLUDING VOLTAGE STRESS (n / n)

Step- Stress Level(n) Temp/Volt	Date (Day) Time (Minutes)	Test Chamber Setting	UUT Ambient Air T _{amb} = T _{C2}	Flange Chassis T _{flg} = T _{C1}	Component's Compartment/Air			Component Stress Level	Data Reduction			Calibrated Chamber Setting T _{SET}
					A3 TC3	A4 TC4	A2 TC5	Average T _{cmp} n	ΔT _{off} cmbr amb	ΔT _{off} cmbr amb	ΔT _{off} cmbr amb	ΔT _{off} cmbr amb
1 / 1	11/20/91 (Day 1) 02:19-02:30 (20)	5	67.1 ^{+0.0} -0.0	72.5 ^{+0.1} -0.0	79.5 ^{+0.0} -0.1	76.1 ^{+0.1} -0.3	77.8 ^{+0.0} -0.1	77.8 ^{+1.7} -1.8	+10.7 -0.6(1)	-0.9	+0.2	+5.4
1 / 1	11/20/91 (Day 2) 22:46-23:44 (58)	16	68.1 ^{+0.2} -0.1	73.8 ^{+0.2} -0.3	79.9 ^{+0.2} -0.2	77.1 ^{+0.2} -0.3	79.5 ^{+0.1} -0.3	78.8 ^{+1.3} -2.0	+10.7 -0.6(1)	-0.9	-0.8	+5.7
2 / 2	11/27/91 (Day 2) 00:16-00:28 (12)	4	75.8 ^{+0.0} -0.0	81.8 ^{+0.1} -0.1	88.3 ^{+0.1} -0.1	85.2 ^{+0.1} -0.0	87.7 ^{+0.1} -0.1	87.1 ^{+1.3} -2.0	+11.3 -0.6(2)	-1.2	-1.1	+6.0
3 / 3	11/27/91 (Day 2) 01:00-01:28 (28)	8	83.5 ^{+0.3} -0.1	89.8 ^{+0.1} -0.2	96.8 ^{+0.2} -0.2	93.5 ^{+0.1} -0.2	96.1 ^{+0.1} -0.3	95.5 ^{+1.5} -2.2	+12.0 -0.6(3)	-1.5	-1.5	+6.3
4 / 4	11/27/91 (Day 2) 02:00-02:58 (58)	15	91.3 ^{+0.2} -0.1	98.0 ^{+0.1} -0.2	105.6 ^{+0.2} -0.4	101.8 ^{+0.2} -0.2	104.5 ^{+0.2} -0.3	104.0 ^{+1.8} -2.4	+12.7 -0.6(4)	-1.7	-2.0	+6.7
4 / 4	11/27/91 (Day 3) 13:13-13:41 (28)	8	91.3 ^{+0.2} -0.1	98.1 ^{+0.0} -0.2	105.7 ^{+0.1} -0.3	101.8 ^{+0.2} -0.2	104.2 ^{+0.1} -0.2	103.9 ^{+1.9} -2.3	+12.6 -0.6(4)	-1.7	-1.9	+6.8
5 / 5	11/27/91 (Day 3) 15:05-15:37 (32)	9	98.9 ^{+0.1} -0.1	106.0 ^{+0.0} -0.2	114.2 ^{+0.1} -0.2	110.0 ^{+0.2} -0.2	112.4 ^{+0.1} -0.1	112.2 ^{+2.1} -2.4	+13.3 -0.6(5)	-2.1	-2.2	+7.1
0 / 5	11/27/91 (Day 3) 16:21-16:45 (24)	7	60.8 ^{+0.2} -0.1	67.7 ^{+0.3} -0.2	76.2 ^{+0.4} -0.3	71.8 ^{+0.5} -0.3	74.4 ^{+0.6} -0.1	74.1 ^{+2.5} -2.8	+13.3 -0.6(5)	-0.2	-4.1	+6.9

To cancel contributions of Voltage stress to the thermal characteristics, we define: n = stress Level n with Voltage stress also applied.
0 = stress Level n without Voltage stress applied.

$$T_{CSL} - \{ \{ T_{cmp_n} - (T_{cmp_n} - T_{cmp_0}) \} - (T_{amb_n} - T_{amb_0}) \} - \{ \{ T_{amb_n} - (T_{amb_n} - T_{amb_0}) \} - T_{set} \} = T_{SET}$$

$$T_{CSL} - \{ \{ \{ T_{cmp_n} - (T_{cmp_n} - T_{cmp_0}) \} - (T_{amb_n} - T_{amb_0}) \} - \{ \{ T_{amb_n} - (T_{amb_n} - T_{amb_0}) \} - T_{set} \} \} - \{ \{ T_{amb_n} - (T_{amb_n} - T_{amb_0}) \} - T_{set} \} = T_{SET}$$

OR

$$T_{CSL} - \{ \{ T_{cmp_n} - (T_{cmp_n} - T_{cmp_0}) \} - (T_{amb_n} - T_{amb_0}) \} - \{ \{ T_{amb_n} - (T_{amb_n} - T_{amb_0}) \} - T_{set} \} = T_{SET}$$

$$T_{CSL} - \{ \{ T_{cmp_n} - (T_{cmp_n} - T_{cmp_0}) \} - (T_{amb_n} - T_{amb_0}) \} - \{ \{ T_{amb_n} - (T_{amb_n} - T_{amb_0}) \} - T_{set} \} = T_{SET}$$

$$\Delta T_{30} + T_{set} = T_{SET}$$

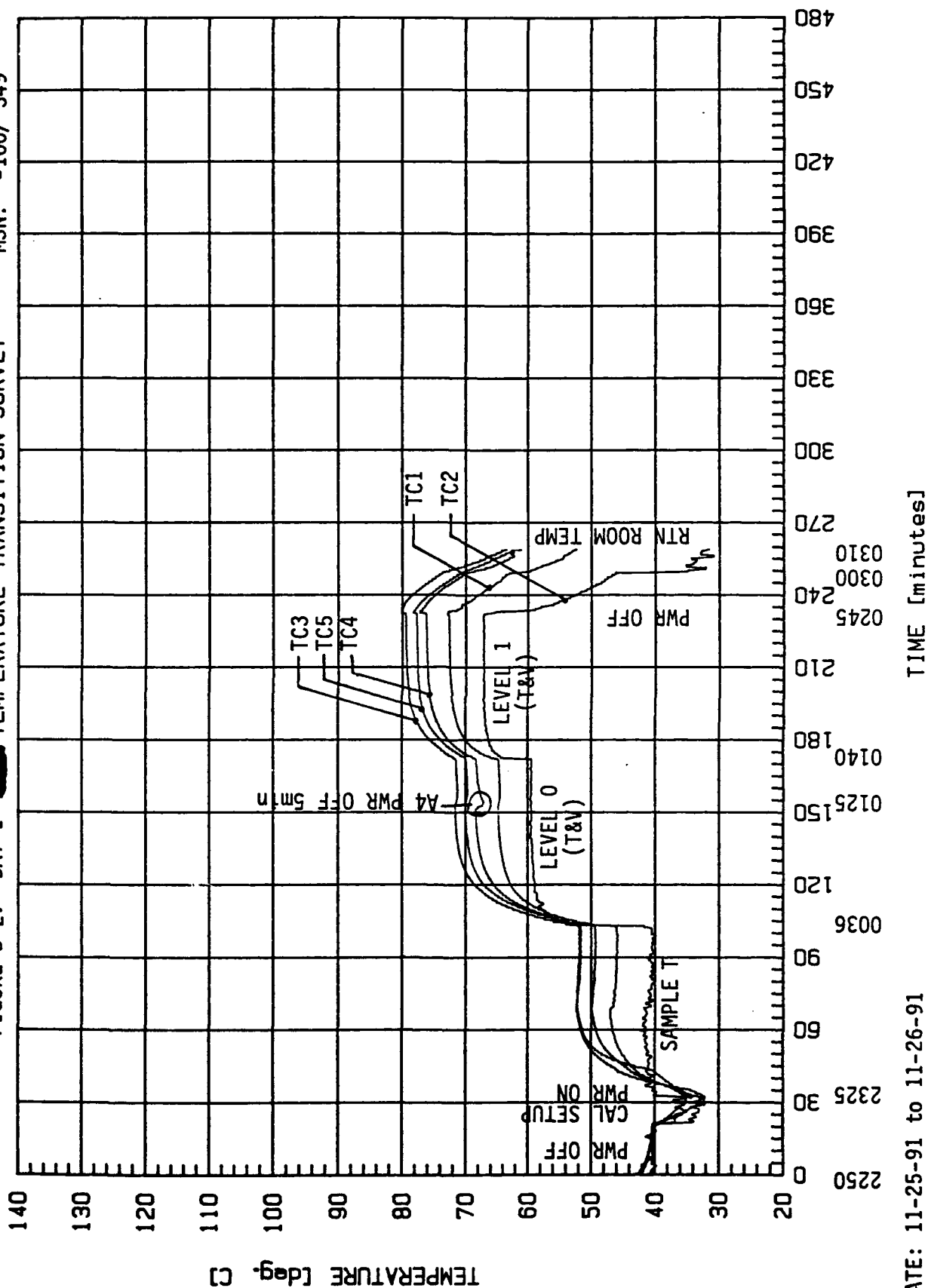
We find that without Voltage stress applied to the UUT, that $\Delta T_{10} = T_{cmp_0} - T_{amb_0}$ is a constant equal to 10.1.

Evaluating the effects Voltage stress has upon the thermal rise within the UUT, we find by comparing like Temperature stress Levels n, that: $\Delta T_1 - \Delta T_0 = \Delta T_1 - 10.1 = 0.6 \times n$.

We also find that the effects of Voltage stress upon the UUT Ambient Air is negligible compared to the accuracy of the Chamber setting, $\Delta T_2 = \Delta T_0$.

Therefore, we define a Calibrated Chamber setting T_{SET} which directly relates to Component Stress Level T_{CSL} and cancels the effects of Voltage stress and Chamber inaccuracy.

FIGURE D-2: DAY 1 XXXXXXXXXX TEMPERATURE TRANSITION SURVEY MSN: -100/ 349



D-9

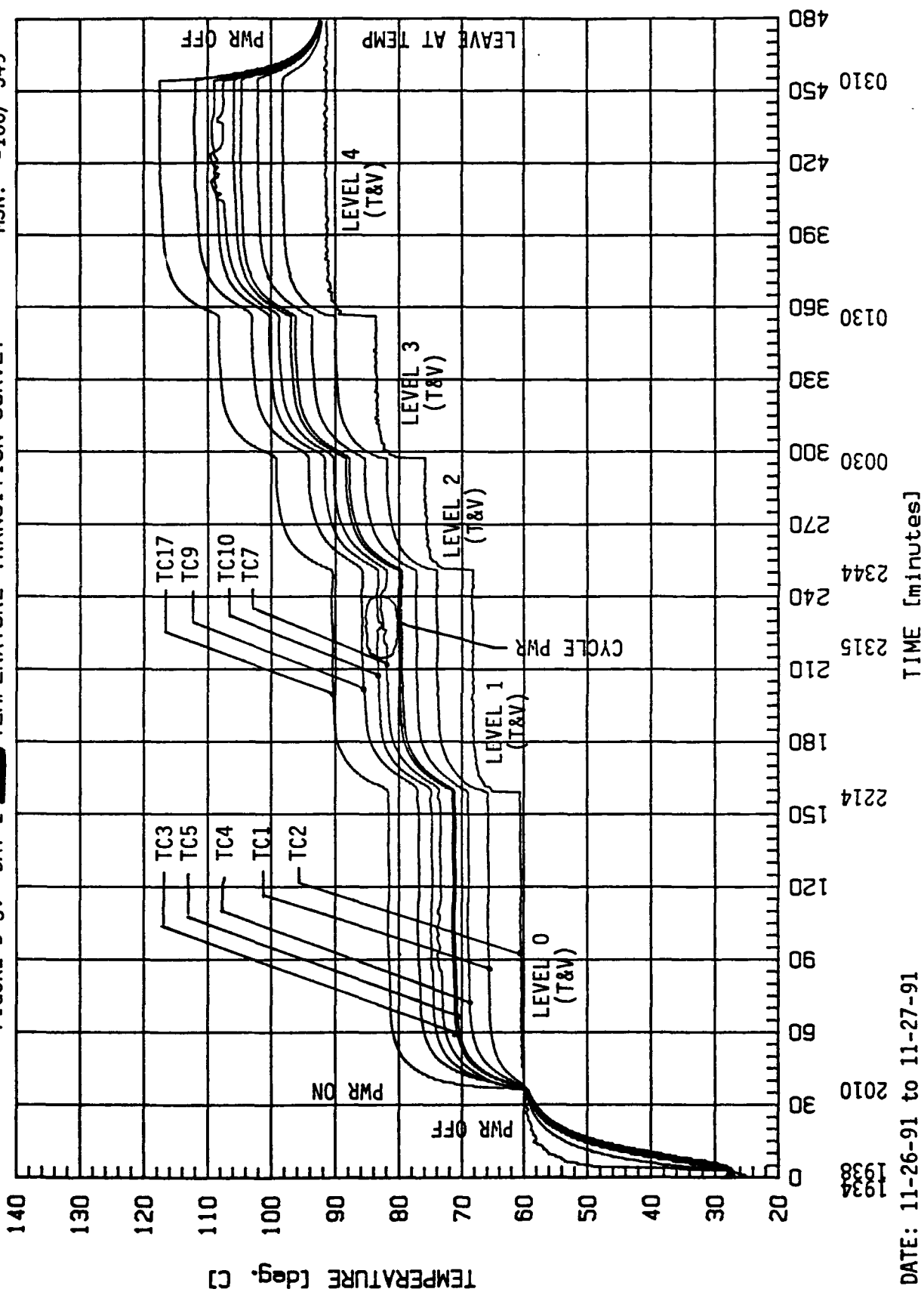
110

DATE: 11-25-91 to 11-26-91

92466
TEST

MSN: -100/ 349

FIGURE D-3: DAY 2 TEMPERATURE TRANSITION SURVEY



DATE: 11-26-91 to 11-27-91

32466
TEST

FIGURE D-4: DAY 3 TEMPERATURE TRANSITION SURVEY MSN: -100/ 347

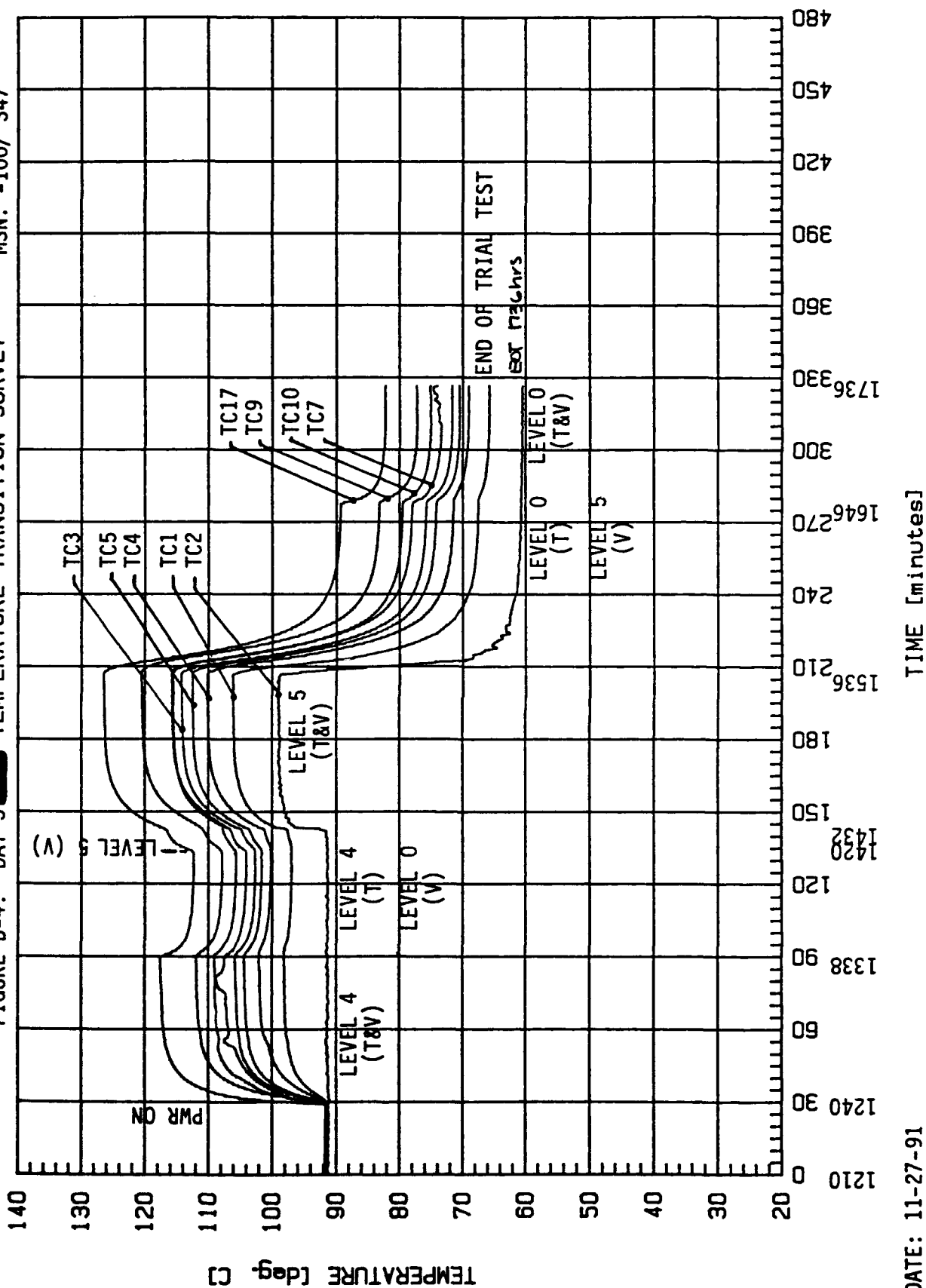
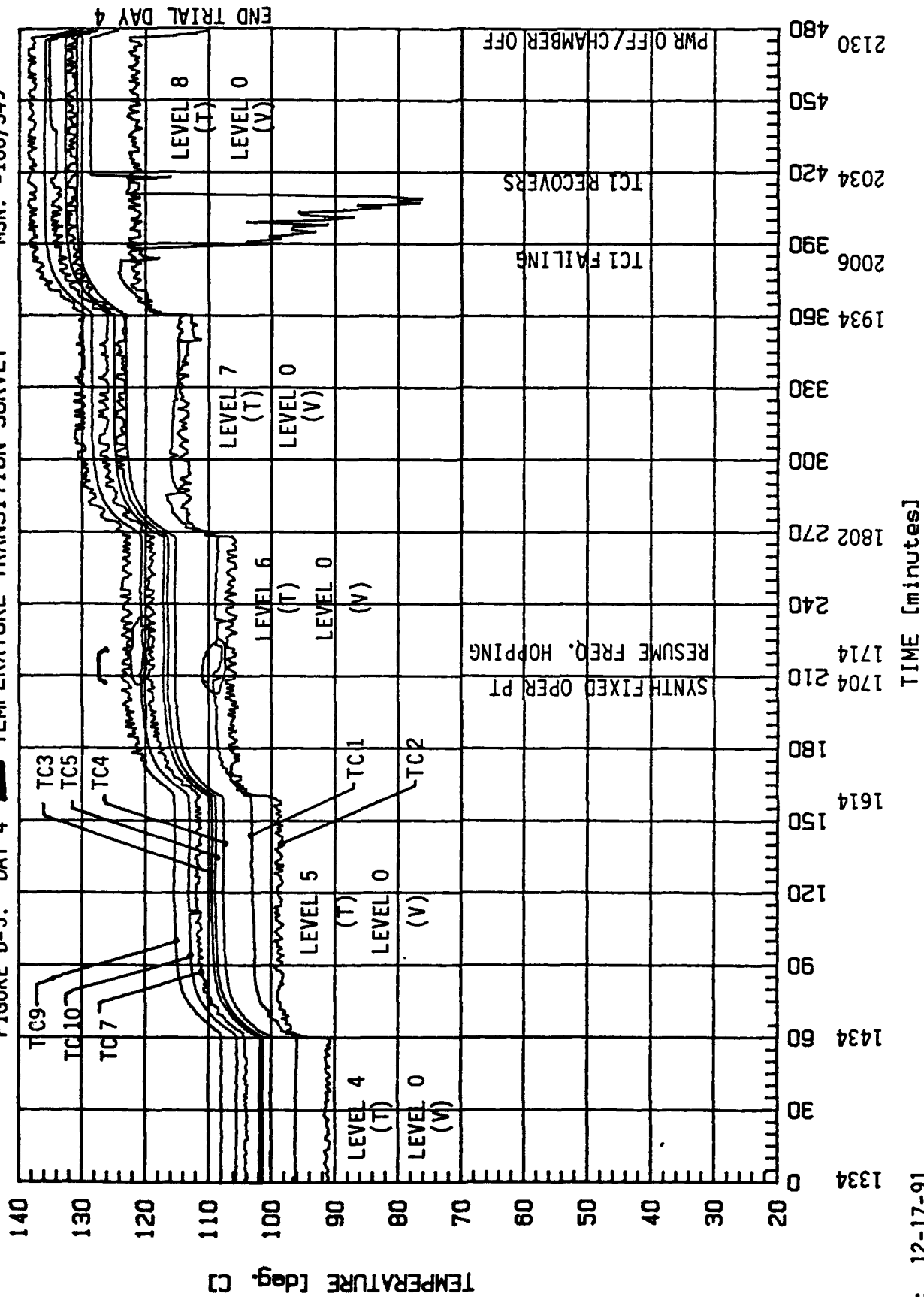


FIGURE D-5: DAY 4 ■■■ TEMPERATURE TRANSITION SURVEY MSN: -100/349



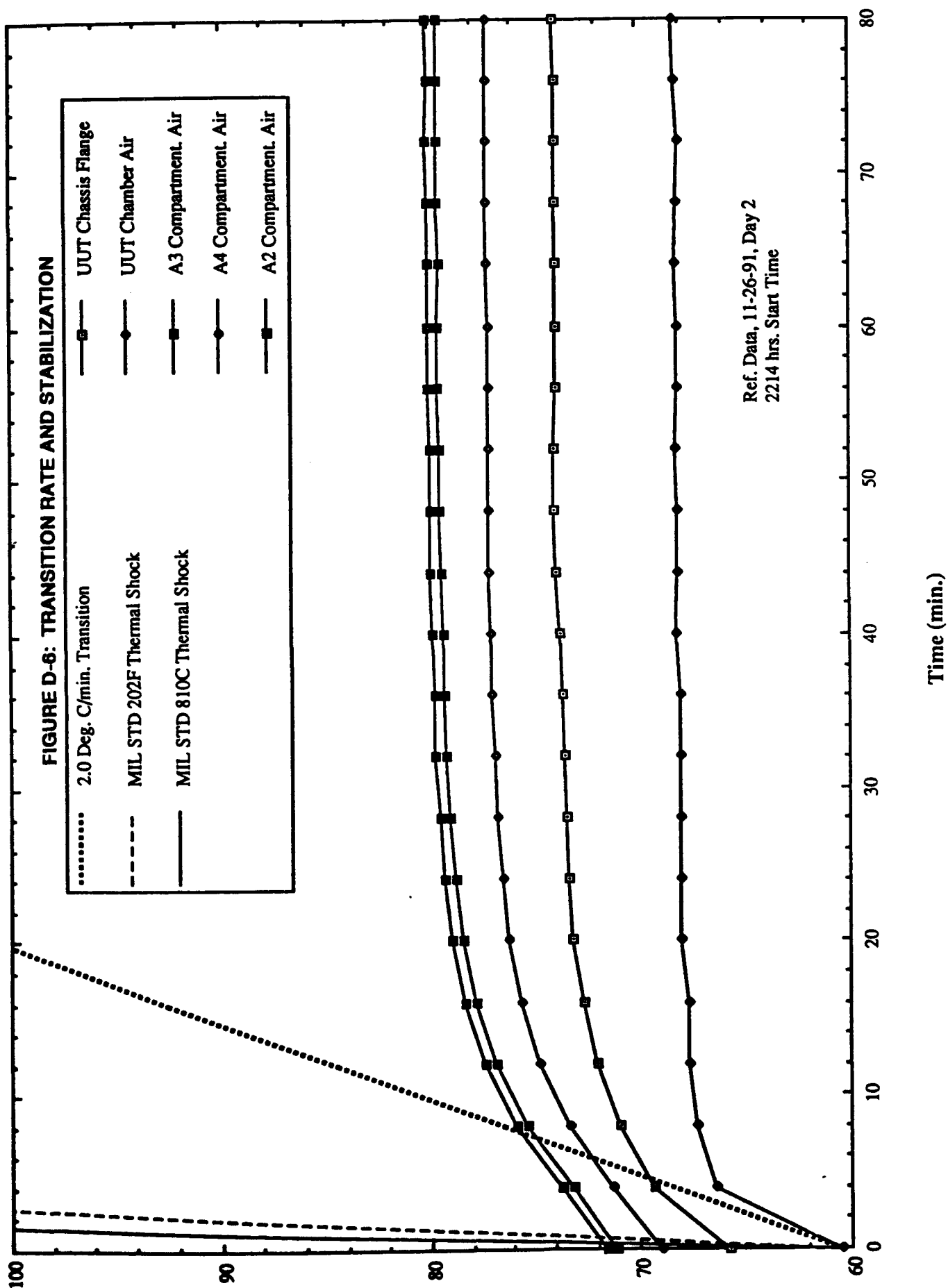
work day. The calibrated chamber setting for Levels 9 and 10 of Table D-1 were obtained by extrapolating from a graph of the previously determined values.

2.1.2 Environmental Equilibrium. Environmental equilibrium is achieved when the UUT components have realized the changes due to stepping of the ambient air temperature and voltage stresses, and have reached steady-state operation at the new level. Equilibrium has been defined as ≤ 2 °C change over a 1-hour period (≤ 0.5 °C in 15-minutes) for the UUT components. To determine equilibrium, the environmental engineer monitored thermocouple measurements at the locations depicted in Figure D-1, and recorded their values throughout each test run. Figures D-2 through D-5 show those thermocouples plotted during the trial test. The remaining thermocouple data and plots (not shown) are filed in the Engineering Notebook. The engineer utilized the trial test data in achieving the thermal ramp rate and in determining the stabilization time necessary to reach equilibrium prior to beginning of dwell at the new stress level. The resultant of this engineer's effort provides the basis for thermal criteria which will be used to conduct the Step-Stress testing of the seven production (fielded) R/T modules using the designated thermal chamber, HAC ID# H-B07567.

The chamber air temperature, without external control, will inherently ramp at about 3 °C/minute. For a step-stress increase of 8 °C, the effects upon the component's compartment air was a ramp rate less than the 2 °C/minute criteria specified in the Test Plan. Figure D-6, starting at transition time zero, shows that both UUT chassis flange and compartment air temperatures lag the chamber air; and are far less than what can be considered thermal shock per MIL-STD-202 or MIL-STD-810 (air temperature). The condition of ≤ 2 °C/minute, as experienced by the components, remained true for both increasing and decreasing stepped transitions; and could easily accommodate single chamber air steps of 24 °C without using the chamber's programmable controller. This allows the test operator to use the chamber manual mode (see paragraph 2.3.1 of this *Appendix*) for decreasing the chamber setting when verification of an anomaly is warranted per paragraph 2.4.2 of the Step-Stress Test Plan.

As shown in Figure D-6, sufficient time must be afforded to the UUT to undergo the transition to the next Step-Stress level, and achieve equilibrium. This stabilization time is based upon the ramp rate and transition step size, and as determined by the thermal chamber and UUT response. The UUT required at least 20-minutes to reach 90% component stability; with 100% component stability obtained within 40 to 60-minutes. In the Step-Stress testing of the seven production (fielded) R/T modules the stress levels will be controlled at increments of 8 °C (temperature) and 0.2 Vdc/0.3 Vdc (5 and 15 supply voltages, respectively) with each transition preceded by the prior step's 1-hour dwell. Thirty (30) minutes has therefore, been allotted as sufficient component stabilization time from the outset of transition to the beginning of the next dwell period.

FIGURE D-6: TRANSITION RATE AND STABILIZATION



During Step-Stress testing the UUT ambient air temperature of the chamber and the UUT chassis flange temperature will be plotted. The UUT component and compartment ambient air temperatures track the UUT chassis flange. This flange response can be used to determine the stability of the UUT for cases where greater transitions are necessitated by the Step-Stress Test Profile of Figure 2.3-1 (ie., room ambient to Level 0, Level 10 to Level 0 and room ambient).

2.2 UUT Limitations At Test. A limitation on the performance of the UUT was encountered on the first day of the trial test run. The following documents the event which led to modification of the UUT for subsequent Step-Stress testing.

On Day 1 of the trial test an anomaly occurred with the UUT's Detector card, A4. At an A4 compartment temperature of +68 °C the digital output bits railed to their positive offset indicating a problem with the -5 volt offset voltage, and subsequently the -15 Vdc line from which it is derived. No short circuits or increase in supply currents were indicated on the power supply meter. After completing Level 0 and Level 1 excursions for the day, the unit was returned to room temperature where the problem had ceased and Detector operation had returned to normal.

Upon inspection of the UUT, it was noted that the wirewound 2-watt (at +25 °C) resistor R4 had been extremely hot showing scorch marks on itself, the zener diode VR1, the printed wiring board, and the tantalum capacitor C4 beside it. In addition, the thermocouple wire for TC8 which was routed above R4 had singed insulation, explaining the overload condition recorded for TC8. TC8 was inspected with no breaks in insulation found, therefore ruling out the possibility that the wires had caused a short circuit. TC8 was used for the remainder of the three days of trial testing.

The -5 volts is derived from the -15 Vdc supply line using a series 93.1 ohm power resistor R4 and 5.1 volt zener diode VR1. The resistor should typically operate at 1-watt, or 50% of its capacity. MIL-HDBK-217 Table 5.1.6.4-8 and MIL-R-39007 Figure 6 (RWR80-type resistor) indicates that temperatures up to +150 °C are applicable for this percentage of rated power. The temperature of R4 & VR1 were measured Day 1 with a spare thermocouple inside the chamber with the UUT cover removed. The chamber air was measured at +33 °C (TC2). R4 was found to be 35 °C hotter than the chamber air, with VR1 18 °C warmer.

It is possible that with the covered UUT A4 compartment temperature at +68 °C, that the resistor R4 temperature was upwards of +100 °C, but still within rating. Through convection of heat to the surroundings, R4 effectively heated up the adjacent zener diode VR1 and thermally causing it to cease normal operation. The scorching of adjacent surroundings is a supporting observation. On conformally coated A4 Detector

cards the design engineer has also observed scorching of the conformal coating in direct contact with the power resistor A4 in the past, but has never encountered a failure at specified operating temperature. The conformal coating may impede the convection of heat to VR1 and provide heat transfer by conduction to the card's ground plain thus alleviating this thermal shut-down effect as observed in the trial test run.

The trial testing for the remaining three days proceeded with a modification to the sample unit. Resistor R4 and zener diode VR1 were removed entirely from the circuit and an external -5.1 Vdc auxiliary supply was used to provide the necessary regulated fixed voltage to the circuitry.

On 3 December 1991 this event was discussed at the technical interchange meeting of the joint industry/government Process Action Team. Through our discussion a compromise was reached which would allow removal of the "weak link" created by thermal effects of R4 and VR1 which could dominate and obscure the Detector operation at increasing Step-Stress levels beyond the UUT's maximum operating specification. The compromise required that only the R4/VR1 produced output could be isolated from the circuit and that it must be monitored across a suitable external load resistor. This gives a comparable operating environment to R4 and VR1. The dependent circuitry will then be supplied by an external -5 volt auxiliary supply in substitution for the R4/VR1 output. The dependent circuitry would be considered as being driven by a regulated source allowing the auxiliary supply to be fixed at a constant -5 Vdc throughout the test.

2.2.1 Pretest Conditioning-UUT Modification. Modification of the Detector card's R4/VR1 circuitry on each UUT prior to test is detailed in the Rework/Modification Planning which follows. Prior to applying power to the UUT, the modification should be visually inspected and continuity tested. Provided in paragraph 2.3 of this *Appendix* are the test setup, test procedure, and supplemental data sheet to be used in association with the modification for UUT Step-Stress testing.

2.3 Test Setup & Procedures. The following establishes the requirements for test setup and procedures necessary for utilizing the special test box as shown set up in Figure D-7. The test box allows measurement of supply currents and a supplemental test for the UUT modification as follows:

- A) To monitor and then measure the UUT's supply currents at dwell utilize the test points provided on the special test box. The test points are connected across each voltage supplies 0.1 ohm sense resistor, allowing current to be measured with a voltmeter. The voltage reading taken must be multiplied by 10 (as instructed on the test box) to convert to the proper milliampere (mA) reading.



CAUTION!!
THIS ASSEMBLY IS STATIC
SENSITIVE!! HANDLE PER
MPS 8.53.19

REWORK/MODIFICATION PLANNING
PROJECT:

HUGHES

PAGE 1 OF 2 GROUND SYSTEMS GROUP

PLANNED BY E. S. MUELLER	DATE 12/12/91	QUALITY OPERATIONS	PART NO. 103
CHECKED BY [Signature]	DATE 12/14/91		NAME SYNTHESIZER/DETECTOR ASSY
CHANGED BY	DATE		LEVEL UNIT, SRU
REASON FOR REVISION N - MODIFY FOR STEP STRESS TEST (A4 CCA IN A VR1 MONITORING AND AUX - 5 V SUPPLY)			WORK ORDER NO. QTY. OF PARTS 1
SLR NO.	IDR NO.	HRT NO.	DDT NO.
OTHER			
MPS	DES. NO.	TRIM	TRIM
OPER NO.	ORG. SOURCE	OPERATION DESCRIPTION	
		CAUTION: THE FOLLOWING MOD WILL BE PERFORMED FROM THE COMPONENT SIDE OF THE A4 DETECTOR CCA P/N <del> </del> WITHOUT REMOVING THE CCA FROM THE CHASSIS.	
		NOTE: ALL WORK TO BE PERFORMED IN ACCORDANCE WITH WCM VOL II.	
10	1A-K3-35	OBTAIN SYNTHESIZER/DETECTOR ASSEMBLY P/N <del> </del> 103 AND ROUTE TO REWORK LINE.	
20	1A-55-30	REMOVE ASSEMBLY COVER AND SAVE HARDWARE. READ CAUTION ABOVE.	
30	1A-55-30	REMOVE CONFORMAL COAT FROM LEADS AND PADS OF A4-R4 (P/N RWR80593R1 FM) AND A4-VR1 (P/N JANTX1N751A-1).	
40	1A-55-30	AT PAD OF VR1 (NEAR U7 HYBRID), CLIP VR1 LEAD LEAVING 1/16-INCH LEAD PROTRUSION FROM PAD.	
50	1A-55-30	SOLDER 8-FT OF RED 22 GA WIRE (P/N 4297840-155, OR EQUIV.) TO LEAD PROTRUDING FROM PAD LEFT FROM OPER NO. 40 ABOVE.	
60	1A-55-30	SOLDER 8-FT OF WHT-RED-GREEN 22 GA WIRE (P/N 995442-825, OR EQUIV.) TO GROUNDED LEAD AT OPPOSITE END OF VR1.	
70	1A-55-30	REMOVE SOLDER FROM FEEDTHROUGH HOLE OF PAD AROUND LEAD OF R4 (NEAR U7 HYBRID) AND PULL R4 LEAD AWAY FROM PAD.	
80	1A-55-30	WRAP LEAD OF R4 AROUND REMAINING LEAD OF VR1. WRAP AND SOLDER 8-FT OF GREEN 22 GA WIRE (P/N 4297840-208, OR EQUIV.) TO JOIN LEADS.	
90	1A-55-30	ISOLATE LEADS OF OPER. NO. 80, ABOVE, FROM SHORTING TO PWB USING BONDING COMPOUND (P/N 760585, OR EQUIV.) AIR CURE.	
100	1A-55-30	ROUTE WIRES TO EXTERIOR OF CHASSIS, CENTERING OVER J2 CONNECTOR. USE ADDITIONAL SLEEVING OVER WIRES TO PROTECT FROM DAMAGE BETWEEN CHASSIS AND COVER.	
110	1A-55-30	INSTALL COVER ON ASSEMBLY, OMITTING SCREWS ON EACH SIDE OF J2 CONNECTOR. TORQUE 8 IN-LB.	



CAUTION!!
THIS ASSEMBLY IS STATIC
SENSITIVE!! HANDLE PER
MPS 8.53.19

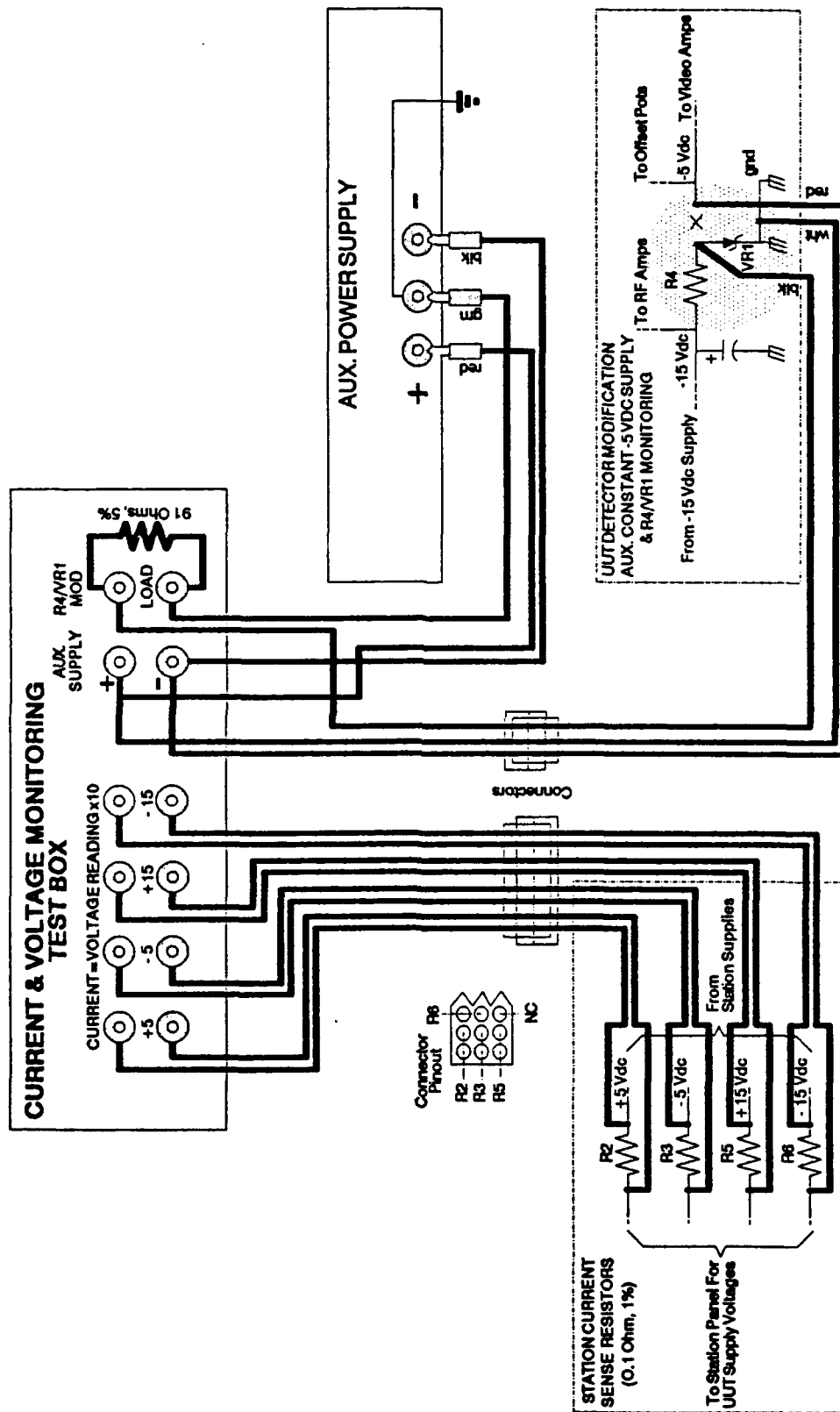
REWORK/MODIFICATION PLANNING
PROJECT:

HUGHES

PAGE 2 OF 2 GROUND SYSTEMS GROUP

PLANNED BY E. S. MUELLER	DATE 12/12/91	QUALITY OPERATIONS	PART NO. 103
CHECKED BY [Signature]	DATE		NAME SYNTHESIZER/DETECTOR ASSY
CHANGED BY	DATE		LEVEL UNIT, SRU
REASON FOR REVISION N - MODIFY FOR STEP STRESS TEST (A4 CCA IN A VR1 MONITORING AND AUX - 5 V SUPPLY)			WORK ORDER NO. QTY. OF PARTS 1
SLR NO.	IDR NO.	HRT NO.	DDT NO.
OTHER			
MPS	DES. NO.	TRIM	TRIM
OPER NO.	ORG. SOURCE	OPERATION DESCRIPTION	
		CAUTION: THE FOLLOWING MOD WILL BE PERFORMED FROM THE COMPONENT SIDE OF THE A4 DETECTOR CCA P/N <del> </del> WITHOUT REMOVING THE CCA FROM THE CHASSIS.	
		NOTE: ALL WORK TO BE PERFORMED IN ACCORDANCE WITH WCM VOL II.	

FIGURE D-7: SPECIAL TEST BOX SETUP



B) The load resistor for the R4/VR1 output modification to the UUT (paragraph 2.2 of this *Appendix*) is also provided by this test box. The current requirements of the dependent circuitry was measured on the sample unit using an auxiliary -5.1 Vdc supply. A 91 ohm load resistor is serving as the load. A Supplemental Step-Stress Test Data Sheet is supplied in this *Appendix D*, and is used to record the R4/VR1 voltage across this load at each Step-Stress level test. An auxiliary supply connected to the test box provides the regulated voltage to the dependent circuitry. The auxiliary supply is to be fixed at a constant -5.1 Vdc throughout the test.

2.3.1 Chamber Programming Guide & Profile. Control of the UUT's thermal environment is provided by utilizing the programmable functions of the thermal chamber, Model S-4 with Model 2800 controller. Included in this *Appendix* is a two page Chamber Programming Guide and Chamber Program Profile providing the operating instructions and programs for the chamber.

Program #1 takes the UUT from room temperature up to the starting point for the test, Step-Stress Level 0. The test operator is allowed a maximum of 2-hours at Interval 2 to verify the test setup, voltage stress settings, and assure UUT thermal stabilization prior to proceeding to Program #2 and beginning the Step-Stress testing.

Program #2 is used to conduct the Step-Stress test, establishing the calibrated chamber setting, transition rate, and stabilization/dwell times for each Step-Stress Level for the duration of the test. The program begins with the 1-hour dwell at Level 0 where testing per Test Plan paragraph 2.6 commences. The program continues with a 1-minute transition Interval to the next Level and is maintained for 1-hour 29-minute at that Level. The UUT experiences a ≤ 2 °C/minute ramp, shall be allowed 30-minutes stabilization time by the tester, and UUT testing during the remaining 1-hour dwell. Program #2 continues automatically through to Level 10.

Manual mode operation is required for failure verification of an anomaly requiring interruption of Program #2 to return to the previous Step-Stress Level per Test Plan paragraph 2.4.2. Manual mode operating instructions are provided in the Chamber Programming Guide. If the anomaly cannot be substantiated, the operator selects the Program #2 Interval of the next Step-Stress level after the Step-Stress level where the non-confirmed failure originated. The even-numbered Intervals provide these transitions using the operating instructions in the Programming Guide.

Program #3 is used to return the UUT to Level 0 for retest upon verification of a failure during the Step-Stress test. Program #3 Interval 3 will return the UUT to room temperature as will Program #4.

SUPPLEMENTAL (APPENDIX D) STEP-STRESS TEST DATA SHEET

Sheet 1 of 1

UUT Serial Number (enter MSN): _____

Test Date: _____

Tester: (Name & stamp below) _____

STEP-STRESS Level (enter 6 - 10): _____

UUT PERFORMANCE TEST DATA

PERFORMANCE MONITORING

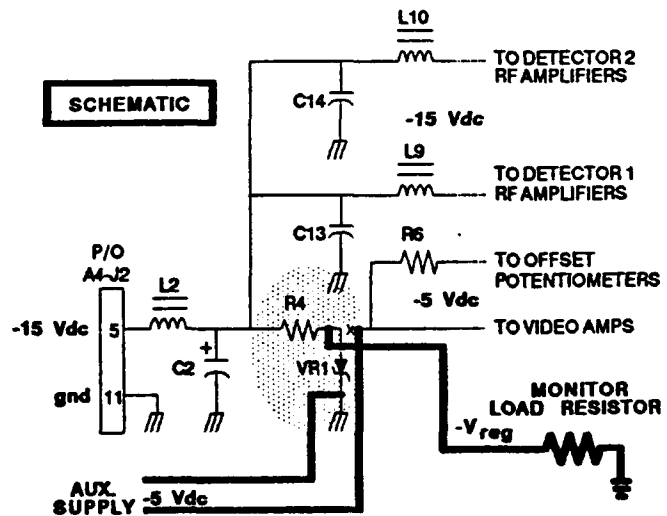
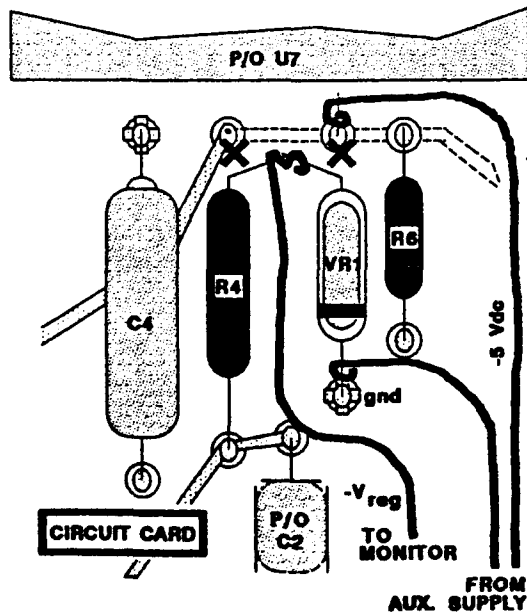
RESISTOR/ZENER DIODE MODIFICATION: At Dwell; For the modified resistor/zener diode subcircuit, record the voltage across the LOAD RESISTOR at this STEP-STRESS Level.

Start TEST: _____
(TIME HR:MIN)

Voltage across LOAD RESISTOR: _____ (Vdc) (refer to Appendix D; nominally -5 Vdc)

End TEST: _____
(TIME HR:MIN)

DETAILS: A4 DETECTOR CIRCUIT CARD MODIFICATION FOR AUX. CONSTANT -5 Vdc SUPPLY AND R4/VR1 MONITORING



CHAMBER PROGRAMMING GUIDE

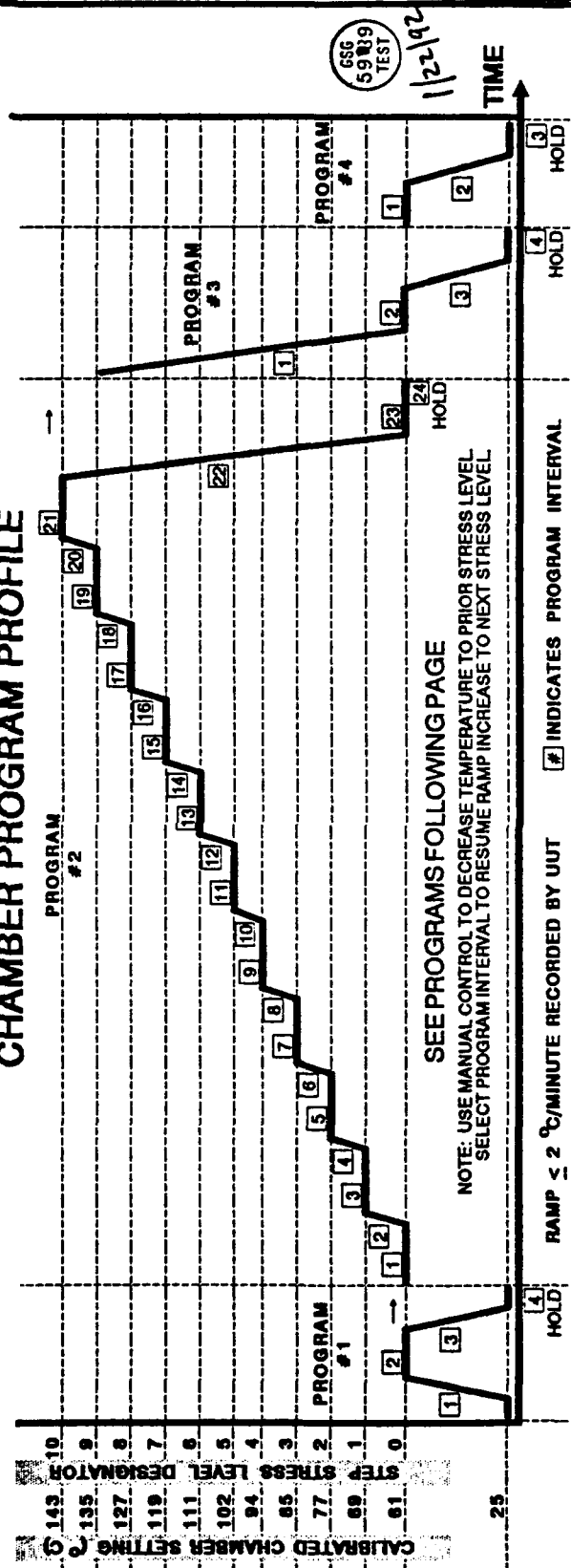
SETTING TEMP ALARMS: Prior to using Chamber, set the LOW and HIGH alarms for auto shutoff in case of over temp condition. Press **SETUP** key. Press the hidden **Y** key located behind the "TROL" letters between the two displays. Press **ENTER** key twice. Enter the LOW and then HIGH alarm temperatures **°C**. Press **STOP** key to end.

MANUAL MODE OPERATION: Press **STOP** key. (CODE 1 displayed) Press **RUN** key. (PROG/MAN? displayed) Press **MAN** key. Press **VALUE** key, until SET-PNT is displayed. Press **EDIT** key. Enter the SET-PNT temperature (**°C**). Press **ENTER** key. Chamber will be driven to setpoint temperature.

TO RUN A PROGRAM INTERVAL: Press **STOP** key. (CODE 1 displayed) Press **RUN** key. (PROG/MAN? displayed) Press **PROG** key. Enter PROGRAM NMBR. Press **ENTER** key. Enter INTERVAL number. Press **ENTER** key. Toggle **STOP** key. Chamber should resume with PROGRAM INTERVAL entered.

To verify status press **VALUE** or **TIME** keys repeatedly to scroll through variables while running program.

CHAMBER PROGRAM PROFILE



TO PROGRAM CHAMBER: Press  key. (CODE 1 displayed). Press  key.

Enter PROGRAM NMBR. Press  key following each value entered.

PROGRAM NMBR	1	2	3	4
INIT VAL 1 (°C)	25	61	133	61
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT	1 61 0.18 — 2	1 61 1.0 — 2	1 61 0.36 — 2	1 25 0.18 — 2
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT	2 61 2.0 — 3	2 69 0.01 — 3	2 61 3.0 — 3	2 25 1.0 — 3
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT	3 25 0.18 — 4	3 69 1.29 — 4	3 25 0.18 — 4	3 Press  key.
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT	4 Press  key.	4 77 0.01 — 5	4 Press  key.	
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT		5 77 1.29 — 6		
Continue PROGRAM 2: Repeat INTERVALs 4 and 5 above using VARIABLES below.				
INTERVAL	6&7	8&9	10&11	12&13
FINAL VAL (°C)	85	94	102	111
				119
				127
				135
				143
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT		22 61 0.40 — 23		
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT		23 61 3.0 — 24		
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT		24 Press  key.		1/22/92 

 key interrupts & holds INTERVAL time and temperature.  key continues program INTERVAL

SECTION 2

Thermal Evaluation Test Journal
prepared by B. J. Armstrong

HUGHES

GROUND SYSTEMS GROUP

026

THermal EVALUATION
ENGINEERING GROUP

TEST JOURNAL NO. 118

PG/M/CUSTOMER ~~██████████~~ THERMAL SURVEY

TEST TYPE S. MUELLER

W.A. 1377 B44 B4 A1A1



ENGINEER'S TEST INSTRUCTION SHEET

ENGINEER: B. Armstrong PHONE: 732-3071

TYPE OF TEST:
(Thermal Vacuum, Airflow, etc.) Thermal Survey

CHARGE NO.: W.A.:

PROGRAM NAME: ~~██████████~~ TEST UNIT:

TEST PERSONNEL (Test Engineer, Technician, Program Support, etc.):

B. Armstrong } Test location: ~~██████████~~ LAB, 676
S. Mueller } Room: X139

START DATE: 11-25-91 TESTING PERIOD: 2-3 days

INSTRUMENTATION AND EQUIPMENT NEEDED:

TEST PARAMETERS:

+61°C, ... +125 in +8°CΔ increments

SPECIAL INSTRUCTIONS:

CUST: STEVE MUELLER, 1A-7L

[illegible]

Data Recorder: _____

Page 3

Test Data

Date: 11-20-91

11/10/85: Transported Datalogger, platter Printer, HPSS
 & cart over to ~~the~~ Shock Lab to be
 assembled & await for ~~the~~ test in laboratory
 next door.

1520 hrs: Temp, acquisition system, printer, plotter connected and running. 15TC's.

1500hrs: Test system has been running $\approx$ 1hr w/o problems.
Talked to S. Mueller concerning test:

11) Need to change "time to x 8 hrs from 12 hrs (PSPLO program)

2) Need to change "temperature" to $\approx 20^{\circ}\text{C} - 140^{\circ}\text{C}$
from $0^{\circ}\text{C} - 60^{\circ}\text{C}$

3) Need to check π wire for integrity @ $\approx 140^\circ\text{C}$ & type

11-21-91

o800hrs: Tested Kapton tape / TC. @ $\approx 130^{\circ}\text{C}$,
tape loosened & casing started to melt
will make 5 New Teflon wires to
be used per commented to the
Hit hybrids which are expected to
reach $140^{\circ}\text{C} - 150^{\circ}\text{C}$

Data Recorder:

Test Data Cont'd:

Date: 11-25-91

1700hrs: Arrive @ LAB v1 Test Equipment (MS 1216, X139)

Moved equipment over behind snail

Thermohm test chamber H001567 9-2-91

Thermocouple locations are as indicated

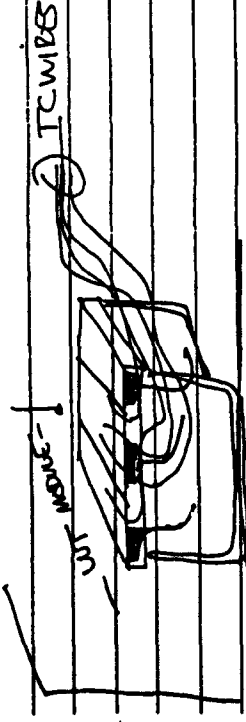
in attached layout. Added 4 chn'd to

"106" Program (TC1-TC19). The last 4

TC's wires extra insulated to guard against

excessive heat.

Test module sitting atop folder - holder -
from filing cabinet



NOTE: 1/2 TC WIRES KATRU'D

1/2 TC WIRES DOWN CENTERED

2215hrs: Set chmbr manually for 40°C

2250hrs: Reload Program / Plot & enter TC1-TC5
for Plots. Chmbr SP will be elevated
until TC3, TC4, TC5 & 71°C

Add new printer
Paper.

Date Recorder:

Page 4

Test Data Cont'd:

Date: 11-25-91

2315hrs: Screwing Top Cover on UUT. Test station
has been cal'd, Chmbr set to 40°C

2355hrs: All TC's secure, cover tightened, Chmbr door
closed. Set chmbr stabilize @ 40°C for
≈ 10 mins

2345hrs: Chn'd 00, stabilize power on "nominal"
will hold @ these cond's until ≈ 0100hrs (11-26)

11-26-91

0030hrs: Temps & stab'l. Change Chmbr SP to 60°C
& Stabilize

0030hrs: TC8 "overload"

Middle section "A4" having elec. problems

≈ 0140hrs: Temps stab'l, set chmbr to 68°C

≈ 0245hrs: Temps stab'l. end Test, open chmbr door
Visual Inspection; Note: wire (TC8) to ARZ
vibr comp. is SEVERELY SINUED. The
wire runs across R4 (very hot, 1W) and
VR1. Both ran hot. When allowed to
cool, TC8 worked again.

TC4 ✓
TC5 ✓

Note: R4 & VR1 were operating at
or exceeding max. derating values.

Date Recorder:

Page 5

Test Data Cont'd: 10/15/77

Date: 11-26-71

0715hrs: Steve has soldered leads to VR1 (5V, 100W). Used
external -5V supply. Plan is to re-run 60-68°C
chamber trans & stabilizations & find AT max
of Module Screw (TC1) & Time-to-stabilize
for A2, A3, A4 compartment air

Reloaded Plot/Print program 1min/4min Print

Monitoring the following:

TC1 - UT Screw (base)	TC7
TC2 - Chamber Air	TC8
TC3 - A3	TC10
TC4 - A4 } Compartment Air	TC17
TC5 - A2 }	

Chamber bulb removed from inside.

1938hrs: Chamber Set Pt to +61°C. UT off
will stabilize @ +61, then apply
power

2010hrs: TC's stable @ 59-60°C; UT EMERGED
2050hrs: Start 1-hr of system test @ 60°C
2111hrs: End of Elec. Testing @ 60°C.
2214hrs: Raised Chamber SP 8°C to 69°C
2244hrs: UT stable. Start Elec. test (t=197.5min Plot)
2315hrs: Steve cycling power to units

Data Recorder: SA

Test Data Cont'd:

Date: 11-26-71

2344hrs: Change chamber set pt from
69°C to 77°C (+8°CΔ)

11-27-71

0030hrs: Change chamber S.P. to +85°C
from +77°C (+8°CΔ)

0130hrs: change SP to +93°C

0305hrs: End of test (for today). Pwr-off.

Leave UT @ 93°C soak until tomorrow
Testing will resume @ 93°C

Data Recorder: PA

Date: 11-27-91

Zeichne Re-started Printer/Plotter

Combust temp 910C (Stress Level 4, High Voltage)

1240hrs: Tuned pur'õn" to vert

1338hrs: Temps stabilizing: Tc17 @ 17.6°C

Dropping Voltages to nominal levels.

(Volt down to $\pm 5,000$ from $\pm 5.8, \pm 16.2$)
level "0" $\Rightarrow 61^\circ \text{C ambient}$

142ohms: increasing voltages to "higher stress levels from nominal ($\pm 5.8, \pm 16.2$)

1432hrs; Raise SP to 101°C (± 0.1), 16.5V
level 5 temp, level 5 voltage

153hrs: Reduced SP back down to 61°C
(Note: Voltage still elevated)

1666hrs: Reducing VOA-Pos Back to level
"0" (ie 600°C. params)

1719 hrs: Start albumin test (215 min)

1736 hrs: End of Test

Data Recorder:

Page 8

PROJECT		ANALYSIS WORK SHEET	PAGE 1 OF 1
HUGHES AIRCRAFT CO. FULLERTON, CALIFORNIA			
ASSEMBLY		ANALYST	DATE
MODULE TEMP TEST		B. ARMSTRONG	
UNIT			
"HOTTEST" RANKING			
TC1	UJT BASE SCREW	8	MAX $\Delta T = 26^{\circ}\text{C}$
TC2	CHMBR AIR	9	$\Delta T_{\text{ECL AIRS}}$
TC3	A3, COMPT AIR	5	From MEZL Board;
TC4	A4, COMPT AIR	7	A) C 25% $\Rightarrow P_{\text{max}} = 1.4\text{W}$
TC5	A2, COMPT AIR	6	$\theta_{JC} = 25^{\circ}\text{C/W}$
TC7	A4, UICHP	4	$T_J = T_A + (1.4)(25)$
TC9	A2, UICHP	2	$= T_A + 35^{\circ}\text{C}$
TC10	A3, Q6TRANS	3	
TC7	A3, ECL CHIP	1	
1) $\Delta T_{\text{CROSSHAIR}} \approx 6^{\circ}\text{C}$ 2) 1.5-2 c/watts Temp drop from Volt. drop to "0" level 6°C ECL chip drop " " " " other TC's ΔT 's less 3) $\approx 1\frac{1}{4}$ hrs to re-stabilize from +101 to +61 $^{\circ}\text{C}$ 4) For each +8 $^{\circ}\text{C}$ raise, TC's stabilized A) to 90% after 20 min B) Actual stabil 40-60 min 5) RUNNING FUNCTIONAL TESTING; No NOTICABLE Temp. rise EXCEPT TC7 (UICHP) 6) Although chmbr ramp rate $> 2^{\circ}\text{C/min}$, All <u>monitored</u> TC's $< 2^{\circ}\text{C/min}$ 7) ΔT 's spread increased (slightly) w/ higher temps $\Delta T_{\text{TEMP} - \text{CHMBR}} \approx 16^{\circ}\text{C}$ $\Delta T_{\text{ECL} - \text{CHMBR}} \approx 26^{\circ}\text{C}$			

1-601 CS 0/34

The diagram illustrates the internal layout of a UUT chassis, divided into three main sections: A1, A2, and A3. Section A1 (top) features components U10 and U11, with ambient temperature sensors TC5 and TC9, and a TC1 sensor. Section A2 (middle) includes components U4, U6, U7, and U8, with ambient sensors TC4 and TC2, and TC6, TC18, and TC19 sensors. Section A3 (bottom) contains components U3, U5, U6, and U8, with ambient sensors TC3 and TC17, and TC10 and TC16 sensors. The chassis is equipped with various connectors (J1-J12) and flanges (FL1, FL2). A UUT COVER is shown at the top. A signature 'H. H. H.' is present in the top right corner.

TC1	UUT CHASSIS FLANGE	TCR	A4-AR2 CASE (LINEAR, VIDEO AMP)
TC2	UUT AMBIENT AIR TEMPERATURE (CHAMBER)	TC9	A2-U10 CASE (LINEAR, MULTIVIBRATOR)
TC3	A3 COMPARTMENT AMBIENT AIR (A3 COMPONENTS)	TC10	A3-Q8 CASE (SEMICONDUCTOR, TRANSISTOR)
TC4	A4 COMPARTMENT AMBIENT AIR (A4 COMPONENTS)	TC16	A3-U11 CASE (RF HYBRID, VOLTAGE CNTL OSC.)
TC5	A2 COMPARTMENT AMBIENT AIR (A2 COMPONENTS)	TC17	A3-U3 CASE (ECL INTEGRATED CKT; COUNTER)
TC6	A4-U4 CASE (RF HYBRID, AMPLIFIER)	TC18	A4-U7 CASE (RF HYBRID, LIMITER AMP)
TC7	A4-U11 CASE (LINEAR COMPARTOR)	TC19	A4-U6 CASE (RF HYBRID, LIMITER AMP)

NOTES:
A2=SYNTHESIZER 1; A3=SYNTHESIZER 2; A4=DUAL DETECTOR OF DETECTOR 1 (LEFT) & DETECTOR 2 (RIGHT).
TC11 THRU TC15 WERE NOT USED.

Test Data Cont'd:

Date: 12-16-91

SECOND SERIES

OF TESTS FOR S/A THRU 10/0

STEP-LEVEL'S

1000hrs: Setting-up Chmbr in Lab

1200hrs: Setting-up TC's in Chamber/UT
Chmbrs 1-10, 10-19 will be used per earlier tests

1400hrs: Set chmbr to +61°C (46) and's
UT "OFF", STILL TRYING TO GET
HP85 TO WORK

1430hrs: Chmbr will remain @ +61°C until
data logger problem is resolved.

12-17-91

0730hrs: Chmbr & UT @ 61°C. Trying to re-solve
software/hardware problems w/
data logger/HP85

Note: Software keeps locking-up
on "Page 3" < RUN? Notified
Supervisor J. De Bellis

0930hrs - J. De Bellis arrives to help solve problem.
Result → A "Control" Card had loosened

Data Recorder: BA

Page 10

TEST NO. 2 EQUIPMENT

(DAY 4 - DAY)

1) THERMOTRON CHMBR

H-807567 9-2-92

2) HP 85 COMPUTER

H428110

3) HP 3497A DATA

ACQUISITION UNIT

H428499 7/29/93

4) HP 7470A PLOTTER

H512478

5) HP THINKJET PRINTER

H451399

6) HP UT

6299A PS H357054

Test Data Cont'd:

Date: 12-17-91

inside data logger causing the "time" problems.
The condition was rectified.

100hrs: Program re-loaded & runs except a minor anomaly occurs every 1 min.

An over flap audibilizes, but ^{does} ~~causes~~ not influence to the thermal data.

1015 hrs. Temp. set for 93°C to re-establish Term level 4 data. Cond is 4/0 cond. 5.

DC Pur off until temps stabilizes.

Channels plotted are:

721-121, 721-125, 727, 729, 7210, 7217

108: Product over High-Temp Alarm tripped-Reset-

Product Saver "appears" to be set @ 100°C (Chimbi)

May need to re-set

1105hrs: Turned on unit power, however data logger /
Programmer appears to have stopped

uudhu: Tuned out off. The alarm surge
knocked data | loss off the air.

exhaled Data oxygen off the air.

Will need to re-load.

will need to re-load - Ran Data base -
1120hrs: started new program. Ran Data base -

Our Strip to a new AC outlet NOT
in vicinity of chabot. will try to raise
Alumn S.F.

Alam S.P.

112-12-1: No-hot Radiant Sewer Alarm to 160°

Re-plotting using 80,200 instead

Office for

Data Recorder:

Page 11

Test Data Cont'd:

Date: 12-17-91

115 hrs: new plot program successfully started
80°C - 200°C. 1WT still ok. T is 91°C

Chumbr Set paint @ 93.00

2215 plotted: 71-75, 77, 9, 10, 17

Rechts: 1 XT bar-on. Voltage level "0"

1949

1236bs; Opened chamber door to tighten chassis screws

1244hs: Re-Plotting

130hrs: Re-Plotting. Classis temp. slowly increases
due to tightening. Other TC's also
increasing slowly.

VIEWEASING, SLOWLY.

1354 hrs: Re-Plotting (20,140 scale). Begin dwell at Level 4/0 (95°C Chamber New Voltage) UUT on since 12:00. *Amulth 23466* STEENS DAY 4

1454 hrs: Ramp to level 5/0 (101's chamber slow voltage)
Allow to stabilize 30 min and dwell 1-hr. *At Mueller 92416*
(Dwell was 70 min hrs).

16.14 hrs: Ramp to Level 6/6 (109°C Chamber, Nom. Voltage) - 107.

17:04 hrs: To 17:14 hrs set synth's to single freq. rather than very hopping. Affects were observed at TCF of 80 and 100 Hz. Both showed decreased thermal readings. Resume hopping. 1877.

17:46, 17:50, 17:54 hrs: Data Plotted, But no printout since printer
not paper. 17:58 hrs next printout. *adp*

Data Recorder:

Page 12

033

Test Data Cont'd:

Date: 12-17-91

18:02 HRS: END Dwell and Ramp to Level 7/0 (0.1112 Chamber, Humid V-Lungs), *ASD/Smith 9/1/91*

19:00 HRS: Note that TC1 Flange Temp is decreasing toward TC2 - VUT air temperature. Semi-rigid coaxial cables leading to exterior of chamber, may be pulling some heat away from VUT chassis via cable & connector interface. *WJ*. Chamber window also warm.

19:34 HRS: Ramp to Level 8/0 (+125°C Chamber Set, Num. Voltage 8.500/215.00 atm) *WJ*

20:06 HRS: TC1 - Flange dropping off sharply. TC2 - VUT air and other thermocouples show no decrease. TC1 is not functioning properly. VUT still operating with degraded performance. *WJ*

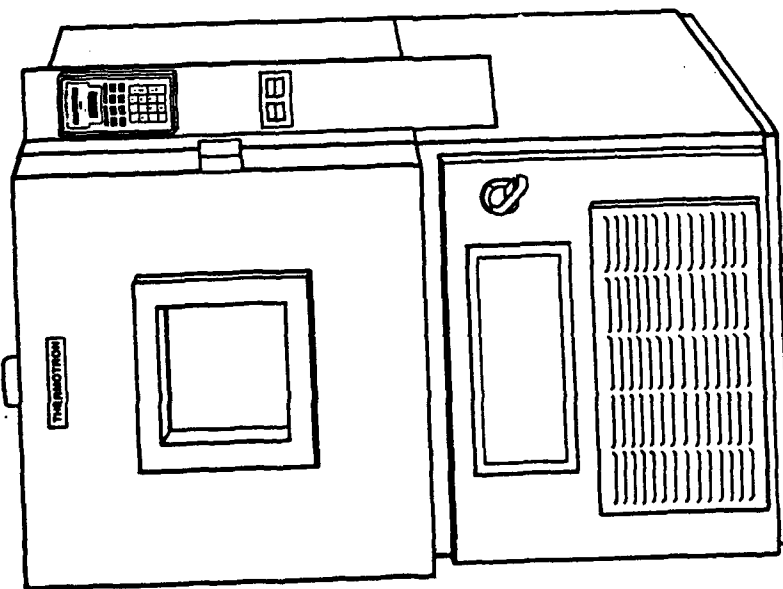
20:26 HRS: Highly Semi-rigid Coaxial & TC10 Flange come back. Lot of 20:26 Data Printed due to paper jam. Plot is okay. (Printout for TC1, TC2, TC3 & TC4 only). *WJ*

20:54 HRS: TC1 - Flange temperature shot up dramatically, approx 4°C greater than it was prior to 20:06 HRS. Question re: reliability of flange data for levels 6/0, 7/0 and 8/0 will need analysis & compensation to prior DATA runs. (TC10 flange was going as performance settling in day, during setup. See log of 12:36 HRS 12-17-91). *WJ*

21:30 HRS: Turn VUT OFF, lower chamber temperature back to room temperature. END DAY 4 TEST *ASD/Smith 9/1/91*

Data Recorder: _____
Page 13

TEMPERATURE CHAMBER MODELS S4, S8, S16, and S32



Models S4, S8, S16, and S32 are designed to test temperature tolerances. Model S4 has four cubic feet of work space. Model S8 has eight cubic feet of work space. Model S16 has 16 cubic feet of work space. Model S32 has 32 cubic feet of work space.

These chambers can be equipped with various options. See the Option Sheet in the front of the manual to know which options your chamber has.

THERMOTRON
 S4-32
 Page 4

SPECIFICATIONS

S8

S4

VOLTAGE ±10%	230/1/60 or 230/3/60	230/1/60 or 230/3/60
RECOMMENDED MINIMUM SERVICE AMPERES	1 phase 40 amperes 3 phase 30 amperes	1 phase 40 amperes 3 phase 30 amperes
TEMPERATURE RANGE	-100°F to +350°F -73°C to +177°C	-90°F to +350°F -68°C to +177°C
TOLERANCE AT CONTROLLER THERMOCOUPLE WHEN THE CHAMBER IS STABLE	±2°F ±1.1°C	±2°F ±1.1°C
TEMPERATURE PULLDOWN FROM +75°F (+24°C)	25 minutes 30 minutes — 50 minutes	25 minutes 40 minutes 60 minutes —
TEMPERATURE HEAT UP FROM +75°F (+24°C)	15 minutes 25 minutes	20 minutes 30 minutes
CAPACITY FOR HOLDING WATTS LIVE LOAD	600 watts 400 watts 300 watts	550 watts 350 watts 200 watts

The above specifications are based on 60 hertz operation and +27°C (+80°F) ambient air. For 50 hertz operation, refrigeration and air flow performance are approximately 17% less. Accessories can reduce chamber performance.

$$\text{Measured chamber vol} = \frac{20\text{in} \times 20\text{in} \times 20\text{in}}{1728\text{in}^3/\text{ft}^3} = 4.6\text{ft}^3$$

THERMOTRON
 S4-32
 Page 2

SECTION 3

**Thermal Survey
Data Printouts and Plots**
prepared by B. J. Armstrong

DAY 1: 11-25-91 to 11-26-91 STEP-STRESS TRIAL TEST (TESTING BEGINS ON PAGE 7)

EXP 01--SCAN 085--11-25-19-51-26

Thermal Survey/Mueler"

ch 01	22.1	deg_C
ch 02	22.3	deg_C
ch 03	22.4	deg_C
ch 04	22.4	deg_C
ch 05	22.2	deg_C
ch 06	22.2	deg_C
ch 07	22.4	deg_C
ch 08	22.2	deg_C
ch 09	22.3	deg_C
ch 10	22.2	deg_C
ch 11	22.3	deg_C
ch 12	22.2	deg_C
ch 13	22.4	deg_C
ch 14	22.4	deg_C
ch 15	22.3	deg_C
ch 16	23.1	deg_C
ch 17	23.0	deg_C
ch 18	22.8	deg_C
ch 19	23.1	deg_C

EXP 01--SCAN 086--11-25-19-05-26

Thermal Survey/Mueler"

ch 01	22.1	deg_C
ch 02	22.2	deg_C
ch 03	22.2	deg_C
ch 04	22.4	deg_C
ch 05	22.0	deg_C
ch 06	22.1	deg_C
ch 07	22.4	deg_C
ch 08	22.1	deg_C
ch 09	22.3	deg_C
ch 10	22.1	deg_C
ch 11	22.3	deg_C
ch 12	22.3	deg_C
ch 13	22.4	deg_C
ch 14	22.4	deg_C
ch 15	22.3	deg_C
ch 16	24.2	deg_C
ch 17	24.1	deg_C
ch 18	24.9	deg_C
ch 19	23.6	deg_C

EXP 01--SCAN 088--11-25-19-21-26

Thermal Survey/Mueler"

ch 01	22.3	deg_C
ch 02	24.7	deg_C
ch 03	22.5	deg_C
ch 04	22.6	deg_C
ch 05	22.2	deg_C
ch 06	22.3	deg_C
ch 07	22.4	deg_C
ch 08	22.3	deg_C
ch 09	22.6	deg_C
ch 10	23.7	deg_C
ch 11	22.7	deg_C
ch 12	22.8	deg_C
ch 13	22.2	deg_C
ch 14	22.4	deg_C
ch 15	22.4	deg_C
ch 16	25.9	deg_C
ch 17	25.0	deg_C
ch 18	26.4	deg_C
ch 19	26.7	deg_C

EXP 01--SCAN 070--11-25-19-56-26

Thermal Survey/Mueler"

ch 01	22.0	deg_C
ch 02	22.2	deg_C
ch 03	22.4	deg_C
ch 04	22.4	deg_C
ch 05	22.1	deg_C
ch 06	22.1	deg_C
ch 07	22.4	deg_C
ch 08	22.2	deg_C
ch 09	22.3	deg_C
ch 10	22.1	deg_C
ch 11	22.2	deg_C
ch 12	22.2	deg_C
ch 13	22.5	deg_C
ch 14	22.4	deg_C
ch 15	22.3	deg_C
ch 16	23.2	deg_C
ch 17	32.7	deg_C
ch 18	23.0	deg_C
ch 19	23.2	deg_C

EXP 01--SCAN 095--11-25-19-11-26

Thermal Survey/Mueler"

ch 01	22.1	deg_C
ch 02	22.3	deg_C
ch 03	22.2	deg_C
ch 04	22.4	deg_C
ch 05	22.1	deg_C
ch 06	22.2	deg_C
ch 07	22.4	deg_C
ch 08	22.1	deg_C
ch 09	22.3	deg_C
ch 10	22.1	deg_C
ch 11	22.3	deg_C
ch 12	22.2	deg_C
ch 13	22.5	deg_C
ch 14	22.4	deg_C
ch 15	22.3	deg_C
ch 16	24.7	deg_C
ch 17	24.9	deg_C
ch 18	25.3	deg_C
ch 19	25.3	deg_C

EXP 01--SCAN 100--11-25-19-25-26

Thermal Survey/Mueler"

ch 01	22.1	deg_C
ch 02	25.2	deg_C
ch 03	25.1	deg_C
ch 04	22.3	deg_C
ch 05	22.2	deg_C
ch 06	22.6	deg_C
ch 07	22.6	deg_C
ch 08	22.7	deg_C
ch 09	22.6	deg_C
ch 10	23.0	deg_C
ch 11	22.4	deg_C
ch 12	22.2	deg_C
ch 13	22.2	deg_C
ch 14	22.5	deg_C
ch 15	23.4	deg_C
ch 16	25.6	deg_C
ch 17	25.8	deg_C
ch 18	25.1	deg_C
ch 19	25.2	deg_C

EXP 01--SCAN 075--11-25-19-01-26

Thermal Survey/Mueler"

ch 01	21.9	deg_C
ch 02	22.1	deg_C
ch 03	22.3	deg_C
ch 04	22.5	deg_C
ch 05	22.0	deg_C
ch 06	22.1	deg_C
ch 07	22.4	deg_C
ch 08	22.1	deg_C
ch 09	22.2	deg_C
ch 10	22.0	deg_C
ch 11	22.2	deg_C
ch 12	22.2	deg_C
ch 13	22.5	deg_C
ch 14	22.4	deg_C
ch 15	22.3	deg_C
ch 16	24.2	deg_C
ch 17	29.1	deg_C
ch 18	29.1	deg_C
ch 19	23.6	deg_C

EXP 01--SCAN 090--11-25-19-16-26

Thermal Survey/Mueler"

ch 01	22.1	deg_C
ch 02	22.4	deg_C
ch 03	22.3	deg_C
ch 04	22.5	deg_C
ch 05	22.1	deg_C
ch 06	22.2	deg_C
ch 07	22.5	deg_C
ch 08	22.2	deg_C
ch 09	22.4	deg_C
ch 10	22.2	deg_C
ch 11	22.4	deg_C
ch 12	22.4	deg_C
ch 13	22.6	deg_C
ch 14	22.5	deg_C
ch 15	22.4	deg_C
ch 16	24.0	deg_C
ch 17	24.9	deg_C
ch 18	24.9	deg_C
ch 19	25.0	deg_C

EXP 01--SCAN 105--11-25-19-31-26

Thermal Survey/Mueler"

ch 01	24.7	deg_C
ch 02	25.0	deg_C
ch 03	25.9	deg_C
ch 04	27.4	deg_C
ch 05	22.2	deg_C
ch 06	22.4	deg_C
ch 07	22.4	deg_C
ch 08	22.3	deg_C
ch 09	22.6	deg_C
ch 10	22.4	deg_C
ch 11	22.5	deg_C
ch 12	23.0	deg_C
ch 13	22.4	deg_C
ch 14	22.4	deg_C
ch 15	22.6	deg_C
ch 16	25.9	deg_C
ch 17	26.1	deg_C
ch 18	26.3	deg_C
ch 19	26.6	deg_C

TRIAL TEST RUN

037

DAY 1: PAGE 1 OF 13

EXP 01--SCAN 110--11-25-19-35-25
Thermal Survey/Muelen*

ch 01	25.9	deg_C
ch 02	24.9	deg_C
ch 03	25.0	deg_C
ch 04	27.4	deg_C
ch 05	22.4	deg_C
ch 06	22.9	deg_C
ch 07	22.9	deg_C
ch 08	22.7	deg_C
ch 09	23.6	deg_C
ch 10	23.3	deg_C
ch 11	23.0	deg_C
ch 12	22.9	deg_C
ch 13	22.6	deg_C
ch 14	22.7	deg_C
ch 15	22.9	deg_C
ch 16	26.1	deg_C
ch 17	26.2	deg_C
ch 18	26.4	deg_C
ch 19	26.7	deg_C

EXP 01--SCAN 125--11-25-19-51-25
Thermal Survey/Muelen*

ch 01	27.4	deg_C
ch 02	26.7	deg_C
ch 03	27.3	deg_C
ch 04	29.7	deg_C
ch 05	22.4	deg_C
ch 06	22.2	deg_C
ch 07	29.0	deg_C
ch 08	22.4	deg_C
ch 09	22.7	deg_C
ch 10	29.1	deg_C
ch 11	22.4	deg_C
ch 12	22.3	deg_C
ch 13	22.6	deg_C
ch 14	22.5	deg_C
ch 15	22.4	deg_C
ch 16	27.0	deg_C
ch 17	27.2	deg_C
ch 18	27.5	deg_C
ch 19	27.5	deg_C

EXP 01--SCAN 140--11-25-20-05-2
Thermal Survey/Muelen*

ch 01	25.7	deg_C
ch 02	25.0	deg_C
ch 03	27.0	deg_C
ch 04	29.2	deg_C
ch 05	22.5	deg_C
ch 06	46.3	deg_C
ch 07	27.9	deg_C
ch 08	27.6	deg_C
ch 09	22.9	deg_C
ch 10	29.4	deg_C
ch 11	22.4	deg_C
ch 12	22.5	deg_C
ch 13	22.4	deg_C
ch 14	22.9	deg_C
ch 15	23.9	deg_C
ch 16	27.2	deg_C
ch 17	27.2	deg_C
ch 18	27.5	deg_C
ch 19	27.9	deg_C

EXP 01--SCAN 115--11-25-19-41-25
Thermal Survey/Muelen*

ch 01	25.9	deg_C
ch 02	25.9	deg_C
ch 03	25.3	deg_C
ch 04	29.3	deg_C
ch 05	22.4	deg_C
ch 06	22.4	deg_C
ch 07	31.5	deg_C
ch 08	22.4	deg_C
ch 09	22.8	deg_C
ch 10	22.8	deg_C
ch 11	22.3	deg_C
ch 12	22.5	deg_C
ch 13	22.5	deg_C
ch 14	22.7	deg_C
ch 15	22.6	deg_C
ch 16	25.4	deg_C
ch 17	26.5	deg_C
ch 18	26.9	deg_C
ch 19	27.1	deg_C

EXP 01--SCAN 130--11-25-19-56-25
Thermal Survey/Muelen*

ch 01	25.5	deg_C
ch 02	25.2	deg_C
ch 03	26.5	deg_C
ch 04	29.4	deg_C
ch 05	22.2	deg_C
ch 06	22.3	deg_C
ch 07	29.1	deg_C
ch 08	24.2	deg_C
ch 09	22.8	deg_C
ch 10	25.6	deg_C
ch 11	22.4	deg_C
ch 12	22.3	deg_C
ch 13	22.5	deg_C
ch 14	23.2	deg_C
ch 15	22.5	deg_C
ch 16	27.0	deg_C
ch 17	27.2	deg_C
ch 18	27.5	deg_C
ch 19	27.7	deg_C

EXP 01--SCAN 145--11-25-20-11-2
Thermal Survey/Muelen*

ch 01	27.5	deg_C
ch 02	27.3	deg_C
ch 03	27.4	deg_C
ch 04	29.9	deg_C
ch 05	32.3	deg_C
ch 06	42.5	deg_C
ch 07	27.9	deg_C
ch 08	26.5	deg_C
ch 09	22.1	deg_C
ch 10	27.7	deg_C
ch 11	22.2	deg_C
ch 12	22.2	deg_C
ch 13	22.5	deg_C
ch 14	23.0	deg_C
ch 15	23.1	deg_C
ch 16	27.2	deg_C
ch 17	27.2	deg_C
ch 18	27.9	deg_C
ch 19	27.9	deg_C

EXP 01--SCAN 120--11-25-19-46-25
Thermal Survey/Muelen*

ch 01	26.4	deg_C
ch 02	25.2	deg_C
ch 03	25.5	deg_C
ch 04	27.8	deg_C
ch 05	22.4	deg_C
ch 06	22.4	deg_C
ch 07	26.9	deg_C
ch 08	22.3	deg_C
ch 09	22.5	deg_C
ch 10	23.3	deg_C
ch 11	22.4	deg_C
ch 12	22.3	deg_C
ch 13	22.3	deg_C
ch 14	22.4	deg_C
ch 15	22.4	deg_C
ch 16	26.5	deg_C
ch 17	26.7	deg_C
ch 18	26.5	deg_C
ch 19	27.1	deg_C

EXP 01--SCAN 135--11-25-20-01-25
Thermal Survey/Muelen*

ch 01	27.2	deg_C
ch 02	26.2	deg_C
ch 03	27.4	deg_C
ch 04	29.7	deg_C
ch 05	22.2	deg_C
ch 06	22.1	deg_C
ch 07	29.3	deg_C
ch 08	29.0	deg_C
ch 09	22.7	deg_C
ch 10	29.5	deg_C
ch 11	22.4	deg_C
ch 12	22.3	deg_C
ch 13	22.4	deg_C
ch 14	23.0	deg_C
ch 15	22.6	deg_C
ch 16	27.3	deg_C
ch 17	27.5	deg_C
ch 18	27.9	deg_C
ch 19	29.0	deg_C

EXP 01--SCAN 150--11-25-20-16-2
Thermal Survey/Muelen*

ch 01	27.1	deg_C
ch 02	25.2	deg_C
ch 03	25.7	deg_C
ch 04	28.3	deg_C
ch 05	29.5	deg_C
ch 06	33.0	deg_C
ch 07	27.6	deg_C
ch 08	27.7	deg_C
ch 09	22.1	deg_C
ch 10	27.3	deg_C
ch 11	22.3	deg_C
ch 12	22.3	deg_C
ch 13	23.0	deg_C
ch 14	23.1	deg_C
ch 15	22.9	deg_C
ch 16	27.0	deg_C
ch 17	27.1	deg_C
ch 18	27.5	deg_C
ch 19	27.7	deg_C

TRIAL TEST RUN

038

DAY 1: PAGE 2 OF 13

EXP 01--SCAN 155--11:25:20:21:25
Thermal Survey/Mueler"

ch 01	28.3	deg_C
ch 02	28.5	deg_C
ch 03	27.4	deg_C
ch 04	29.9	deg_C
ch 05	30.0	deg_C
ch 06	31.0	deg_C
ch 07	28.0	deg_C
ch 08	27.9	deg_C
ch 09	22.1	deg_C
ch 10	27.8	deg_C
ch 11	22.4	deg_C
ch 12	22.3	deg_C
ch 13	23.0	deg_C
ch 14	23.1	deg_C
ch 15	23.4	deg_C
ch 16	27.3	deg_C
ch 17	27.5	deg_C
ch 18	27.9	deg_C
ch 19	28.2	deg_C

EXP 01--SCAN 170--11:25:20:35:26
Thermal Survey/Mueler"

ch 01	27.1	deg_C
ch 02	26.0	deg_C
ch 03	26.7	deg_C
ch 04	28.6	deg_C
ch 05	25.3	deg_C
ch 06	28.9	deg_C
ch 07	27.9	deg_C
ch 08	27.7	deg_C
ch 09	30.5	deg_C
ch 10	27.5	deg_C
ch 11	22.3	deg_C
ch 12	22.2	deg_C
ch 13	22.9	deg_C
ch 14	22.9	deg_C
ch 15	23.2	deg_C
ch 16	27.1	deg_C
ch 17	27.2	deg_C
ch 18	27.7	deg_C
ch 19	28.0	deg_C

EXP 01--SCAN 185--11:25:20:51
Thermal Survey/Mueler"

ch 01	27.4	deg_C
ch 02	25.5	deg_C
ch 03	25.5	deg_C
ch 04	27.9	deg_C
ch 05	28.9	deg_C
ch 06	28.2	deg_C
ch 07	27.5	deg_C
ch 08	27.4	deg_C
ch 09	28.9	deg_C
ch 10	27.3	deg_C
ch 11	22.0	deg_C
ch 12	22.0	deg_C
ch 13	22.1	deg_C
ch 14	22.3	deg_C
ch 15	23.9	deg_C
ch 16	27.0	deg_C
ch 17	27.1	deg_C
ch 18	27.4	deg_C
ch 19	27.6	deg_C

EXP 01--SCAN 150--11:25:20:25:25
Thermal Survey/Mueler"

ch 01	28.5	deg_C
ch 02	28.0	deg_C
ch 03	27.5	deg_C
ch 04	28.9	deg_C
ch 05	32.5	deg_C
ch 06	29.3	deg_C
ch 07	28.0	deg_C
ch 08	28.0	deg_C
ch 09	33.7	deg_C
ch 10	27.9	deg_C
ch 11	22.4	deg_C
ch 12	22.2	deg_C
ch 13	22.9	deg_C
ch 14	22.9	deg_C
ch 15	23.0	deg_C
ch 16	27.5	deg_C
ch 17	27.5	deg_C
ch 18	28.1	deg_C
ch 19	28.3	deg_C

EXP 01--SCAN 175--11:25:20:41:26
Thermal Survey/Mueler"

ch 01	27.9	deg_C
ch 02	26.9	deg_C
ch 03	27.1	deg_C
ch 04	28.7	deg_C
ch 05	31.5	deg_C
ch 06	28.0	deg_C
ch 07	27.9	deg_C
ch 08	27.9	deg_C
ch 09	29.5	deg_C
ch 10	27.6	deg_C
ch 11	22.4	deg_C
ch 12	22.1	deg_C
ch 13	22.7	deg_C
ch 14	23.0	deg_C
ch 15	23.9	deg_C
ch 16	27.3	deg_C
ch 17	27.4	deg_C
ch 18	27.9	deg_C
ch 19	28.0	deg_C

EXP 01--SCAN 190--11:25:20:56
Thermal Survey/Mueler"

ch 01	27.1	deg_C
ch 02	25.5	deg_C
ch 03	27.5	deg_C
ch 04	28.5	deg_C
ch 05	29.3	deg_C
ch 06	30.4	deg_C
ch 07	31.1	deg_C
ch 08	34.1	deg_C
ch 09	31.0	deg_C
ch 10	30.9	deg_C
ch 11	22.2	deg_C
ch 12	22.2	deg_C
ch 13	22.2	deg_C
ch 14	22.3	deg_C
ch 15	24.0	deg_C
ch 16	33.4	deg_C
ch 17	37.1	deg_C
ch 18	29.0	deg_C
ch 19	29.1	deg_C

EXP 01--SCAN 165--11:25:20:31:26
Thermal Survey/Mueler"

ch 01	28.5	deg_C
ch 02	28.4	deg_C
ch 03	27.8	deg_C
ch 04	29.2	deg_C
ch 05	29.2	deg_C
ch 06	29.4	deg_C
ch 07	28.1	deg_C
ch 08	29.1	deg_C
ch 09	29.5	deg_C
ch 10	27.9	deg_C
ch 11	22.3	deg_C
ch 12	22.2	deg_C
ch 13	22.9	deg_C
ch 14	23.0	deg_C
ch 15	23.4	deg_C
ch 16	27.5	deg_C
ch 17	27.8	deg_C
ch 18	28.1	deg_C
ch 19	28.3	deg_C

EXP 01--SCAN 180--11:25:20:46:26
Thermal Survey/Mueler"

ch 01	27.7	deg_C
ch 02	27.0	deg_C
ch 03	27.3	deg_C
ch 04	28.7	deg_C
ch 05	29.4	deg_C
ch 06	28.9	deg_C
ch 07	27.8	deg_C
ch 08	27.7	deg_C
ch 09	29.4	deg_C
ch 10	27.7	deg_C
ch 11	22.4	deg_C
ch 12	22.2	deg_C
ch 13	22.7	deg_C
ch 14	22.8	deg_C
ch 15	23.1	deg_C
ch 16	27.3	deg_C
ch 17	27.4	deg_C
ch 18	27.7	deg_C
ch 19	28.0	deg_C

EXP 01--SCAN 195--11:25:21:01
Thermal Survey/Mueler"

ch 01	26.2	deg_C
ch 02	24.3	deg_C
ch 03	30.1	deg_C
ch 04	31.5	deg_C
ch 05	31.7	deg_C
ch 06	34.6	deg_C
ch 07	40.4	deg_C
ch 08	39.5	deg_C
ch 09	39.1	deg_C
ch 10	35.3	deg_C
ch 11	21.8	deg_C
ch 12	21.9	deg_C
ch 13	21.9	deg_C
ch 14	22.2	deg_C
ch 15	24.3	deg_C
ch 16	41.3	deg_C
ch 17	44.2	deg_C
ch 18	35.6	deg_C
ch 19	33.3	deg_C

21:00 TURN ON UUT PWR TO
CHECK STATION SETUP

TRIAL TEST RUN

039

DAY 1: PAGE 3 OF 13

EXP 01--SCAN 200--11-25-21-05-25
Thermal Survey/Mueler"

ch: 01	26.2	deg_C
ch: 02	24.3	deg_C
ch: 03	31.4	deg_C
ch: 04	34.1	deg_C
ch: 05	33.2	deg_C
ch: 06	37.6	deg_C
ch: 07	43.3	deg_C
ch: 08	42.6	deg_C
ch: 09	40.5	deg_C
ch: 10	39.1	deg_C
ch: 11	22.0	deg_C
ch: 12	22.0	deg_C
ch: 13	22.0	deg_C
ch: 14	22.3	deg_C
ch: 15	24.1	deg_C
ch: 16	44.7	deg_C
ch: 17	47.5	deg_C
ch: 18	39.9	deg_C
ch: 19	35.6	deg_C

EXP 01--SCAN 215--11-25-21-21-26
Thermal Survey/Mueler"

ch: 01	25.5	deg_C
ch: 02	24.5	deg_C
ch: 03	32.5	deg_C
ch: 04	35.9	deg_C
ch: 05	35.2	deg_C
ch: 06	40.4	deg_C
ch: 07	46.9	deg_C
ch: 08	46.4	deg_C
ch: 09	44.4	deg_C
ch: 10	41.9	deg_C
ch: 11	21.8	deg_C
ch: 12	21.9	deg_C
ch: 13	21.9	deg_C
ch: 14	22.3	deg_C
ch: 15	24.5	deg_C
ch: 16	47.9	deg_C
ch: 17	51.0	deg_C
ch: 18	42.7	deg_C
ch: 19	40.5	deg_C

EXP 01--SCAN 230--11-25-21-35-1
Thermal Survey/Mueler"

ch: 01	25.0	deg_C
ch: 02	23.5	deg_C
ch: 03	32.7	deg_C
ch: 04	35.9	deg_C
ch: 05	34.9	deg_C
ch: 06	39.7	deg_C
ch: 07	46.6	deg_C
ch: 08	45.2	deg_C
ch: 09	43.9	deg_C
ch: 10	41.1	deg_C
ch: 11	22.9	deg_C
ch: 12	21.9	deg_C
ch: 13	22.1	deg_C
ch: 14	22.5	deg_C
ch: 15	24.7	deg_C
ch: 16	47.4	deg_C
ch: 17	50.6	deg_C
ch: 18	42.3	deg_C
ch: 19	39.9	deg_C

EXP 01--SCAN 205--11-25-21-11-25
Thermal Survey/Mueler"

ch: 01	25.9	deg_C
ch: 02	24.0	deg_C
ch: 03	32.2	deg_C
ch: 04	34.9	deg_C
ch: 05	34.4	deg_C
ch: 06	39.1	deg_C
ch: 07	45.2	deg_C
ch: 08	44.6	deg_C
ch: 09	42.5	deg_C
ch: 10	40.1	deg_C
ch: 11	21.9	deg_C
ch: 12	21.9	deg_C
ch: 13	21.9	deg_C
ch: 14	22.3	deg_C
ch: 15	24.1	deg_C
ch: 16	45.0	deg_C
ch: 17	49.0	deg_C
ch: 18	40.7	deg_C
ch: 19	39.4	deg_C

EXP 01--SCAN 220--11-25-21-26-26
Thermal Survey/Mueler"

ch: 01	25.3	deg_C
ch: 02	24.2	deg_C
ch: 03	31.4	deg_C
ch: 04	34.9	deg_C
ch: 05	33.2	deg_C
ch: 06	37.6	deg_C
ch: 07	42.2	deg_C
ch: 08	42.4	deg_C
ch: 09	40.7	deg_C
ch: 10	39.6	deg_C
ch: 11	22.0	deg_C
ch: 12	22.0	deg_C
ch: 13	22.1	deg_C
ch: 14	22.4	deg_C
ch: 15	24.7	deg_C
ch: 16	42.4	deg_C
ch: 17	45.3	deg_C
ch: 18	39.7	deg_C
ch: 19	38.7	deg_C

EXP 01--SCAN 235--11-25-21-41-1
Thermal Survey/Mueler"

ch: 01	24.6	deg_C
ch: 02	23.4	deg_C
ch: 03	41.9	deg_C
ch: 04	41.4	deg_C
ch: 05	41.4	deg_C
ch: 06	41.9	deg_C
ch: 07	50.9	deg_C
ch: 08	50.4	deg_C
ch: 09	47.7	deg_C
ch: 10	45.3	deg_C
ch: 11	22.1	deg_C
ch: 12	22.1	deg_C
ch: 13	22.1	deg_C
ch: 14	22.4	deg_C
ch: 15	25.0	deg_C
ch: 16	52.0	deg_C
ch: 17	55.0	deg_C
ch: 18	46.3	deg_C
ch: 19	43.2	deg_C

EXP 01--SCAN 210--11-25-21-15-26
Thermal Survey/Mueler"

ch: 01	26.2	deg_C
ch: 02	25.8	deg_C
ch: 03	32.7	deg_C
ch: 04	35.2	deg_C
ch: 05	35.5	deg_C
ch: 06	39.9	deg_C
ch: 07	45.2	deg_C
ch: 08	45.7	deg_C
ch: 09	43.6	deg_C
ch: 10	40.9	deg_C
ch: 11	21.9	deg_C
ch: 12	21.9	deg_C
ch: 13	22.0	deg_C
ch: 14	22.3	deg_C
ch: 15	24.9	deg_C
ch: 16	47.8	deg_C
ch: 17	50.5	deg_C
ch: 18	42.1	deg_C
ch: 19	39.7	deg_C

EXP 01--SCAN 225--11-25-21-31-26
Thermal Survey/Mueler"

ch: 01	25.1	deg_C
ch: 02	23.7	deg_C
ch: 03	32.5	deg_C
ch: 04	35.2	deg_C
ch: 05	34.4	deg_C
ch: 06	39.4	deg_C
ch: 07	45.6	deg_C
ch: 08	45.3	deg_C
ch: 09	43.9	deg_C
ch: 10	40.9	deg_C
ch: 11	22.1	deg_C
ch: 12	22.1	deg_C
ch: 13	22.1	deg_C
ch: 14	22.4	deg_C
ch: 15	25.0	deg_C
ch: 16	46.6	deg_C
ch: 17	49.8	deg_C
ch: 18	41.3	deg_C
ch: 19	39.3	deg_C

EXP 01--SCAN 240--11-25-21-45-1
Thermal Survey/Mueler"

ch: 01	24.5	deg_C
ch: 02	23.7	deg_C
ch: 03	44.3	deg_C
ch: 04	43.8	deg_C
ch: 05	43.7	deg_C
ch: 06	44.1	deg_C
ch: 07	53.2	deg_C
ch: 08	52.8	deg_C
ch: 09	50.1	deg_C
ch: 10	48.7	deg_C
ch: 11	22.9	deg_C
ch: 12	21.9	deg_C
ch: 13	22.0	deg_C
ch: 14	22.4	deg_C
ch: 15	25.2	deg_C
ch: 16	54.4	deg_C
ch: 17	57.2	deg_C
ch: 18	48.7	deg_C
ch: 19	45.4	deg_C

TRIAL TEST RUN

040

DAY 1: PAGE 4 OF 13

EXP 01--SCAN 245--11-25-21-51-25
Thermal Survey/Mueler"

ch 01	24.5	deg_C
ch 02	23.4	deg_C
ch 03	45.7	deg_C
ch 04	45.4	deg_C
ch 05	45.2	deg_C
ch 06	45.5	deg_C
ch 07	54.8	deg_C
ch 08	54.4	deg_C
ch 09	51.9	deg_C
ch 10	50.3	deg_C
ch 11	22.0	deg_C
ch 12	21.9	deg_C
ch 13	22.0	deg_C
ch 14	22.3	deg_C
ch 15	25.1	deg_C
ch 16	55.9	deg_C
ch 17	59.7	deg_C
ch 18	50.4	deg_C
ch 19	47.9	deg_C

EXP 01--SCAN 250--11-25-22-06-25
Thermal Survey/Mueler"

ch 01	24.4	deg_C
ch 02	24.2	deg_C
ch 03	49.2	deg_C
ch 04	49.0	deg_C
ch 05	47.4	deg_C
ch 06	47.9	deg_C
ch 07	57.5	deg_C
ch 08	57.3	deg_C
ch 09	54.5	deg_C
ch 10	53.0	deg_C
ch 11	22.3	deg_C
ch 12	22.3	deg_C
ch 13	22.3	deg_C
ch 14	22.5	deg_C
ch 15	24.1	deg_C
ch 16	58.5	deg_C
ch 17	61.4	deg_C
ch 18	53.2	deg_C
ch 19	49.9	deg_C

EXP 01--SCAN 275--11-25-22-21-25
Thermal Survey/Mueler"

ch 01	39.7	deg_C
ch 02	38.8	deg_C
ch 03	43.1	deg_C
ch 04	42.6	deg_C
ch 05	35.9	deg_C
ch 06	42.3	deg_C
ch 07	47.6	deg_C
ch 08	49.5	deg_C
ch 09	49.1	deg_C
ch 10	48.5	deg_C
ch 11	22.5	deg_C
ch 12	22.6	deg_C
ch 13	22.7	deg_C
ch 14	24.3	deg_C
ch 15	23.1	deg_C
ch 16	51.9	deg_C
ch 17	53.5	deg_C
ch 18	47.4	deg_C
ch 19	44.7	deg_C

EXP 01--SCAN 250--11-25-21-55-25
Thermal Survey/Mueler"

ch 01	24.4	deg_C
ch 02	23.5	deg_C
ch 03	48.8	deg_C
ch 04	45.5	deg_C
ch 05	46.2	deg_C
ch 06	46.5	deg_C
ch 07	55.9	deg_C
ch 08	55.7	deg_C
ch 09	52.9	deg_C
ch 10	51.4	deg_C
ch 11	22.0	deg_C
ch 12	21.9	deg_C
ch 13	22.1	deg_C
ch 14	22.5	deg_C
ch 15	24.3	deg_C
ch 16	57.1	deg_C
ch 17	59.8	deg_C
ch 18	51.6	deg_C
ch 19	49.2	deg_C

EXP 01--SCAN 255--11-25-22-11-25
Thermal Survey/Mueler"

ch 01	24.4	deg_C
ch 02	23.8	deg_C
ch 03	49.8	deg_C
ch 04	48.6	deg_C
ch 05	47.7	deg_C
ch 06	49.5	deg_C
ch 07	57.6	deg_C
ch 08	57.3	deg_C
ch 09	55.0	deg_C
ch 10	53.6	deg_C
ch 11	22.2	deg_C
ch 12	22.2	deg_C
ch 13	22.3	deg_C
ch 14	22.7	deg_C
ch 15	23.5	deg_C
ch 16	58.5	deg_C
ch 17	60.9	deg_C
ch 18	53.9	deg_C
ch 19	50.5	deg_C

EXP 01--SCAN 280--11-25-22-25-25
Thermal Survey/Mueler"

ch 01	38.9	deg_C
ch 02	39.3	deg_C
ch 03	45.4	deg_C
ch 04	44.9	deg_C
ch 05	43.3	deg_C
ch 06	45.9	deg_C
ch 07	51.7	deg_C
ch 08	52.6	deg_C
ch 09	50.0	deg_C
ch 10	49.3	deg_C
ch 11	22.0	deg_C
ch 12	22.1	deg_C
ch 13	22.2	deg_C
ch 14	24.1	deg_C
ch 15	24.2	deg_C
ch 16	53.8	deg_C
ch 17	55.2	deg_C
ch 18	49.9	deg_C
ch 19	46.3	deg_C

22:15 SET CHAMBER TO +40°C
CHECK THERMOCOUPLE SETUP

EXP 01--SCAN 255--11-25-22-21-25
Thermal Survey/Mueler"

ch 01	24.5	deg_C
ch 02	24.2	deg_C
ch 03	47.5	deg_C
ch 04	47.4	deg_C
ch 05	47.0	deg_C
ch 06	47.3	deg_C
ch 07	55.7	deg_C
ch 08	55.5	deg_C
ch 09	53.9	deg_C
ch 10	52.3	deg_C
ch 11	21.9	deg_C
ch 12	21.9	deg_C
ch 13	22.0	deg_C
ch 14	22.4	deg_C
ch 15	23.8	deg_C
ch 16	57.8	deg_C
ch 17	59.7	deg_C
ch 18	52.5	deg_C
ch 19	48.1	deg_C

EXP 01--SCAN 270--11-25-22-15-25
Thermal Survey/Mueler"

ch 01	42.5	deg_C
ch 02	39.5	deg_C
ch 03	43.7	deg_C
ch 04	45.1	deg_C
ch 05	39.9	deg_C
ch 06	44.7	deg_C
ch 07	51.3	deg_C
ch 08	50.9	deg_C
ch 09	51.0	deg_C
ch 10	50.7	deg_C
ch 11	22.3	deg_C
ch 12	22.4	deg_C
ch 13	22.4	deg_C
ch 14	23.0	deg_C
ch 15	23.0	deg_C
ch 16	53.5	deg_C
ch 17	54.9	deg_C
ch 18	50.3	deg_C
ch 19	47.5	deg_C

EXP 01--SCAN 265--11-25-22-31-25
Thermal Survey/Mueler"

ch 01	40.1	deg_C
ch 02	39.2	deg_C
ch 03	47.9	deg_C
ch 04	47.2	deg_C
ch 05	45.4	deg_C
ch 06	48.5	deg_C
ch 07	52.5	deg_C
ch 08	55.0	deg_C
ch 09	53.1	deg_C
ch 10	51.8	deg_C
ch 11	22.1	deg_C
ch 12	22.2	deg_C
ch 13	22.3	deg_C
ch 14	23.8	deg_C
ch 15	23.5	deg_C
ch 16	55.5	deg_C
ch 17	57.3	deg_C
ch 18	51.4	deg_C
ch 19	49.1	deg_C

TRIAL TEST RUN

DAY 1: PAGE 5 OF 13

041

EXP 01--SCAN 290--11:25:22.36.25

Thermal Survey/Mueler"

ch: 01	40.4	deg_C
ch: 02	39.7	deg_C
ch: 03	49.0	deg_C
ch: 04	49.6	deg_C
ch: 05	48.1	deg_C
ch: 06	49.9	deg_C
ch: 07	53.1	deg_C
ch: 08	55.3	deg_C
ch: 09	55.0	deg_C
ch: 10	53.1	deg_C
ch: 11	22.1	deg_C
ch: 12	22.2	deg_C
ch: 13	22.2	deg_C
ch: 14	23.1	deg_C
ch: 15	23.5	deg_C
ch: 16	57.1	deg_C
ch: 17	58.3	deg_C
ch: 18	53.1	deg_C
ch: 19	59.8	deg_C

EXP 01--SCAN 295--11:25:22.41.26

Thermal Survey/Mueler"

ch: 01	40.6	deg_C
ch: 02	40.2	deg_C
ch: 03	49.5	deg_C
ch: 04	49.6	deg_C
ch: 05	48.6	deg_C
ch: 06	50.6	deg_C
ch: 07	52.5	deg_C
ch: 08	55.5	deg_C
ch: 09	55.6	deg_C
ch: 10	53.0	deg_C
ch: 11	22.1	deg_C
ch: 12	22.2	deg_C
ch: 13	22.3	deg_C
ch: 14	23.5	deg_C
ch: 15	24.3	deg_C
ch: 16	55.8	deg_C
ch: 17	55.9	deg_C
ch: 18	54.9	deg_C
ch: 19	61.7	deg_C

START TRIAL TEST PAGE 7 (DAY 1)

DAY 1

40°C, 60°C, 68°C CAMBR Temp

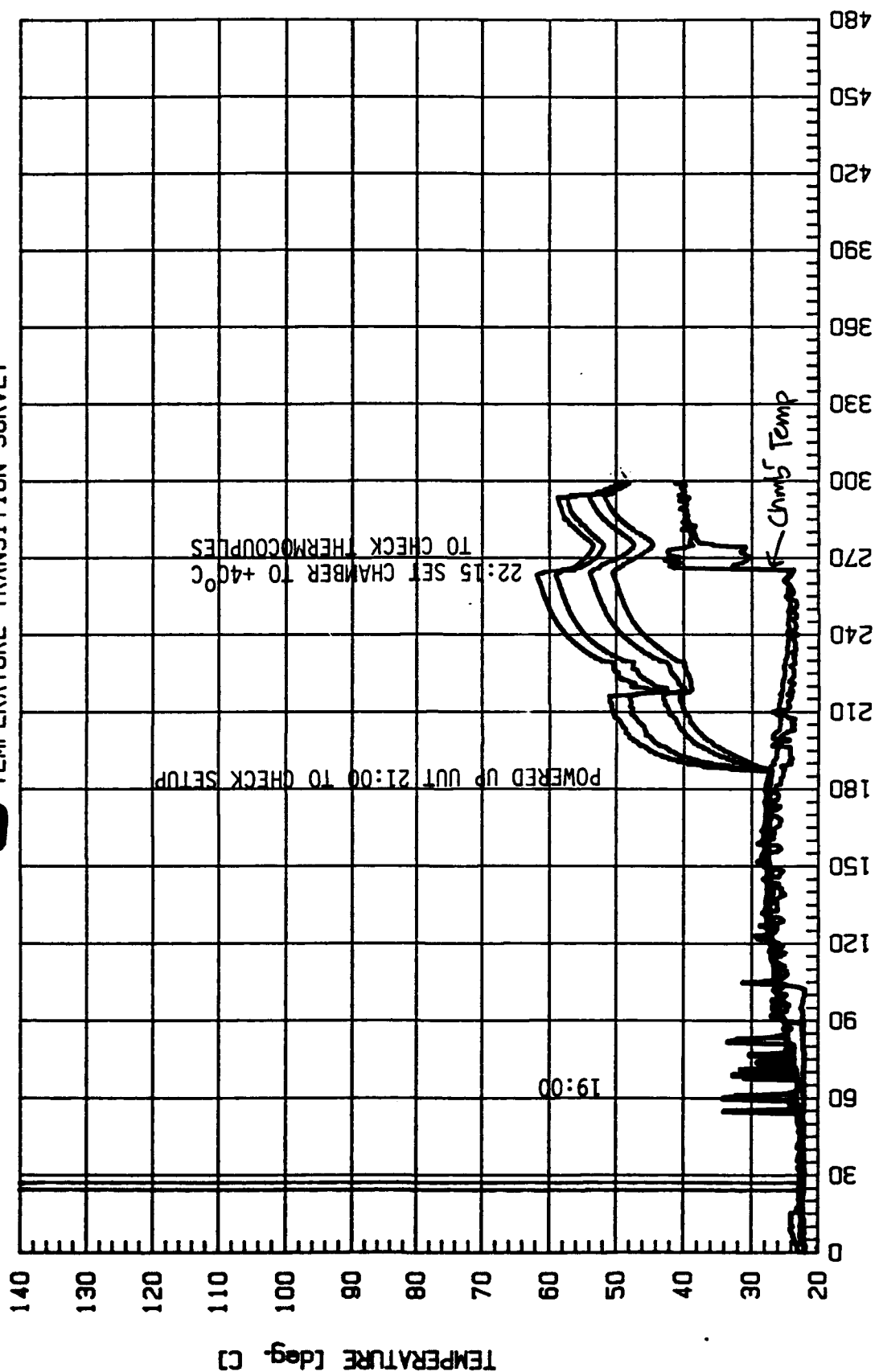
TRIAL TEST RUN

042

DAY 1: PAGE 6 OF 13

DAY 1 SETUP OF THERMOCOUPLE & PLOT CALIBRATION

TEMPERATURE TRANSITION SURVEY



DATE: 11-25-91

TRIAL TEST RUN

043

DAY 1: PAGE 6A OF 13

DAY 1; 11-25-91 to 11-26-91

STEP-STRESS TRIAL TEST

22:50 START PLOT; +40°C; UUT OFF

EXP 01--SCAN 005--11-25-22:54:45
Thermal Survey/Mueler"

ch 01	39.6	deg_C
ch 02	39.6	deg_C
ch 03	41.4	deg_C
ch 04	41.7	deg_C
ch 05	41.3	deg_C
ch 06	41.7	deg_C
ch 07	41.7	deg_C
ch 08	42.1	deg_C
ch 09	42.2	deg_C
ch 10	42.0	deg_C
ch 11	22.2	deg_C
ch 12	22.3	deg_C
ch 13	22.3	deg_C
ch 14	23.5	deg_C
ch 15	22.9	deg_C
ch 16	41.7	deg_C
ch 17	41.5	deg_C
ch 18	42.2	deg_C
ch 19	42.3	deg_C

EXP 01--SCAN 020--11-25-23:09:45
Thermal Survey/Mueler"

ch 01	40.1	deg_C
ch 02	39.9	deg_C
ch 03	40.3	deg_C
ch 04	40.4	deg_C
ch 05	40.2	deg_C
ch 06	40.3	deg_C
ch 07	40.4	deg_C
ch 08	40.4	deg_C
ch 09	40.4	deg_C
ch 10	40.4	deg_C
ch 11	22.2	deg_C
ch 12	22.3	deg_C
ch 13	22.4	deg_C
ch 14	23.9	deg_C
ch 15	23.5	deg_C
ch 16	40.4	deg_C
ch 17	40.4	deg_C
ch 18	40.5	deg_C
ch 19	40.5	deg_C

EXP 01--SCAN 035--11-25-23:24:45
Thermal Survey/Mueler"

ch 01	35.9	deg_C
ch 02	39.8	deg_C
ch 03	36.1	deg_C
ch 04	35.3	deg_C
ch 05	33.6	deg_C
ch 06	34.6	deg_C
ch 07	34.4	deg_C
ch 08	34.6	deg_C
ch 09	33.0	deg_C
ch 10	35.4	deg_C
ch 11	22.3	deg_C
ch 12	22.3	deg_C
ch 13	22.3	deg_C
ch 14	24.0	deg_C
ch 15	24.2	deg_C
ch 16	36.1	deg_C
ch 17	36.0	deg_C
ch 18	34.7	deg_C
ch 19	33.9	deg_C

23:25; +40°C; TURN UUT PWR ON
(SETUP CAL COMPLETE)
BEGIN TO SAMPLE TEMP.

EXP 01--SCAN 025--11-25-23:14:45
Thermal Survey/Mueler"

ch 01	36.4	deg_C
ch 02	33.5	deg_C
ch 03	37.8	deg_C
ch 04	36.3	deg_C
ch 05	37.1	deg_C
ch 06	37.1	deg_C
ch 07	37.9	deg_C
ch 08	38.4	deg_C
ch 09	38.7	deg_C
ch 10	39.0	deg_C
ch 11	23.1	deg_C
ch 12	23.1	deg_C
ch 13	23.1	deg_C
ch 14	24.9	deg_C
ch 15	23.9	deg_C
ch 16	39.9	deg_C
ch 17	39.9	deg_C
ch 18	37.9	deg_C
ch 19	39.5	deg_C

EXP 01--SCAN 040--11-25-23:29:45
Thermal Survey/Mueler"

ch 01	40.2	deg_C
ch 02	40.6	deg_C
ch 03	39.3	deg_C
ch 04	40.6	deg_C
ch 05	41.5	deg_C
ch 06	40.8	deg_C
ch 07	46.9	deg_C
ch 08	47.4	deg_C
ch 09	43.9	deg_C
ch 10	39.0	deg_C
ch 11	22.2	deg_C
ch 12	22.3	deg_C
ch 13	22.4	deg_C
ch 14	25.0	deg_C
ch 15	24.3	deg_C
ch 16	38.1	deg_C
ch 17	39.1	deg_C
ch 18	43.0	deg_C
ch 19	41.3	deg_C

EXP 01--SCAN 010--11-25-22:59:45
Thermal Survey/Mueler"

ch 01	40.2	deg_C
ch 02	40.3	deg_C
ch 03	40.9	deg_C
ch 04	41.0	deg_C
ch 05	40.8	deg_C
ch 06	40.9	deg_C
ch 07	41.0	deg_C
ch 08	41.2	deg_C
ch 09	41.2	deg_C
ch 10	41.1	deg_C
ch 11	22.0	deg_C
ch 12	22.4	deg_C
ch 13	22.4	deg_C
ch 14	24.3	deg_C
ch 15	24.5	deg_C
ch 16	41.0	deg_C
ch 17	41.0	deg_C
ch 18	41.2	deg_C
ch 19	41.3	deg_C

EXP 01--SCAN 030--11-25-23:19:45
Thermal Survey/Mueler"

ch 01	35.3	deg_C
ch 02	32.1	deg_C
ch 03	35.4	deg_C
ch 04	33.2	deg_C
ch 05	33.1	deg_C
ch 06	33.3	deg_C
ch 07	34.5	deg_C
ch 08	35.2	deg_C
ch 09	34.5	deg_C
ch 10	36.1	deg_C
ch 11	22.5	deg_C
ch 12	22.5	deg_C
ch 13	22.6	deg_C
ch 14	25.4	deg_C
ch 15	23.3	deg_C
ch 16	36.4	deg_C
ch 17	36.2	deg_C
ch 18	34.5	deg_C
ch 19	31.5	deg_C

EXP 01--SCAN 045--11-25-23:34:45
Thermal Survey/Mueler"

ch 01	43.2	deg_C
ch 02	40.9	deg_C
ch 03	41.4	deg_C
ch 04	44.2	deg_C
ch 05	46.2	deg_C
ch 06	44.2	deg_C
ch 07	50.7	deg_C
ch 08	51.1	deg_C
ch 09	50.4	deg_C
ch 10	43.5	deg_C
ch 11	22.2	deg_C
ch 12	22.3	deg_C
ch 13	22.7	deg_C
ch 14	26.6	deg_C
ch 15	25.1	deg_C
ch 16	44.0	deg_C
ch 17	47.9	deg_C
ch 18	47.2	deg_C
ch 19	46.0	deg_C

EXP 01--SCAN 015--11-25-23:04:45
Thermal Survey/Mueler"

ch 01	40.0	deg_C
ch 02	39.9	deg_C
ch 03	40.5	deg_C
ch 04	40.6	deg_C
ch 05	40.3	deg_C
ch 06	40.5	deg_C
ch 07	40.6	deg_C
ch 08	40.7	deg_C
ch 09	40.7	deg_C
ch 10	40.6	deg_C
ch 11	22.2	deg_C
ch 12	22.3	deg_C
ch 13	22.3	deg_C
ch 14	24.0	deg_C
ch 15	23.6	deg_C
ch 16	40.6	deg_C
ch 17	40.6	deg_C
ch 18	40.7	deg_C
ch 19	40.8	deg_C

EXP 01--SCAN 050--11-25-23-39-45
Thermal Survey/Mueler"

ch 01	44.8	deg_C
ch 02	40.4	deg_C
ch 03	47.5	deg_C
ch 04	46.6	deg_C
ch 05	49.0	deg_C
ch 06	46.4	deg_C
ch 07	53.9	deg_C
ch 08	55.0	deg_C
ch 09	54.1	deg_C
ch 10	50.5	deg_C
ch 11	22.3	deg_C
ch 12	22.4	deg_C
ch 13	22.9	deg_C
ch 14	27.4	deg_C
ch 15	24.2	deg_C
ch 16	54.7	deg_C
ch 17	57.7	deg_C
ch 18	50.5	deg_C
ch 19	49.2	deg_C

EXP 01--SCAN 055--11-25-23-54-45
Thermal Survey/Mueler"

ch 01	45.8	deg_C
ch 02	41.3	deg_C
ch 03	51.9	deg_C
ch 04	49.7	deg_C
ch 05	52.1	deg_C
ch 06	49.0	deg_C
ch 07	55.0	deg_C
ch 08	59.1	deg_C
ch 09	57.9	deg_C
ch 10	55.3	deg_C
ch 11	22.1	deg_C
ch 12	22.2	deg_C
ch 13	22.4	deg_C
ch 14	27.5	deg_C
ch 15	23.3	deg_C
ch 16	59.5	deg_C
ch 17	62.1	deg_C
ch 18	54.3	deg_C
ch 19	53.0	deg_C

EXP 01--SCAN 060--11-25-00-09-45
Thermal Survey/Mueler"

ch 01	45.1	deg_C
ch 02	40.3	deg_C
ch 03	52.1	deg_C
ch 04	49.5	deg_C
ch 05	51.9	deg_C
ch 06	49.8	deg_C
ch 07	57.1	deg_C
ch 08	59.3	deg_C
ch 09	57.9	deg_C
ch 10	55.6	deg_C
ch 11	21.7	deg_C
ch 12	21.9	deg_C
ch 13	22.3	deg_C
ch 14	27.0	deg_C
ch 15	23.2	deg_C
ch 16	59.7	deg_C
ch 17	62.3	deg_C
ch 18	54.4	deg_C
ch 19	53.1	deg_C

EXP 01--SCAN 055--11-25-23-44-45
Thermal Survey/Mueler"

ch 01	45.9	deg_C
ch 02	41.1	deg_C
ch 03	53.2	deg_C
ch 04	49.3	deg_C
ch 05	50.6	deg_C
ch 06	47.7	deg_C
ch 07	55.1	deg_C
ch 08	57.2	deg_C
ch 09	56.1	deg_C
ch 10	53.4	deg_C
ch 11	22.2	deg_C
ch 12	22.2	deg_C
ch 13	22.9	deg_C
ch 14	25.8	deg_C
ch 15	24.1	deg_C
ch 16	57.7	deg_C
ch 17	59.4	deg_C
ch 18	52.5	deg_C
ch 19	51.2	deg_C

EXP 01--SCAN 070--11-25-23-59-45
Thermal Survey/Mueler"

ch 01	45.9	deg_C
ch 02	41.5	deg_C
ch 03	52.2	deg_C
ch 04	49.9	deg_C
ch 05	52.3	deg_C
ch 06	49.3	deg_C
ch 07	57.2	deg_C
ch 08	59.4	deg_C
ch 09	58.2	deg_C
ch 10	55.5	deg_C
ch 11	22.2	deg_C
ch 12	22.3	deg_C
ch 13	22.7	deg_C
ch 14	27.5	deg_C
ch 15	24.3	deg_C
ch 16	59.9	deg_C
ch 17	62.4	deg_C
ch 18	54.5	deg_C
ch 19	53.3	deg_C

EXP 01--SCAN 095--11-25-00-14-45
Thermal Survey/Mueler"

ch 01	45.1	deg_C
ch 02	40.5	deg_C
ch 03	52.1	deg_C
ch 04	49.5	deg_C
ch 05	51.8	deg_C
ch 06	49.8	deg_C
ch 07	57.1	deg_C
ch 08	59.3	deg_C
ch 09	57.9	deg_C
ch 10	55.5	deg_C
ch 11	21.7	deg_C
ch 12	21.9	deg_C
ch 13	22.3	deg_C
ch 14	26.3	deg_C
ch 15	22.8	deg_C
ch 16	59.7	deg_C
ch 17	62.3	deg_C
ch 18	54.3	deg_C
ch 19	53.0	deg_C

START DATA AVG

EXP 01--SCAN 060--11-25-23-49-45
Thermal Survey/Mueler"

ch 01	46.5	deg_C
ch 02	41.4	deg_C
ch 03	51.3	deg_C
ch 04	49.1	deg_C
ch 05	51.5	deg_C
ch 06	49.6	deg_C
ch 07	55.2	deg_C
ch 08	59.4	deg_C
ch 09	57.2	deg_C
ch 10	54.7	deg_C
ch 11	21.9	deg_C
ch 12	21.9	deg_C
ch 13	22.6	deg_C
ch 14	27.1	deg_C
ch 15	24.2	deg_C
ch 16	58.9	deg_C
ch 17	61.5	deg_C
ch 18	53.8	deg_C
ch 19	52.3	deg_C

EXP 01--SCAN 075--11-25-00-04-45
Thermal Survey/Mueler"

ch 01	46.2	deg_C
ch 02	40.5	deg_C
ch 03	52.2	deg_C
ch 04	49.5	deg_C
ch 05	52.1	deg_C
ch 06	49.1	deg_C
ch 07	57.2	deg_C
ch 08	59.4	deg_C
ch 09	59.1	deg_C
ch 10	55.7	deg_C
ch 11	22.1	deg_C
ch 12	22.1	deg_C
ch 13	22.9	deg_C
ch 14	27.3	deg_C
ch 15	23.2	deg_C
ch 16	59.8	deg_C
ch 17	62.4	deg_C
ch 18	54.5	deg_C
ch 19	53.2	deg_C

EXP 01--SCAN 090--11-25-00-19-45
Thermal Survey/Mueler"

ch 01	46.1	deg_C
ch 02	40.9	deg_C
ch 03	52.0	deg_C
ch 04	49.4	deg_C
ch 05	51.9	deg_C
ch 06	49.9	deg_C
ch 07	57.0	deg_C
ch 08	59.2	deg_C
ch 09	57.9	deg_C
ch 10	55.5	deg_C
ch 11	21.8	deg_C
ch 12	21.9	deg_C
ch 13	22.4	deg_C
ch 14	26.3	deg_C
ch 15	22.8	deg_C
ch 16	59.7	deg_C
ch 17	62.3	deg_C
ch 18	54.2	deg_C
ch 19	53.0	deg_C

EXP 01--SCAN 095--11:25:00:24:45
Thermal Survey/Mueler*

ch: 01	45.0	deg_C
ch: 02	40.6	deg_C
ch: 03	51.9	deg_C
ch: 04	49.3	deg_C
ch: 05	51.7	deg_C
ch: 06	49.7	deg_C
ch: 07	55.9	deg_C
ch: 08	59.1	deg_C
ch: 09	57.7	deg_C
ch: 10	55.4	deg_C
ch: 11	21.7	deg_C
ch: 12	21.9	deg_C
ch: 13	22.3	deg_C
ch: 14	25.7	deg_C
ch: 15	23.5	deg_C
ch: 16	59.5	deg_C
ch: 17	62.2	deg_C
ch: 18	54.1	deg_C
ch: 19	52.9	deg_C

END DATA AVG.

EXP 01--SCAN 100--11:25:00:28:45
Thermal Survey/Mueler*

ch: 01	45.9	deg_C
ch: 02	39.9	deg_C
ch: 03	51.9	deg_C
ch: 04	49.3	deg_C
ch: 05	51.7	deg_C
ch: 06	49.7	deg_C
ch: 07	55.9	deg_C
ch: 08	59.2	deg_C
ch: 09	57.7	deg_C
ch: 10	55.4	deg_C
ch: 11	21.9	deg_C
ch: 12	22.0	deg_C
ch: 13	22.4	deg_C
ch: 14	25.8	deg_C
ch: 15	23.5	deg_C
ch: 16	59.5	deg_C
ch: 17	62.2	deg_C
ch: 18	54.1	deg_C
ch: 19	52.9	deg_C

EXP 01--SCAN 110--11:25:00:39:45
Thermal Survey/Mueler*

ch: 01	57.3	deg_C
ch: 02	57.0	deg_C
ch: 03	61.2	deg_C
ch: 04	59.7	deg_C
ch: 05	59.5	deg_C
ch: 06	59.3	deg_C
ch: 07	65.8	deg_C
ch: 08	overload	deg_C
ch: 09	63.5	deg_C
ch: 10	63.3	deg_C
ch: 11	21.5	deg_C
ch: 12	21.7	deg_C
ch: 13	22.1	deg_C
ch: 14	25.6	deg_C
ch: 15	22.8	deg_C
ch: 16	69.4	deg_C
ch: 17	71.2	deg_C
ch: 18	62.9	deg_C
ch: 19	59.8	deg_C

EXP 01--SCAN 125--11:25:00:54:45
Thermal Survey/Mueler*

ch: 01	63.4	deg_C
ch: 02	59.0	deg_C
ch: 03	69.7	deg_C
ch: 04	65.5	deg_C
ch: 05	69.2	deg_C
ch: 06	65.0	deg_C
ch: 07	75.6	deg_C
ch: 08	overload	deg_C
ch: 09	73.6	deg_C
ch: 10	72.6	deg_C
ch: 11	23.9	deg_C
ch: 12	24.0	deg_C
ch: 13	26.3	deg_C
ch: 14	28.4	deg_C
ch: 15	24.1	deg_C
ch: 16	77.0	deg_C
ch: 17	79.7	deg_C
ch: 18	71.9	deg_C
ch: 19	69.4	deg_C

EXP 01--SCAN 115--11:25:00:44:45
Thermal Survey/Mueler*

ch: 01	59.7	deg_C
ch: 02	59.4	deg_C
ch: 03	55.6	deg_C
ch: 04	62.9	deg_C
ch: 05	54.1	deg_C
ch: 06	52.2	deg_C
ch: 07	70.9	deg_C
ch: 08	overload	deg_C
ch: 09	69.6	deg_C
ch: 10	69.2	deg_C
ch: 11	22.3	deg_C
ch: 12	22.3	deg_C
ch: 13	22.5	deg_C
ch: 14	25.5	deg_C
ch: 15	23.3	deg_C
ch: 16	72.3	deg_C
ch: 17	75.7	deg_C
ch: 18	67.6	deg_C
ch: 19	64.9	deg_C

EXP 01--SCAN 130--11:25:00:59:45
Thermal Survey/Mueler*

ch: 01	63.9	deg_C
ch: 02	59.2	deg_C
ch: 03	70.5	deg_C
ch: 04	67.3	deg_C
ch: 05	69.0	deg_C
ch: 06	65.5	deg_C
ch: 07	76.7	deg_C
ch: 08	overload	deg_C
ch: 09	74.5	deg_C
ch: 10	73.5	deg_C
ch: 11	23.9	deg_C
ch: 12	24.0	deg_C
ch: 13	25.0	deg_C
ch: 14	27.9	deg_C
ch: 15	24.1	deg_C
ch: 16	78.1	deg_C
ch: 17	80.5	deg_C
ch: 18	72.9	deg_C
ch: 19	70.3	deg_C

EXP 01--SCAN 105--11:25:00:34:45
Thermal Survey/Mueler*

ch: 01	59.1	deg_C
ch: 02	52.6	deg_C
ch: 03	53.9	deg_C
ch: 04	51.7	deg_C
ch: 05	52.9	deg_C
ch: 06	51.5	deg_C
ch: 07	58.2	deg_C
ch: 08	overload	deg_C
ch: 09	58.1	deg_C
ch: 10	56.0	deg_C
ch: 11	21.6	deg_C
ch: 12	21.7	deg_C
ch: 13	22.3	deg_C
ch: 14	25.4	deg_C
ch: 15	22.7	deg_C
ch: 16	61.0	deg_C
ch: 17	63.4	deg_C
ch: 18	55.9	deg_C
ch: 19	53.6	deg_C

LOOSE TC?

EXP 01--SCAN 120--11:25:00:49:45
Thermal Survey/Mueler*

ch: 01	62.5	deg_C
ch: 02	59.9	deg_C
ch: 03	69.2	deg_C
ch: 04	55.2	deg_C
ch: 05	66.9	deg_C
ch: 06	64.6	deg_C
ch: 07	74.9	deg_C
ch: 08	overload	deg_C
ch: 09	71.8	deg_C
ch: 10	70.9	deg_C
ch: 11	23.9	deg_C
ch: 12	24.1	deg_C
ch: 13	25.5	deg_C
ch: 14	28.1	deg_C
ch: 15	24.0	deg_C
ch: 16	75.4	deg_C
ch: 17	79.1	deg_C
ch: 18	70.4	deg_C
ch: 19	67.9	deg_C

START DATA AVG.

EXP 01--SCAN 135--11:25:01:04:45
Thermal Survey/Mueler*

ch: 01	64.3	deg_C
ch: 02	59.3	deg_C
ch: 03	71.1	deg_C
ch: 04	67.8	deg_C
ch: 05	69.5	deg_C
ch: 06	65.9	deg_C
ch: 07	77.2	deg_C
ch: 08	overload	deg_C
ch: 09	75.1	deg_C
ch: 10	74.1	deg_C
ch: 11	23.3	deg_C
ch: 12	23.9	deg_C
ch: 13	25.9	deg_C
ch: 14	25.8	deg_C
ch: 15	24.3	deg_C
ch: 16	79.6	deg_C
ch: 17	81.9	deg_C
ch: 18	73.4	deg_C
ch: 19	70.8	deg_C

00:36 RAMP TO +60°C; LEVEL 0
SEARCH FOR +70°C
COMPONENT TEMP.)

TRIAL TEST RUN

046

DAY 1: PAGE 9 OF 13

EXP 01--SCAN 140--11-26-01-09-45
Thermal Survey/Muelser"

ch: 01	64.5	deg_C
ch: 02	59.3	deg_C
ch: 03	71.3	deg_C
ch: 04	59.0	deg_C
ch: 05	59.7	deg_C
ch: 06	57.2	deg_C
ch: 07	77.6	deg_C
ch: 08	overload	deg_C
ch: 09	75.4	deg_C
ch: 10	74.4	deg_C
ch: 11	23.4	deg_C
ch: 12	24.0	deg_C
ch: 13	25.5	deg_C
ch: 14	27.0	deg_C
ch: 15	24.1	deg_C
ch: 16	79.9	deg_C
ch: 17	91.3	deg_C
ch: 18	73.5	deg_C
ch: 19	71.2	deg_C

EXP 01--SCAN 155--11-26-01-24-45
Thermal Survey/Muelser"

ch: 01	64.5	deg_C
ch: 02	59.3	deg_C
ch: 03	71.4	deg_C
ch: 04	57.0	deg_C
ch: 05	59.9	deg_C
ch: 06	56.5	deg_C
ch: 07	73.9	deg_C
ch: 08	overload	deg_C
ch: 09	75.7	deg_C
ch: 10	74.5	deg_C
ch: 11	23.3	deg_C
ch: 12	23.7	deg_C
ch: 13	25.1	deg_C
ch: 14	25.7	deg_C
ch: 15	24.5	deg_C
ch: 16	79.1	deg_C
ch: 17	91.4	deg_C
ch: 18	70.7	deg_C
ch: 19	59.5	deg_C

EXP 01--SCAN 170--11-26-01-39-45
Thermal Survey/Muelser"

ch: 01	54.6	deg_C
ch: 02	59.3	deg_C
ch: 03	71.6	deg_C
ch: 04	59.3	deg_C
ch: 05	59.9	deg_C
ch: 06	67.4	deg_C
ch: 07	77.9	deg_C
ch: 08	overload	deg_C
ch: 09	75.7	deg_C
ch: 10	74.7	deg_C
ch: 11	23.2	deg_C
ch: 12	23.6	deg_C
ch: 13	24.7	deg_C
ch: 14	25.5	deg_C
ch: 15	23.9	deg_C
ch: 16	79.1	deg_C
ch: 17	91.5	deg_C
ch: 18	73.9	deg_C
ch: 19	71.4	deg_C

01:25 LEVEL 0; TURN A4 PWR OFF
AT CONNECTOR; DETECTORS
ARE RAILED TOWARDS +5V

01:40 RAMP TO LEVEL 1; +68°C
(+78°C COMPONENT AVG.)

EXP 01--SCAN 145--11-26-01-14-45
Thermal Survey/Muelser"

ch: 01	54.6	deg_C
ch: 02	59.2	deg_C
ch: 03	71.5	deg_C
ch: 04	59.2	deg_C
ch: 05	59.9	deg_C
ch: 06	57.3	deg_C
ch: 07	77.9	deg_C
ch: 08	overload	deg_C
ch: 09	75.6	deg_C
ch: 10	74.5	deg_C
ch: 11	23.3	deg_C
ch: 12	23.9	deg_C
ch: 13	25.4	deg_C
ch: 14	25.9	deg_C
ch: 15	24.4	deg_C
ch: 16	79.1	deg_C
ch: 17	91.4	deg_C
ch: 18	73.8	deg_C
ch: 19	71.3	deg_C

EXP 01--SCAN 150--11-26-01-29-45
Thermal Survey/Muelser"

ch: 01	54.4	deg_C
ch: 02	59.3	deg_C
ch: 03	71.3	deg_C
ch: 04	67.7	deg_C
ch: 05	59.7	deg_C
ch: 06	57.0	deg_C
ch: 07	75.9	deg_C
ch: 08	overload	deg_C
ch: 09	75.4	deg_C
ch: 10	74.3	deg_C
ch: 11	23.3	deg_C
ch: 12	23.9	deg_C
ch: 13	25.0	deg_C
ch: 14	25.9	deg_C
ch: 15	24.0	deg_C
ch: 16	79.9	deg_C
ch: 17	91.2	deg_C
ch: 18	73.1	deg_C
ch: 19	70.9	deg_C

EXP 01--SCAN 175--11-26-01-44-45
Thermal Survey/Muelser"

ch: 01	57.0	deg_C
ch: 02	54.8	deg_C
ch: 03	72.9	deg_C
ch: 04	59.8	deg_C
ch: 05	70.9	deg_C
ch: 06	59.1	deg_C
ch: 07	79.5	deg_C
ch: 08	overload	deg_C
ch: 09	76.1	deg_C
ch: 10	75.3	deg_C
ch: 11	22.7	deg_C
ch: 12	23.5	deg_C
ch: 13	25.1	deg_C
ch: 14	25.2	deg_C
ch: 15	24.6	deg_C
ch: 16	80.1	deg_C
ch: 17	92.1	deg_C
ch: 18	74.9	deg_C
ch: 19	72.1	deg_C

TURN A4 PWR BACK ON

EXP 01--SCAN 150--11-26-01-19-45
Thermal Survey/Muelser"

ch: 01	54.6	deg_C
ch: 02	59.3	deg_C
ch: 03	71.5	deg_C
ch: 04	59.3	deg_C
ch: 05	59.9	deg_C
ch: 06	57.4	deg_C
ch: 07	77.9	deg_C
ch: 08	overload	deg_C
ch: 09	75.7	deg_C
ch: 10	74.7	deg_C
ch: 11	23.1	deg_C
ch: 12	23.7	deg_C
ch: 13	25.2	deg_C
ch: 14	26.5	deg_C
ch: 15	24.1	deg_C
ch: 16	79.2	deg_C
ch: 17	91.5	deg_C
ch: 18	73.9	deg_C
ch: 19	71.4	deg_C

EXP 01--SCAN 165--11-26-01-34-45
Thermal Survey/Muelser"

ch: 01	54.6	deg_C
ch: 02	59.4	deg_C
ch: 03	71.4	deg_C
ch: 04	69.1	deg_C
ch: 05	69.9	deg_C
ch: 06	67.3	deg_C
ch: 07	77.6	deg_C
ch: 08	overload	deg_C
ch: 09	75.5	deg_C
ch: 10	74.5	deg_C
ch: 11	23.2	deg_C
ch: 12	23.5	deg_C
ch: 13	24.8	deg_C
ch: 14	25.1	deg_C
ch: 15	24.1	deg_C
ch: 16	79.9	deg_C
ch: 17	91.4	deg_C
ch: 18	73.7	deg_C
ch: 19	71.2	deg_C

EXP 01--SCAN 180--11-26-01-49-45
Thermal Survey/Muelser"

ch: 01	59.6	deg_C
ch: 02	55.2	deg_C
ch: 03	75.3	deg_C
ch: 04	72.3	deg_C
ch: 05	73.5	deg_C
ch: 06	71.6	deg_C
ch: 07	80.9	deg_C
ch: 08	overload	deg_C
ch: 09	79.5	deg_C
ch: 10	79.0	deg_C
ch: 11	23.5	deg_C
ch: 12	24.0	deg_C
ch: 13	25.1	deg_C
ch: 14	25.7	deg_C
ch: 15	24.8	deg_C
ch: 16	82.7	deg_C
ch: 17	85.1	deg_C
ch: 18	77.3	deg_C
ch: 19	74.7	deg_C

END DATA AVG.

TRIAL TEST RUN

047

DAY 1: PAGE 10 OF 13

EXP 01--SCAN 195--11-26-01:54:45
Thermal Survey/Muelen

ch: 01	70.8	deg_C
ch: 02	66.7	deg_C
ch: 03	77.0	deg_C
ch: 04	73.9	deg_C
ch: 05	75.3	deg_C
ch: 06	73.1	deg_C
ch: 07	82.8	deg_C
ch: 08	overload	deg_C
ch: 09	80.6	deg_C
ch: 10	79.9	deg_C
ch: 11	23.3	deg_C
ch: 12	24.1	deg_C
ch: 13	25.0	deg_C
ch: 14	26.7	deg_C
ch: 15	23.9	deg_C
ch: 16	94.4	deg_C
ch: 17	86.9	deg_C
ch: 18	79.0	deg_C
ch: 19	76.5	deg_C

EXP 01--SCAN 200--11-26-02:09:45
Thermal Survey/Muelen

ch: 01	72.1	deg_C
ch: 02	67.1	deg_C
ch: 03	79.0	deg_C
ch: 04	75.7	deg_C
ch: 05	77.3	deg_C
ch: 06	74.9	deg_C
ch: 07	85.1	deg_C
ch: 08	overload	deg_C
ch: 09	83.0	deg_C
ch: 10	82.2	deg_C
ch: 11	22.8	deg_C
ch: 12	23.6	deg_C
ch: 13	24.5	deg_C
ch: 14	25.7	deg_C
ch: 15	23.5	deg_C
ch: 16	86.5	deg_C
ch: 17	89.9	deg_C
ch: 18	81.2	deg_C
ch: 19	79.7	deg_C

EXP 01--SCAN 215--11-26-02:24:45
Thermal Survey/Muelen

ch: 01	72.5	deg_C
ch: 02	67.1	deg_C
ch: 03	79.4	deg_C
ch: 04	75.1	deg_C
ch: 05	77.7	deg_C
ch: 06	75.1	deg_C
ch: 07	85.3	deg_C
ch: 08	overload	deg_C
ch: 09	83.5	deg_C
ch: 10	82.7	deg_C
ch: 11	22.9	deg_C
ch: 12	23.4	deg_C
ch: 13	24.3	deg_C
ch: 14	25.5	deg_C
ch: 15	23.7	deg_C
ch: 16	87.0	deg_C
ch: 17	89.2	deg_C
ch: 18	81.6	deg_C
ch: 19	79.2	deg_C

EXP 01--SCAN 199--11-26-01:59:45
Thermal Survey/Muelen

ch: 01	71.5	deg_C
ch: 02	66.9	deg_C
ch: 03	78.0	deg_C
ch: 04	74.0	deg_C
ch: 05	76.3	deg_C
ch: 06	74.0	deg_C
ch: 07	83.9	deg_C
ch: 08	overload	deg_C
ch: 09	81.9	deg_C
ch: 10	81.1	deg_C
ch: 11	22.9	deg_C
ch: 12	23.9	deg_C
ch: 13	24.9	deg_C
ch: 14	26.2	deg_C
ch: 15	24.1	deg_C
ch: 16	85.5	deg_C
ch: 17	87.9	deg_C
ch: 18	80.1	deg_C
ch: 19	77.5	deg_C

EXP 01--SCAN 205--11-26-02:14:45
Thermal Survey/Muelen

ch: 01	72.4	deg_C
ch: 02	67.1	deg_C
ch: 03	79.2	deg_C
ch: 04	76.0	deg_C
ch: 05	77.6	deg_C
ch: 06	75.1	deg_C
ch: 07	85.4	deg_C
ch: 08	overload	deg_C
ch: 09	83.3	deg_C
ch: 10	82.4	deg_C
ch: 11	22.6	deg_C
ch: 12	23.6	deg_C
ch: 13	24.6	deg_C
ch: 14	25.0	deg_C
ch: 15	23.6	deg_C
ch: 16	86.7	deg_C
ch: 17	89.0	deg_C
ch: 18	81.4	deg_C
ch: 19	79.9	deg_C

EXP 01--SCAN 220--11-26-02:29:45
Thermal Survey/Muelen

ch: 01	72.5	deg_C
ch: 02	67.1	deg_C
ch: 03	79.6	deg_C
ch: 04	75.2	deg_C
ch: 05	77.8	deg_C
ch: 06	75.3	deg_C
ch: 07	85.7	deg_C
ch: 08	overload	deg_C
ch: 09	83.5	deg_C
ch: 10	82.7	deg_C
ch: 11	23.0	deg_C
ch: 12	23.4	deg_C
ch: 13	24.2	deg_C
ch: 14	25.0	deg_C
ch: 15	24.0	deg_C
ch: 16	87.0	deg_C
ch: 17	89.2	deg_C
ch: 18	81.7	deg_C
ch: 19	79.3	deg_C

EXP 01--SCAN 195--11-26-02:04:45
Thermal Survey/Muelen

ch: 01	71.9	deg_C
ch: 02	66.9	deg_C
ch: 03	78.7	deg_C
ch: 04	75.4	deg_C
ch: 05	76.9	deg_C
ch: 06	74.5	deg_C
ch: 07	84.7	deg_C
ch: 08	overload	deg_C
ch: 09	82.5	deg_C
ch: 10	81.8	deg_C
ch: 11	22.7	deg_C
ch: 12	23.3	deg_C
ch: 13	24.6	deg_C
ch: 14	24.9	deg_C
ch: 15	24.3	deg_C
ch: 16	85.2	deg_C
ch: 17	88.4	deg_C
ch: 18	80.9	deg_C
ch: 19	79.3	deg_C

START DATA AVG.

EXP 01--SCAN 210--11-26-02:19:45
Thermal Survey/Muelen

ch: 01	72.5	deg_C
ch: 02	67.1	deg_C
ch: 03	79.4	deg_C
ch: 04	76.0	deg_C
ch: 05	77.7	deg_C
ch: 06	75.1	deg_C
ch: 07	85.5	deg_C
ch: 08	overload	deg_C
ch: 09	83.4	deg_C
ch: 10	82.6	deg_C
ch: 11	22.5	deg_C
ch: 12	23.2	deg_C
ch: 13	24.4	deg_C
ch: 14	25.1	deg_C
ch: 15	23.5	deg_C
ch: 16	86.9	deg_C
ch: 17	89.1	deg_C
ch: 18	81.5	deg_C
ch: 19	79.1	deg_C

EXP 01--SCAN 225--11-26-02:34:45
Thermal Survey/Muelen

ch: 01	72.5	deg_C
ch: 02	67.1	deg_C
ch: 03	79.5	deg_C
ch: 04	76.2	deg_C
ch: 05	77.8	deg_C
ch: 06	75.3	deg_C
ch: 07	85.7	deg_C
ch: 08	overload	deg_C
ch: 09	83.6	deg_C
ch: 10	82.7	deg_C
ch: 11	22.5	deg_C
ch: 12	23.1	deg_C
ch: 13	24.1	deg_C
ch: 14	24.8	deg_C
ch: 15	23.4	deg_C
ch: 16	87.0	deg_C
ch: 17	89.3	deg_C
ch: 18	81.7	deg_C
ch: 19	79.3	deg_C

TRIAL TEST RUN

048

DAY 1: PAGE 11 OF 13

EXP 01--SCAN 230--11-26-02-39-45
Thermal Survey/Mueler*

ch 01	72.6	deg_C
ch 02	67.1	deg_C
ch 03	79.5	deg_C
ch 04	75.2	deg_C
ch 05	77.9	deg_C
ch 06	75.3	deg_C
ch 07	95.8	deg_C
ch 08	overload	deg_C
ch 09	93.5	deg_C
ch 10	92.7	deg_C
ch 11	22.4	deg_C
ch 12	23.0	deg_C
ch 13	24.0	deg_C
ch 14	24.3	deg_C
ch 15	23.5	deg_C
ch 16	97.0	deg_C
ch 17	99.3	deg_C
ch 18	91.8	deg_C
ch 19	79.4	deg_C

END DATA AVG.

EXP 01--SCAN 245--11-26-02-54-45
Thermal Survey/Mueler*

ch 01	55.5	deg_C
ch 02	49.3	deg_C
ch 03	76.5	deg_C
ch 04	72.9	deg_C
ch 05	73.7	deg_C
ch 06	71.2	deg_C
ch 07	93.7	deg_C
ch 08	overload	deg_C
ch 09	91.0	deg_C
ch 10	89.3	deg_C
ch 11	23.0	deg_C
ch 12	23.4	deg_C
ch 13	24.0	deg_C
ch 14	24.5	deg_C
ch 15	23.5	deg_C
ch 16	94.7	deg_C
ch 17	97.1	deg_C
ch 18	79.1	deg_C
ch 19	75.9	deg_C

EXP 01--SCAN 250--11-26-03-09-45
Thermal Survey/Mueler*

ch 01	52.3	deg_C
ch 02	31.5	deg_C
ch 03	53.5	deg_C
ch 04	51.1	deg_C
ch 05	52.3	deg_C
ch 06	52.1	deg_C
ch 07	71.7	deg_C
ch 08	overload	deg_C
ch 09	59.9	deg_C
ch 10	69.4	deg_C
ch 11	23.0	deg_C
ch 12	23.3	deg_C
ch 13	24.1	deg_C
ch 14	24.2	deg_C
ch 15	23.9	deg_C
ch 16	73.0	deg_C
ch 17	75.0	deg_C
ch 18	59.5	deg_C
ch 19	54.7	deg_C

03:10 END PLOT

EXP 01--SCAN 235--11-26-02-44-45
Thermal Survey/Mueler*

ch 01	71.3	deg_C
ch 02	59.8	deg_C
ch 03	90.0	deg_C
ch 04	75.8	deg_C
ch 05	78.0	deg_C
ch 06	75.4	deg_C
ch 07	95.3	deg_C
ch 08	overload	deg_C
ch 09	93.9	deg_C
ch 10	93.2	deg_C
ch 11	22.5	deg_C
ch 12	23.2	deg_C
ch 13	24.1	deg_C
ch 14	25.0	deg_C
ch 15	23.5	deg_C
ch 16	97.7	deg_C
ch 17	99.0	deg_C
ch 18	92.3	deg_C
ch 19	79.9	deg_C

02:45 TURN UUT PWR OFF
CHAMBER TURNED OFF &
DOOR AJAR

EXP 01--SCAN 240--11-26-02-49-45
Thermal Survey/Mueler*

ch 01	59.5	deg_C
ch 02	53.4	deg_C
ch 03	78.9	deg_C
ch 04	75.2	deg_C
ch 05	75.2	deg_C
ch 06	73.7	deg_C
ch 07	95.9	deg_C
ch 08	overload	deg_C
ch 09	93.1	deg_C
ch 10	92.5	deg_C
ch 11	22.9	deg_C
ch 12	23.4	deg_C
ch 13	24.1	deg_C
ch 14	24.5	deg_C
ch 15	23.4	deg_C
ch 16	95.9	deg_C
ch 17	99.3	deg_C
ch 18	91.3	deg_C
ch 19	79.0	deg_C

EXP 01--SCAN 250--11-26-02-59-45
Thermal Survey/Mueler*

ch 01	53.0	deg_C
ch 02	45.2	deg_C
ch 03	73.7	deg_C
ch 04	70.1	deg_C
ch 05	71.0	deg_C
ch 06	69.5	deg_C
ch 07	91.1	deg_C
ch 08	overload	deg_C
ch 09	79.3	deg_C
ch 10	77.7	deg_C
ch 11	22.9	deg_C
ch 12	23.5	deg_C
ch 13	24.1	deg_C
ch 14	24.2	deg_C
ch 15	23.5	deg_C
ch 16	92.1	deg_C
ch 17	94.4	deg_C
ch 18	75.5	deg_C
ch 19	74.2	deg_C

03:00 DOOR COMPLETELY OPENED
UNIT COOLING TO ROOM

EXP 01--SCAN 255--11-26-03-04-45
Thermal Survey/Mueler*

ch 01	55.5	deg_C
ch 02	33.5	deg_C
ch 03	67.9	deg_C
ch 04	53.9	deg_C
ch 05	55.1	deg_C
ch 06	53.0	deg_C
ch 07	75.2	deg_C
ch 08	overload	deg_C
ch 09	74.2	deg_C
ch 10	72.9	deg_C
ch 11	23.0	deg_C
ch 12	23.4	deg_C
ch 13	24.1	deg_C
ch 14	24.5	deg_C
ch 15	23.9	deg_C
ch 16	77.2	deg_C
ch 17	79.4	deg_C
ch 18	71.2	deg_C
ch 19	69.2	deg_C

EXP 01--SCAN 270--11-26-03-27-45
Thermal Survey/Mueler*

ch 01	43.9	deg_C
ch 02	29.2	deg_C
ch 03	35.3	deg_C
ch 04	43.7	deg_C
ch 05	43.0	deg_C
ch 06	49.7	deg_C
ch 07	51.9	deg_C
ch 08	51.9	deg_C
ch 09	54.5	deg_C
ch 10	49.9	deg_C
ch 11	22.9	deg_C
ch 12	23.2	deg_C
ch 13	24.1	deg_C
ch 14	24.2	deg_C
ch 15	23.4	deg_C
ch 16	54.8	deg_C
ch 17	59.3	deg_C
ch 18	51.1	deg_C
ch 19	49.0	deg_C

TRIAL TEST RUN

049

DAY 1: PAGE 12 OF 13

EXP 01--SCAN 275--11-26-03-32-15

Thermal Survey/Mueler"

ch: 01	42.7	deg_C
ch: 02	29.3	deg_C
ch: 03	37.9	deg_C
ch: 04	43.3	deg_C
ch: 05	42.1	deg_C
ch: 06	47.7	deg_C
ch: 07	50.4	deg_C
ch: 08	50.7	deg_C
ch: 09	52.9	deg_C
ch: 10	48.9	deg_C
ch: 11	22.9	deg_C
ch: 12	23.3	deg_C
ch: 13	24.0	deg_C
ch: 14	24.2	deg_C
ch: 15	23.7	deg_C
ch: 16	53.9	deg_C
ch: 17	57.1	deg_C
ch: 18	49.9	deg_C
ch: 19	47.5	deg_C

EXP 01--SCAN 280--11-26-03-37-15

Thermal Survey/Mueler"

ch: 01	42.9	deg_C
ch: 02	32.6	deg_C
ch: 03	39.4	deg_C
ch: 04	43.2	deg_C
ch: 05	43.1	deg_C
ch: 06	49.1	deg_C
ch: 07	49.7	deg_C
ch: 08	50.2	deg_C
ch: 09	52.7	deg_C
ch: 10	49.9	deg_C
ch: 11	22.7	deg_C
ch: 12	50.4	deg_C
ch: 13	22.4	deg_C
ch: 14	23.6	deg_C
ch: 15	23.3	deg_C
ch: 16	54.0	deg_C
ch: 17	56.7	deg_C
ch: 18	49.5	deg_C
ch: 19	47.2	deg_C

— *Known
Resistance 47.5°C*

USED TC12 TO MEASURE VR1 TEMP
WITH UUT PWR ON MOMENTARILY.
DETECTORS WORKING PER SPEC.

ENDS DAY 1 DATA PRINTOUT
STEP-STRESS TRIAL TEST

DAY 1

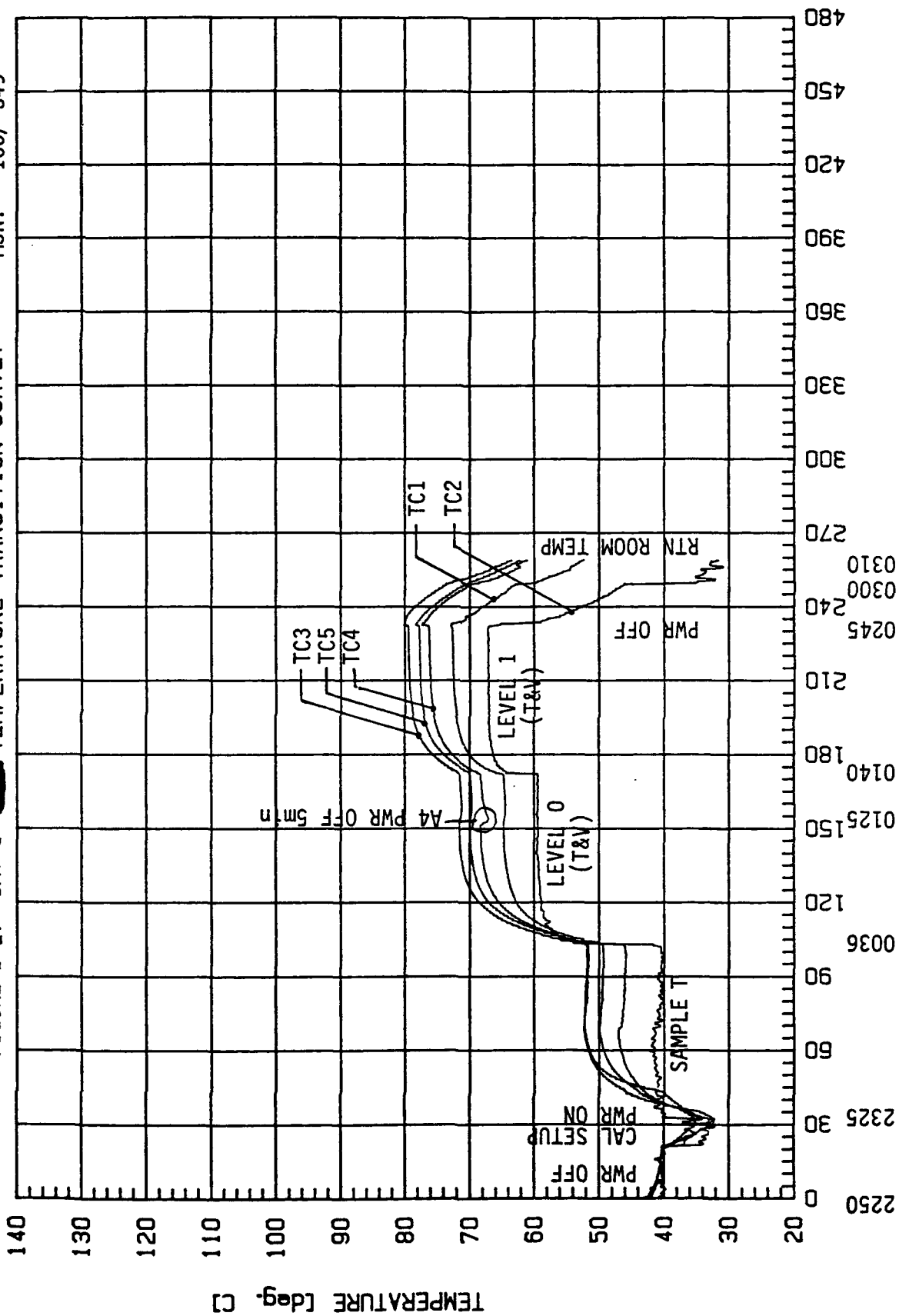
40°C, 60°C, 68°C CHAMBER TEMP

TRIAL TEST RUN

050

DAY 1: PAGE 13 OF 13

FIGURE D-2: DAY 1 XXXXXXXXXX TEMPERATURE TRANSITION SURVEY MSN: -100/ 349



TIME [minutes]

DATE: 11-25-91 to 11-26-91

CSG 92466 TEST

TRIAL TEST RUN

D-9

051

DAY 2

DAY 2; 11-26-91 to 11-27-91 STEP-STRESS TRIAL TEST

60,68

19:34 BEGIN PLOT

PLOT No. 1 IS CHANNEL 1
PLOT No. 2 IS CHANNEL 2
PLOT No. 3 IS CHANNEL 3
PLOT No. 4 IS CHANNEL 4
PLOT No. 5 IS CHANNEL 5
PLOT No. 6 IS CHANNEL 7
PLOT No. 7 IS CHANNEL 9
PLOT No. 8 IS CHANNEL 10
PLOT No. 9 IS CHANNEL 17

19:38 RAMP TO +61 C; UUT OFF

EXP 01--SCAN 004--11-26-19-39-36
Thermal Survey/Mueler"

ch: 01	25.9	deg_C
ch: 02	27.7	deg_C
ch: 03	27.1	deg_C
ch: 04	27.5	deg_C
ch: 05	27.3	deg_C
ch: 06	27.4	deg_C
ch: 07	27.9	deg_C
ch: 08	28.3	deg_C
ch: 09	27.5	deg_C
ch: 10	27.4	deg_C
ch: 11	22.4	deg_C
ch: 12	22.2	deg_C
ch: 13	22.9	deg_C
ch: 14	22.7	deg_C
ch: 15	22.9	deg_C
ch: 16	27.3	deg_C
ch: 17	27.3	deg_C
ch: 18	27.9	deg_C
ch: 19	27.9	deg_C

EXP 01--SCAN 008--11-26-19-42-36
Thermal Survey/Mueler"

ch: 01	41.9	deg_C
ch: 02	53.5	deg_C
ch: 03	35.5	deg_C
ch: 04	36.5	deg_C
ch: 05	34.9	deg_C
ch: 06	38.2	deg_C
ch: 07	32.5	deg_C
ch: 08	34.4	deg_C
ch: 09	31.4	deg_C
ch: 10	32.9	deg_C
ch: 11	22.3	deg_C
ch: 12	22.3	deg_C
ch: 13	22.1	deg_C
ch: 14	22.9	deg_C
ch: 15	23.5	deg_C
ch: 16	34.3	deg_C
ch: 17	34.8	deg_C
ch: 18	34.2	deg_C
ch: 19	33.1	deg_C

EXP 01--SCAN 012--11-26-19-45-36
Thermal Survey/Mueler"

ch: 01	49.2	deg_C
ch: 02	55.3	deg_C
ch: 03	44.3	deg_C
ch: 04	44.9	deg_C
ch: 05	43.9	deg_C
ch: 06	45.2	deg_C
ch: 07	41.4	deg_C
ch: 08	43.3	deg_C
ch: 09	40.4	deg_C
ch: 10	42.7	deg_C
ch: 11	22.6	deg_C
ch: 12	22.3	deg_C
ch: 13	22.1	deg_C
ch: 14	23.8	deg_C
ch: 15	23.2	deg_C
ch: 16	43.7	deg_C
ch: 17	44.2	deg_C
ch: 18	42.8	deg_C
ch: 19	42.3	deg_C

EXP 01--SCAN 016--11-26-19-50-36
Thermal Survey/Mueler"

ch: 01	53.4	deg_C
ch: 02	59.4	deg_C
ch: 03	50.1	deg_C
ch: 04	50.3	deg_C
ch: 05	49.9	deg_C
ch: 06	51.4	deg_C
ch: 07	49.1	deg_C
ch: 08	49.9	deg_C
ch: 09	47.5	deg_C
ch: 10	49.2	deg_C
ch: 11	23.6	deg_C
ch: 12	22.7	deg_C
ch: 13	22.2	deg_C
ch: 14	24.7	deg_C
ch: 15	23.4	deg_C
ch: 16	45.3	deg_C
ch: 17	50.2	deg_C
ch: 18	49.1	deg_C
ch: 19	48.9	deg_C

EXP 01--SCAN 020--11-26-19-54-36
Thermal Survey/Mueler"

ch: 01	55.9	deg_C
ch: 02	59.5	deg_C
ch: 03	53.9	deg_C
ch: 04	54.1	deg_C
ch: 05	53.5	deg_C
ch: 06	54.6	deg_C
ch: 07	52.5	deg_C
ch: 08	51.2	deg_C
ch: 09	52.1	deg_C
ch: 10	53.3	deg_C
ch: 11	23.2	deg_C
ch: 12	22.6	deg_C
ch: 13	22.2	deg_C
ch: 14	24.3	deg_C
ch: 15	23.4	deg_C
ch: 16	53.9	deg_C
ch: 17	54.0	deg_C
ch: 18	53.2	deg_C
ch: 19	53.0	deg_C

EXP 01--SCAN 024--11-26-19-59-36
Thermal Survey/Mueler"

ch: 01	57.4	deg_C
ch: 02	59.0	deg_C
ch: 03	55.3	deg_C
ch: 04	55.3	deg_C
ch: 05	55.0	deg_C
ch: 06	55.6	deg_C
ch: 07	55.4	deg_C
ch: 08	57.0	deg_C
ch: 09	55.1	deg_C
ch: 10	55.9	deg_C
ch: 11	23.1	deg_C
ch: 12	22.5	deg_C
ch: 13	22.1	deg_C
ch: 14	24.0	deg_C
ch: 15	23.2	deg_C
ch: 16	55.3	deg_C
ch: 17	55.4	deg_C
ch: 18	55.8	deg_C
ch: 19	55.7	deg_C

EXP 01--SCAN 028--11-26-20-02-36
Thermal Survey/Mueler"

ch: 01	59.4	deg_C
ch: 02	59.6	deg_C
ch: 03	57.9	deg_C
ch: 04	57.8	deg_C
ch: 05	57.5	deg_C
ch: 06	59.0	deg_C
ch: 07	57.2	deg_C
ch: 08	58.7	deg_C
ch: 09	55.9	deg_C
ch: 10	57.5	deg_C
ch: 11	22.9	deg_C
ch: 12	22.4	deg_C
ch: 13	22.1	deg_C
ch: 14	23.7	deg_C
ch: 15	23.0	deg_C
ch: 16	57.9	deg_C
ch: 17	57.9	deg_C
ch: 18	57.5	deg_C
ch: 19	57.4	deg_C

EXP 01--SCAN 032--11-26-20-05-36
Thermal Survey/Mueler"

ch: 01	59.1	deg_C
ch: 02	59.8	deg_C
ch: 03	59.7	deg_C
ch: 04	59.7	deg_C
ch: 05	58.5	deg_C
ch: 06	58.9	deg_C
ch: 07	59.4	deg_C
ch: 08	59.8	deg_C
ch: 09	59.1	deg_C
ch: 10	59.6	deg_C
ch: 11	22.7	deg_C
ch: 12	22.5	deg_C
ch: 13	22.1	deg_C
ch: 14	23.6	deg_C
ch: 15	23.2	deg_C
ch: 16	59.7	deg_C
ch: 17	58.8	deg_C
ch: 18	58.5	deg_C
ch: 19	58.5	deg_C

TRIAL TEST RUN

052

DAY 2; PAGE 1 OF 14

EXP 01--SCAN 036--11-25-20-19-36
Thermal Survey/Mueler"

ch 01	59.5	deg_C
ch 02	59.6	deg_C
ch 03	59.3	deg_C
ch 04	59.3	deg_C
ch 05	59.1	deg_C
ch 06	59.4	deg_C
ch 07	59.1	deg_C
ch 08	59.5	deg_C
ch 09	59.9	deg_C
ch 10	59.2	deg_C
ch 11	22.9	deg_C
ch 12	22.7	deg_C
ch 13	22.3	deg_C
ch 14	23.6	deg_C
ch 15	23.5	deg_C
ch 16	59.3	deg_C
ch 17	59.4	deg_C
ch 18	59.2	deg_C
ch 19	59.2	deg_C

EXP 01--SCAN 048--11-25-20-22-35
Thermal Survey/Mueler"

ch 01	53.5	deg_C
ch 02	50.0	deg_C
ch 03	59.3	deg_C
ch 04	55.9	deg_C
ch 05	57.9	deg_C
ch 06	55.3	deg_C
ch 07	59.5	deg_C
ch 08	71.4	deg_C
ch 09	72.9	deg_C
ch 10	71.2	deg_C
ch 11	22.7	deg_C
ch 12	22.4	deg_C
ch 13	22.1	deg_C
ch 14	23.3	deg_C
ch 15	22.9	deg_C
ch 16	75.9	deg_C
ch 17	79.4	deg_C
ch 18	57.4	deg_C
ch 19	57.9	deg_C

EXP 01--SCAN 060--11-25-20-34-35
Thermal Survey/Mueler"

ch 01	55.1	deg_C
ch 02	50.1	deg_C
ch 03	70.7	deg_C
ch 04	59.2	deg_C
ch 05	70.2	deg_C
ch 06	57.3	deg_C
ch 07	72.4	deg_C
ch 08	74.1	deg_C
ch 09	75.9	deg_C
ch 10	73.9	deg_C
ch 11	22.4	deg_C
ch 12	22.3	deg_C
ch 13	22.0	deg_C
ch 14	23.3	deg_C
ch 15	22.9	deg_C
ch 16	79.3	deg_C
ch 17	89.8	deg_C
ch 18	70.0	deg_C
ch 19	70.7	deg_C

EXP 01--SCAN 040--11-25-20-14-35
Thermal Survey/Mueler"

ch 01	59.3	deg_C
ch 02	59.9	deg_C
ch 03	52.2	deg_C
ch 04	59.9	deg_C
ch 05	61.8	deg_C
ch 06	59.8	deg_C
ch 07	54.4	deg_C
ch 08	55.7	deg_C
ch 09	63.9	deg_C
ch 10	54.2	deg_C
ch 11	22.7	deg_C
ch 12	22.5	deg_C
ch 13	22.1	deg_C
ch 14	23.4	deg_C
ch 15	23.2	deg_C
ch 16	57.2	deg_C
ch 17	71.1	deg_C
ch 18	51.7	deg_C
ch 19	52.0	deg_C

EXP 01--SCAN 052--11-25-20-25-35
Thermal Survey/Mueler"

ch 01	54.4	deg_C
ch 02	50.1	deg_C
ch 03	59.5	deg_C
ch 04	57.0	deg_C
ch 05	59.0	deg_C
ch 06	55.3	deg_C
ch 07	71.0	deg_C
ch 08	72.9	deg_C
ch 09	74.4	deg_C
ch 10	72.5	deg_C
ch 11	22.5	deg_C
ch 12	22.4	deg_C
ch 13	22.0	deg_C
ch 14	23.3	deg_C
ch 15	23.1	deg_C
ch 16	77.1	deg_C
ch 17	79.7	deg_C
ch 18	59.7	deg_C
ch 19	59.3	deg_C

EXP 01--SCAN 064--11-25-20-38-35
Thermal Survey/Mueler"

ch 01	55.2	deg_C
ch 02	50.2	deg_C
ch 03	70.9	deg_C
ch 04	59.4	deg_C
ch 05	70.5	deg_C
ch 06	57.5	deg_C
ch 07	72.0	deg_C
ch 08	74.4	deg_C
ch 09	75.2	deg_C
ch 10	74.2	deg_C
ch 11	22.5	deg_C
ch 12	22.3	deg_C
ch 13	21.9	deg_C
ch 14	23.2	deg_C
ch 15	23.2	deg_C
ch 16	78.5	deg_C
ch 17	91.1	deg_C
ch 18	70.3	deg_C
ch 19	71.0	deg_C

EXP 01--SCAN 044--11-25-20-19-35
Thermal Survey/Mueler"

ch 01	52.3	deg_C
ch 02	59.8	deg_C
ch 03	55.1	deg_C
ch 04	54.0	deg_C
ch 05	55.7	deg_C
ch 06	53.6	deg_C
ch 07	57.4	deg_C
ch 08	59.2	deg_C
ch 09	59.9	deg_C
ch 10	58.7	deg_C
ch 11	22.7	deg_C
ch 12	22.4	deg_C
ch 13	22.0	deg_C
ch 14	23.4	deg_C
ch 15	23.0	deg_C
ch 16	73.3	deg_C
ch 17	75.2	deg_C
ch 18	55.2	deg_C
ch 19	55.5	deg_C

EXP 01--SCAN 056--11-25-20-30-35
Thermal Survey/Mueler"

ch 01	54.9	deg_C
ch 02	50.0	deg_C
ch 03	70.2	deg_C
ch 04	57.7	deg_C
ch 05	59.9	deg_C
ch 06	55.9	deg_C
ch 07	71.9	deg_C
ch 08	73.5	deg_C
ch 09	75.3	deg_C
ch 10	73.4	deg_C
ch 11	22.5	deg_C
ch 12	22.4	deg_C
ch 13	22.0	deg_C
ch 14	23.3	deg_C
ch 15	23.0	deg_C
ch 16	77.9	deg_C
ch 17	80.4	deg_C
ch 18	59.5	deg_C
ch 19	70.2	deg_C

START DATA AVG.

EXP 01--SCAN 068--11-25-20-42-35
Thermal Survey/Mueler"

ch 01	55.4	deg_C
ch 02	50.2	deg_C
ch 03	71.1	deg_C
ch 04	58.5	deg_C
ch 05	70.7	deg_C
ch 06	57.6	deg_C
ch 07	73.0	deg_C
ch 08	74.5	deg_C
ch 09	75.4	deg_C
ch 10	74.3	deg_C
ch 11	22.7	deg_C
ch 12	22.4	deg_C
ch 13	22.0	deg_C
ch 14	23.2	deg_C
ch 15	22.6	deg_C
ch 16	78.8	deg_C
ch 17	81.2	deg_C
ch 18	70.4	deg_C
ch 19	71.2	deg_C

TRIAL TEST RUN

053

DAY 2: PAGE 2 OF 14

EXP 01--SCAN 072--11 26 20 46 36
Thermal Survey/Mueler"

ch 01	65.4	Jeg_C
ch 02	60.3	Jeg_C
ch 03	71.2	Jeg_C
ch 04	68.7	Jeg_C
ch 05	70.6	Jeg_C
ch 06	67.7	Jeg_C
ch 07	73.1	Jeg_C
ch 08	74.7	Jeg_C
ch 09	75.5	Jeg_C
ch 10	74.5	Jeg_C
ch 11	22.7	Jeg_C
ch 12	22.4	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.2	Jeg_C
ch 15	23.0	Jeg_C
ch 16	70.8	Jeg_C
ch 17	81.3	Jeg_C
ch 18	70.6	Jeg_C
ch 19	71.3	Jeg_C

EXP 01--SCAN 084--11 26 20 58 36
Thermal Survey/Mueler"

ch 01	65.6	Jeg_C
ch 02	60.3	Jeg_C
ch 03	71.3	Jeg_C
ch 04	68.8	Jeg_C
ch 05	71.0	Jeg_C
ch 06	67.8	Jeg_C
ch 07	73.2	Jeg_C
ch 08	74.9	Jeg_C
ch 09	76.7	Jeg_C
ch 10	74.5	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.3	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.2	Jeg_C
ch 15	23.0	Jeg_C
ch 16	70.9	Jeg_C
ch 17	81.5	Jeg_C
ch 18	70.7	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 096--11 26 21 10 36
Thermal Survey/Mueler"

ch 01	65.6	Jeg_C
ch 02	60.3	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.2	Jeg_C
ch 05	71.0	Jeg_C
ch 06	67.9	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.5	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.4	Jeg_C
ch 12	22.3	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.2	Jeg_C
ch 15	23.1	Jeg_C
ch 16	70.1	Jeg_C
ch 17	81.5	Jeg_C
ch 18	70.8	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 076--11 26 20 50 36
Thermal Survey/Mueler"

ch 01	65.5	Jeg_C
ch 02	60.2	Jeg_C
ch 03	71.2	Jeg_C
ch 04	68.8	Jeg_C
ch 05	70.9	Jeg_C
ch 06	67.6	Jeg_C
ch 07	73.2	Jeg_C
ch 08	74.8	Jeg_C
ch 09	76.6	Jeg_C
ch 10	74.5	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.4	Jeg_C
ch 13	22.1	Jeg_C
ch 14	23.2	Jeg_C
ch 15	23.2	Jeg_C
ch 16	70.9	Jeg_C
ch 17	81.4	Jeg_C
ch 18	70.6	Jeg_C
ch 19	71.4	Jeg_C

EXP 01--SCAN 088--11 26 21 02 36
Thermal Survey/Mueler"

ch 01	65.5	Jeg_C
ch 02	60.3	Jeg_C
ch 03	71.3	Jeg_C
ch 04	68.8	Jeg_C
ch 05	71.0	Jeg_C
ch 06	67.8	Jeg_C
ch 07	73.6	Jeg_C
ch 08	74.9	Jeg_C
ch 09	75.8	Jeg_C
ch 10	74.6	Jeg_C
ch 11	22.7	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.8	Jeg_C
ch 14	23.1	Jeg_C
ch 15	22.9	Jeg_C
ch 16	70.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	70.7	Jeg_C
ch 19	71.4	Jeg_C

EXP 01--SCAN 100--11 26 21 14 36
Thermal Survey/Mueler"

ch 01	65.6	Jeg_C
ch 02	60.4	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.3	Jeg_C
ch 05	71.0	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.6	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.9	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.1	Jeg_C
ch 15	22.7	Jeg_C
ch 16	70.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	70.9	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 080--11 26 20 54 36
Thermal Survey/Mueler"

ch 01	65.5	Jeg_C
ch 02	60.3	Jeg_C
ch 03	71.3	Jeg_C
ch 04	68.8	Jeg_C
ch 05	70.9	Jeg_C
ch 06	67.6	Jeg_C
ch 07	73.2	Jeg_C
ch 08	74.9	Jeg_C
ch 09	76.7	Jeg_C
ch 10	74.6	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.2	Jeg_C
ch 15	22.7	Jeg_C
ch 16	70.9	Jeg_C
ch 17	81.4	Jeg_C
ch 18	70.7	Jeg_C
ch 19	71.4	Jeg_C

EXP 01--SCAN 092--11 26 21 06 36
Thermal Survey/Mueler"

ch 01	65.6	Jeg_C
ch 02	60.3	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.8	Jeg_C
ch 05	71.0	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.6	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.9	Jeg_C
ch 10	74.6	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.4	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.1	Jeg_C
ch 15	22.9	Jeg_C
ch 16	70.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	70.7	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 104--11 26 21 16 36
Thermal Survey/Mueler"

ch 01	65.6	Jeg_C
ch 02	60.3	Jeg_C
ch 03	71.5	Jeg_C
ch 04	68.9	Jeg_C
ch 05	71.1	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.9	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.9	Jeg_C
ch 10	74.8	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.1	Jeg_C
ch 15	23.0	Jeg_C
ch 16	70.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	70.8	Jeg_C
ch 19	71.5	Jeg_C

TRIAL TEST RUN

054

DAY 2: PAGE 3 OF 14

EXP 01--SCAN 100--11 26 21 22 36

Thermal Survey/Mueler"

ch 01	65.6	Jeg_C
ch 02	60.3	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.9	Jeg_C
ch 05	71.1	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.9	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.7	Jeg_C
ch 12	22.3	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.1	Jeg_C
ch 15	22.9	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	79.9	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 109--11 26 21 34 36

Thermal Survey/Mueler"

ch 01	65.7	Jeg_C
ch 02	60.3	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.9	Jeg_C
ch 05	71.1	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.9	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.4	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.1	Jeg_C
ch 15	23.0	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	79.9	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 132--11 26 21 46 36

Thermal Survey/Mueler"

ch 01	65.6	Jeg_C
ch 02	60.4	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.8	Jeg_C
ch 05	71.0	Jeg_C
ch 06	67.9	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.8	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.4	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.1	Jeg_C
ch 15	23.0	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	79.7	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 112--11 26 21 26 36

Thermal Survey/Mueler"

ch 01	65.7	Jeg_C
ch 02	60.3	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.9	Jeg_C
ch 05	71.1	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.5	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.9	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.3	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.1	Jeg_C
ch 15	23.1	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	79.9	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 124--11 26 21 38 36

Thermal Survey/Mueler"

ch 01	65.6	Jeg_C
ch 02	60.4	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.9	Jeg_C
ch 05	71.0	Jeg_C
ch 06	67.9	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.9	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.2	Jeg_C
ch 13	21.8	Jeg_C
ch 14	23.1	Jeg_C
ch 15	22.7	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	79.7	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 135--11 26 21 50 36

Thermal Survey/Mueler"

ch 01	65.6	Jeg_C
ch 02	60.4	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.9	Jeg_C
ch 05	71.0	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.8	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.3	Jeg_C
ch 12	22.3	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.1	Jeg_C
ch 15	23.1	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	79.7	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 115--11 26 21 30 36

Thermal Survey/Mueler"

ch 01	65.7	Jeg_C
ch 02	60.5	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.9	Jeg_C
ch 05	71.1	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.9	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.3	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.1	Jeg_C
ch 15	23.1	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	79.9	Jeg_C
ch 19	71.6	Jeg_C

EXP 01--SCAN 128--11 26 21 42 36

Thermal Survey/Mueler"

ch 01	65.6	Jeg_C
ch 02	60.3	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.8	Jeg_C
ch 05	71.0	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	75.9	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.1	Jeg_C
ch 15	23.0	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	79.7	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 140--11 26 21 54 36

Thermal Survey/Mueler"

ch 01	65.6	Jeg_C
ch 02	60.4	Jeg_C
ch 03	71.4	Jeg_C
ch 04	68.9	Jeg_C
ch 05	71.0	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.8	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.4	Jeg_C
ch 12	22.3	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.1	Jeg_C
ch 15	23.1	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	79.7	Jeg_C
ch 19	71.5	Jeg_C

TRIAL TEST RUN

055

DAY 2: PAGE 4 OF 14

EXP 01--SCAN 144--11 26 21 55 36
Thermal Survey/Muelser"

ch 01	65.7	Jeg_C
ch 02	60.4	Jeg_C
ch 03	71.4	Jeg_C
ch 04	66.9	Jeg_C
ch 05	71.0	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.6	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.2	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.1	Jeg_C
ch 15	23.0	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	70.8	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 155--11 26 22 10 36
Thermal Survey/Muelser"

ch 01	65.7	Jeg_C
ch 02	60.4	Jeg_C
ch 03	71.5	Jeg_C
ch 04	66.9	Jeg_C
ch 05	71.1	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.5	Jeg_C
ch 08	75.0	Jeg_C
ch 09	77.0	Jeg_C
ch 10	74.6	Jeg_C
ch 11	22.3	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.0	Jeg_C
ch 15	22.9	Jeg_C
ch 16	79.2	Jeg_C
ch 17	81.5	Jeg_C
ch 18	70.9	Jeg_C
ch 19	71.6	Jeg_C

EXP 01--SCAN 156--11 26 22 22 36
Thermal Survey/Muelser"

ch 01	72.3	Jeg_C
ch 02	67.3	Jeg_C
ch 03	75.9	Jeg_C
ch 04	73.3	Jeg_C
ch 05	75.3	Jeg_C
ch 06	72.5	Jeg_C
ch 07	77.3	Jeg_C
ch 08	76.6	Jeg_C
ch 09	80.6	Jeg_C
ch 10	78.9	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.4	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.5	Jeg_C
ch 15	22.9	Jeg_C
ch 16	83.8	Jeg_C
ch 17	86.6	Jeg_C
ch 18	74.8	Jeg_C
ch 19	75.4	Jeg_C

22:14 RAMP TO +69°C (+78°C
COMPONENT) LEVEL 1

EXP 01--SCAN 146--11 26 22 02 36
Thermal Survey/Muelser"

ch 01	65.7	Jeg_C
ch 02	60.4	Jeg_C
ch 03	71.4	Jeg_C
ch 04	66.9	Jeg_C
ch 05	71.0	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.6	Jeg_C
ch 10	74.7	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.3	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.1	Jeg_C
ch 15	22.9	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.6	Jeg_C
ch 18	70.7	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 160--11 26 22 14 36
Thermal Survey/Muelser"

ch 01	65.6	Jeg_C
ch 02	60.4	Jeg_C
ch 03	71.5	Jeg_C
ch 04	68.0	Jeg_C
ch 05	71.1	Jeg_C
ch 06	68.2	Jeg_C
ch 07	73.5	Jeg_C
ch 08	75.1	Jeg_C
ch 09	77.0	Jeg_C
ch 10	74.6	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.6	Jeg_C
ch 14	23.0	Jeg_C
ch 15	22.8	Jeg_C
ch 16	79.2	Jeg_C
ch 17	81.5	Jeg_C
ch 18	70.9	Jeg_C
ch 19	71.6	Jeg_C

EXP 01--SCAN 172--11 26 22 26 36
Thermal Survey/Muelser"

ch 01	72.0	Jeg_C
ch 02	67.7	Jeg_C
ch 03	77.4	Jeg_C
ch 04	74.7	Jeg_C
ch 05	78.3	Jeg_C
ch 06	73.9	Jeg_C
ch 07	78.3	Jeg_C
ch 08	80.2	Jeg_C
ch 09	82.3	Jeg_C
ch 10	80.5	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.4	Jeg_C
ch 13	22.1	Jeg_C
ch 14	23.5	Jeg_C
ch 15	23.0	Jeg_C
ch 16	85.2	Jeg_C
ch 17	88.0	Jeg_C
ch 18	76.3	Jeg_C
ch 19	77.0	Jeg_C

END DATA AVG.

EXP 01--SCAN 162--11 26 22 06 36
Thermal Survey/Muelser"

ch 01	65.7	Jeg_C
ch 02	60.5	Jeg_C
ch 03	71.4	Jeg_C
ch 04	69.0	Jeg_C
ch 05	71.0	Jeg_C
ch 06	68.0	Jeg_C
ch 07	73.4	Jeg_C
ch 08	75.0	Jeg_C
ch 09	76.9	Jeg_C
ch 10	74.8	Jeg_C
ch 11	22.4	Jeg_C
ch 12	22.2	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.1	Jeg_C
ch 15	22.8	Jeg_C
ch 16	79.1	Jeg_C
ch 17	81.8	Jeg_C
ch 18	70.8	Jeg_C
ch 19	71.5	Jeg_C

EXP 01--SCAN 164--11 26 22 18 36
Thermal Survey/Muelser"

ch 01	69.3	Jeg_C
ch 02	65.4	Jeg_C
ch 03	73.7	Jeg_C
ch 04	71.3	Jeg_C
ch 05	73.1	Jeg_C
ch 06	70.6	Jeg_C
ch 07	75.0	Jeg_C
ch 08	76.6	Jeg_C
ch 09	78.2	Jeg_C
ch 10	76.5	Jeg_C
ch 11	22.8	Jeg_C
ch 12	22.4	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.6	Jeg_C
ch 15	23.0	Jeg_C
ch 16	81.1	Jeg_C
ch 17	84.1	Jeg_C
ch 18	72.7	Jeg_C
ch 19	73.2	Jeg_C

EXP 01--SCAN 176--11 26 22 30 36
Thermal Survey/Muelser"

ch 01	72.6	Jeg_C
ch 02	67.7	Jeg_C
ch 03	78.3	Jeg_C
ch 04	75.6	Jeg_C
ch 05	77.6	Jeg_C
ch 06	74.7	Jeg_C
ch 07	79.9	Jeg_C
ch 08	81.2	Jeg_C
ch 09	83.5	Jeg_C
ch 10	81.5	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.4	Jeg_C
ch 15	23.0	Jeg_C
ch 16	85.2	Jeg_C
ch 17	86.9	Jeg_C
ch 18	77.3	Jeg_C
ch 19	78.1	Jeg_C

TRIAL TEST RUN

056

DAY 2: PAGE 5 OF 14

EXP 01--SCAN 180--11 26 22 34 36
Thermal Survey/Mueler"

ch 01	73.1	Jeg_C
ch 02	68.0	Jeg_C
ch 03	78.3	Jeg_C
ch 04	75.2	Jeg_C
ch 05	76.4	Jeg_C
ch 06	75.3	Jeg_C
ch 07	80.6	Jeg_C
ch 08	81.9	Jeg_C
ch 09	84.3	Jeg_C
ch 10	82.2	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.4	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.4	Jeg_C
ch 15	23.0	Jeg_C
ch 16	85.7	Jeg_C
ch 17	88.5	Jeg_C
ch 18	76.0	Jeg_C
ch 19	78.7	Jeg_C

START DATA AVG.

EXP 01--SCAN 192--11 26 22 46 36
Thermal Survey/Mueler"

ch 01	73.5	Jeg_C
ch 02	68.0	Jeg_C
ch 03	78.7	Jeg_C
ch 04	76.3	Jeg_C
ch 05	79.2	Jeg_C
ch 06	75.9	Jeg_C
ch 07	81.5	Jeg_C
ch 08	82.7	Jeg_C
ch 09	85.3	Jeg_C
ch 10	82.9	Jeg_C
ch 11	22.7	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.6	Jeg_C
ch 14	23.3	Jeg_C
ch 15	22.9	Jeg_C
ch 16	87.4	Jeg_C
ch 17	89.2	Jeg_C
ch 18	78.7	Jeg_C
ch 19	79.5	Jeg_C

EXP 01--SCAN 204--11 26 22 58 36
Thermal Survey/Mueler"

ch 01	73.8	Jeg_C
ch 02	68.1	Jeg_C
ch 03	78.8	Jeg_C
ch 04	77.1	Jeg_C
ch 05	79.4	Jeg_C
ch 06	75.1	Jeg_C
ch 07	81.6	Jeg_C
ch 08	83.0	Jeg_C
ch 09	85.6	Jeg_C
ch 10	83.1	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.2	Jeg_C
ch 15	23.9	Jeg_C
ch 16	87.6	Jeg_C
ch 17	89.4	Jeg_C
ch 18	78.9	Jeg_C
ch 19	79.9	Jeg_C

EXP 01--SCAN 184--11 26 22 38 36
Thermal Survey/Mueler"

ch 01	73.3	Jeg_C
ch 02	68.0	Jeg_C
ch 03	79.3	Jeg_C
ch 04	75.5	Jeg_C
ch 05	76.8	Jeg_C
ch 06	75.6	Jeg_C
ch 07	81.1	Jeg_C
ch 08	82.3	Jeg_C
ch 09	84.7	Jeg_C
ch 10	82.5	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.4	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.4	Jeg_C
ch 15	23.0	Jeg_C
ch 16	87.1	Jeg_C
ch 17	88.9	Jeg_C
ch 18	78.3	Jeg_C
ch 19	79.2	Jeg_C

EXP 01--SCAN 195--11 26 22 50 36
Thermal Survey/Mueler"

ch 01	73.5	Jeg_C
ch 02	68.0	Jeg_C
ch 03	78.7	Jeg_C
ch 04	77.9	Jeg_C
ch 05	79.3	Jeg_C
ch 06	76.0	Jeg_C
ch 07	81.6	Jeg_C
ch 08	82.9	Jeg_C
ch 09	85.3	Jeg_C
ch 10	83.9	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.6	Jeg_C
ch 14	23.3	Jeg_C
ch 15	23.1	Jeg_C
ch 16	87.5	Jeg_C
ch 17	89.3	Jeg_C
ch 18	78.8	Jeg_C
ch 19	79.7	Jeg_C

EXP 01--SCAN 208--11 26 23 02 36
Thermal Survey/Mueler"

ch 01	73.9	Jeg_C
ch 02	68.1	Jeg_C
ch 03	79.3	Jeg_C
ch 04	77.1	Jeg_C
ch 05	79.5	Jeg_C
ch 06	76.1	Jeg_C
ch 07	81.8	Jeg_C
ch 08	83.0	Jeg_C
ch 09	85.7	Jeg_C
ch 10	83.2	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.2	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.2	Jeg_C
ch 15	22.9	Jeg_C
ch 16	87.7	Jeg_C
ch 17	89.4	Jeg_C
ch 18	78.9	Jeg_C
ch 19	79.9	Jeg_C

EXP 01--SCAN 189--11 26 22 42 36
Thermal Survey/Mueler"

ch 01	73.4	Jeg_C
ch 02	68.0	Jeg_C
ch 03	79.5	Jeg_C
ch 04	76.7	Jeg_C
ch 05	79.0	Jeg_C
ch 06	75.8	Jeg_C
ch 07	81.3	Jeg_C
ch 08	82.6	Jeg_C
ch 09	85.0	Jeg_C
ch 10	82.8	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.1	Jeg_C
ch 13	21.8	Jeg_C
ch 14	23.3	Jeg_C
ch 15	22.7	Jeg_C
ch 16	87.3	Jeg_C
ch 17	89.1	Jeg_C
ch 18	78.5	Jeg_C
ch 19	79.4	Jeg_C

EXP 01--SCAN 200--11 26 22 54 36
Thermal Survey/Mueler"

ch 01	73.7	Jeg_C
ch 02	68.2	Jeg_C
ch 03	78.8	Jeg_C
ch 04	77.0	Jeg_C
ch 05	79.3	Jeg_C
ch 06	76.1	Jeg_C
ch 07	81.7	Jeg_C
ch 08	82.9	Jeg_C
ch 09	85.4	Jeg_C
ch 10	83.1	Jeg_C
ch 11	22.7	Jeg_C
ch 12	22.2	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.3	Jeg_C
ch 15	22.8	Jeg_C
ch 16	87.6	Jeg_C
ch 17	89.3	Jeg_C
ch 18	78.9	Jeg_C
ch 19	79.8	Jeg_C

EXP 01--SCAN 212--11 26 23 06 36
Thermal Survey/Mueler"

ch 01	73.9	Jeg_C
ch 02	68.2	Jeg_C
ch 03	79.9	Jeg_C
ch 04	77.1	Jeg_C
ch 05	79.5	Jeg_C
ch 06	76.2	Jeg_C
ch 07	82.0	Jeg_C
ch 08	83.1	Jeg_C
ch 09	85.7	Jeg_C
ch 10	83.2	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.2	Jeg_C
ch 15	22.8	Jeg_C
ch 16	87.7	Jeg_C
ch 17	89.5	Jeg_C
ch 18	78.9	Jeg_C
ch 19	79.9	Jeg_C

TRIAL TEST RUN

057

DAY 2: PAGE 6 OF 14

EXP 01--SCAN 215--11 26 23 10 36

Thermal Survey/Mueler

ch 01	73.6	Jeg_C
ch 02	68.1	Jeg_C
ch 03	68.0	Jeg_C
ch 04	77.1	Jeg_C
ch 05	79.6	Jeg_C
ch 06	76.2	Jeg_C
ch 07	61.9	Jeg_C
ch 08	63.1	Jeg_C
ch 09	65.8	Jeg_C
ch 10	63.4	Jeg_C
ch 11	22.4	Jeg_C
ch 12	22.2	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.2	Jeg_C
ch 15	22.8	Jeg_C
ch 16	67.7	Jeg_C
ch 17	68.5	Jeg_C
ch 18	79.0	Jeg_C
ch 19	79.9	Jeg_C

EXP 01--SCAN 226--11 26 23 22 36

Thermal Survey/Mueler

ch 01	73.6	Jeg_C
ch 02	68.1	Jeg_C
ch 03	68.0	Jeg_C
ch 04	77.2	Jeg_C
ch 05	79.6	Jeg_C
ch 06	76.2	Jeg_C
ch 07	62.5	Jeg_C
ch 08	63.1	Jeg_C
ch 09	65.6	Jeg_C
ch 10	63.0	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.2	Jeg_C
ch 15	22.6	Jeg_C
ch 16	67.8	Jeg_C
ch 17	68.6	Jeg_C
ch 18	79.0	Jeg_C
ch 19	79.9	Jeg_C

EXP 01--SCAN 240--11 26 23 34 36

Thermal Survey/Mueler

ch 01	73.9	Jeg_C
ch 02	68.3	Jeg_C
ch 03	68.1	Jeg_C
ch 04	77.2	Jeg_C
ch 05	79.6	Jeg_C
ch 06	76.3	Jeg_C
ch 07	62.8	Jeg_C
ch 08	63.2	Jeg_C
ch 09	65.9	Jeg_C
ch 10	63.4	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.3	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.2	Jeg_C
ch 15	22.9	Jeg_C
ch 16	67.6	Jeg_C
ch 17	68.5	Jeg_C
ch 18	79.1	Jeg_C
ch 19	80.0	Jeg_C

EXP 01--SCAN 220--11 26 23 14 36

Thermal Survey/Mueler

ch 01	73.4	Jeg_C
ch 02	68.1	Jeg_C
ch 03	68.0	Jeg_C
ch 04	77.1	Jeg_C
ch 05	79.6	Jeg_C
ch 06	76.2	Jeg_C
ch 07	62.0	Jeg_C
ch 08	63.1	Jeg_C
ch 09	65.8	Jeg_C
ch 10	63.5	Jeg_C
ch 11	22.4	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.2	Jeg_C
ch 15	22.8	Jeg_C
ch 16	67.9	Jeg_C
ch 17	68.6	Jeg_C
ch 18	78.9	Jeg_C
ch 19	79.9	Jeg_C

EXP 01--SCAN 232--11 26 23 26 36

Thermal Survey/Mueler

ch 01	73.3	Jeg_C
ch 02	68.0	Jeg_C
ch 03	68.1	Jeg_C
ch 04	77.2	Jeg_C
ch 05	79.3	Jeg_C
ch 06	76.3	Jeg_C
ch 07	62.5	Jeg_C
ch 08	63.1	Jeg_C
ch 09	65.8	Jeg_C
ch 10	63.3	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.2	Jeg_C
ch 13	22.0	Jeg_C
ch 14	23.2	Jeg_C
ch 15	22.9	Jeg_C
ch 16	67.6	Jeg_C
ch 17	68.6	Jeg_C
ch 18	78.9	Jeg_C
ch 19	79.9	Jeg_C

EXP 01--SCAN 244--11 26 23 38 36

Thermal Survey/Mueler

ch 01	73.9	Jeg_C
ch 02	68.3	Jeg_C
ch 03	68.0	Jeg_C
ch 04	77.2	Jeg_C
ch 05	79.6	Jeg_C
ch 06	76.3	Jeg_C
ch 07	62.2	Jeg_C
ch 08	63.2	Jeg_C
ch 09	65.9	Jeg_C
ch 10	63.3	Jeg_C
ch 11	22.3	Jeg_C
ch 12	22.3	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.2	Jeg_C
ch 15	23.1	Jeg_C
ch 16	67.8	Jeg_C
ch 17	68.6	Jeg_C
ch 18	79.1	Jeg_C
ch 19	80.0	Jeg_C

23:15 LEVEL 1; CYCLE UUT PWR
TO REGAIN SYNTH LOCK

EXP 01--SCAN 234--11 26 23 18 36

Thermal Survey/Mueler

ch 01	73.2	Jeg_C
ch 02	68.2	Jeg_C
ch 03	68.0	Jeg_C
ch 04	77.2	Jeg_C
ch 05	79.5	Jeg_C
ch 06	76.2	Jeg_C
ch 07	62.4	Jeg_C
ch 08	63.1	Jeg_C
ch 09	65.9	Jeg_C
ch 10	63.3	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.2	Jeg_C
ch 13	21.8	Jeg_C
ch 14	23.2	Jeg_C
ch 15	22.8	Jeg_C
ch 16	67.7	Jeg_C
ch 17	68.5	Jeg_C
ch 18	79.0	Jeg_C
ch 19	79.9	Jeg_C

EXP 01--SCAN 236--11 26 23 30 36

Thermal Survey/Mueler

ch 01	73.8	Jeg_C
ch 02	68.2	Jeg_C
ch 03	68.0	Jeg_C
ch 04	77.2	Jeg_C
ch 05	79.6	Jeg_C
ch 06	76.3	Jeg_C
ch 07	62.9	Jeg_C
ch 08	63.2	Jeg_C
ch 09	65.6	Jeg_C
ch 10	63.3	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.2	Jeg_C
ch 13	21.9	Jeg_C
ch 14	23.1	Jeg_C
ch 15	22.9	Jeg_C
ch 16	67.8	Jeg_C
ch 17	68.5	Jeg_C
ch 18	79.0	Jeg_C
ch 19	79.9	Jeg_C

TRIAL TEST RUN

058

DAY 2: PAGE 7 OF 14

EXP 01--SCAN 260--11 26 23 52 35
Thermal Survey/Mueler"

ch 01	78.3	deg_C
ch 02	75.9	deg_C
ch 03	84.7	deg_C
ch 04	81.8	deg_C
ch 05	84.1	deg_C
ch 06	81.1	deg_C
ch 07	88.1	deg_C
ch 08	87.8	deg_C
ch 09	89.9	deg_C
ch 10	87.8	deg_C
ch 11	22.8	deg_C
ch 12	22.5	deg_C
ch 13	21.9	deg_C
ch 14	23.6	deg_C
ch 15	23.2	deg_C
ch 16	92.6	deg_C
ch 17	85.7	deg_C
ch 18	83.4	deg_C
ch 19	84.1	deg_C

EXP 01--SCAN 272--11 27 00 04 35
Thermal Survey/Mueler"

ch 01	81.2	deg_C
ch 02	75.5	deg_C
ch 03	87.5	deg_C
ch 04	84.4	deg_C
ch 05	85.9	deg_C
ch 06	83.4	deg_C
ch 07	89.2	deg_C
ch 08	90.0	deg_C
ch 09	83.1	deg_C
ch 10	80.7	deg_C
ch 11	22.8	deg_C
ch 12	22.3	deg_C
ch 13	22.0	deg_C
ch 14	23.5	deg_C
ch 15	22.9	deg_C
ch 16	85.2	deg_C
ch 17	88.4	deg_C
ch 18	86.2	deg_C
ch 19	87.1	deg_C

EXP 01--SCAN 248--11 26 23 40 43
Thermal Survey/Mueler"

ch 01	73.9	deg_C
ch 02	89.1	deg_C
ch 03	86.8	deg_C
ch 04	77.3	deg_C
ch 05	79.5	deg_C
ch 06	76.3	deg_C
ch 07	82.0	deg_C
ch 08	83.1	deg_C
ch 09	85.8	deg_C
ch 10	83.3	deg_C
ch 11	22.5	deg_C
ch 12	22.2	deg_C
ch 13	21.8	deg_C
ch 14	23.1	deg_C
ch 15	22.9	deg_C
ch 16	87.7	deg_C
ch 17	80.5	deg_C
ch 18	79.1	deg_C
ch 19	80.9	deg_C

EXP 01--SCAN 264--11 26 23 56 35
Thermal Survey/Mueler"

ch 01	80.2	deg_C
ch 02	75.2	deg_C
ch 03	86.1	deg_C
ch 04	83.1	deg_C
ch 05	85.5	deg_C
ch 06	82.2	deg_C
ch 07	87.6	deg_C
ch 08	89.4	deg_C
ch 09	81.4	deg_C
ch 10	89.2	deg_C
ch 11	22.8	deg_C
ch 12	22.4	deg_C
ch 13	22.0	deg_C
ch 14	23.5	deg_C
ch 15	23.0	deg_C
ch 16	80.9	deg_C
ch 17	87.0	deg_C
ch 18	84.7	deg_C
ch 19	85.5	deg_C

EXP 01--SCAN 276--11 27 00 08 35
Thermal Survey/Mueler"

ch 01	81.4	deg_C
ch 02	75.7	deg_C
ch 03	87.8	deg_C
ch 04	84.8	deg_C
ch 05	87.2	deg_C
ch 06	83.8	deg_C
ch 07	89.6	deg_C
ch 08	80.4	deg_C
ch 09	83.6	deg_C
ch 10	81.0	deg_C
ch 11	22.8	deg_C
ch 12	22.3	deg_C
ch 13	21.9	deg_C
ch 14	23.5	deg_C
ch 15	23.2	deg_C
ch 16	85.6	deg_C
ch 17	88.7	deg_C
ch 18	86.6	deg_C
ch 19	87.5	deg_C

23:44 RAMP TO +77°C (+86°C
COMPONENT); LEVEL 2

EXP 01--SCAN 252--11 26 23 44 35
Thermal Survey/Mueler"

ch 01	74.8	deg_C
ch 02	86.1	deg_C
ch 03	89.9	deg_C
ch 04	77.3	deg_C
ch 05	79.5	deg_C
ch 06	75.3	deg_C
ch 07	82.0	deg_C
ch 08	83.1	deg_C
ch 09	85.8	deg_C
ch 10	83.3	deg_C
ch 11	22.7	deg_C
ch 12	22.2	deg_C
ch 13	21.8	deg_C
ch 14	23.1	deg_C
ch 15	22.9	deg_C
ch 16	87.9	deg_C
ch 17	80.7	deg_C
ch 18	79.2	deg_C
ch 19	80.1	deg_C

EXP 01--SCAN 256--11 27 00 00 35
Thermal Survey/Mueler"

ch 01	80.8	deg_C
ch 02	75.5	deg_C
ch 03	85.9	deg_C
ch 04	83.9	deg_C
ch 05	85.3	deg_C
ch 06	83.0	deg_C
ch 07	86.5	deg_C
ch 08	83.4	deg_C
ch 09	82.4	deg_C
ch 10	90.1	deg_C
ch 11	22.9	deg_C
ch 12	22.3	deg_C
ch 13	21.9	deg_C
ch 14	23.5	deg_C
ch 15	22.9	deg_C
ch 16	84.7	deg_C
ch 17	87.6	deg_C
ch 18	85.6	deg_C
ch 19	85.5	deg_C

EXP 01--SCAN 268--11 27 00 12 35
Thermal Survey/Mueler"

ch 01	81.5	deg_C
ch 02	75.8	deg_C
ch 03	88.0	deg_C
ch 04	84.9	deg_C
ch 05	87.5	deg_C
ch 06	84.0	deg_C
ch 07	89.9	deg_C
ch 08	90.6	deg_C
ch 09	93.8	deg_C
ch 10	91.3	deg_C
ch 11	22.8	deg_C
ch 12	22.2	deg_C
ch 13	21.8	deg_C
ch 14	23.4	deg_C
ch 15	22.8	deg_C
ch 16	95.8	deg_C
ch 17	98.9	deg_C
ch 18	85.8	deg_C
ch 19	87.6	deg_C

EXP 01--SCAN 258--11 26 23 48 35
Thermal Survey/Mueler"

ch 01	77.8	deg_C
ch 02	74.6	deg_C
ch 03	82.8	deg_C
ch 04	80.0	deg_C
ch 05	82.1	deg_C
ch 06	79.4	deg_C
ch 07	84.1	deg_C
ch 08	85.9	deg_C
ch 09	87.7	deg_C
ch 10	85.6	deg_C
ch 11	23.1	deg_C
ch 12	22.6	deg_C
ch 13	22.2	deg_C
ch 14	23.9	deg_C
ch 15	23.4	deg_C
ch 16	86.4	deg_C
ch 17	93.7	deg_C
ch 18	81.4	deg_C
ch 19	82.8	deg_C

TRIAL TEST RUN

059

DAY 2: PAGE 8 OF 14

START DATA AVG.

EXP 01--SCAN 284--11 27 00 16 36

Thermal Survey/Muelser*

ch 01	81.7	deg_C
ch 02	75.8	deg_C
ch 03	88.2	deg_C
ch 04	85.1	deg_C
ch 05	87.6	deg_C
ch 06	84.1	deg_C
ch 07	90.0	deg_C
ch 08	90.8	deg_C
ch 09	94.0	deg_C
ch 10	91.4	deg_C
ch 11	22.7	deg_C
ch 12	22.5	deg_C
ch 13	22.1	deg_C
ch 14	23.5	deg_C
ch 15	23.2	deg_C
ch 16	95.0	deg_C
ch 17	99.0	deg_C
ch 18	87.0	deg_C
ch 19	88.0	deg_C

EXP 01--SCAN 285--11 27 00 20 36

Thermal Survey/Muelser*

ch 01	81.6	deg_C
ch 02	75.6	deg_C
ch 03	88.4	deg_C
ch 04	85.3	deg_C
ch 05	87.6	deg_C
ch 06	84.3	deg_C
ch 07	90.3	deg_C
ch 08	91.0	deg_C
ch 09	94.2	deg_C
ch 10	91.6	deg_C
ch 11	22.8	deg_C
ch 12	22.5	deg_C
ch 13	22.2	deg_C
ch 14	23.5	deg_C
ch 15	23.1	deg_C
ch 16	95.2	deg_C
ch 17	99.2	deg_C
ch 18	87.2	deg_C
ch 19	88.2	deg_C

EXP 01--SCAN 306--11 27 00 40 36

Thermal Survey/Muelser*

ch 01	87.5	deg_C
ch 02	82.8	deg_C
ch 03	93.7	deg_C
ch 04	90.5	deg_C
ch 05	92.9	deg_C
ch 06	89.7	deg_C
ch 07	95.1	deg_C
ch 08	95.5	deg_C
ch 09	98.0	deg_C
ch 10	96.7	deg_C
ch 11	23.3	deg_C
ch 12	22.6	deg_C
ch 13	22.2	deg_C
ch 14	24.2	deg_C
ch 15	23.4	deg_C
ch 16	101.6	deg_C
ch 17	105.0	deg_C
ch 18	92.1	deg_C
ch 19	93.0	deg_C

00:30 RAMP TO +85°C (+94°C
COMPONENT); LEVEL 3
END DATA AVG.

EXP 01--SCAN 286--11 27 00 20 36

Thermal Survey/Muelser*

ch 01	81.7	deg_C
ch 02	75.8	deg_C
ch 03	88.2	deg_C
ch 04	85.2	deg_C
ch 05	87.7	deg_C
ch 06	84.2	deg_C
ch 07	90.2	deg_C
ch 08	90.8	deg_C
ch 09	94.1	deg_C
ch 10	91.5	deg_C
ch 11	22.8	deg_C
ch 12	22.4	deg_C
ch 13	22.1	deg_C
ch 14	23.4	deg_C
ch 15	23.0	deg_C
ch 16	95.1	deg_C
ch 17	99.2	deg_C
ch 18	87.1	deg_C
ch 19	88.0	deg_C

EXP 01--SCAN 300--11 27 00 32 36

Thermal Survey/Muelser*

ch 01	84.3	deg_C
ch 02	81.5	deg_C
ch 03	88.6	deg_C
ch 04	85.7	deg_C
ch 05	86.6	deg_C
ch 06	86.6	deg_C
ch 07	89.9	deg_C
ch 08	91.7	deg_C
ch 09	94.7	deg_C
ch 10	92.5	deg_C
ch 11	23.4	deg_C
ch 12	22.6	deg_C
ch 13	22.2	deg_C
ch 14	24.1	deg_C
ch 15	23.4	deg_C
ch 16	97.2	deg_C
ch 17	100.2	deg_C
ch 18	88.3	deg_C
ch 19	88.9	deg_C

EXP 01--SCAN 312--11 27 00 44 36

Thermal Survey/Muelser*

ch 01	88.4	deg_C
ch 02	83.0	deg_C
ch 03	94.3	deg_C
ch 04	91.5	deg_C
ch 05	94.1	deg_C
ch 06	90.6	deg_C
ch 07	96.6	deg_C
ch 08	96.7	deg_C
ch 09	100.4	deg_C
ch 10	97.3	deg_C
ch 11	23.3	deg_C
ch 12	22.6	deg_C
ch 13	22.2	deg_C
ch 14	24.0	deg_C
ch 15	23.5	deg_C
ch 16	102.7	deg_C
ch 17	106.1	deg_C
ch 18	93.3	deg_C
ch 19	94.2	deg_C

EXP 01--SCAN 292--11 27 00 24 36

Thermal Survey/Muelser*

ch 01	81.8	deg_C
ch 02	75.8	deg_C
ch 03	88.4	deg_C
ch 04	85.3	deg_C
ch 05	87.8	deg_C
ch 06	84.2	deg_C
ch 07	90.2	deg_C
ch 08	91.0	deg_C
ch 09	94.2	deg_C
ch 10	91.6	deg_C
ch 11	22.8	deg_C
ch 12	22.4	deg_C
ch 13	22.1	deg_C
ch 14	23.5	deg_C
ch 15	23.2	deg_C
ch 16	95.1	deg_C
ch 17	99.2	deg_C
ch 18	87.2	deg_C
ch 19	88.1	deg_C

EXP 01--SCAN 304--11 27 00 36 36

Thermal Survey/Muelser*

ch 01	85.4	deg_C
ch 02	82.2	deg_C
ch 03	91.9	deg_C
ch 04	88.3	deg_C
ch 05	91.2	deg_C
ch 06	88.2	deg_C
ch 07	93.2	deg_C
ch 08	93.8	deg_C
ch 09	96.3	deg_C
ch 10	94.9	deg_C
ch 11	23.4	deg_C
ch 12	22.8	deg_C
ch 13	22.4	deg_C
ch 14	24.5	deg_C
ch 15	23.7	deg_C
ch 16	99.7	deg_C
ch 17	103.2	deg_C
ch 18	90.4	deg_C
ch 19	91.1	deg_C

EXP 01--SCAN 316--11 27 00 48 36

Thermal Survey/Muelser*

ch 01	88.3	deg_C
ch 02	83.2	deg_C
ch 03	95.6	deg_C
ch 04	92.3	deg_C
ch 05	94.9	deg_C
ch 06	91.3	deg_C
ch 07	97.2	deg_C
ch 08	97.6	deg_C
ch 09	101.3	deg_C
ch 10	98.7	deg_C
ch 11	23.9	deg_C
ch 12	22.6	deg_C
ch 13	23.1	deg_C
ch 14	24.0	deg_C
ch 15	23.4	deg_C
ch 16	103.5	deg_C
ch 17	105.9	deg_C
ch 18	94.1	deg_C
ch 19	95.0	deg_C

TRIAL TEST RUN

DAY 2: PAGE 9 OF 14

060

EXP 01--SCAN 320--11 27 00 52 36
Thermal Survey/Mueler"

ch 01	89.2	Jeg_C
ch 02	83.3	Jeg_C
ch 03	85.1	Jeg_C
ch 04	92.7	Jeg_C
ch 05	95.3	Jeg_C
ch 06	91.7	Jeg_C
ch 07	97.8	Jeg_C
ch 08	98.1	Jeg_C
ch 09	101.9	Jeg_C
ch 10	99.2	Jeg_C
ch 11	22.9	Jeg_C
ch 12	22.8	Jeg_C
ch 13	22.4	Jeg_C
ch 14	23.9	Jeg_C
ch 15	23.5	Jeg_C
ch 16	103.9	Jeg_C
ch 17	107.3	Jeg_C
ch 18	94.6	Jeg_C
ch 19	95.5	Jeg_C

EXP 01--SCAN 332--11 27 01 04 35
Thermal Survey/Mueler"

ch 01	89.7	Jeg_C
ch 02	83.4	Jeg_C
ch 03	85.7	Jeg_C
ch 04	93.3	Jeg_C
ch 05	95.8	Jeg_C
ch 06	92.2	Jeg_C
ch 07	98.5	Jeg_C
ch 08	96.6	Jeg_C
ch 09	102.7	Jeg_C
ch 10	99.9	Jeg_C
ch 11	22.8	Jeg_C
ch 12	22.6	Jeg_C
ch 13	22.1	Jeg_C
ch 14	23.7	Jeg_C
ch 15	23.2	Jeg_C
ch 16	104.6	Jeg_C
ch 17	108.0	Jeg_C
ch 18	95.2	Jeg_C
ch 19	96.3	Jeg_C

EXP 01--SCAN 344--11 27 01 16 35
Thermal Survey/Mueler"

ch 01	89.6	Jeg_C
ch 02	83.4	Jeg_C
ch 03	85.9	Jeg_C
ch 04	93.6	Jeg_C
ch 05	95.2	Jeg_C
ch 06	92.5	Jeg_C
ch 07	98.7	Jeg_C
ch 08	99.1	Jeg_C
ch 09	102.9	Jeg_C
ch 10	100.1	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.4	Jeg_C
ch 13	22.8	Jeg_C
ch 14	23.5	Jeg_C
ch 15	23.0	Jeg_C
ch 16	104.6	Jeg_C
ch 17	108.2	Jeg_C
ch 18	95.5	Jeg_C
ch 19	96.5	Jeg_C

EXP 01--SCAN 324--11 27 00 55 36
Thermal Survey/Mueler"

ch 01	89.5	Jeg_C
ch 02	83.2	Jeg_C
ch 03	85.4	Jeg_C
ch 04	93.8	Jeg_C
ch 05	95.7	Jeg_C
ch 06	91.9	Jeg_C
ch 07	98.1	Jeg_C
ch 08	98.5	Jeg_C
ch 09	102.2	Jeg_C
ch 10	99.6	Jeg_C
ch 11	22.9	Jeg_C
ch 12	22.5	Jeg_C
ch 13	22.2	Jeg_C
ch 14	23.8	Jeg_C
ch 15	23.3	Jeg_C
ch 16	104.2	Jeg_C
ch 17	107.5	Jeg_C
ch 18	94.9	Jeg_C
ch 19	95.9	Jeg_C

EXP 01--SCAN 335--11 27 01 08 35
Thermal Survey/Mueler"

ch 01	89.8	Jeg_C
ch 02	83.6	Jeg_C
ch 03	86.8	Jeg_C
ch 04	93.4	Jeg_C
ch 05	95.9	Jeg_C
ch 06	92.3	Jeg_C
ch 07	98.6	Jeg_C
ch 08	99.3	Jeg_C
ch 09	102.3	Jeg_C
ch 10	100.0	Jeg_C
ch 11	22.7	Jeg_C
ch 12	22.8	Jeg_C
ch 13	22.3	Jeg_C
ch 14	23.7	Jeg_C
ch 15	23.3	Jeg_C
ch 16	104.7	Jeg_C
ch 17	109.1	Jeg_C
ch 18	95.3	Jeg_C
ch 19	96.4	Jeg_C

EXP 01--SCAN 346--11 27 01 20 35
Thermal Survey/Mueler"

ch 01	89.9	Jeg_C
ch 02	83.6	Jeg_C
ch 03	86.8	Jeg_C
ch 04	93.6	Jeg_C
ch 05	98.2	Jeg_C
ch 06	92.6	Jeg_C
ch 07	98.6	Jeg_C
ch 08	99.1	Jeg_C
ch 09	103.0	Jeg_C
ch 10	100.1	Jeg_C
ch 11	22.7	Jeg_C
ch 12	22.6	Jeg_C
ch 13	22.1	Jeg_C
ch 14	23.6	Jeg_C
ch 15	23.2	Jeg_C
ch 16	104.8	Jeg_C
ch 17	108.2	Jeg_C
ch 18	95.6	Jeg_C
ch 19	96.6	Jeg_C

START DATA AVG.

EXP 01--SCAN 328--11 27 01 00 36
Thermal Survey/Mueler"

ch 01	88.6	Jeg_C
ch 02	83.5	Jeg_C
ch 03	85.5	Jeg_C
ch 04	93.2	Jeg_C
ch 05	95.8	Jeg_C
ch 06	92.1	Jeg_C
ch 07	96.4	Jeg_C
ch 08	98.7	Jeg_C
ch 09	102.5	Jeg_C
ch 10	99.7	Jeg_C
ch 11	22.8	Jeg_C
ch 12	22.5	Jeg_C
ch 13	22.3	Jeg_C
ch 14	23.8	Jeg_C
ch 15	23.4	Jeg_C
ch 16	104.5	Jeg_C
ch 17	107.8	Jeg_C
ch 18	95.1	Jeg_C
ch 19	96.1	Jeg_C

EXP 01--SCAN 340--11 27 01 12 35
Thermal Survey/Mueler"

ch 01	88.8	Jeg_C
ch 02	83.5	Jeg_C
ch 03	85.9	Jeg_C
ch 04	93.5	Jeg_C
ch 05	95.1	Jeg_C
ch 06	92.4	Jeg_C
ch 07	96.7	Jeg_C
ch 08	99.0	Jeg_C
ch 09	102.9	Jeg_C
ch 10	100.1	Jeg_C
ch 11	22.7	Jeg_C
ch 12	22.6	Jeg_C
ch 13	22.2	Jeg_C
ch 14	23.6	Jeg_C
ch 15	23.2	Jeg_C
ch 16	104.3	Jeg_C
ch 17	108.1	Jeg_C
ch 18	95.4	Jeg_C
ch 19	96.4	Jeg_C

EXP 01--SCAN 352--11 27 01 24 35
Thermal Survey/Mueler"

ch 01	89.8	Jeg_C
ch 02	83.4	Jeg_C
ch 03	85.9	Jeg_C
ch 04	93.5	Jeg_C
ch 05	95.2	Jeg_C
ch 06	92.4	Jeg_C
ch 07	98.6	Jeg_C
ch 08	99.1	Jeg_C
ch 09	103.0	Jeg_C
ch 10	100.1	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.5	Jeg_C
ch 13	22.1	Jeg_C
ch 14	23.5	Jeg_C
ch 15	23.2	Jeg_C
ch 16	104.8	Jeg_C
ch 17	108.2	Jeg_C
ch 18	95.5	Jeg_C
ch 19	96.5	Jeg_C

EXP 01--SCAN 355--11 27 01 26 36

Thermal Survey/Mueler"

ch 01	89.9	deg_C
ch 02	93.6	deg_C
ch 03	97.9	deg_C
ch 04	93.6	deg_C
ch 05	98.2	deg_C
ch 06	92.6	deg_C
ch 07	98.8	deg_C
ch 08	99.1	deg_C
ch 09	103.0	deg_C
ch 10	100.2	deg_C
ch 11	22.6	deg_C
ch 12	22.7	deg_C
ch 13	22.3	deg_C
ch 14	23.6	deg_C
ch 15	23.4	deg_C
ch 16	104.9	deg_C
ch 17	106.2	deg_C
ch 18	95.6	deg_C
ch 19	96.5	deg_C

01:30 RAMP TO +93°C (+102°C)
COMPONENT; LEVEL 4
END DATA AVG.

EXP 01--SCAN 360--11 27 01 32 36

Thermal Survey/Mueler"

ch 01	83.1	deg_C
ch 02	89.6	deg_C
ch 03	98.9	deg_C
ch 04	95.7	deg_C
ch 05	98.0	deg_C
ch 06	94.9	deg_C
ch 07	100.2	deg_C
ch 08	100.4	deg_C
ch 09	104.1	deg_C
ch 10	101.5	deg_C
ch 11	22.7	deg_C
ch 12	22.6	deg_C
ch 13	22.1	deg_C
ch 14	23.6	deg_C
ch 15	23.2	deg_C
ch 16	106.6	deg_C
ch 17	110.4	deg_C
ch 18	97.2	deg_C
ch 19	97.9	deg_C

EXP 01--SCAN 364--11 27 01 36 36

Thermal Survey/Mueler"

ch 01	94.9	deg_C
ch 02	99.5	deg_C
ch 03	101.1	deg_C
ch 04	97.7	deg_C
ch 05	100.2	deg_C
ch 06	96.6	deg_C
ch 07	102.4	deg_C
ch 08	102.4	deg_C
ch 09	106.4	deg_C
ch 10	103.8	deg_C
ch 11	22.8	deg_C
ch 12	22.7	deg_C
ch 13	22.4	deg_C
ch 14	23.7	deg_C
ch 15	23.3	deg_C
ch 16	103.0	deg_C
ch 17	112.8	deg_C
ch 18	99.2	deg_C
ch 19	100.1	deg_C

EXP 01--SCAN 366--11 27 01 40 36

Thermal Survey/Mueler"

ch 01	85.8	deg_C
ch 02	90.9	deg_C
ch 03	102.6	deg_C
ch 04	89.1	deg_C
ch 05	101.7	deg_C
ch 06	98.1	deg_C
ch 07	103.8	deg_C
ch 08	103.9	deg_C
ch 09	106.2	deg_C
ch 10	105.4	deg_C
ch 11	22.9	deg_C
ch 12	22.7	deg_C
ch 13	22.3	deg_C
ch 14	23.7	deg_C
ch 15	23.6	deg_C
ch 16	110.6	deg_C
ch 17	114.4	deg_C
ch 18	100.7	deg_C
ch 19	101.7	deg_C

EXP 01--SCAN 372--11 27 01 44 36

Thermal Survey/Mueler"

ch 01	86.7	deg_C
ch 02	91.0	deg_C
ch 03	103.7	deg_C
ch 04	100.0	deg_C
ch 05	102.7	deg_C
ch 06	98.0	deg_C
ch 07	101.1	deg_C
ch 08	105.1	deg_C
ch 09	109.4	deg_C
ch 10	105.4	deg_C
ch 11	22.9	deg_C
ch 12	22.4	deg_C
ch 13	22.0	deg_C
ch 14	23.6	deg_C
ch 15	23.1	deg_C
ch 16	111.6	deg_C
ch 17	115.3	deg_C
ch 18	101.0	deg_C
ch 19	102.8	deg_C

EXP 01--SCAN 376--11 27 01 48 36

Thermal Survey/Mueler"

ch 01	87.1	deg_C
ch 02	91.0	deg_C
ch 03	104.3	deg_C
ch 04	100.6	deg_C
ch 05	103.3	deg_C
ch 06	99.6	deg_C
ch 07	105.9	deg_C
ch 08	105.6	deg_C
ch 09	110.2	deg_C
ch 10	107.1	deg_C
ch 11	22.7	deg_C
ch 12	22.4	deg_C
ch 13	22.0	deg_C
ch 14	23.6	deg_C
ch 15	23.1	deg_C
ch 16	112.2	deg_C
ch 17	116.0	deg_C
ch 18	102.5	deg_C
ch 19	103.5	deg_C

EXP 01--SCAN 380--11 27 01 52 36

Thermal Survey/Mueler"

ch 01	97.4	deg_C
ch 02	90.9	deg_C
ch 03	104.7	deg_C
ch 04	101.0	deg_C
ch 05	103.8	deg_C
ch 06	99.9	deg_C
ch 07	105.3	deg_C
ch 08	106.3	deg_C
ch 09	110.7	deg_C
ch 10	107.5	deg_C
ch 11	22.7	deg_C
ch 12	22.5	deg_C
ch 13	22.0	deg_C
ch 14	23.6	deg_C
ch 15	23.2	deg_C
ch 16	112.7	deg_C
ch 17	116.4	deg_C
ch 18	102.8	deg_C
ch 19	104.0	deg_C

EXP 01--SCAN 384--11 27 01 56 36

Thermal Survey/Mueler"

ch 01	97.6	deg_C
ch 02	91.1	deg_C
ch 03	105.0	deg_C
ch 04	101.3	deg_C
ch 05	104.1	deg_C
ch 06	100.1	deg_C
ch 07	106.8	deg_C
ch 08	106.6	deg_C
ch 09	111.1	deg_C
ch 10	107.6	deg_C
ch 11	22.7	deg_C
ch 12	22.6	deg_C
ch 13	22.3	deg_C
ch 14	23.6	deg_C
ch 15	23.5	deg_C
ch 16	113.0	deg_C
ch 17	116.7	deg_C
ch 18	103.2	deg_C
ch 19	104.3	deg_C

START DATA AVG.

EXP 01--SCAN 388--11 27 02 00 36

Thermal Survey/Mueler"

ch 01	87.6	deg_C
ch 02	91.2	deg_C
ch 03	105.2	deg_C
ch 04	101.6	deg_C
ch 05	104.2	deg_C
ch 06	100.4	deg_C
ch 07	106.0	deg_C
ch 08	106.6	deg_C
ch 09	111.3	deg_C
ch 10	109.0	deg_C
ch 11	22.9	deg_C
ch 12	22.4	deg_C
ch 13	22.1	deg_C
ch 14	23.5	deg_C
ch 15	23.0	deg_C
ch 16	113.2	deg_C
ch 17	116.9	deg_C
ch 18	103.4	deg_C
ch 19	104.5	deg_C

TRIAL TEST RUN

062

DAY 2: PAGE 11 OF 14

EXP 01--SCAN 392--11 27 02 04 35
Thermal Survey/Mueler"

ch 01	97.6	deg_C
ch 02	91.1	deg_C
ch 03	105.3	deg_C
ch 04	101.7	deg_C
ch 05	104.3	deg_C
ch 06	100.5	deg_C
ch 07	107.0	deg_C
ch 08	105.3	deg_C
ch 09	111.4	deg_C
ch 10	106.2	deg_C
ch 11	22.8	deg_C
ch 12	22.6	deg_C
ch 13	22.4	deg_C
ch 14	23.5	deg_C
ch 15	23.9	deg_C
ch 16	113.3	deg_C
ch 17	117.0	deg_C
ch 18	103.6	deg_C
ch 19	104.7	deg_C

EXP 01--SCAN 404--11 27 02 16 36
Thermal Survey/Mueler"

ch 01	96.0	deg_C
ch 02	91.3	deg_C
ch 03	105.3	deg_C
ch 04	101.7	deg_C
ch 05	104.5	deg_C
ch 06	100.6	deg_C
ch 07	107.3	deg_C
ch 08	107.1	deg_C
ch 09	111.7	deg_C
ch 10	106.3	deg_C
ch 11	22.8	deg_C
ch 12	22.4	deg_C
ch 13	22.0	deg_C
ch 14	23.5	deg_C
ch 15	23.1	deg_C
ch 16	113.5	deg_C
ch 17	117.2	deg_C
ch 18	103.5	deg_C
ch 19	104.7	deg_C

EXP 01--SCAN 416--11 27 02 26 36
Thermal Survey/Mueler"

ch 01	96.0	deg_C
ch 02	91.4	deg_C
ch 03	105.7	deg_C
ch 04	101.9	deg_C
ch 05	104.5	deg_C
ch 06	100.6	deg_C
ch 07	109.1	deg_C
ch 08	107.3	deg_C
ch 09	111.6	deg_C
ch 10	106.7	deg_C
ch 11	22.9	deg_C
ch 12	22.5	deg_C
ch 13	22.1	deg_C
ch 14	23.5	deg_C
ch 15	23.2	deg_C
ch 16	113.6	deg_C
ch 17	117.4	deg_C
ch 18	103.7	deg_C
ch 19	104.9	deg_C

EXP 01--SCAN 396--11 27 02 06 36
Thermal Survey/Mueler"

ch 01	97.6	deg_C
ch 02	91.2	deg_C
ch 03	105.4	deg_C
ch 04	101.7	deg_C
ch 05	104.4	deg_C
ch 06	100.5	deg_C
ch 07	107.1	deg_C
ch 08	107.0	deg_C
ch 09	111.5	deg_C
ch 10	106.2	deg_C
ch 11	22.9	deg_C
ch 12	22.5	deg_C
ch 13	21.9	deg_C
ch 14	23.5	deg_C
ch 15	23.3	deg_C
ch 16	113.4	deg_C
ch 17	117.1	deg_C
ch 18	103.6	deg_C
ch 19	104.8	deg_C

EXP 01--SCAN 408--11 27 02 20 36
Thermal Survey/Mueler"

ch 01	97.5	deg_C
ch 02	91.2	deg_C
ch 03	105.5	deg_C
ch 04	101.8	deg_C
ch 05	104.5	deg_C
ch 06	100.7	deg_C
ch 07	107.6	deg_C
ch 08	107.1	deg_C
ch 09	111.7	deg_C
ch 10	106.5	deg_C
ch 11	22.6	deg_C
ch 12	22.3	deg_C
ch 13	21.8	deg_C
ch 14	23.4	deg_C
ch 15	23.1	deg_C
ch 16	113.9	deg_C
ch 17	117.2	deg_C
ch 18	103.6	deg_C
ch 19	104.6	deg_C

EXP 01--SCAN 420--11 27 02 32 36
Thermal Survey/Mueler"

ch 01	96.0	deg_C
ch 02	91.4	deg_C
ch 03	105.7	deg_C
ch 04	101.9	deg_C
ch 05	104.5	deg_C
ch 06	100.6	deg_C
ch 07	109.9	deg_C
ch 08	107.3	deg_C
ch 09	111.9	deg_C
ch 10	106.9	deg_C
ch 11	22.9	deg_C
ch 12	22.5	deg_C
ch 13	22.1	deg_C
ch 14	23.5	deg_C
ch 15	23.3	deg_C
ch 16	114.0	deg_C
ch 17	117.5	deg_C
ch 18	103.8	deg_C
ch 19	104.9	deg_C

EXP 01--SCAN 400--11 27 02 12 36
Thermal Survey/Mueler"

ch 01	97.6	deg_C
ch 02	91.2	deg_C
ch 03	105.5	deg_C
ch 04	101.7	deg_C
ch 05	104.5	deg_C
ch 06	100.5	deg_C
ch 07	107.3	deg_C
ch 08	107.0	deg_C
ch 09	111.6	deg_C
ch 10	106.3	deg_C
ch 11	22.8	deg_C
ch 12	22.5	deg_C
ch 13	22.2	deg_C
ch 14	23.5	deg_C
ch 15	23.3	deg_C
ch 16	113.4	deg_C
ch 17	117.1	deg_C
ch 18	103.6	deg_C
ch 19	104.7	deg_C

EXP 01--SCAN 412--11 27 02 24 36
Thermal Survey/Mueler"

ch 01	96.6	deg_C
ch 02	91.2	deg_C
ch 03	105.6	deg_C
ch 04	101.9	deg_C
ch 05	104.6	deg_C
ch 06	100.6	deg_C
ch 07	109.2	deg_C
ch 08	107.3	deg_C
ch 09	111.9	deg_C
ch 10	106.6	deg_C
ch 11	22.8	deg_C
ch 12	22.5	deg_C
ch 13	22.1	deg_C
ch 14	23.5	deg_C
ch 15	23.3	deg_C
ch 16	113.7	deg_C
ch 17	117.4	deg_C
ch 18	103.7	deg_C
ch 19	104.6	deg_C

EXP 01--SCAN 424--11 27 02 36 36
Thermal Survey/Mueler"

ch 01	96.0	deg_C
ch 02	91.5	deg_C
ch 03	105.9	deg_C
ch 04	101.9	deg_C
ch 05	104.7	deg_C
ch 06	100.6	deg_C
ch 07	109.5	deg_C
ch 08	107.4	deg_C
ch 09	111.9	deg_C
ch 10	106.9	deg_C
ch 11	22.8	deg_C
ch 12	22.4	deg_C
ch 13	22.1	deg_C
ch 14	23.4	deg_C
ch 15	23.3	deg_C
ch 16	114.0	deg_C
ch 17	117.5	deg_C
ch 18	103.6	deg_C
ch 19	104.9	deg_C

TRIAL TEST RUN

063

DAY 2: PAGE 12 OF 14

EXP 01--SCAN 428--11 27 02 40 38
Thermal Survey/Mueler"

ch 01	98.1	deg_C
ch 02	91.3	deg_C
ch 03	105.8	deg_C
ch 04	101.9	deg_C
ch 05	104.6	deg_C
ch 06	100.6	deg_C
ch 07	107.7	deg_C
ch 08	107.4	deg_C
ch 09	111.9	deg_C
ch 10	109.1	deg_C
ch 11	22.6	deg_C
ch 12	22.4	deg_C
ch 13	22.1	deg_C
ch 14	23.4	deg_C
ch 15	23.0	deg_C
ch 16	114.1	deg_C
ch 17	117.5	deg_C
ch 18	103.6	deg_C
ch 19	105.0	deg_C

EXP 01--SCAN 440--11 27 02 52 36
Thermal Survey/Mueler"

ch 01	98.1	deg_C
ch 02	91.5	deg_C
ch 03	105.8	deg_C
ch 04	101.9	deg_C
ch 05	104.6	deg_C
ch 06	100.6	deg_C
ch 07	108.0	deg_C
ch 08	107.3	deg_C
ch 09	112.0	deg_C
ch 10	109.0	deg_C
ch 11	22.7	deg_C
ch 12	22.3	deg_C
ch 13	21.9	deg_C
ch 14	23.4	deg_C
ch 15	22.8	deg_C
ch 16	114.1	deg_C
ch 17	117.5	deg_C
ch 18	103.6	deg_C
ch 19	104.3	deg_C

EXP 01--SCAN 452--11 27 03 04 36
Thermal Survey/Mueler"

ch 01	98.1	deg_C
ch 02	91.3	deg_C
ch 03	105.8	deg_C
ch 04	101.9	deg_C
ch 05	104.6	deg_C
ch 06	100.6	deg_C
ch 07	107.5	deg_C
ch 08	107.3	deg_C
ch 09	111.8	deg_C
ch 10	108.8	deg_C
ch 11	22.5	deg_C
ch 12	22.4	deg_C
ch 13	22.0	deg_C
ch 14	23.3	deg_C
ch 15	23.2	deg_C
ch 16	114.0	deg_C
ch 17	117.5	deg_C
ch 18	103.8	deg_C
ch 19	104.8	deg_C

EXP 01--SCAN 432--11 27 02 44 36
Thermal Survey/Mueler"

ch 01	98.1	deg_C
ch 02	91.2	deg_C
ch 03	105.8	deg_C
ch 04	101.9	deg_C
ch 05	104.6	deg_C
ch 06	100.6	deg_C
ch 07	107.5	deg_C
ch 08	107.3	deg_C
ch 09	112.1	deg_C
ch 10	109.2	deg_C
ch 11	22.7	deg_C
ch 12	22.5	deg_C
ch 13	21.9	deg_C
ch 14	23.4	deg_C
ch 15	23.1	deg_C
ch 16	114.2	deg_C
ch 17	117.5	deg_C
ch 18	103.6	deg_C
ch 19	105.0	deg_C

EXP 01--SCAN 444--11 27 02 56 36
Thermal Survey/Mueler"

ch 01	98.1	deg_C
ch 02	91.3	deg_C
ch 03	105.8	deg_C
ch 04	102.0	deg_C
ch 05	104.6	deg_C
ch 06	100.6	deg_C
ch 07	107.5	deg_C
ch 08	107.3	deg_C
ch 09	111.9	deg_C
ch 10	108.9	deg_C
ch 11	22.6	deg_C
ch 12	22.4	deg_C
ch 13	21.8	deg_C
ch 14	23.3	deg_C
ch 15	23.1	deg_C
ch 16	114.0	deg_C
ch 17	117.5	deg_C
ch 18	103.6	deg_C
ch 19	105.0	deg_C

EXP 01--SCAN 456--11 27 03 06 36
Thermal Survey/Mueler"

ch 01	98.0	deg_C
ch 02	91.4	deg_C
ch 03	105.3	deg_C
ch 04	101.8	deg_C
ch 05	104.2	deg_C
ch 06	100.7	deg_C
ch 07	108.4	deg_C
ch 08	104.8	deg_C
ch 09	110.7	deg_C
ch 10	107.2	deg_C
ch 11	22.5	deg_C
ch 12	22.6	deg_C
ch 13	22.2	deg_C
ch 14	23.4	deg_C
ch 15	23.7	deg_C
ch 16	111.9	deg_C
ch 17	111.7	deg_C
ch 18	103.5	deg_C
ch 19	104.4	deg_C

END DATA AVG.

03:10 TURN UUT PWR OFF;
LET CHAMBER DWELL AT +93°C
(SETTING)

EXP 01--SCAN 436--11 27 02 48 36
Thermal Survey/Mueler"

ch 01	98.0	deg_C
ch 02	91.2	deg_C
ch 03	105.8	deg_C
ch 04	101.9	deg_C
ch 05	104.6	deg_C
ch 06	100.7	deg_C
ch 07	107.5	deg_C
ch 08	107.3	deg_C
ch 09	112.1	deg_C
ch 10	109.2	deg_C
ch 11	22.6	deg_C
ch 12	22.5	deg_C
ch 13	22.1	deg_C
ch 14	23.4	deg_C
ch 15	23.3	deg_C
ch 16	114.2	deg_C
ch 17	117.5	deg_C
ch 18	103.8	deg_C
ch 19	104.9	deg_C

EXP 01--SCAN 448--11 27 03 00 36
Thermal Survey/Mueler"

ch 01	98.1	deg_C
ch 02	91.3	deg_C
ch 03	105.8	deg_C
ch 04	102.0	deg_C
ch 05	104.6	deg_C
ch 06	100.8	deg_C
ch 07	107.5	deg_C
ch 08	107.3	deg_C
ch 09	111.9	deg_C
ch 10	108.9	deg_C
ch 11	22.5	deg_C
ch 12	22.4	deg_C
ch 13	21.9	deg_C
ch 14	23.3	deg_C
ch 15	22.9	deg_C
ch 16	114.0	deg_C
ch 17	117.5	deg_C
ch 18	103.9	deg_C
ch 19	105.0	deg_C

EXP 01--SCAN 450--11 27 03 12 36
Thermal Survey/Mueler"

ch 01	95.1	deg_C
ch 02	91.5	deg_C
ch 03	99.6	deg_C
ch 04	96.2	deg_C
ch 05	99.1	deg_C
ch 06	97.5	deg_C
ch 07	99.7	deg_C
ch 08	99.7	deg_C
ch 09	102.1	deg_C
ch 10	100.6	deg_C
ch 11	21.5	deg_C
ch 12	22.5	deg_C
ch 13	22.0	deg_C
ch 14	23.4	deg_C
ch 15	23.3	deg_C
ch 16	101.0	deg_C
ch 17	100.4	deg_C
ch 18	99.1	deg_C
ch 19	99.7	deg_C

TRIAL TEST RUN

064

DAY 2: PAGE 13 OF 14

EXP 01--SCAN 454--11 27 03 16 36
Thermal Survey/Mueler"

ch 01	94.3	Jeg_C
ch 02	91.4	Jeg_C
ch 03	96.3	Jeg_C
ch 04	95.7	Jeg_C
ch 05	96.9	Jeg_C
ch 06	95.2	Jeg_C
ch 07	95.7	Jeg_C
ch 08	96.7	Jeg_C
ch 09	97.5	Jeg_C
ch 10	96.9	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.4	Jeg_C
ch 13	22.1	Jeg_C
ch 14	23.4	Jeg_C
ch 15	23.3	Jeg_C
ch 16	96.8	Jeg_C
ch 17	96.6	Jeg_C
ch 18	95.2	Jeg_C
ch 19	95.6	Jeg_C

EXP 01--SCAN 475--11 27 03 26 36
Thermal Survey/Mueler"

ch 01	92.1	Jeg_C
ch 02	91.1	Jeg_C
ch 03	92.7	Jeg_C
ch 04	92.5	Jeg_C
ch 05	92.5	Jeg_C
ch 06	92.4	Jeg_C
ch 07	92.7	Jeg_C
ch 08	92.8	Jeg_C
ch 09	92.9	Jeg_C
ch 10	92.9	Jeg_C
ch 11	23.5	Jeg_C
ch 12	22.5	Jeg_C
ch 13	22.2	Jeg_C
ch 14	23.4	Jeg_C
ch 15	23.1	Jeg_C
ch 16	92.8	Jeg_C
ch 17	92.7	Jeg_C
ch 18	92.6	Jeg_C
ch 19	92.8	Jeg_C

EXP 01--SCAN 456--11 27 03 26 36
Thermal Survey/Mueler"

ch 01	93.2	Jeg_C
ch 02	91.2	Jeg_C
ch 03	94.4	Jeg_C
ch 04	94.1	Jeg_C
ch 05	94.2	Jeg_C
ch 06	93.6	Jeg_C
ch 07	94.8	Jeg_C
ch 08	94.6	Jeg_C
ch 09	95.1	Jeg_C
ch 10	94.7	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.5	Jeg_C
ch 13	22.1	Jeg_C
ch 14	23.4	Jeg_C
ch 15	23.4	Jeg_C
ch 16	94.7	Jeg_C
ch 17	94.6	Jeg_C
ch 18	94.4	Jeg_C
ch 19	94.7	Jeg_C

EXP 01--SCAN 460--11 27 03 32 36
Thermal Survey/Mueler"

ch 01	91.9	Jeg_C
ch 02	91.2	Jeg_C
ch 03	92.2	Jeg_C
ch 04	92.1	Jeg_C
ch 05	92.2	Jeg_C
ch 06	92.0	Jeg_C
ch 07	92.3	Jeg_C
ch 08	92.3	Jeg_C
ch 09	92.4	Jeg_C
ch 10	92.3	Jeg_C
ch 11	22.4	Jeg_C
ch 12	22.6	Jeg_C
ch 13	22.1	Jeg_C
ch 14	23.4	Jeg_C
ch 15	23.5	Jeg_C
ch 16	92.4	Jeg_C
ch 17	92.3	Jeg_C
ch 18	92.2	Jeg_C
ch 19	92.3	Jeg_C

END DATA FOR TRIAL TEST DAY 2

EXP 01--SCAN 472--11 27 03 24 36
Thermal Survey/Mueler"

ch 01	92.5	Jeg_C
ch 02	91.2	Jeg_C
ch 03	93.3	Jeg_C
ch 04	93.1	Jeg_C
ch 05	93.2	Jeg_C
ch 06	92.9	Jeg_C
ch 07	93.5	Jeg_C
ch 08	93.5	Jeg_C
ch 09	93.7	Jeg_C
ch 10	93.5	Jeg_C
ch 11	22.5	Jeg_C
ch 12	22.5	Jeg_C
ch 13	22.1	Jeg_C
ch 14	23.4	Jeg_C
ch 15	23.3	Jeg_C
ch 16	93.5	Jeg_C
ch 17	93.4	Jeg_C
ch 18	93.3	Jeg_C
ch 19	93.5	Jeg_C

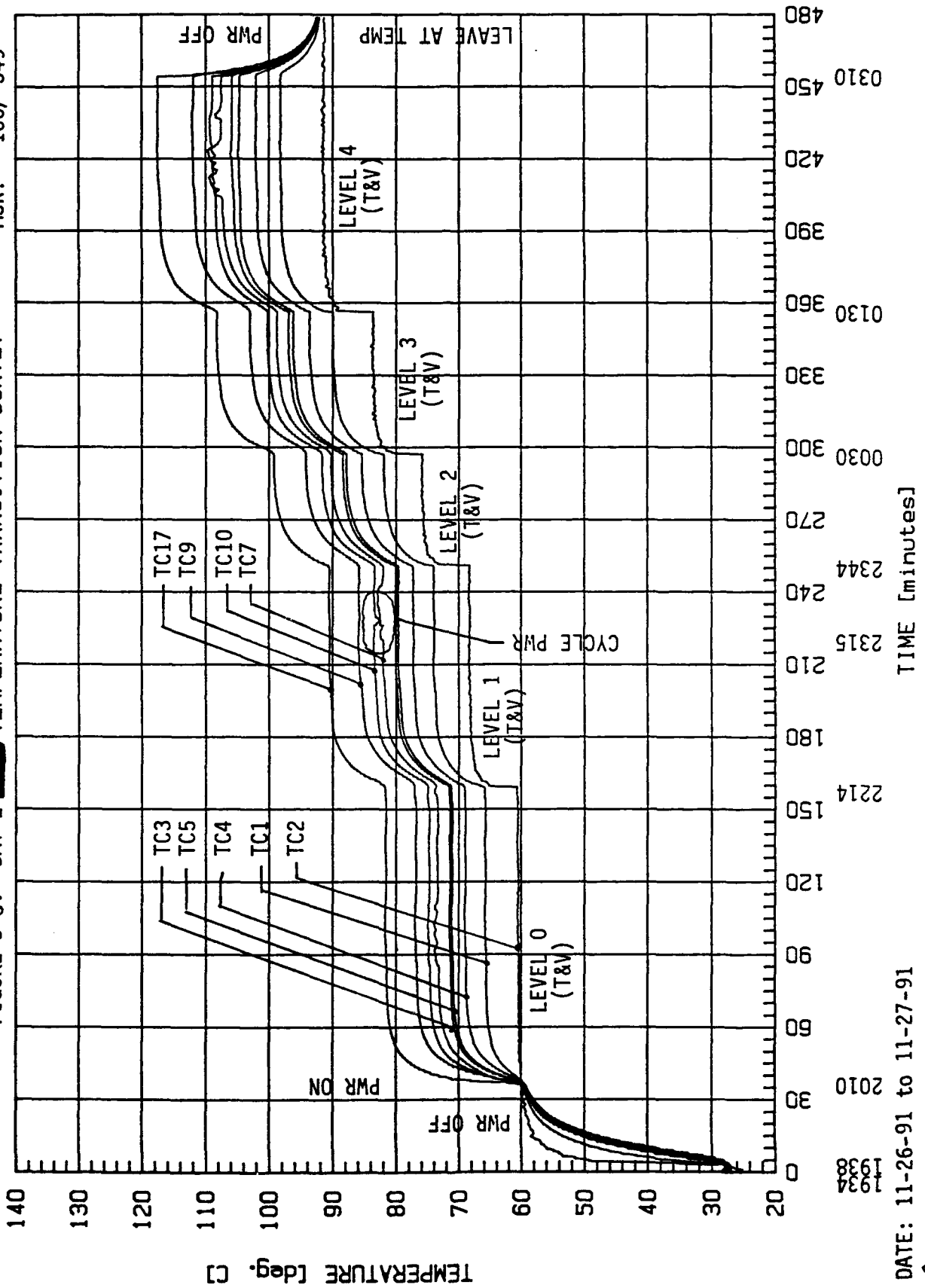
DAY 2 TEST

60°C, 69°C, 77°C,
85°C, 93°C

TRIAL TEST RUN
065

DAY 2: PAGE 14 OF 14

FIGURE D-3: DAY 2 TEMPERATURE TRANSITION SURVEY MSN: -100/ 349



DATE: 11-26-91 to 11-27-91

32466 TEST

TRIAL TEST RUN

D-10

066

DAY 3; 11-27-91
STEP-STRESS TRIAL TEST

12:10 START PLOT

PLOT No. 1 IS CHANNEL 1
PLOT No. 2 IS CHANNEL 2
PLOT No. 3 IS CHANNEL 3
PLOT No. 4 IS CHANNEL 4
PLOT No. 5 IS CHANNEL 5
PLOT No. 6 IS CHANNEL 7
PLOT No. 7 IS CHANNEL 9
PLOT No. 8 IS CHANNEL 10
PLOT No. 9 IS CHANNEL 17
PLOT No. 1 IS CHANNEL 1
PLOT No. 2 IS CHANNEL 2
PLOT No. 3 IS CHANNEL 3
PLOT No. 4 IS CHANNEL 4
PLOT No. 5 IS CHANNEL 5
PLOT No. 6 IS CHANNEL 7
PLOT No. 7 IS CHANNEL 9
PLOT No. 8 IS CHANNEL 10
PLOT No. 9 IS CHANNEL 17

EXP 01--SCAN 004--11 27 12 13 01
Thermal Survey/Mueller

ch 01	91.6	deg_C
ch 02	91.3	deg_C
ch 03	91.7	deg_C
ch 04	91.6	deg_C
ch 05	91.6	deg_C
ch 06	91.6	deg_C
ch 07	91.6	deg_C
ch 08	91.6	deg_C
ch 09	91.6	deg_C
ch 10	91.7	deg_C
ch 11	22.6	deg_C
ch 12	22.7	deg_C
ch 13	22.2	deg_C
ch 14	23.2	deg_C
ch 15	23.9	deg_C
ch 16	91.8	deg_C
ch 17	91.7	deg_C
ch 18	91.6	deg_C
ch 19	91.7	deg_C

EXP 01--SCAN 002--11 27 12 17 01
Thermal Survey/Mueller

ch 01	91.6	deg_C
ch 02	91.3	deg_C
ch 03	91.7	deg_C
ch 04	91.6	deg_C
ch 05	91.6	deg_C
ch 06	91.6	deg_C
ch 07	91.6	deg_C
ch 08	91.6	deg_C
ch 09	91.6	deg_C
ch 10	91.7	deg_C
ch 11	22.4	deg_C
ch 12	22.5	deg_C
ch 13	22.4	deg_C
ch 14	23.3	deg_C
ch 15	23.4	deg_C
ch 16	91.8	deg_C
ch 17	91.7	deg_C
ch 18	91.6	deg_C
ch 19	91.7	deg_C

EXP 01--SCAN 012--11 27 12 21 01
Thermal Survey/Mueller

ch 01	91.6	deg_C
ch 02	91.3	deg_C
ch 03	91.7	deg_C
ch 04	91.6	deg_C
ch 05	91.6	deg_C
ch 06	91.6	deg_C
ch 07	91.6	deg_C
ch 08	91.6	deg_C
ch 09	91.6	deg_C
ch 10	91.7	deg_C
ch 11	22.7	deg_C
ch 12	22.4	deg_C
ch 13	21.9	deg_C
ch 14	23.2	deg_C
ch 15	23.4	deg_C
ch 16	91.6	deg_C
ch 17	91.7	deg_C
ch 18	91.6	deg_C
ch 19	91.7	deg_C

EXP 01--SCAN 016--11 27 12 25 01
Thermal Survey/Mueller

ch 01	91.6	deg_C
ch 02	91.3	deg_C
ch 03	91.7	deg_C
ch 04	91.6	deg_C
ch 05	91.6	deg_C
ch 06	91.6	deg_C
ch 07	91.6	deg_C
ch 08	91.6	deg_C
ch 09	91.6	deg_C
ch 10	91.7	deg_C
ch 11	22.5	deg_C
ch 12	22.6	deg_C
ch 13	22.2	deg_C
ch 14	23.1	deg_C
ch 15	23.6	deg_C
ch 16	91.6	deg_C
ch 17	91.7	deg_C
ch 18	91.6	deg_C
ch 19	91.7	deg_C

EXP 01--SCAN 020--11 27 12 29 01
Thermal Survey/Mueller

ch 01	91.6	deg_C
ch 02	91.3	deg_C
ch 03	91.7	deg_C
ch 04	91.6	deg_C
ch 05	91.6	deg_C
ch 06	91.6	deg_C
ch 07	91.6	deg_C
ch 08	91.6	deg_C
ch 09	91.6	deg_C
ch 10	91.7	deg_C
ch 11	22.4	deg_C
ch 12	22.3	deg_C
ch 13	21.9	deg_C
ch 14	23.2	deg_C
ch 15	23.1	deg_C
ch 16	91.8	deg_C
ch 17	91.7	deg_C
ch 18	91.6	deg_C
ch 19	91.7	deg_C

EXP 01--SCAN 024--11 27 12 33 01
Thermal Survey/Mueller

ch 01	91.6	deg_C
ch 02	91.3	deg_C
ch 03	91.7	deg_C
ch 04	91.6	deg_C
ch 05	91.6	deg_C
ch 06	91.6	deg_C
ch 07	91.6	deg_C
ch 08	91.6	deg_C
ch 09	91.6	deg_C
ch 10	91.7	deg_C
ch 11	22.5	deg_C
ch 12	22.4	deg_C
ch 13	22.0	deg_C
ch 14	23.1	deg_C
ch 15	23.4	deg_C
ch 16	91.8	deg_C
ch 17	91.7	deg_C
ch 18	91.6	deg_C
ch 19	91.7	deg_C

EXP 01--SCAN 028--11 27 12 37 01
Thermal Survey/Mueller

ch 01	91.6	deg_C
ch 02	91.3	deg_C
ch 03	91.7	deg_C
ch 04	91.6	deg_C
ch 05	91.6	deg_C
ch 06	91.6	deg_C
ch 07	91.6	deg_C
ch 08	91.6	deg_C
ch 09	91.6	deg_C
ch 10	91.7	deg_C
ch 11	22.5	deg_C
ch 12	22.5	deg_C
ch 13	22.1	deg_C
ch 14	23.2	deg_C
ch 15	23.5	deg_C
ch 16	91.8	deg_C
ch 17	91.7	deg_C
ch 18	91.6	deg_C
ch 19	91.7	deg_C

12:40 AT LEVEL 4; TURN UUT PWR ON
(+93°C Chamber, +102°C Comp.)

EXP 01--SCAN 032--11 27 12 41 01
Thermal Survey/Mueller

ch 01	91.6	deg_C
ch 02	91.3	deg_C
ch 03	91.7	deg_C
ch 04	91.6	deg_C
ch 05	91.6	deg_C
ch 06	91.6	deg_C
ch 07	91.6	deg_C
ch 08	91.6	deg_C
ch 09	91.6	deg_C
ch 10	91.7	deg_C
ch 11	22.4	deg_C
ch 12	22.3	deg_C
ch 13	21.9	deg_C
ch 14	23.1	deg_C
ch 15	23.0	deg_C
ch 16	97.6	deg_C
ch 17	102.6	deg_C
ch 18	92.8	deg_C
ch 19	93.4	deg_C

TRIAL TEST RUN

067

DAY 3: PAGE 1 OF 10

EXP 01--SCAN 036--11 27 12 45 01

Thermal Survey/Mueler

ch 01	93.9	deg_C
ch 02	91.2	deg_C
ch 03	98.9	deg_C
ch 04	96.3	deg_C
ch 05	97.3	deg_C
ch 06	95.0	deg_C
ch 07	98.9	deg_C
ch 08	94.7	deg_C
ch 09	103.1	deg_C
ch 10	101.6	deg_C
ch 11	22.4	deg_C
ch 12	22.5	deg_C
ch 13	22.0	deg_C
ch 14	23.1	deg_C
ch 15	23.3	deg_C
ch 16	106.4	deg_C
ch 17	110.2	deg_C
ch 18	96.4	deg_C
ch 19	97.3	deg_C

EXP 01--SCAN 040--11 27 12 57 01

Thermal Survey/Mueler

ch 01	97.9	deg_C
ch 02	91.3	deg_C
ch 03	104.1	deg_C
ch 04	98.7	deg_C
ch 05	102.3	deg_C
ch 06	96.9	deg_C
ch 07	104.9	deg_C
ch 08	99.9	deg_C
ch 09	110.9	deg_C
ch 10	107.6	deg_C
ch 11	22.4	deg_C
ch 12	22.6	deg_C
ch 13	22.3	deg_C
ch 14	23.3	deg_C
ch 15	23.7	deg_C
ch 16	112.6	deg_C
ch 17	116.9	deg_C
ch 18	101.4	deg_C
ch 19	102.6	deg_C

EXP 01--SCAN 050--11 27 13 03 01

Thermal Survey/Mueler

ch 01	97.9	deg_C
ch 02	91.3	deg_C
ch 03	105.2	deg_C
ch 04	101.4	deg_C
ch 05	100.8	deg_C
ch 06	100.3	deg_C
ch 07	106.7	deg_C
ch 08	106.6	deg_C
ch 09	111.3	deg_C
ch 10	109.6	deg_C
ch 11	22.7	deg_C
ch 12	22.4	deg_C
ch 13	22.2	deg_C
ch 14	23.2	deg_C
ch 15	22.9	deg_C
ch 16	113.6	deg_C
ch 17	117.1	deg_C
ch 18	103.2	deg_C
ch 19	104.2	deg_C

EXP 01--SCAN 040--11 27 12 48 01

Thermal Survey/Mueler

ch 01	95.6	deg_C
ch 02	91.3	deg_C
ch 03	101.6	deg_C
ch 04	97.5	deg_C
ch 05	100.4	deg_C
ch 06	95.3	deg_C
ch 07	102.3	deg_C
ch 08	97.2	deg_C
ch 09	106.9	deg_C
ch 10	104.1	deg_C
ch 11	22.3	deg_C
ch 12	22.6	deg_C
ch 13	22.1	deg_C
ch 14	23.2	deg_C
ch 15	23.3	deg_C
ch 16	109.9	deg_C
ch 17	112.3	deg_C
ch 18	96.9	deg_C
ch 19	98.9	deg_C

EXP 01--SCAN 052--11 27 13 01 01

Thermal Survey/Mueler

ch 01	97.3	deg_C
ch 02	91.3	deg_C
ch 03	104.7	deg_C
ch 04	100.2	deg_C
ch 05	103.5	deg_C
ch 06	98.3	deg_C
ch 07	105.6	deg_C
ch 08	100.5	deg_C
ch 09	110.7	deg_C
ch 10	106.3	deg_C
ch 11	22.4	deg_C
ch 12	22.4	deg_C
ch 13	22.0	deg_C
ch 14	23.2	deg_C
ch 15	23.5	deg_C
ch 16	113.2	deg_C
ch 17	116.5	deg_C
ch 18	101.9	deg_C
ch 19	103.2	deg_C

START DATA AVG.

EXP 01--SCAN 064--11 27 13 13 01

Thermal Survey/Mueler

ch 01	97.9	deg_C
ch 02	91.3	deg_C
ch 03	105.4	deg_C
ch 04	101.6	deg_C
ch 05	104.9	deg_C
ch 06	100.6	deg_C
ch 07	107.9	deg_C
ch 08	106.9	deg_C
ch 09	111.6	deg_C
ch 10	109.9	deg_C
ch 11	22.4	deg_C
ch 12	22.3	deg_C
ch 13	22.9	deg_C
ch 14	23.1	deg_C
ch 15	22.7	deg_C
ch 16	113.6	deg_C
ch 17	117.2	deg_C
ch 18	103.6	deg_C
ch 19	104.6	deg_C

EXP 01--SCAN 044--11 27 12 53 01

Thermal Survey/Mueler

ch 01	96.4	deg_C
ch 02	91.2	deg_C
ch 03	103.2	deg_C
ch 04	96.8	deg_C
ch 05	101.9	deg_C
ch 06	98.1	deg_C
ch 07	103.9	deg_C
ch 08	99.3	deg_C
ch 09	106.9	deg_C
ch 10	106.6	deg_C
ch 11	22.4	deg_C
ch 12	22.5	deg_C
ch 13	22.2	deg_C
ch 14	23.2	deg_C
ch 15	23.3	deg_C
ch 16	111.9	deg_C
ch 17	114.9	deg_C
ch 18	100.4	deg_C
ch 19	101.5	deg_C

EXP 01--SCAN 055--11 27 13 05 01

Thermal Survey/Mueler

ch 01	97.5	deg_C
ch 02	91.5	deg_C
ch 03	105.9	deg_C
ch 04	100.7	deg_C
ch 05	103.6	deg_C
ch 06	99.9	deg_C
ch 07	107.4	deg_C
ch 08	105.6	deg_C
ch 09	111.1	deg_C
ch 10	108.2	deg_C
ch 11	22.5	deg_C
ch 12	22.5	deg_C
ch 13	22.0	deg_C
ch 14	23.2	deg_C
ch 15	23.5	deg_C
ch 16	113.5	deg_C
ch 17	116.9	deg_C
ch 18	102.4	deg_C
ch 19	103.5	deg_C

EXP 01--SCAN 063--11 27 13 17 01

Thermal Survey/Mueler

ch 01	98.9	deg_C
ch 02	91.3	deg_C
ch 03	105.6	deg_C
ch 04	101.7	deg_C
ch 05	104.2	deg_C
ch 06	100.5	deg_C
ch 07	107.2	deg_C
ch 08	107.0	deg_C
ch 09	111.7	deg_C
ch 10	109.7	deg_C
ch 11	22.5	deg_C
ch 12	22.2	deg_C
ch 13	22.9	deg_C
ch 14	23.1	deg_C
ch 15	22.5	deg_C
ch 16	113.9	deg_C
ch 17	117.4	deg_C
ch 18	103.7	deg_C
ch 19	104.8	deg_C

TRACTER

058

EXP 01--SCAN 072--11 27 13 21 01
Thermal Survey/Mueller"

ch 01	88.1	deg_C
ch 02	91.2	deg_C
ch 03	105.6	deg_C
ch 04	101.9	deg_C
ch 05	104.2	deg_C
ch 06	100.7	deg_C
ch 07	107.4	deg_C
ch 08	107.1	deg_C
ch 09	111.9	deg_C
ch 10	109.9	deg_C
ch 11	22.4	deg_C
ch 12	22.9	deg_C
ch 13	21.8	deg_C
ch 14	23.9	deg_C
ch 15	22.4	deg_C
ch 16	114.9	deg_C
ch 17	117.6	deg_C
ch 18	103.9	deg_C
ch 19	104.9	deg_C

EXP 01--SCAN 084--11 27 13 33 01
Thermal Survey/Mueller"

ch 01	88.1	deg_C
ch 02	91.4	deg_C
ch 03	105.6	deg_C
ch 04	101.9	deg_C
ch 05	104.3	deg_C
ch 06	100.9	deg_C
ch 07	108.4	deg_C
ch 08	107.4	deg_C
ch 09	111.9	deg_C
ch 10	109.9	deg_C
ch 11	22.3	deg_C
ch 12	22.4	deg_C
ch 13	21.9	deg_C
ch 14	23.9	deg_C
ch 15	23.1	deg_C
ch 16	114.2	deg_C
ch 17	117.6	deg_C
ch 18	103.9	deg_C
ch 19	104.9	deg_C

EXP 01--SCAN 095--11 27 13 45 01
Thermal Survey/Mueller"

ch 01	87.9	deg_C
ch 02	91.4	deg_C
ch 03	104.4	deg_C
ch 04	101.9	deg_C
ch 05	103.1	deg_C
ch 06	100.3	deg_C
ch 07	109.6	deg_C
ch 08	108.6	deg_C
ch 09	109.9	deg_C
ch 10	107.4	deg_C
ch 11	22.4	deg_C
ch 12	22.6	deg_C
ch 13	22.1	deg_C
ch 14	23.2	deg_C
ch 15	23.2	deg_C
ch 16	112.1	deg_C
ch 17	114.2	deg_C
ch 18	100.3	deg_C
ch 19	104.3	deg_C

EXP 01--SCAN 075--11 27 13 25 01
Thermal Survey/Mueller"

ch 01	80.1	deg_C
ch 02	91.3	deg_C
ch 03	105.7	deg_C
ch 04	101.9	deg_C
ch 05	104.3	deg_C
ch 06	100.9	deg_C
ch 07	107.3	deg_C
ch 08	107.2	deg_C
ch 09	111.9	deg_C
ch 10	109.9	deg_C
ch 11	22.4	deg_C
ch 12	22.9	deg_C
ch 13	21.8	deg_C
ch 14	22.9	deg_C
ch 15	22.3	deg_C
ch 16	114.1	deg_C
ch 17	117.6	deg_C
ch 18	103.9	deg_C
ch 19	104.9	deg_C

EXP 01--SCAN 088--11 27 13 37 01
Thermal Survey/Mueller"

ch 01	88.1	deg_C
ch 02	91.4	deg_C
ch 03	105.6	deg_C
ch 04	102.9	deg_C
ch 05	104.3	deg_C
ch 06	100.9	deg_C
ch 07	107.5	deg_C
ch 08	107.4	deg_C
ch 09	111.9	deg_C
ch 10	109.9	deg_C
ch 11	22.3	deg_C
ch 12	22.2	deg_C
ch 13	21.9	deg_C
ch 14	23.9	deg_C
ch 15	22.9	deg_C
ch 16	114.2	deg_C
ch 17	117.6	deg_C
ch 18	103.9	deg_C
ch 19	105.9	deg_C

EXP 01--SCAN 100--11 27 13 49 01
Thermal Survey/Mueller"

ch 01	87.9	deg_C
ch 02	91.4	deg_C
ch 03	103.9	deg_C
ch 04	101.9	deg_C
ch 05	102.9	deg_C
ch 06	99.9	deg_C
ch 07	109.1	deg_C
ch 08	108.4	deg_C
ch 09	109.9	deg_C
ch 10	109.7	deg_C
ch 11	22.9	deg_C
ch 12	22.7	deg_C
ch 13	22.1	deg_C
ch 14	23.2	deg_C
ch 15	23.6	deg_C
ch 16	111.2	deg_C
ch 17	113.3	deg_C
ch 18	102.9	deg_C
ch 19	103.9	deg_C

13:38 LEAVE TEMP AT LEVEL 4
REDUCE VOLTAGES TO LEVEL 0

EXP 01--SCAN 080--11 27 13 39 01
Thermal Survey/Mueller"

ch 01	88.1	deg_C
ch 02	91.2	deg_C
ch 03	105.6	deg_C
ch 04	101.9	deg_C
ch 05	104.3	deg_C
ch 06	100.9	deg_C
ch 07	106.7	deg_C
ch 08	107.3	deg_C
ch 09	111.9	deg_C
ch 10	109.9	deg_C
ch 11	22.2	deg_C
ch 12	22.2	deg_C
ch 13	21.9	deg_C
ch 14	23.9	deg_C
ch 15	22.7	deg_C
ch 16	114.1	deg_C
ch 17	117.6	deg_C
ch 18	103.9	deg_C
ch 19	104.9	deg_C

EXP 01--SCAN 092--11 27 13 41 01
Thermal Survey/Mueller"

ch 01	88.1	deg_C
ch 02	91.4	deg_C
ch 03	105.7	deg_C
ch 04	101.9	deg_C
ch 05	104.2	deg_C
ch 06	100.9	deg_C
ch 07	107.2	deg_C
ch 08	107.3	deg_C
ch 09	111.7	deg_C
ch 10	109.9	deg_C
ch 11	22.4	deg_C
ch 12	22.4	deg_C
ch 13	22.9	deg_C
ch 14	23.9	deg_C
ch 15	23.3	deg_C
ch 16	114.1	deg_C
ch 17	115.8	deg_C
ch 18	103.9	deg_C
ch 19	105.1	deg_C

EXP 01--SCAN 104--11 27 13 53 01
Thermal Survey/Mueller"

ch 01	87.3	deg_C
ch 02	91.4	deg_C
ch 03	103.2	deg_C
ch 04	100.7	deg_C
ch 05	102.1	deg_C
ch 06	99.9	deg_C
ch 07	104.7	deg_C
ch 08	106.9	deg_C
ch 09	108.9	deg_C
ch 10	108.2	deg_C
ch 11	22.9	deg_C
ch 12	22.9	deg_C
ch 13	22.9	deg_C
ch 14	23.3	deg_C
ch 15	24.1	deg_C
ch 16	110.9	deg_C
ch 17	112.9	deg_C
ch 18	102.4	deg_C
ch 19	103.4	deg_C

END DATA AVG.

DAY 3: PAGE 3 OF 10

TRIAL TEST RUN

069

START DATA AVG.

EXP 01--SCAN 100--11 27 13 57 01
Thermal Survey/Mueller

ch 01	97.2	deg_C
ch 02	91.3	deg_C
ch 03	103.0	deg_C
ch 04	100.5	deg_C
ch 05	101.9	deg_C
ch 06	99.4	deg_C
ch 07	104.5	deg_C
ch 08	105.9	deg_C
ch 09	106.2	deg_C
ch 10	105.0	deg_C
ch 11	22.8	deg_C
ch 12	22.8	deg_C
ch 13	22.4	deg_C
ch 14	23.3	deg_C
ch 15	23.9	deg_C
ch 16	110.6	deg_C
ch 17	112.7	deg_C
ch 18	102.2	deg_C
ch 19	103.2	deg_C

EXP 01--SCAN 100--11 27 14 09 01
Thermal Survey/Mueller

ch 01	97.0	deg_C
ch 02	91.3	deg_C
ch 03	102.7	deg_C
ch 04	100.3	deg_C
ch 05	101.7	deg_C
ch 06	99.3	deg_C
ch 07	104.2	deg_C
ch 08	105.5	deg_C
ch 09	106.0	deg_C
ch 10	105.7	deg_C
ch 11	22.6	deg_C
ch 12	22.7	deg_C
ch 13	22.3	deg_C
ch 14	23.3	deg_C
ch 15	23.7	deg_C
ch 16	110.2	deg_C
ch 17	113.5	deg_C
ch 18	101.9	deg_C
ch 19	102.8	deg_C

14:20 INCREASE VOLTAGES BACK
TO LEVEL 4 FROM LEVEL 0

EXP 01--SCAN 102--11 27 14 21 01
Thermal Survey/Mueller

ch 01	97.0	deg_C
ch 02	91.3	deg_C
ch 03	102.7	deg_C
ch 04	100.3	deg_C
ch 05	101.7	deg_C
ch 06	99.2	deg_C
ch 07	104.1	deg_C
ch 08	105.4	deg_C
ch 09	107.9	deg_C
ch 10	105.7	deg_C
ch 11	22.8	deg_C
ch 12	22.8	deg_C
ch 13	22.6	deg_C
ch 14	23.4	deg_C
ch 15	24.1	deg_C
ch 16	110.2	deg_C
ch 17	112.4	deg_C
ch 18	101.9	deg_C
ch 19	102.8	deg_C

EXP 01--SCAN 112--11 27 14 01 01
Thermal Survey/Mueller

ch 01	97.1	deg_C
ch 02	91.4	deg_C
ch 03	102.3	deg_C
ch 04	100.4	deg_C
ch 05	101.8	deg_C
ch 06	99.3	deg_C
ch 07	104.3	deg_C
ch 08	105.8	deg_C
ch 09	106.1	deg_C
ch 10	106.3	deg_C
ch 11	22.6	deg_C
ch 12	22.6	deg_C
ch 13	22.4	deg_C
ch 14	23.5	deg_C
ch 15	24.2	deg_C
ch 16	110.4	deg_C
ch 17	112.6	deg_C
ch 18	102.1	deg_C
ch 19	103.1	deg_C

EXP 01--SCAN 104--11 27 14 13 01
Thermal Survey/Mueller

ch 01	97.0	deg_C
ch 02	91.4	deg_C
ch 03	102.7	deg_C
ch 04	100.2	deg_C
ch 05	101.7	deg_C
ch 06	99.2	deg_C
ch 07	104.1	deg_C
ch 08	105.5	deg_C
ch 09	107.9	deg_C
ch 10	105.7	deg_C
ch 11	22.6	deg_C
ch 12	22.8	deg_C
ch 13	22.6	deg_C
ch 14	23.4	deg_C
ch 15	24.1	deg_C
ch 16	110.2	deg_C
ch 17	112.4	deg_C
ch 18	101.9	deg_C
ch 19	102.8	deg_C

EXP 01--SCAN 116--11 27 14 05 01
Thermal Survey/Mueller

ch 01	97.0	deg_C
ch 02	91.5	deg_C
ch 03	102.6	deg_C
ch 04	100.2	deg_C
ch 05	101.8	deg_C
ch 06	99.3	deg_C
ch 07	104.2	deg_C
ch 08	105.5	deg_C
ch 09	106.9	deg_C
ch 10	105.8	deg_C
ch 11	22.5	deg_C
ch 12	22.9	deg_C
ch 13	22.4	deg_C
ch 14	23.3	deg_C
ch 15	23.9	deg_C
ch 16	110.3	deg_C
ch 17	112.5	deg_C
ch 18	102.0	deg_C
ch 19	103.0	deg_C

EXP 01--SCAN 108--11 27 14 17 01
Thermal Survey/Mueller

ch 01	97.0	deg_C
ch 02	91.3	deg_C
ch 03	102.7	deg_C
ch 04	100.2	deg_C
ch 05	101.7	deg_C
ch 06	99.2	deg_C
ch 07	104.1	deg_C
ch 08	105.5	deg_C
ch 09	107.9	deg_C
ch 10	105.7	deg_C
ch 11	22.6	deg_C
ch 12	22.9	deg_C
ch 13	22.5	deg_C
ch 14	23.4	deg_C
ch 15	24.0	deg_C
ch 16	110.2	deg_C
ch 17	112.4	deg_C
ch 18	101.9	deg_C
ch 19	102.8	deg_C

EXP 01--SCAN 106--11 27 14 03 01
Thermal Survey/Mueller

ch 01	97.0	deg_C
ch 02	91.4	deg_C
ch 03	102.8	deg_C
ch 04	100.2	deg_C
ch 05	101.8	deg_C
ch 06	99.2	deg_C
ch 07	104.5	deg_C
ch 08	105.4	deg_C
ch 09	106.3	deg_C
ch 10	105.8	deg_C
ch 11	22.6	deg_C
ch 12	22.6	deg_C
ch 13	22.1	deg_C
ch 14	23.3	deg_C
ch 15	23.4	deg_C
ch 16	110.4	deg_C
ch 17	113.5	deg_C
ch 18	101.9	deg_C
ch 19	102.8	deg_C

END DATA AVG. (SMALL SAMPLE)

TRIAL TEST RUN

070

EXP 01--SCAN 140--11 27 14 29 01
Thermal Survey/Mueler*

ch 01	97.3	Jeg_C
ch 02	91.4	Jeg_C
ch 03	104.1	Jeg_C
ch 04	103.7	Jeg_C
ch 05	102.9	Jeg_C
ch 06	99.7	Jeg_C
ch 07	106.0	Jeg_C
ch 08	105.8	Jeg_C
ch 09	110.0	Jeg_C
ch 10	107.0	Jeg_C
ch 11	22.7	Jeg_C
ch 12	23.0	Jeg_C
ch 13	22.4	Jeg_C
ch 14	23.4	Jeg_C
ch 15	23.0	Jeg_C
ch 16	112.3	Jeg_C
ch 17	115.0	Jeg_C
ch 18	102.6	Jeg_C
ch 19	100.6	Jeg_C

EXP 01--SCAN 152--11 27 14 41 01
Thermal Survey/Mueler*

ch 01	103.3	Jeg_C
ch 02	98.1	Jeg_C
ch 03	110.1	Jeg_C
ch 04	108.2	Jeg_C
ch 05	108.6	Jeg_C
ch 06	105.3	Jeg_C
ch 07	111.1	Jeg_C
ch 08	110.7	Jeg_C
ch 09	115.7	Jeg_C
ch 10	111.7	Jeg_C
ch 11	23.6	Jeg_C
ch 12	23.1	Jeg_C
ch 13	22.5	Jeg_C
ch 14	25.0	Jeg_C
ch 15	24.0	Jeg_C
ch 16	116.4	Jeg_C
ch 17	120.4	Jeg_C
ch 18	107.6	Jeg_C
ch 19	100.2	Jeg_C

EXP 01--SCAN 154--11 27 14 53 01
Thermal Survey/Mueler*

ch 01	105.2	Jeg_C
ch 02	96.7	Jeg_C
ch 03	113.1	Jeg_C
ch 04	109.0	Jeg_C
ch 05	111.5	Jeg_C
ch 06	107.0	Jeg_C
ch 07	114.5	Jeg_C
ch 08	113.9	Jeg_C
ch 09	119.2	Jeg_C
ch 10	114.5	Jeg_C
ch 11	23.2	Jeg_C
ch 12	22.9	Jeg_C
ch 13	22.4	Jeg_C
ch 14	24.1	Jeg_C
ch 15	23.0	Jeg_C
ch 16	121.6	Jeg_C
ch 17	125.4	Jeg_C
ch 18	110.0	Jeg_C
ch 19	112.1	Jeg_C

14:32 CONTINUE INCREASING VOLTAGES
TO LEVEL 5; RAMP TEMP TO
LEVEL 5 (+101°C & +110°C COMP.)

EXP 01--SCAN 144--11 27 14 33 01
Thermal Survey/Mueler*

ch 01	97.7	Jeg_C
ch 02	92.6	Jeg_C
ch 03	104.0	Jeg_C
ch 04	101.2	Jeg_C
ch 05	103.6	Jeg_C
ch 06	100.3	Jeg_C
ch 07	106.6	Jeg_C
ch 08	106.3	Jeg_C
ch 09	110.3	Jeg_C
ch 10	107.7	Jeg_C
ch 11	22.6	Jeg_C
ch 12	22.6	Jeg_C
ch 13	22.3	Jeg_C
ch 14	23.3	Jeg_C
ch 15	23.6	Jeg_C
ch 16	113.1	Jeg_C
ch 17	118.3	Jeg_C
ch 18	103.2	Jeg_C
ch 19	104.2	Jeg_C

EXP 01--SCAN 156--11 27 14 45 01
Thermal Survey/Mueler*

ch 01	104.2	Jeg_C
ch 02	99.3	Jeg_C
ch 03	111.5	Jeg_C
ch 04	107.5	Jeg_C
ch 05	110.0	Jeg_C
ch 06	106.5	Jeg_C
ch 07	112.7	Jeg_C
ch 08	112.2	Jeg_C
ch 09	117.4	Jeg_C
ch 10	115.1	Jeg_C
ch 11	23.3	Jeg_C
ch 12	22.9	Jeg_C
ch 13	22.2	Jeg_C
ch 14	24.5	Jeg_C
ch 15	23.7	Jeg_C
ch 16	119.0	Jeg_C
ch 17	123.0	Jeg_C
ch 18	109.0	Jeg_C
ch 19	110.4	Jeg_C

EXP 01--SCAN 158--11 27 14 57 01
Thermal Survey/Mueler*

ch 01	105.5	Jeg_C
ch 02	98.0	Jeg_C
ch 03	113.0	Jeg_C
ch 04	109.4	Jeg_C
ch 05	111.0	Jeg_C
ch 06	108.2	Jeg_C
ch 07	116.0	Jeg_C
ch 08	114.4	Jeg_C
ch 09	119.7	Jeg_C
ch 10	114.0	Jeg_C
ch 11	22.9	Jeg_C
ch 12	22.9	Jeg_C
ch 13	22.1	Jeg_C
ch 14	23.0	Jeg_C
ch 15	23.2	Jeg_C
ch 16	121.0	Jeg_C
ch 17	125.7	Jeg_C
ch 18	111.4	Jeg_C
ch 19	112.5	Jeg_C

EXP 01--SCAN 146--11 27 14 37 01
Thermal Survey/Mueler*

ch 01	101.7	Jeg_C
ch 02	97.3	Jeg_C
ch 03	107.9	Jeg_C
ch 04	104.2	Jeg_C
ch 05	106.5	Jeg_C
ch 06	103.5	Jeg_C
ch 07	109.9	Jeg_C
ch 08	109.6	Jeg_C
ch 09	113.3	Jeg_C
ch 10	109.5	Jeg_C
ch 11	23.0	Jeg_C
ch 12	22.8	Jeg_C
ch 13	22.4	Jeg_C
ch 14	25.3	Jeg_C
ch 15	23.5	Jeg_C
ch 16	116.2	Jeg_C
ch 17	120.2	Jeg_C
ch 18	105.9	Jeg_C
ch 19	106.6	Jeg_C

EXP 01--SCAN 160--11 27 14 49 01
Thermal Survey/Mueler*

ch 01	104.0	Jeg_C
ch 02	98.5	Jeg_C
ch 03	112.4	Jeg_C
ch 04	108.4	Jeg_C
ch 05	110.9	Jeg_C
ch 06	107.3	Jeg_C
ch 07	113.7	Jeg_C
ch 08	113.3	Jeg_C
ch 09	118.5	Jeg_C
ch 10	114.0	Jeg_C
ch 11	23.3	Jeg_C
ch 12	22.9	Jeg_C
ch 13	22.3	Jeg_C
ch 14	24.3	Jeg_C
ch 15	23.7	Jeg_C
ch 16	120.0	Jeg_C
ch 17	124.7	Jeg_C
ch 18	110.3	Jeg_C
ch 19	111.4	Jeg_C

EXP 01--SCAN 170--11 27 15 01 01
Thermal Survey/Mueler*

ch 01	106.0	Jeg_C
ch 02	98.0	Jeg_C
ch 03	113.0	Jeg_C
ch 04	109.7	Jeg_C
ch 05	112.1	Jeg_C
ch 06	108.5	Jeg_C
ch 07	116.0	Jeg_C
ch 08	114.7	Jeg_C
ch 09	120.0	Jeg_C
ch 10	115.1	Jeg_C
ch 11	23.0	Jeg_C
ch 12	22.6	Jeg_C
ch 13	22.2	Jeg_C
ch 14	23.0	Jeg_C
ch 15	23.5	Jeg_C
ch 16	122.1	Jeg_C
ch 17	126.0	Jeg_C
ch 18	111.7	Jeg_C
ch 19	112.6	Jeg_C

TRIAL TEST RUN

071

DAY 3: PAGE 5 OF 10

START DATA AVG.

EXP 01--SCAN 176--11 27 15 05 01
Thermal Survey/Muelser"

ch 01	105.9	deg_C
ch 02	99.9	deg_C
ch 03	114.6	deg_C
ch 04	108.9	deg_C
ch 05	112.3	deg_C
ch 06	109.6	deg_C
ch 07	115.5	deg_C
ch 08	114.8	deg_C
ch 09	129.2	deg_C
ch 10	116.3	deg_C
ch 11	22.9	deg_C
ch 12	22.6	deg_C
ch 13	22.2	deg_C
ch 14	23.6	deg_C
ch 15	23.4	deg_C
ch 16	122.3	deg_C
ch 17	126.2	deg_C
ch 18	111.9	deg_C
ch 19	113.0	deg_C

EXP 01--SCAN 186--11 27 15 17 01
Thermal Survey/Muelser"

ch 01	105.9	deg_C
ch 02	99.9	deg_C
ch 03	114.2	deg_C
ch 04	110.1	deg_C
ch 05	112.6	deg_C
ch 06	109.9	deg_C
ch 07	115.9	deg_C
ch 08	115.1	deg_C
ch 09	129.5	deg_C
ch 10	115.5	deg_C
ch 11	23.9	deg_C
ch 12	22.9	deg_C
ch 13	22.2	deg_C
ch 14	23.6	deg_C
ch 15	23.4	deg_C
ch 16	122.6	deg_C
ch 17	126.4	deg_C
ch 18	112.1	deg_C
ch 19	113.5	deg_C

EXP 01--SCAN 200--11 27 15 29 01
Thermal Survey/Muelser"

ch 01	105.9	deg_C
ch 02	99.9	deg_C
ch 03	114.2	deg_C
ch 04	110.1	deg_C
ch 05	112.6	deg_C
ch 06	109.9	deg_C
ch 07	115.9	deg_C
ch 08	115.1	deg_C
ch 09	129.5	deg_C
ch 10	115.5	deg_C
ch 11	22.7	deg_C
ch 12	22.6	deg_C
ch 13	22.3	deg_C
ch 14	23.6	deg_C
ch 15	23.4	deg_C
ch 16	122.8	deg_C
ch 17	126.5	deg_C
ch 18	112.2	deg_C
ch 19	113.0	deg_C

EXP 01--SCAN 180--11 27 15 08 01
Thermal Survey/Muelser"

ch 01	105.9	deg_C
ch 02	99.9	deg_C
ch 03	114.1	deg_C
ch 04	110.9	deg_C
ch 05	112.4	deg_C
ch 06	106.7	deg_C
ch 07	115.8	deg_C
ch 08	115.8	deg_C
ch 09	129.3	deg_C
ch 10	115.4	deg_C
ch 11	22.9	deg_C
ch 12	22.7	deg_C
ch 13	22.3	deg_C
ch 14	23.7	deg_C
ch 15	23.4	deg_C
ch 16	122.5	deg_C
ch 17	126.3	deg_C
ch 18	112.0	deg_C
ch 19	113.2	deg_C

EXP 01--SCAN 182--11 27 15 21 01
Thermal Survey/Muelser"

ch 01	105.9	deg_C
ch 02	99.9	deg_C
ch 03	114.2	deg_C
ch 04	110.1	deg_C
ch 05	112.6	deg_C
ch 06	109.3	deg_C
ch 07	115.9	deg_C
ch 08	115.1	deg_C
ch 09	129.5	deg_C
ch 10	115.6	deg_C
ch 11	22.9	deg_C
ch 12	22.7	deg_C
ch 13	22.1	deg_C
ch 14	23.6	deg_C
ch 15	23.6	deg_C
ch 16	122.6	deg_C
ch 17	126.4	deg_C
ch 18	112.1	deg_C
ch 19	113.3	deg_C

EXP 01--SCAN 204--11 27 15 33 01
Thermal Survey/Muelser"

ch 01	105.9	deg_C
ch 02	99.9	deg_C
ch 03	114.3	deg_C
ch 04	110.2	deg_C
ch 05	112.6	deg_C
ch 06	109.9	deg_C
ch 07	115.9	deg_C
ch 08	115.1	deg_C
ch 09	129.6	deg_C
ch 10	115.6	deg_C
ch 11	22.6	deg_C
ch 12	22.6	deg_C
ch 13	22.2	deg_C
ch 14	23.6	deg_C
ch 15	23.4	deg_C
ch 16	122.7	deg_C
ch 17	126.5	deg_C
ch 18	112.2	deg_C
ch 19	113.4	deg_C

15:36 DECREASE TEMP TO LEVEL 0
& MAINTAIN VOLTAGES AT LEVEL 5

EXP 01--SCAN 184--11 27 15 13 01
Thermal Survey/Muelser"

ch 01	105.9	deg_C
ch 02	99.9	deg_C
ch 03	114.1	deg_C
ch 04	110.9	deg_C
ch 05	112.4	deg_C
ch 06	106.6	deg_C
ch 07	115.7	deg_C
ch 08	115.1	deg_C
ch 09	129.4	deg_C
ch 10	115.5	deg_C
ch 11	22.9	deg_C
ch 12	22.7	deg_C
ch 13	22.1	deg_C
ch 14	23.5	deg_C
ch 15	23.6	deg_C
ch 16	122.6	deg_C
ch 17	126.3	deg_C
ch 18	112.1	deg_C
ch 19	113.2	deg_C

EXP 01--SCAN 186--11 27 15 25 01
Thermal Survey/Muelser"

ch 01	105.9	deg_C
ch 02	99.9	deg_C
ch 03	114.2	deg_C
ch 04	110.1	deg_C
ch 05	112.5	deg_C
ch 06	109.3	deg_C
ch 07	115.9	deg_C
ch 08	115.1	deg_C
ch 09	129.5	deg_C
ch 10	115.6	deg_C
ch 11	22.9	deg_C
ch 12	22.9	deg_C
ch 13	22.4	deg_C
ch 14	23.6	deg_C
ch 15	23.5	deg_C
ch 16	122.6	deg_C
ch 17	126.5	deg_C
ch 18	112.2	deg_C
ch 19	113.3	deg_C

EXP 01--SCAN 208--11 27 15 37 01
Thermal Survey/Muelser"

ch 01	105.9	deg_C
ch 02	99.9	deg_C
ch 03	114.3	deg_C
ch 04	110.1	deg_C
ch 05	112.5	deg_C
ch 06	109.9	deg_C
ch 07	115.9	deg_C
ch 08	115.1	deg_C
ch 09	129.6	deg_C
ch 10	115.6	deg_C
ch 11	22.4	deg_C
ch 12	22.6	deg_C
ch 13	22.2	deg_C
ch 14	23.6	deg_C
ch 15	23.4	deg_C
ch 16	122.7	deg_C
ch 17	126.5	deg_C
ch 18	112.2	deg_C
ch 19	113.4	deg_C

END DATA AVG.

TRIAL TEST RUN

072

DAY 3: PAGE 6 OF 10

EXP 01--SCAN 212--11 27 15 41 01
Thermal Survey/Mueller"

ch	01	97.6	deg_C
ch	02	79.9	deg_C
ch	03	118.1	deg_C
ch	04	105.6	deg_C
ch	05	103.6	deg_C
ch	06	102.8	deg_C
ch	07	113.6	deg_C
ch	08	112.4	deg_C
ch	09	118.8	deg_C
ch	10	115.1	deg_C
ch	11	23.2	deg_C
ch	12	25.3	deg_C
ch	13	22.6	deg_C
ch	14	27.8	deg_C
ch	15	24.4	deg_C
ch	16	119.1	deg_C
ch	17	123.1	deg_C
ch	18	108.4	deg_C
ch	19	119.6	deg_C

EXP 01--SCAN 224--11 27 15 53 01
Thermal Survey/Mueller"

ch	01	74.9	deg_C
ch	02	62.9	deg_C
ch	03	66.9	deg_C
ch	04	81.9	deg_C
ch	05	84.7	deg_C
ch	06	90.0	deg_C
ch	07	99.5	deg_C
ch	08	99.1	deg_C
ch	09	95.9	deg_C
ch	10	98.9	deg_C
ch	11	24.2	deg_C
ch	12	25.3	deg_C
ch	13	22.4	deg_C
ch	14	27.1	deg_C
ch	15	24.6	deg_C
ch	16	98.2	deg_C
ch	17	99.6	deg_C
ch	18	95.1	deg_C
ch	19	96.6	deg_C

EXP 01--SCAN 236--11 27 16 05 01
Thermal Survey/Mueller"

ch	01	68.8	deg_C
ch	02	62.9	deg_C
ch	03	79.2	deg_C
ch	04	74.7	deg_C
ch	05	77.6	deg_C
ch	06	73.6	deg_C
ch	07	81.9	deg_C
ch	08	80.9	deg_C
ch	09	87.1	deg_C
ch	10	82.8	deg_C
ch	11	24.9	deg_C
ch	12	23.1	deg_C
ch	13	22.4	deg_C
ch	14	26.7	deg_C
ch	15	24.1	deg_C
ch	16	99.7	deg_C
ch	17	92.6	deg_C
ch	18	77.2	deg_C
ch	19	78.3	deg_C

EXP 01--SCAN 216--11 27 15 45 01
Thermal Survey/Mueller"

ch	01	95.2	deg_C
ch	02	88.3	deg_C
ch	03	109.2	deg_C
ch	04	94.6	deg_C
ch	05	99.1	deg_C
ch	06	92.8	deg_C
ch	07	105.2	deg_C
ch	08	103.4	deg_C
ch	09	111.9	deg_C
ch	10	104.3	deg_C
ch	11	24.6	deg_C
ch	12	24.1	deg_C
ch	13	22.7	deg_C
ch	14	28.9	deg_C
ch	15	25.6	deg_C
ch	16	109.4	deg_C
ch	17	113.2	deg_C
ch	18	98.8	deg_C
ch	19	101.2	deg_C

EXP 01--SCAN 228--11 27 16 57 01
Thermal Survey/Mueller"

ch	01	72.6	deg_C
ch	02	63.9	deg_C
ch	03	63.9	deg_C
ch	04	79.3	deg_C
ch	05	81.2	deg_C
ch	06	78.9	deg_C
ch	07	86.3	deg_C
ch	08	88.2	deg_C
ch	09	91.9	deg_C
ch	10	88.9	deg_C
ch	11	22.9	deg_C
ch	12	23.9	deg_C
ch	13	22.4	deg_C
ch	14	28.9	deg_C
ch	15	24.1	deg_C
ch	16	92.6	deg_C
ch	17	95.3	deg_C
ch	18	91.3	deg_C
ch	19	92.6	deg_C

EXP 01--SCAN 240--11 27 16 09 01
Thermal Survey/Mueller"

ch	01	69.2	deg_C
ch	02	61.6	deg_C
ch	03	78.2	deg_C
ch	04	73.6	deg_C
ch	05	76.6	deg_C
ch	06	72.6	deg_C
ch	07	89.7	deg_C
ch	08	79.9	deg_C
ch	09	88.9	deg_C
ch	10	81.9	deg_C
ch	11	25.6	deg_C
ch	12	22.9	deg_C
ch	13	22.9	deg_C
ch	14	28.3	deg_C
ch	15	23.9	deg_C
ch	16	97.7	deg_C
ch	17	91.6	deg_C
ch	18	78.1	deg_C
ch	19	77.2	deg_C

EXP 01--SCAN 226--11 27 15 48 01
Thermal Survey/Mueller"

ch	01	78.6	deg_C
ch	02	66.2	deg_C
ch	03	92.2	deg_C
ch	04	87.2	deg_C
ch	05	90.2	deg_C
ch	06	84.9	deg_C
ch	07	95.9	deg_C
ch	08	95.1	deg_C
ch	09	102.3	deg_C
ch	10	95.4	deg_C
ch	11	24.9	deg_C
ch	12	23.9	deg_C
ch	13	22.5	deg_C
ch	14	27.7	deg_C
ch	15	25.1	deg_C
ch	16	101.6	deg_C
ch	17	105.3	deg_C
ch	18	98.9	deg_C
ch	19	92.6	deg_C

EXP 01--SCAN 232--11 27 16 01 01
Thermal Survey/Mueller"

ch	01	71.9	deg_C
ch	02	62.4	deg_C
ch	03	68.6	deg_C
ch	04	76.2	deg_C
ch	05	78.9	deg_C
ch	06	74.9	deg_C
ch	07	83.6	deg_C
ch	08	82.6	deg_C
ch	09	88.9	deg_C
ch	10	84.4	deg_C
ch	11	24.2	deg_C
ch	12	23.2	deg_C
ch	13	22.4	deg_C
ch	14	28.2	deg_C
ch	15	24.5	deg_C
ch	16	98.1	deg_C
ch	17	94.9	deg_C
ch	18	78.9	deg_C
ch	19	89.9	deg_C

EXP 01--SCAN 244--11 27 16 13 01
Thermal Survey/Mueller"

ch	01	68.6	deg_C
ch	02	61.2	deg_C
ch	03	77.4	deg_C
ch	04	73.1	deg_C
ch	05	75.6	deg_C
ch	06	72.9	deg_C
ch	07	78.9	deg_C
ch	08	79.1	deg_C
ch	09	85.1	deg_C
ch	10	81.2	deg_C
ch	11	23.6	deg_C
ch	12	23.9	deg_C
ch	13	22.3	deg_C
ch	14	25.9	deg_C
ch	15	25.9	deg_C
ch	16	87.9	deg_C
ch	17	90.9	deg_C
ch	18	75.3	deg_C
ch	19	75.4	deg_C

EXP 01--SCAN 248--11 27 16 17 01
Thermal Survey/Mueler"

ch 01	88.8	deg_C
ch 02	81.2	deg_C
ch 03	76.8	deg_C
ch 04	72.6	deg_C
ch 05	76.5	deg_C
ch 06	71.9	deg_C
ch 07	78.3	deg_C
ch 08	76.5	deg_C
ch 09	84.5	deg_C
ch 10	80.6	deg_C
ch 11	23.4	deg_C
ch 12	22.9	deg_C
ch 13	22.2	deg_C
ch 14	24.6	deg_C
ch 15	23.8	deg_C
ch 16	85.4	deg_C
ch 17	88.4	deg_C
ch 18	74.7	deg_C
ch 19	75.8	deg_C

START DATA AVG.

EXP 01--SCAN 252--11 27 16 21 01
Thermal Survey/Mueler"

ch 01	88.8	deg_C
ch 02	81.2	deg_C
ch 03	76.8	deg_C
ch 04	72.6	deg_C
ch 05	76.5	deg_C
ch 06	71.2	deg_C
ch 07	78.3	deg_C
ch 08	78.1	deg_C
ch 09	84.1	deg_C
ch 10	80.3	deg_C
ch 11	23.8	deg_C
ch 12	22.8	deg_C
ch 13	22.1	deg_C
ch 14	24.7	deg_C
ch 15	23.2	deg_C
ch 16	86.1	deg_C
ch 17	88.1	deg_C
ch 18	74.4	deg_C
ch 19	75.5	deg_C

EXP 01--SCAN 256--11 27 16 25 01
Thermal Survey/Mueler"

ch 01	87.8	deg_C
ch 02	80.8	deg_C
ch 03	76.4	deg_C
ch 04	72.9	deg_C
ch 05	74.5	deg_C
ch 06	71.0	deg_C
ch 07	78.7	deg_C
ch 08	77.8	deg_C
ch 09	83.9	deg_C
ch 10	80.0	deg_C
ch 11	23.4	deg_C
ch 12	23.0	deg_C
ch 13	22.4	deg_C
ch 14	24.5	deg_C
ch 15	24.0	deg_C
ch 16	85.8	deg_C
ch 17	89.8	deg_C
ch 18	74.1	deg_C
ch 19	75.2	deg_C

EXP 01--SCAN 258--11 27 16 28 01
Thermal Survey/Mueler"

ch 01	87.8	deg_C
ch 02	80.8	deg_C
ch 03	76.2	deg_C
ch 04	71.8	deg_C
ch 05	74.8	deg_C
ch 06	78.9	deg_C
ch 07	78.5	deg_C
ch 08	77.7	deg_C
ch 09	83.7	deg_C
ch 10	78.9	deg_C
ch 11	23.3	deg_C
ch 12	23.0	deg_C
ch 13	22.3	deg_C
ch 14	24.4	deg_C
ch 15	24.1	deg_C
ch 16	85.7	deg_C
ch 17	88.7	deg_C
ch 18	74.8	deg_C
ch 19	75.8	deg_C

EXP 01--SCAN 264--11 27 16 33 01
Thermal Survey/Mueler"

ch 01	87.7	deg_C
ch 02	80.7	deg_C
ch 03	76.1	deg_C
ch 04	71.7	deg_C
ch 05	74.5	deg_C
ch 06	78.7	deg_C
ch 07	78.5	deg_C
ch 08	77.5	deg_C
ch 09	83.5	deg_C
ch 10	78.7	deg_C
ch 11	23.1	deg_C
ch 12	22.8	deg_C
ch 13	22.2	deg_C
ch 14	24.3	deg_C
ch 15	24.0	deg_C
ch 16	85.5	deg_C
ch 17	88.5	deg_C
ch 18	73.8	deg_C
ch 19	74.8	deg_C

EXP 01--SCAN 268--11 27 16 37 01
Thermal Survey/Mueler"

ch 01	87.5	deg_C
ch 02	80.7	deg_C
ch 03	75.9	deg_C
ch 04	71.7	deg_C
ch 05	74.4	deg_C
ch 06	78.7	deg_C
ch 07	78.2	deg_C
ch 08	77.5	deg_C
ch 09	83.4	deg_C
ch 10	78.7	deg_C
ch 11	23.5	deg_C
ch 12	22.8	deg_C
ch 13	22.1	deg_C
ch 14	24.3	deg_C
ch 15	23.7	deg_C
ch 16	85.5	deg_C
ch 17	89.5	deg_C
ch 18	73.7	deg_C
ch 19	74.8	deg_C

EXP 01--SCAN 272--11 27 16 41 01
Thermal Survey/Mueler"

ch 01	87.6	deg_C
ch 02	80.7	deg_C
ch 03	75.8	deg_C
ch 04	71.6	deg_C
ch 05	74.3	deg_C
ch 06	78.8	deg_C
ch 07	78.2	deg_C
ch 08	77.4	deg_C
ch 09	83.4	deg_C
ch 10	78.8	deg_C
ch 11	23.8	deg_C
ch 12	22.7	deg_C
ch 13	22.1	deg_C
ch 14	24.2	deg_C
ch 15	23.3	deg_C
ch 16	85.4	deg_C
ch 17	88.4	deg_C
ch 18	73.8	deg_C
ch 19	74.8	deg_C

16:46 TEMP AT LEVEL 0 (+61°C CHAMBER;
+70°C COMPONENT); RETURN VOLTAGES
BACK TO LEVEL 0 STRESSES.

EXP 01--SCAN 276--11 27 16 45 01
Thermal Survey/Mueler"

ch 01	87.5	deg_C
ch 02	80.7	deg_C
ch 03	75.8	deg_C
ch 04	71.5	deg_C
ch 05	74.3	deg_C
ch 06	78.6	deg_C
ch 07	78.1	deg_C
ch 08	77.3	deg_C
ch 09	83.3	deg_C
ch 10	78.6	deg_C
ch 11	23.2	deg_C
ch 12	22.7	deg_C
ch 13	22.1	deg_C
ch 14	24.1	deg_C
ch 15	23.5	deg_C
ch 16	85.4	deg_C
ch 17	88.4	deg_C
ch 18	73.6	deg_C
ch 19	74.7	deg_C

END DATA AVG.

EXP 01--SCAN 260--11 27 16 49
Thermal Survey/Mueler"

ch 01	87.5	deg_C
ch 02	88.7	deg_C
ch 03	76.5	deg_C
ch 04	71.5	deg_C
ch 05	74.9	deg_C
ch 06	78.5	deg_C
ch 07	77.3	deg_C
ch 08	77.3	deg_C
ch 09	82.8	deg_C
ch 10	78.1	deg_C
ch 11	23.2	deg_C
ch 12	22.6	deg_C
ch 13	22.2	deg_C
ch 14	24.1	deg_C
ch 15	23.5	deg_C
ch 16	85.8	deg_C
ch 17	87.4	deg_C
ch 18	73.4	deg_C
ch 19	74.5	deg_C

EXP 01--SCAN 262--11 27 17 01 01
Thermal Survey/Mueler"

ch 01	88.2	deg_C
ch 02	88.6	deg_C
ch 03	72.5	deg_C
ch 04	69.6	deg_C
ch 05	71.2	deg_C
ch 06	69.6	deg_C
ch 07	74.3	deg_C
ch 08	75.5	deg_C
ch 09	78.1	deg_C
ch 10	75.8	deg_C
ch 11	23.1	deg_C
ch 12	22.8	deg_C
ch 13	22.3	deg_C
ch 14	24.1	deg_C
ch 15	23.6	deg_C
ch 16	88.8	deg_C
ch 17	83.8	deg_C
ch 18	71.5	deg_C
ch 19	72.5	deg_C

EXP 01--SCAN 304--11 27 17 13 01
Thermal Survey/Mueler"

ch 01	88.8	deg_C
ch 02	88.8	deg_C
ch 03	72.8	deg_C
ch 04	68.3	deg_C
ch 05	70.7	deg_C
ch 06	68.4	deg_C
ch 07	73.7	deg_C
ch 08	75.9	deg_C
ch 09	77.5	deg_C
ch 10	75.3	deg_C
ch 11	23.8	deg_C
ch 12	22.8	deg_C
ch 13	22.1	deg_C
ch 14	23.8	deg_C
ch 15	23.3	deg_C
ch 16	88.3	deg_C
ch 17	82.5	deg_C
ch 18	71.8	deg_C
ch 19	71.8	deg_C

START DATA AVG.

EXP 01--SCAN 264--11 27 16 53
Thermal Survey/Mueler"

ch 01	87.8	deg_C
ch 02	88.7	deg_C
ch 03	73.8	deg_C
ch 04	73.7	deg_C
ch 05	72.4	deg_C
ch 06	68.7	deg_C
ch 07	75.4	deg_C
ch 08	75.7	deg_C
ch 09	78.8	deg_C
ch 10	77.3	deg_C
ch 11	23.1	deg_C
ch 12	22.7	deg_C
ch 13	22.1	deg_C
ch 14	24.1	deg_C
ch 15	23.5	deg_C
ch 16	82.3	deg_C
ch 17	81.4	deg_C
ch 18	72.8	deg_C
ch 19	73.6	deg_C

EXP 01--SCAN 266--11 27 17 05 01
Thermal Survey/Mueler"

ch 01	88.1	deg_C
ch 02	88.6	deg_C
ch 03	72.2	deg_C
ch 04	69.3	deg_C
ch 05	71.8	deg_C
ch 06	69.6	deg_C
ch 07	74.8	deg_C
ch 08	75.3	deg_C
ch 09	77.8	deg_C
ch 10	75.5	deg_C
ch 11	23.3	deg_C
ch 12	22.7	deg_C
ch 13	22.1	deg_C
ch 14	24.8	deg_C
ch 15	23.5	deg_C
ch 16	88.5	deg_C
ch 17	82.7	deg_C
ch 18	71.2	deg_C
ch 19	72.2	deg_C

EXP 01--SCAN 306--11 27 17 17 01
Thermal Survey/Mueler"

ch 01	85.8	deg_C
ch 02	88.8	deg_C
ch 03	71.8	deg_C
ch 04	68.3	deg_C
ch 05	70.7	deg_C
ch 06	68.3	deg_C
ch 07	73.8	deg_C
ch 08	74.8	deg_C
ch 09	77.4	deg_C
ch 10	75.2	deg_C
ch 11	23.2	deg_C
ch 12	22.7	deg_C
ch 13	22.1	deg_C
ch 14	23.8	deg_C
ch 15	23.5	deg_C
ch 16	88.3	deg_C
ch 17	82.5	deg_C
ch 18	71.8	deg_C
ch 19	71.8	deg_C

EXP 01--SCAN 268--11 27 16 57
Thermal Survey/Mueler"

ch 01	86.5	deg_C
ch 02	88.8	deg_C
ch 03	72.8	deg_C
ch 04	78.1	deg_C
ch 05	71.8	deg_C
ch 06	69.1	deg_C
ch 07	74.7	deg_C
ch 08	75.8	deg_C
ch 09	78.7	deg_C
ch 10	76.3	deg_C
ch 11	23.8	deg_C
ch 12	22.7	deg_C
ch 13	22.2	deg_C
ch 14	24.1	deg_C
ch 15	23.5	deg_C
ch 16	81.3	deg_C
ch 17	83.5	deg_C
ch 18	72.8	deg_C
ch 19	72.8	deg_C

EXP 01--SCAN 308--11 27 17 08 01
Thermal Survey/Mueler"

ch 01	86.2	deg_C
ch 02	88.6	deg_C
ch 03	72.1	deg_C
ch 04	69.4	deg_C
ch 05	78.8	deg_C
ch 06	68.4	deg_C
ch 07	73.8	deg_C
ch 08	75.1	deg_C
ch 09	77.5	deg_C
ch 10	75.4	deg_C
ch 11	23.1	deg_C
ch 12	22.8	deg_C
ch 13	22.3	deg_C
ch 14	24.9	deg_C
ch 15	23.4	deg_C
ch 16	88.5	deg_C
ch 17	82.6	deg_C
ch 18	71.2	deg_C
ch 19	72.8	deg_C

EXP 01--SCAN 312--11 27 17 21 01
Thermal Survey/Mueler"

ch 01	85.8	deg_C
ch 02	88.8	deg_C
ch 03	71.8	deg_C
ch 04	68.2	deg_C
ch 05	70.7	deg_C
ch 06	68.3	deg_C
ch 07	73.8	deg_C
ch 08	74.8	deg_C
ch 09	77.4	deg_C
ch 10	75.2	deg_C
ch 11	23.8	deg_C
ch 12	22.8	deg_C
ch 13	22.2	deg_C
ch 14	23.8	deg_C
ch 15	23.7	deg_C
ch 16	88.2	deg_C
ch 17	82.4	deg_C
ch 18	78.8	deg_C
ch 19	71.8	deg_C

EXP 01--SCAN 316--11 27 17 25 01
Thermal Survey/Mueler

ch 01	65.6	deg_C
ch 02	68.5	deg_C
ch 03	71.3	deg_C
ch 04	69.1	deg_C
ch 05	70.8	deg_C
ch 06	66.0	deg_C
ch 07	73.2	deg_C
ch 08	74.9	deg_C
ch 09	77.4	deg_C
ch 10	75.2	deg_C
ch 11	23.9	deg_C
ch 12	22.8	deg_C
ch 13	22.1	deg_C
ch 14	23.9	deg_C
ch 15	23.5	deg_C
ch 16	60.2	deg_C
ch 17	62.4	deg_C
ch 18	70.6	deg_C
ch 19	71.7	deg_C

EXP 01--SCAN 326--11 27 17 37 01
Thermal Survey/Mueler

ch 01	65.6	deg_C
ch 02	68.5	deg_C
ch 03	71.3	deg_C
ch 04	69.1	deg_C
ch 05	70.8	deg_C
ch 06	66.0	deg_C
ch 07	74.2	deg_C
ch 08	74.9	deg_C
ch 09	77.4	deg_C
ch 10	75.2	deg_C
ch 11	23.9	deg_C
ch 12	22.7	deg_C
ch 13	22.2	deg_C
ch 14	23.7	deg_C
ch 15	23.5	deg_C
ch 16	60.2	deg_C
ch 17	62.4	deg_C
ch 18	70.6	deg_C
ch 19	71.7	deg_C

END DATA AVG.

EOT

EXP 01--SCAN 336--11 27 17 26 01
Thermal Survey/Mueler

ch 01	65.6	deg_C
ch 02	68.5	deg_C
ch 03	71.3	deg_C
ch 04	69.1	deg_C
ch 05	70.8	deg_C
ch 06	66.0	deg_C
ch 07	73.2	deg_C
ch 08	74.9	deg_C
ch 09	77.4	deg_C
ch 10	75.2	deg_C
ch 11	23.9	deg_C
ch 12	22.8	deg_C
ch 13	22.6	deg_C
ch 14	23.6	deg_C
ch 15	23.9	deg_C
ch 16	60.2	deg_C
ch 17	62.4	deg_C
ch 18	70.6	deg_C
ch 19	71.7	deg_C

END OF TRIAL TEST & TEST DATA FOR DAY 3

DAY 3

EXP 01--SCAN 324--11 27 17 33 01
Thermal Survey/Mueler

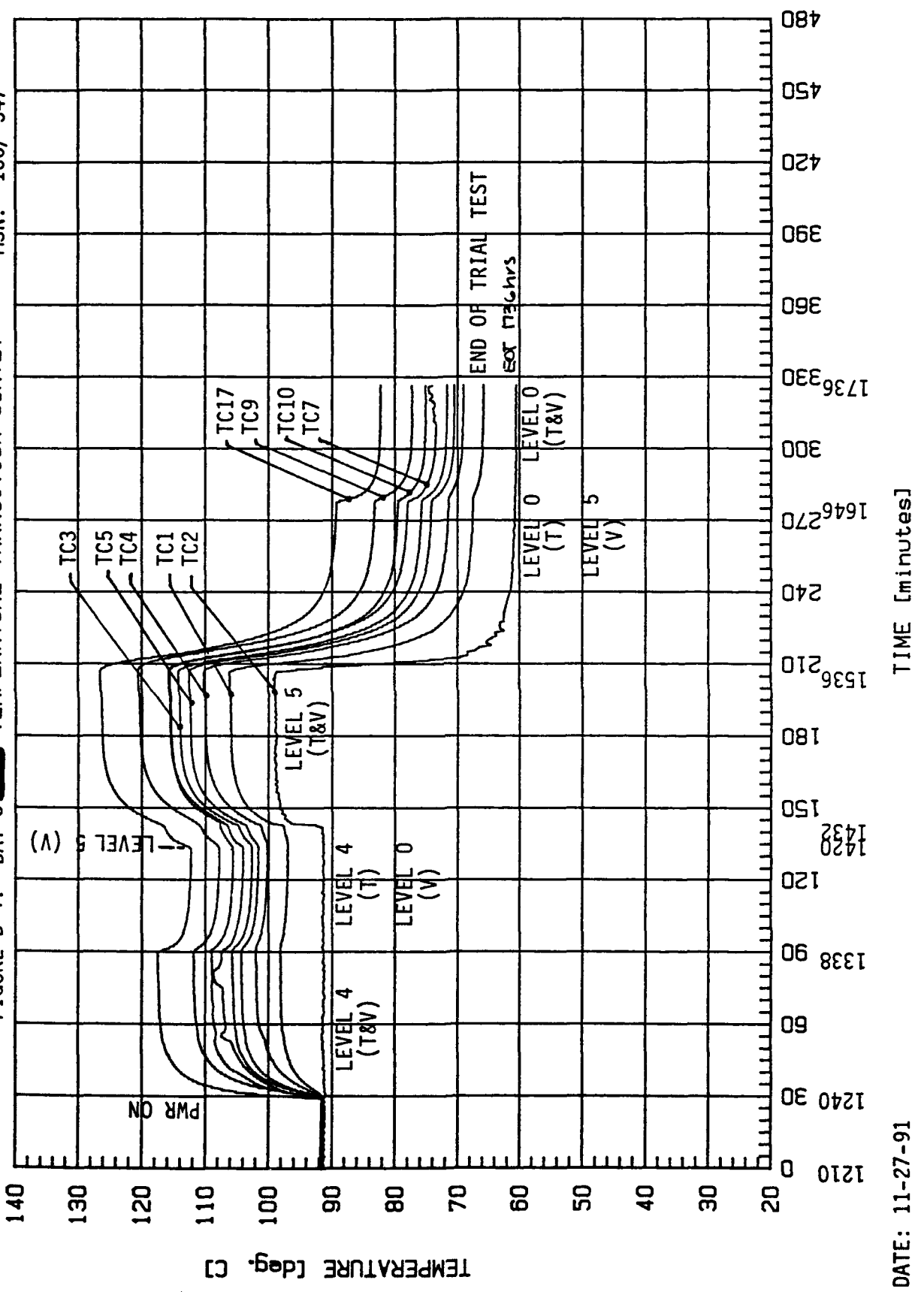
ch 01	65.6	deg_C
ch 02	68.5	deg_C
ch 03	71.3	deg_C
ch 04	69.1	deg_C
ch 05	70.7	deg_C
ch 06	66.0	deg_C
ch 07	74.3	deg_C
ch 08	74.9	deg_C
ch 09	77.4	deg_C
ch 10	75.2	deg_C
ch 11	23.2	deg_C
ch 12	22.8	deg_C
ch 13	22.4	deg_C
ch 14	23.9	deg_C
ch 15	23.7	deg_C
ch 16	60.2	deg_C
ch 17	62.4	deg_C
ch 18	70.6	deg_C
ch 19	71.7	deg_C

TRIAL TEST RUN

076

DAY 3: PAGE 10 OF 10

FIGURE D-4: DAY 3 XXXXXXXXXX TEMPERATURE TRANSITION SURVEY MSN: -100/ 349



D-11

077

TRIAL TEST RUN

DATE: 11-27-91

636
92466
TEST

DAY 4 DAY 4: 12/17/91 STEP-STRESS TRIAL
 13:34 START PLOT: UUT PWR ON SINCE 12:00 (BEGIN DWELL 13:34); LEVEL 4 TEMP/LEVEL 0 VOLTAGE
 EXP 01--SCAN 004--12 17 13 38 51
 Thermal Survey DAY 4
 BEGIN DATA AVG.

ch 01	95.0	dev_C
ch 02	91.0	dev_C
ch 03	101.7	dev_C
ch 04	99.9	dev_C
ch 05	101.3	dev_C
ch 06	99.1	dev_C
ch 07	103.9	dev_C
ch 08	105.3	dev_C
ch 09	107.6	dev_C
ch 10	105.4	dev_C
ch 11	109.9	dev_C
ch 12	112.3	dev_C
ch 13	101.6	dev_C
ch 14	102.5	dev_C

ch 01	95.3	dev_C
ch 02	90.9	dev_C
ch 03	101.7	dev_C
ch 04	99.9	dev_C
ch 05	101.3	dev_C
ch 06	99.1	dev_C
ch 07	104.2	dev_C
ch 08	105.7	dev_C
ch 09	108.0	dev_C
ch 10	105.5	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.6	dev_C
ch 14	102.5	dev_C

ch 01	96.2	dev_C
ch 02	91.4	dev_C
ch 03	101.8	dev_C
ch 04	100.0	dev_C
ch 05	101.3	dev_C
ch 06	99.1	dev_C
ch 07	103.7	dev_C
ch 08	105.2	dev_C
ch 09	107.8	dev_C
ch 10	105.4	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.6	dev_C
ch 14	102.5	dev_C

EXP 01--SCAN 008--12 17 13 42 51
 Thermal Survey DAY 4

ch 01	95.1	dev_C
ch 02	91.3	dev_C
ch 03	101.8	dev_C
ch 04	100.0	dev_C
ch 05	101.3	dev_C
ch 06	99.0	dev_C
ch 07	104.1	dev_C
ch 08	105.6	dev_C
ch 09	107.3	dev_C
ch 10	105.5	dev_C
ch 11	109.9	dev_C
ch 12	112.3	dev_C
ch 13	101.6	dev_C
ch 14	102.5	dev_C

EXP 01--SCAN 020--12 17 13
 Thermal Survey DAY 4

ch 01	95.2	dev_C
ch 02	91.3	dev_C
ch 03	101.8	dev_C
ch 04	100.1	dev_C
ch 05	101.3	dev_C
ch 06	99.0	dev_C
ch 07	103.7	dev_C
ch 08	105.3	dev_C
ch 09	107.8	dev_C
ch 10	105.4	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.6	dev_C
ch 14	102.5	dev_C

EXP 01--SCAN 032--12 17 14 06 51
 Thermal Survey DAY 4

ch 01	95.1	dev_C
ch 02	91.3	dev_C
ch 03	101.8	dev_C
ch 04	100.1	dev_C
ch 05	101.3	dev_C
ch 06	99.0	dev_C
ch 07	103.9	dev_C
ch 08	105.4	dev_C
ch 09	107.9	dev_C
ch 10	105.4	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.6	dev_C
ch 14	102.5	dev_C

EXP 01--SCAN 012--12 17 13 46 51
 Thermal Survey DAY 4

ch 01	95.3	dev_C
ch 02	91.0	dev_C
ch 03	101.8	dev_C
ch 04	99.9	dev_C
ch 05	101.3	dev_C
ch 06	99.0	dev_C
ch 07	104.2	dev_C
ch 08	105.7	dev_C
ch 09	108.0	dev_C
ch 10	105.5	dev_C
ch 11	109.9	dev_C
ch 12	112.3	dev_C
ch 13	101.6	dev_C
ch 14	102.5	dev_C

EXP 01--SCAN 024--12 17 13
 Thermal Survey DAY 4

ch 01	95.2	dev_C
ch 02	91.1	dev_C
ch 03	101.7	dev_C
ch 04	100.0	dev_C
ch 05	101.3	dev_C
ch 06	99.0	dev_C
ch 07	103.8	dev_C
ch 08	105.3	dev_C
ch 09	107.9	dev_C
ch 10	105.4	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.6	dev_C
ch 14	102.5	dev_C

EXP 01--SCAN 035--12 17 14 10 51
 Thermal Survey DAY 4

ch 01	95.2	dev_C
ch 02	91.2	dev_C
ch 03	101.8	dev_C
ch 04	100.0	dev_C
ch 05	101.4	dev_C
ch 06	99.1	dev_C
ch 07	103.8	dev_C
ch 08	105.3	dev_C
ch 09	107.9	dev_C
ch 10	105.3	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.6	dev_C
ch 14	102.5	dev_C

BEGIN RAMP TO LEVEL 5 TEMP/LEVE VOLTAGE

EXP 01--SCAN 064--12 17 14 38 51

Thermal Survey DAY 4

ch 01	98.4	dev_C
ch 02	97.4	dev_C
ch 03	103.7	dev_C
ch 04	101.8	dev_C
ch 05	102.9	dev_C
ch 06	101.2	dev_C
ch 07	105.0	dev_C
ch 08	106.4	dev_C
ch 09	108.6	dev_C
ch 10	106.4	dev_C
ch 11	111.2	dev_C
ch 12	113.5	dev_C
ch 13	102.3	dev_C
ch 14	103.5	dev_C

EXP 01--SCAN 065--12 17 14 42 51

Thermal Survey DAY 4

ch 01	99.1	dev_C
ch 02	97.4	dev_C
ch 03	105.5	dev_C
ch 04	103.6	dev_C
ch 05	104.8	dev_C
ch 06	103.0	dev_C
ch 07	107.2	dev_C
ch 08	108.5	dev_C
ch 09	110.5	dev_C
ch 10	108.6	dev_C
ch 11	113.1	dev_C
ch 12	115.6	dev_C
ch 13	104.8	dev_C
ch 14	105.6	dev_C

EXP 01--SCAN 072--12 17 14 48 51

Thermal Survey DAY 4

ch 01	100.5	dev_C
ch 02	97.7	dev_C
ch 03	106.8	dev_C
ch 04	104.9	dev_C
ch 05	106.2	dev_C
ch 06	104.2	dev_C
ch 07	106.4	dev_C
ch 08	108.8	dev_C
ch 09	112.1	dev_C
ch 10	110.0	dev_C
ch 11	114.6	dev_C
ch 12	117.0	dev_C
ch 13	106.2	dev_C
ch 14	107.1	dev_C

EXP 01--SCAN 052--12 17 14 28 51

Thermal Survey DAY 4

ch 01	96.0	dev_C
ch 02	91.4	dev_C
ch 03	101.8	dev_C
ch 04	100.1	dev_C
ch 05	101.3	dev_C
ch 06	99.1	dev_C
ch 07	103.8	dev_C
ch 08	105.3	dev_C
ch 09	107.6	dev_C
ch 10	105.4	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.5	dev_C
ch 14	102.5	dev_C

EXP 01--SCAN 055--12 17 14 30 51

Thermal Survey DAY 4

ch 01	96.0	dev_C
ch 02	91.4	dev_C
ch 03	101.8	dev_C
ch 04	99.9	dev_C
ch 05	101.3	dev_C
ch 06	99.0	dev_C
ch 07	104.1	dev_C
ch 08	105.5	dev_C
ch 09	107.9	dev_C
ch 10	105.4	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.5	dev_C
ch 14	102.5	dev_C

EXP 01--SCAN 050--12 17 14 34 51

Thermal Survey DAY 4

ch 01	95.0	dev_C
ch 02	90.7	dev_C
ch 03	101.7	dev_C
ch 04	99.9	dev_C
ch 05	101.3	dev_C
ch 06	98.0	dev_C
ch 07	104.2	dev_C
ch 08	105.5	dev_C
ch 09	107.9	dev_C
ch 10	105.4	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.5	dev_C
ch 14	102.5	dev_C

EXP 01--SCAN 040--12 17 14 14 51

Thermal Survey DAY 4

ch 01	95.1	dev_C
ch 02	91.0	dev_C
ch 03	101.8	dev_C
ch 04	99.9	dev_C
ch 05	101.3	dev_C
ch 06	99.1	dev_C
ch 07	103.8	dev_C
ch 08	105.3	dev_C
ch 09	107.9	dev_C
ch 10	105.3	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.5	dev_C
ch 14	102.5	dev_C

EXP 01--SCAN 044--12 17 14 18 51

Thermal Survey DAY 4

ch 01	95.0	dev_C
ch 02	91.2	dev_C
ch 03	101.8	dev_C
ch 04	100.0	dev_C
ch 05	101.3	dev_C
ch 06	99.0	dev_C
ch 07	104.3	dev_C
ch 08	105.6	dev_C
ch 09	103.0	dev_C
ch 10	105.5	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.5	dev_C
ch 14	102.5	dev_C

EXP 01--SCAN 046--12 17 14 22 51

Thermal Survey DAY 4

ch 01	95.1	dev_C
ch 02	91.4	dev_C
ch 03	101.8	dev_C
ch 04	100.1	dev_C
ch 05	101.4	dev_C
ch 06	99.1	dev_C
ch 07	104.0	dev_C
ch 08	105.4	dev_C
ch 09	107.9	dev_C
ch 10	105.4	dev_C
ch 11	109.8	dev_C
ch 12	112.3	dev_C
ch 13	101.5	dev_C
ch 14	102.5	dev_C

END DATA AVG. LEVEL 4/0

EXP 01--SCAN 100--12 17 15 14 51
Thermal Survey DAY 4°

ch 01	102.7	deg_C
ch 02	99.0	deg_C
ch 03	109.3	deg_C
ch 04	107.5	deg_C
ch 05	108.7	deg_C
ch 06	106.5	deg_C
ch 07	111.2	deg_C
ch 08	112.7	deg_C
ch 09	115.2	deg_C
ch 10	112.8	deg_C
ch 16	117.1	deg_C
ch 17	119.6	deg_C
ch 18	109.0	deg_C
ch 19	110.6	deg_C

EXP 01--SCAN 104--12 17 15 13 51
Thermal Survey DAY 4°

ch 01	102.8	deg_C
ch 02	99.1	deg_C
ch 03	109.4	deg_C
ch 04	107.5	deg_C
ch 05	108.6	deg_C
ch 06	106.5	deg_C
ch 07	111.8	deg_C
ch 08	113.0	deg_C
ch 09	115.3	deg_C
ch 10	112.9	deg_C
ch 16	117.2	deg_C
ch 17	119.6	deg_C
ch 18	109.0	deg_C
ch 19	110.6	deg_C

EXP 01--SCAN 108--12 17 15 22 51
Thermal Survey DAY 4°

ch 01	102.7	deg_C
ch 02	98.1	deg_C
ch 03	109.4	deg_C
ch 04	107.5	deg_C
ch 05	108.8	deg_C
ch 06	106.6	deg_C
ch 07	111.2	deg_C
ch 08	112.7	deg_C
ch 09	115.2	deg_C
ch 10	112.8	deg_C
ch 16	117.2	deg_C
ch 17	119.7	deg_C
ch 18	109.0	deg_C
ch 19	110.1	deg_C

EXP 01--SCAN 088--17 15 02 51
Thermal Survey DAY 4°

ch 01	102.5	deg_C
ch 02	98.3	deg_C
ch 03	109.0	deg_C
ch 04	107.0	deg_C
ch 05	108.4	deg_C
ch 06	105.1	deg_C
ch 07	111.3	deg_C
ch 08	112.5	deg_C
ch 09	114.8	deg_C
ch 10	112.5	deg_C
ch 16	116.8	deg_C
ch 17	119.2	deg_C
ch 18	108.6	deg_C
ch 19	109.6	deg_C

15:04 BEGIN DWELL

BEGIN DATA AVG.
EXP 01--SCAN 092--12 17 15 06 51
Thermal Survey DAY 4°

ch 01	102.7	deg_C
ch 02	98.1	deg_C
ch 03	109.1	deg_C
ch 04	107.1	deg_C
ch 05	108.3	deg_C
ch 06	106.3	deg_C
ch 07	111.5	deg_C
ch 08	112.7	deg_C
ch 09	115.0	deg_C
ch 10	112.7	deg_C
ch 16	117.0	deg_C
ch 17	119.4	deg_C
ch 18	108.6	deg_C
ch 19	109.6	deg_C

EXP 01--SCAN 096--12 17 15 10 51
Thermal Survey DAY 4°

ch 01	102.7	deg_C
ch 02	98.3	deg_C
ch 03	109.3	deg_C
ch 04	107.4	deg_C
ch 05	108.7	deg_C
ch 06	106.5	deg_C
ch 07	111.6	deg_C
ch 08	112.9	deg_C
ch 09	115.1	deg_C
ch 10	112.6	deg_C
ch 16	117.1	deg_C
ch 17	119.5	deg_C
ch 18	108.9	deg_C
ch 19	109.9	deg_C

EXP 01--SCAN 076--12 17 14 50
Thermal Survey DAY 4°

ch 01	101.7	deg_C
ch 02	98.6	deg_C
ch 03	107.8	deg_C
ch 04	105.9	deg_C
ch 05	107.1	deg_C
ch 06	105.1	deg_C
ch 07	109.4	deg_C
ch 08	110.9	deg_C
ch 09	113.2	deg_C
ch 10	111.1	deg_C
ch 16	115.5	deg_C
ch 17	118.0	deg_C
ch 18	107.2	deg_C
ch 19	106.2	deg_C

EXP 01--SCAN 080--12 17 14 54
Thermal Survey DAY 4°

ch 01	102.1	deg_C
ch 02	98.9	deg_C
ch 03	108.4	deg_C
ch 04	106.4	deg_C
ch 05	107.7	deg_C
ch 06	105.5	deg_C
ch 07	110.5	deg_C
ch 08	111.3	deg_C
ch 09	114.0	deg_C
ch 10	111.6	deg_C
ch 16	116.2	deg_C
ch 17	118.5	deg_C
ch 18	107.8	deg_C
ch 19	108.8	deg_C

EXP 01--SCAN 084--12 17 14 59
Thermal Survey DAY 4°

ch 01	102.4	deg_C
ch 02	98.3	deg_C
ch 03	108.7	deg_C
ch 04	106.9	deg_C
ch 05	108.1	deg_C
ch 06	105.9	deg_C
ch 07	110.3	deg_C
ch 08	111.9	deg_C
ch 09	114.4	deg_C
ch 10	112.1	deg_C
ch 16	115.6	deg_C
ch 17	119.0	deg_C
ch 18	108.3	deg_C
ch 19	109.3	deg_C

EXP 01--SCAN 135--12 17 15 50 51
Thermal Survey DAY 4

ch 01	103.1	deg_C
ch 02	98.3	deg_C
ch 03	109.4	deg_C
ch 04	107.5	deg_C
ch 05	106.9	deg_C
ch 06	106.7	deg_C
ch 07	111.9	deg_C
ch 08	113.0	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 16	117.3	deg_C
ch 17	119.7	deg_C
ch 18	109.1	deg_C
ch 19	110.1	deg_C

EXP 01--SCAN 140--12 17 15 54 51
Thermal Survey DAY 4

ch 01	103.1	deg_C
ch 02	98.4	deg_C
ch 03	109.4	deg_C
ch 04	107.5	deg_C
ch 05	108.6	deg_C
ch 06	106.7	deg_C
ch 07	111.9	deg_C
ch 08	113.0	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 16	117.3	deg_C
ch 17	119.7	deg_C
ch 18	109.1	deg_C
ch 19	110.1	deg_C

EXP 01--SCAN 144--12 17 15 58 51
Thermal Survey DAY 4

ch 01	103.2	deg_C
ch 02	98.2	deg_C
ch 03	109.4	deg_C
ch 04	107.5	deg_C
ch 05	108.9	deg_C
ch 06	106.6	deg_C
ch 07	111.3	deg_C
ch 08	112.8	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 16	117.3	deg_C
ch 17	119.8	deg_C
ch 18	109.2	deg_C
ch 19	110.2	deg_C

EXP 01--SCAN 124--12 15 38 51
Thermal Survey DAY 4

ch 01	102.8	deg_C
ch 02	98.6	deg_C
ch 03	109.4	deg_C
ch 04	107.5	deg_C
ch 05	108.9	deg_C
ch 06	106.6	deg_C
ch 07	111.9	deg_C
ch 08	113.0	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 16	117.3	deg_C
ch 17	119.7	deg_C
ch 18	109.1	deg_C
ch 19	110.1	deg_C

EXP 01--SCAN 128--12 17 15 42 51
Thermal Survey DAY 4

ch 01	103.0	deg_C
ch 02	98.6	deg_C
ch 03	109.4	deg_C
ch 04	107.5	deg_C
ch 05	108.9	deg_C
ch 06	106.6	deg_C
ch 07	111.9	deg_C
ch 08	113.0	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 16	117.3	deg_C
ch 17	119.7	deg_C
ch 18	109.1	deg_C
ch 19	110.2	deg_C

EXP 01--SCAN 132--12 17 15 46 51
Thermal Survey DAY 4

ch 01	103.1	deg_C
ch 02	98.1	deg_C
ch 03	109.4	deg_C
ch 04	107.5	deg_C
ch 05	108.9	deg_C
ch 06	106.6	deg_C
ch 07	111.5	deg_C
ch 08	112.8	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 16	117.3	deg_C
ch 17	119.7	deg_C
ch 18	109.1	deg_C
ch 19	110.1	deg_C

EXP 01--SCAN 112--12 17 15 26 51
Thermal Survey DAY 4

ch 01	102.8	deg_C
ch 02	98.7	deg_C
ch 03	109.4	deg_C
ch 04	107.5	deg_C
ch 05	108.8	deg_C
ch 06	106.6	deg_C
ch 07	111.2	deg_C
ch 08	112.7	deg_C
ch 09	115.3	deg_C
ch 10	112.9	deg_C
ch 16	117.2	deg_C
ch 17	119.7	deg_C
ch 18	109.1	deg_C
ch 19	110.1	deg_C

EXP 01--SCAN 116--12 17 15 30 51
Thermal Survey DAY 4

ch 01	102.9	deg_C
ch 02	98.4	deg_C
ch 03	109.4	deg_C
ch 04	107.5	deg_C
ch 05	108.9	deg_C
ch 06	106.6	deg_C
ch 07	111.9	deg_C
ch 08	113.0	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 16	117.3	deg_C
ch 17	119.7	deg_C
ch 18	109.1	deg_C
ch 19	110.1	deg_C

EXP 01--SCAN 120--12 17 15 34 51
Thermal Survey DAY 4

ch 01	102.9	deg_C
ch 02	98.7	deg_C
ch 03	109.4	deg_C
ch 04	107.5	deg_C
ch 05	108.9	deg_C
ch 06	106.6	deg_C
ch 07	111.9	deg_C
ch 08	113.1	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 16	117.3	deg_C
ch 17	119.7	deg_C
ch 18	109.1	deg_C
ch 19	110.1	deg_C

EXP 01--SCAN 148--12 17 16 02 51
Thermal Survey DAY 4*

ch 01	103.2	deg_C
ch 02	98.9	deg_C
ch 03	109.5	deg_C
ch 04	107.7	deg_C
ch 05	106.8	deg_C
ch 06	106.7	deg_C
ch 07	111.3	deg_C
ch 08	112.8	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 11	117.3	deg_C
ch 12	119.8	deg_C
ch 13	109.2	deg_C
ch 14	110.2	deg_C

EXP 01--SCAN 152--12 17 15 05 51
Thermal Survey DAY 4*

ch 01	103.2	deg_C
ch 02	98.9	deg_C
ch 03	109.5	deg_C
ch 04	107.7	deg_C
ch 05	106.8	deg_C
ch 06	106.7	deg_C
ch 07	111.3	deg_C
ch 08	112.8	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 11	117.3	deg_C
ch 12	119.8	deg_C
ch 13	109.2	deg_C
ch 14	110.2	deg_C

EXP 01--SCAN 156--12 17 15 10 51
Thermal Survey DAY 4*

ch 01	103.1	deg_C
ch 02	98.1	deg_C
ch 03	109.5	deg_C
ch 04	107.6	deg_C
ch 05	106.9	deg_C
ch 06	106.7	deg_C
ch 07	111.4	deg_C
ch 08	112.8	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 11	117.3	deg_C
ch 12	119.8	deg_C
ch 13	109.2	deg_C
ch 14	110.2	deg_C

EXP 01--SCAN 160--12 17 15 14 51
Thermal Survey DAY 4*

ch 01	103.2	deg_C
ch 02	99.1	deg_C
ch 03	109.5	deg_C
ch 04	107.6	deg_C
ch 05	106.8	deg_C
ch 06	106.7	deg_C
ch 07	111.6	deg_C
ch 08	112.9	deg_C
ch 09	115.4	deg_C
ch 10	113.0	deg_C
ch 11	117.4	deg_C
ch 12	119.8	deg_C
ch 13	109.2	deg_C
ch 14	110.2	deg_C

END DATA AVG. LEVEL 5/0

RAMP TO LEVEL 6 TEMP/O VOLTAGE

EXP 01--SCAN 164--12 17 16 18 51
Thermal Survey DAY 4*

ch 01	103.9	deg_C
ch 02	105.4	deg_C
ch 03	111.5	deg_C
ch 04	109.7	deg_C
ch 05	110.5	deg_C
ch 06	109.0	deg_C
ch 07	112.5	deg_C
ch 08	114.0	deg_C
ch 09	115.3	deg_C
ch 10	114.3	deg_C
ch 11	118.9	deg_C
ch 12	121.3	deg_C
ch 13	110.8	deg_C
ch 14	111.5	deg_C

EXP 01--SCAN 168--12 17 16 22 51
Thermal Survey DAY 4*

ch 01	105.4	deg_C
ch 02	104.8	deg_C
ch 03	112.3	deg_C
ch 04	111.4	deg_C
ch 05	112.5	deg_C
ch 06	110.7	deg_C
ch 07	114.5	deg_C
ch 08	115.0	deg_C
ch 09	116.2	deg_C
ch 10	115.3	deg_C
ch 11	120.3	deg_C
ch 12	123.3	deg_C
ch 13	112.7	deg_C
ch 14	113.5	deg_C

EXP 01--SCAN 172--12 17 16 26 51
Thermal Survey DAY 4*

ch 01	107.1	deg_C
ch 02	106.2	deg_C
ch 03	114.6	deg_C
ch 04	112.7	deg_C
ch 05	113.6	deg_C
ch 06	111.8	deg_C
ch 07	115.1	deg_C
ch 08	117.4	deg_C
ch 09	118.7	deg_C
ch 10	117.7	deg_C
ch 11	122.2	deg_C
ch 12	124.7	deg_C
ch 13	114.0	deg_C
ch 14	114.9	deg_C

EXP 01--SCAN 176--12 17 16 30 51
Thermal Survey DAY 4*

ch 01	108.0	deg_C
ch 02	105.1	deg_C
ch 03	115.5	deg_C
ch 04	113.5	deg_C
ch 05	114.7	deg_C
ch 06	112.6	deg_C
ch 07	116.9	deg_C
ch 08	118.4	deg_C
ch 09	120.6	deg_C
ch 10	118.7	deg_C
ch 11	123.0	deg_C
ch 12	125.5	deg_C
ch 13	114.9	deg_C
ch 14	115.9	deg_C

EXP 01--SCAN 180--12 17 16 34 51
Thermal Survey DAY 4*

ch 01	108.5	deg_C
ch 02	106.5	deg_C
ch 03	116.0	deg_C
ch 04	114.1	deg_C
ch 05	115.2	deg_C
ch 06	113.2	deg_C
ch 07	117.2	deg_C
ch 08	119.1	deg_C
ch 09	120.7	deg_C
ch 10	119.3	deg_C
ch 11	123.6	deg_C
ch 12	125.1	deg_C
ch 13	115.6	deg_C
ch 14	115.5	deg_C

EXP 01--SCAN 184--12 17 16 38
Thermal Survey DAY 4"

ch 01	108.6	deg_C
ch 02	105.5	deg_C
ch 03	116.4	deg_C
ch 04	114.5	deg_C
ch 05	115.7	deg_C
ch 06	113.5	deg_C
ch 07	118.1	deg_C
ch 08	119.6	deg_C
ch 09	121.3	deg_C
ch 10	119.7	deg_C
ch 15	124.0	deg_C
ch 17	126.5	deg_C
ch 18	115.0	deg_C
ch 19	117.0	deg_C

EXP 01--SCAN 198--12 17 16 42
Thermal Survey DAY 4"

ch 01	108.8	deg_C
ch 02	105.6	deg_C
ch 03	116.7	deg_C
ch 04	114.7	deg_C
ch 05	116.0	deg_C
ch 06	113.8	deg_C
ch 07	118.6	deg_C
ch 08	119.9	deg_C
ch 09	122.0	deg_C
ch 10	120.0	deg_C
ch 15	124.3	deg_C
ch 17	126.8	deg_C
ch 18	116.3	deg_C
ch 19	117.3	deg_C

16:44 BEGIN DWELL AT 6/0

BEGIN DATA AVG.

EXP 01--SCAN 192--12 17 15 45
Thermal Survey DAY 4"

ch 01	108.9	deg_C
ch 02	106.3	deg_C
ch 03	116.8	deg_C
ch 04	114.8	deg_C
ch 05	116.1	deg_C
ch 06	113.9	deg_C
ch 07	119.1	deg_C
ch 08	120.1	deg_C
ch 09	123.1	deg_C
ch 10	120.3	deg_C
ch 15	124.5	deg_C
ch 17	126.9	deg_C
ch 18	116.5	deg_C
ch 19	117.5	deg_C

EXP 01--SCAN 195--12 17 16 50 S1
Thermal Survey DAY 4"

ch 01	108.8	deg_C
ch 02	105.8	deg_C
ch 03	116.8	deg_C
ch 04	115.0	deg_C
ch 05	116.2	deg_C
ch 06	114.0	deg_C
ch 07	118.4	deg_C
ch 08	120.2	deg_C
ch 09	121.9	deg_C
ch 10	120.3	deg_C
ch 15	124.5	deg_C
ch 17	127.1	deg_C
ch 18	115.6	deg_C
ch 19	117.6	deg_C

EXP 01--SCAN 200--12 17 16 54 S1
Thermal Survey DAY 4"

ch 01	108.9	deg_C
ch 02	105.5	deg_C
ch 03	117.0	deg_C
ch 04	115.1	deg_C
ch 05	116.3	deg_C
ch 06	114.0	deg_C
ch 07	119.3	deg_C
ch 08	120.3	deg_C
ch 09	123.0	deg_C
ch 10	120.4	deg_C
ch 15	124.6	deg_C
ch 17	127.1	deg_C
ch 18	119.7	deg_C
ch 19	117.7	deg_C

EXP 01--SCAN 204--12 17 16 58 S1
Thermal Survey DAY 4"

ch 01	108.1	deg_C
ch 02	106.8	deg_C
ch 03	117.1	deg_C
ch 04	115.2	deg_C
ch 05	116.3	deg_C
ch 06	114.1	deg_C
ch 07	119.7	deg_C
ch 08	120.5	deg_C
ch 09	122.6	deg_C
ch 10	120.4	deg_C
ch 15	124.7	deg_C
ch 17	127.3	deg_C
ch 18	116.7	deg_C
ch 19	117.7	deg_C

EXP 01--SCAN 206--12 17 17 02 S1
Thermal Survey DAY 4"

ch 01	109.2	deg_C
ch 02	107.1	deg_C
ch 03	117.1	deg_C
ch 04	115.2	deg_C
ch 05	116.3	deg_C
ch 06	114.1	deg_C
ch 07	118.7	deg_C
ch 08	120.3	deg_C
ch 09	122.6	deg_C
ch 10	120.4	deg_C
ch 15	124.7	deg_C
ch 17	127.2	deg_C
ch 18	116.8	deg_C
ch 19	117.8	deg_C

EXP 01--SCAN 212--12 17 17 06 S1
Thermal Survey DAY 4"

ch 01	109.1	deg_C
ch 02	105.5	deg_C
ch 03	117.1	deg_C
ch 04	115.2	deg_C
ch 05	116.4	deg_C
ch 06	114.2	deg_C
ch 07	119.3	deg_C
ch 08	120.3	deg_C
ch 09	122.9	deg_C
ch 10	120.7	deg_C
ch 15	124.8	deg_C
ch 17	127.2	deg_C
ch 18	116.8	deg_C
ch 19	117.8	deg_C

EXP 01--SCAN 216--12 17 17 10 S1
Thermal Survey DAY 4"

ch 01	108.2	deg_C
ch 02	105.8	deg_C
ch 03	117.1	deg_C
ch 04	115.1	deg_C
ch 05	116.4	deg_C
ch 06	114.2	deg_C
ch 07	119.6	deg_C
ch 08	120.4	deg_C
ch 09	123.5	deg_C
ch 10	120.4	deg_C
ch 15	124.7	deg_C
ch 17	127.2	deg_C
ch 18	116.8	deg_C
ch 19	117.8	deg_C

17:04 TO 17:14 OPERATED SYNTH'S AT FIXED
FREQUENCY RATHER THAN HOPPING. (TC1 & TC7)

EXP 01--SCAN 226--12 17 17 14 51
Thermal Survey DAY 4

ch 01	107.9	deg_C
ch 02	105.5	deg_C
ch 03	117.1	deg_C
ch 04	115.2	deg_C
ch 05	116.4	deg_C
ch 06	114.1	deg_C
ch 07	119.4	deg_C
ch 08	120.4	deg_C
ch 09	123.0	deg_C
ch 10	120.3	deg_C
ch 16	124.7	deg_C
ch 17	127.2	deg_C
ch 18	116.8	deg_C
ch 19	117.8	deg_C

EXP 01--SCAN 224--12 17 17 19 51
Thermal Survey DAY 4

ch 01	108.8	deg_C
ch 02	107.2	deg_C
ch 03	117.1	deg_C
ch 04	115.2	deg_C
ch 05	115.4	deg_C
ch 06	114.2	deg_C
ch 07	118.9	deg_C
ch 08	120.3	deg_C
ch 09	122.8	deg_C
ch 10	120.4	deg_C
ch 15	124.7	deg_C
ch 17	127.2	deg_C
ch 18	116.8	deg_C
ch 19	117.8	deg_C

EXP 01--SCAN 228--12 17 17 22 51
Thermal Survey DAY 4

ch 01	108.7	deg_C
ch 02	105.5	deg_C
ch 03	117.1	deg_C
ch 04	115.2	deg_C
ch 05	116.4	deg_C
ch 06	114.2	deg_C
ch 07	119.4	deg_C
ch 08	120.4	deg_C
ch 09	123.6	deg_C
ch 10	120.5	deg_C
ch 16	124.8	deg_C
ch 17	127.2	deg_C
ch 18	116.8	deg_C
ch 19	117.9	deg_C

EXP 01--SCAN 232--12 17 17 25 51
Thermal Survey DAY 4

ch 01	106.5	deg_C
ch 02	105.2	deg_C
ch 03	117.1	deg_C
ch 04	115.2	deg_C
ch 05	115.4	deg_C
ch 06	114.1	deg_C
ch 07	119.6	deg_C
ch 08	120.4	deg_C
ch 09	123.3	deg_C
ch 10	120.6	deg_C
ch 16	124.7	deg_C
ch 17	127.3	deg_C
ch 18	116.8	deg_C
ch 19	117.9	deg_C

EXP 01--SCAN 235--12 17 17 30 51
Thermal Survey DAY 4

ch 01	106.9	deg_C
ch 02	105.4	deg_C
ch 03	117.1	deg_C
ch 04	115.2	deg_C
ch 05	115.5	deg_C
ch 06	114.2	deg_C
ch 07	118.2	deg_C
ch 08	120.4	deg_C
ch 09	122.7	deg_C
ch 10	120.6	deg_C
ch 16	124.8	deg_C
ch 17	127.3	deg_C
ch 18	116.9	deg_C
ch 19	117.9	deg_C

EXP 01--SCAN 240--12 17 17 34 51
Thermal Survey DAY 4

ch 01	108.9	deg_C
ch 02	105.9	deg_C
ch 03	117.1	deg_C
ch 04	115.2	deg_C
ch 05	115.4	deg_C
ch 06	114.2	deg_C
ch 07	118.5	deg_C
ch 08	120.4	deg_C
ch 09	123.3	deg_C
ch 10	120.6	deg_C
ch 16	124.8	deg_C
ch 17	127.3	deg_C
ch 18	116.9	deg_C
ch 19	117.9	deg_C

EXP 01--SCAN 244--12 17 17 38 51
Thermal Survey DAY 4

ch 01	108.9	deg_C
ch 02	105.7	deg_C
ch 03	117.1	deg_C
ch 04	115.3	deg_C
ch 05	116.4	deg_C
ch 06	114.2	deg_C
ch 07	119.6	deg_C
ch 08	120.4	deg_C
ch 09	123.7	deg_C
ch 10	120.6	deg_C
ch 16	124.8	deg_C
ch 17	127.3	deg_C
ch 18	116.9	deg_C
ch 19	117.9	deg_C

EXP 01--SCAN 248--12 17 17 42 51
Thermal Survey DAY 4

ch 01	108.8	deg_C
ch 02	105.9	deg_C
ch 03	117.1	deg_C
ch 04	115.3	deg_C
ch 05	116.5	deg_C
ch 06	114.2	deg_C
ch 07	118.5	deg_C
ch 08	120.4	deg_C
ch 09	123.7	deg_C
ch 10	120.6	deg_C
ch 16	124.8	deg_C
ch 17	127.3	deg_C
ch 18	116.9	deg_C
ch 19	117.9	deg_C

PRINTER JAM: OMIT DATA FOR

17:46, 17:50, & 17:54 FROM DATA AVG.

EXP 01--SCAN 261--12 17 17 58 51
Thermal Survey DAY 4

ch 01	108.5	deg_C
ch 02	105.6	deg_C
ch 03	117.1	deg_C
ch 04	115.2	deg_C
ch 05	115.4	deg_C
ch 06	114.1	deg_C
ch 07	118.9	deg_C
ch 08	129.3	deg_C
ch 09	122.5	deg_C
ch 10	126.6	deg_C
ch 11	124.7	deg_C
ch 12	127.2	deg_C
ch 13	116.9	deg_C
ch 14	117.9	deg_C

EXP 01--SCAN 266--12 17 18 02 51
Thermal Survey DAY 4

ch 01	108.6	deg_C
ch 02	105.8	deg_C
ch 03	117.1	deg_C
ch 04	115.2	deg_C
ch 05	115.4	deg_C
ch 06	114.1	deg_C
ch 07	119.2	deg_C
ch 08	129.4	deg_C
ch 09	122.9	deg_C
ch 10	126.6	deg_C
ch 11	124.7	deg_C
ch 12	127.3	deg_C
ch 13	117.0	deg_C
ch 14	117.8	deg_C

END DATA AVG.

BEGIN RAMP TO LEVEL 7 TEMP/LEVEL 0 VOLTAGE

EXP 01--SCAN 272--12 17 19 06 51
Thermal Survey DAY 4

ch 01	111.9	deg_C
ch 02	111.4	deg_C
ch 03	119.1	deg_C
ch 04	117.2	deg_C
ch 05	118.1	deg_C
ch 06	115.4	deg_C
ch 07	128.7	deg_C
ch 08	121.5	deg_C
ch 09	124.4	deg_C
ch 10	121.7	deg_C
ch 11	125.2	deg_C
ch 12	126.7	deg_C
ch 13	118.5	deg_C
ch 14	119.0	deg_C

EXP 01--SCAN 275--12 17 19 10 51
Thermal Survey DAY 4

ch 01	114.6	deg_C
ch 02	113.3	deg_C
ch 03	121.0	deg_C
ch 04	119.1	deg_C
ch 05	120.0	deg_C
ch 06	118.0	deg_C
ch 07	122.3	deg_C
ch 08	123.4	deg_C
ch 09	128.2	deg_C
ch 10	124.0	deg_C
ch 11	128.3	deg_C
ch 12	129.8	deg_C
ch 13	129.3	deg_C
ch 14	121.1	deg_C

EXP 01--SCAN 280--12 17 19 14 51
Thermal Survey DAY 4

ch 01	115.6	deg_C
ch 02	113.3	deg_C
ch 03	122.3	deg_C
ch 04	120.4	deg_C
ch 05	121.3	deg_C
ch 06	119.2	deg_C
ch 07	123.9	deg_C
ch 08	124.9	deg_C
ch 09	126.4	deg_C
ch 10	125.5	deg_C
ch 11	128.7	deg_C
ch 12	132.2	deg_C
ch 13	121.7	deg_C
ch 14	122.6	deg_C

EXP 01--SCAN 286--12 17 19 20 51
Thermal Survey DAY 4

ch 01	115.9	deg_C
ch 02	113.1	deg_C
ch 03	124.5	deg_C
ch 04	122.5	deg_C
ch 05	123.5	deg_C
ch 06	120.9	deg_C
ch 07	125.5	deg_C
ch 08	127.4	deg_C
ch 09	129.0	deg_C
ch 10	127.9	deg_C
ch 11	132.0	deg_C
ch 12	134.4	deg_C
ch 13	124.0	deg_C
ch 14	125.1	deg_C

EXP 01--SCAN 288--12 17 19 22 51
Thermal Survey DAY 4

ch 01	114.7	deg_C
ch 02	113.1	deg_C
ch 03	123.8	deg_C
ch 04	121.9	deg_C
ch 05	122.8	deg_C
ch 06	120.4	deg_C
ch 07	124.8	deg_C
ch 08	126.6	deg_C
ch 09	128.3	deg_C
ch 10	127.1	deg_C
ch 11	131.3	deg_C
ch 12	133.7	deg_C
ch 13	123.3	deg_C
ch 14	124.3	deg_C

EXP 01--SCAN 292--12 17 19 25 51
Thermal Survey DAY 4

ch 01	115.7	deg_C
ch 02	113.0	deg_C
ch 03	124.2	deg_C
ch 04	122.3	deg_C
ch 05	123.3	deg_C
ch 06	120.8	deg_C
ch 07	125.0	deg_C
ch 08	127.1	deg_C
ch 09	128.8	deg_C
ch 10	127.6	deg_C
ch 11	131.7	deg_C
ch 12	134.1	deg_C
ch 13	123.7	deg_C
ch 14	124.6	deg_C

18:32 BEGIN DWELL 7/0

EXP 01--SCAN 300--12 17 18 34 51

Thermal Survey DAY 4

ch 01 115.0 dew_C
ch 02 113.0 dew_C
ch 03 124.8 dew_C
ch 04 122.7 dew_C
ch 05 124.5 dew_C
ch 06 121.0 dew_C
ch 07 125.5 dew_C
ch 08 127.6 dew_C
ch 09 129.7 dew_C
ch 10 128.0 dew_C
ch 16 132.1 dew_C
ch 17 134.6 dew_C
ch 18 124.3 dew_C
ch 19 125.3 dew_C

EXP 01--SCAN 312--12 17 18 45 51

Thermal Survey DAY 4

ch 01 115.8 dew_C
ch 02 114.8 dew_C
ch 03 124.8 dew_C
ch 04 122.9 dew_C
ch 05 123.2 dew_C
ch 06 121.1 dew_C
ch 07 126.3 dew_C
ch 08 127.8 dew_C
ch 09 131.0 dew_C
ch 10 128.5 dew_C
ch 16 132.4 dew_C
ch 17 134.8 dew_C
ch 18 124.6 dew_C
ch 19 125.5 dew_C

EXP 01--SCAN 324--12 17 18 58 51

Thermal Survey DAY 4

ch 01 115.6 dew_C
ch 02 113.2 dew_C
ch 03 124.9 dew_C
ch 04 123.0 dew_C
ch 05 124.1 dew_C
ch 06 121.2 dew_C
ch 07 126.5 dew_C
ch 08 127.9 dew_C
ch 09 129.9 dew_C
ch 10 128.4 dew_C
ch 16 132.4 dew_C
ch 17 134.9 dew_C
ch 18 124.7 dew_C
ch 19 125.6 dew_C

EXP 01--SCAN 304--12 17 18 38 51

Thermal Survey DAY 4

ch 01 116.1 dew_C
ch 02 113.3 dew_C
ch 03 124.7 dew_C
ch 04 122.8 dew_C
ch 05 124.6 dew_C
ch 06 121.1 dew_C
ch 07 128.9 dew_C
ch 08 127.7 dew_C
ch 09 130.6 dew_C
ch 10 128.2 dew_C
ch 16 132.2 dew_C
ch 17 134.7 dew_C
ch 18 124.5 dew_C
ch 19 125.4 dew_C

EXP 01--SCAN 316--12 17 18 50 51

Thermal Survey DAY 4

ch 01 115.7 dew_C
ch 02 113.6 dew_C
ch 03 124.9 dew_C
ch 04 122.9 dew_C
ch 05 123.4 dew_C
ch 06 121.1 dew_C
ch 07 125.9 dew_C
ch 08 127.8 dew_C
ch 09 129.6 dew_C
ch 10 128.3 dew_C
ch 16 132.4 dew_C
ch 17 134.8 dew_C
ch 18 124.4 dew_C
ch 19 125.5 dew_C

EXP 01--SCAN 326--12 17 19 02 51

Thermal Survey DAY 4

ch 01 115.2 dew_C
ch 02 114.2 dew_C
ch 03 124.9 dew_C
ch 04 123.0 dew_C
ch 05 124.2 dew_C
ch 06 121.1 dew_C
ch 07 127.1 dew_C
ch 08 127.9 dew_C
ch 09 131.1 dew_C
ch 10 128.5 dew_C
ch 16 132.5 dew_C
ch 17 134.9 dew_C
ch 18 124.7 dew_C
ch 19 125.6 dew_C

EXP 01--SCAN 308--12 17 18 42 51

Thermal Survey DAY 4

ch 01 115.8 dew_C
ch 02 114.2 dew_C
ch 03 124.8 dew_C
ch 04 122.8 dew_C
ch 05 124.4 dew_C
ch 06 121.1 dew_C
ch 07 127.2 dew_C
ch 08 127.8 dew_C
ch 09 129.8 dew_C
ch 10 128.3 dew_C
ch 16 132.3 dew_C
ch 17 134.8 dew_C
ch 18 124.6 dew_C
ch 19 125.5 dew_C

EXP 01--SCAN 328--12 17 18 54 51

Thermal Survey DAY 4

ch 01 115.7 dew_C
ch 02 113.1 dew_C
ch 03 124.9 dew_C
ch 04 122.9 dew_C
ch 05 124.4 dew_C
ch 06 121.1 dew_C
ch 07 128.6 dew_C
ch 08 127.8 dew_C
ch 09 129.7 dew_C
ch 10 128.4 dew_C
ch 16 132.4 dew_C
ch 17 134.8 dew_C
ch 18 124.5 dew_C
ch 19 125.6 dew_C

EXP 01--SCAN 332--12 17 19 06 51

Thermal Survey DAY 4

ch 01 115.9 dew_C
ch 02 114.2 dew_C
ch 03 124.9 dew_C
ch 04 123.6 dew_C
ch 05 123.3 dew_C
ch 06 121.1 dew_C
ch 07 125.9 dew_C
ch 08 127.9 dew_C
ch 09 129.8 dew_C
ch 10 128.4 dew_C
ch 16 132.5 dew_C
ch 17 134.9 dew_C
ch 18 124.6 dew_C
ch 19 125.7 dew_C

EXP 01--SCAN 335--12 17 19 10 51
Thermal Survey DAY 4

ch 01	115.0	deg_C
ch 02	113.3	deg_C
ch 03	124.9	deg_C
ch 04	123.0	deg_C
ch 05	124.4	deg_C
ch 06	121.1	deg_C
ch 07	126.5	deg_C
ch 08	127.9	deg_C
ch 09	129.9	deg_C
ch 10	128.5	deg_C
ch 11	132.5	deg_C
ch 12	134.9	deg_C
ch 13	124.7	deg_C
ch 14	125.7	deg_C

EXP 01--SCAN 340--12 17 19 14 51
Thermal Survey DAY 4

ch 01	114.8	deg_C
ch 02	114.1	deg_C
ch 03	124.9	deg_C
ch 04	123.0	deg_C
ch 05	123.4	deg_C
ch 06	121.1	deg_C
ch 07	125.9	deg_C
ch 08	127.9	deg_C
ch 09	128.6	deg_C
ch 10	128.5	deg_C
ch 11	132.5	deg_C
ch 12	134.9	deg_C
ch 13	124.7	deg_C
ch 14	125.7	deg_C

EXP 01--SCAN 343--12 17 19 22 51
Thermal Survey DAY 4

ch 01	114.8	deg_C
ch 02	113.4	deg_C
ch 03	124.9	deg_C
ch 04	123.0	deg_C
ch 05	123.9	deg_C
ch 06	121.1	deg_C
ch 07	126.3	deg_C
ch 08	127.9	deg_C
ch 09	129.8	deg_C
ch 10	128.4	deg_C
ch 11	132.5	deg_C
ch 12	134.9	deg_C
ch 13	124.7	deg_C
ch 14	125.7	deg_C

EXP 01--SCAN 352--12 17 19 26 51
Thermal Survey DAY 4

ch 01	112.3	deg_C
ch 02	114.5	deg_C
ch 03	124.9	deg_C
ch 04	123.0	deg_C
ch 05	123.3	deg_C
ch 06	121.1	deg_C
ch 07	126.1	deg_C
ch 08	127.9	deg_C
ch 09	130.4	deg_C
ch 10	128.4	deg_C
ch 11	132.5	deg_C
ch 12	134.9	deg_C
ch 13	124.6	deg_C
ch 14	125.7	deg_C

EXP 01--SCAN 344--12 17 19 19 51
Thermal Survey DAY 4

ch 01	114.7	deg_C
ch 02	113.7	deg_C
ch 03	124.9	deg_C
ch 04	123.1	deg_C
ch 05	123.4	deg_C
ch 06	121.1	deg_C
ch 07	125.8	deg_C
ch 08	127.9	deg_C
ch 09	128.7	deg_C
ch 10	128.5	deg_C
ch 11	132.5	deg_C
ch 12	134.9	deg_C
ch 13	124.7	deg_C
ch 14	125.7	deg_C

EXP 01--SCAN 356--12 17 19 30 51
Thermal Survey DAY 4

ch 01	112.5	deg_C
ch 02	114.9	deg_C
ch 03	124.9	deg_C
ch 04	123.0	deg_C
ch 05	123.2	deg_C
ch 06	121.1	deg_C
ch 07	126.0	deg_C
ch 08	127.9	deg_C
ch 09	129.2	deg_C
ch 10	128.5	deg_C
ch 11	132.5	deg_C
ch 12	134.9	deg_C
ch 13	124.7	deg_C
ch 14	125.7	deg_C

EXP 01--SCAN 360--12 17 19 34 51
Thermal Survey DAY 4

ch 01	112.7	deg_C
ch 02	114.5	deg_C
ch 03	124.9	deg_C
ch 04	123.0	deg_C
ch 05	123.4	deg_C
ch 06	121.0	deg_C
ch 07	126.0	deg_C
ch 08	127.9	deg_C
ch 09	128.7	deg_C
ch 10	126.4	deg_C
ch 11	132.5	deg_C
ch 12	134.9	deg_C
ch 13	124.7	deg_C
ch 14	125.7	deg_C

END DATA AVG.

BEGIN RAMP TO LEVEL 8 TEMP/LEVEL 0 VOLTAGE

EXP 01--SCAN 364--12 17 19 38 51
Thermal Survey DAY 4

ch 01	119.5	deg_C
ch 02	119.3	deg_C
ch 03	126.9	deg_C
ch 04	124.9	deg_C
ch 05	126.2	deg_C
ch 06	122.9	deg_C
ch 07	128.4	deg_C
ch 08	128.0	deg_C
ch 09	131.4	deg_C
ch 10	128.5	deg_C
ch 11	133.9	deg_C
ch 12	136.3	deg_C
ch 13	126.3	deg_C
ch 14	126.9	deg_C

EXP 01--SCAN 368--12 17 19 42 51
Thermal Survey DAY 4

ch 01	120.7	deg_C
ch 02	119.8	deg_C
ch 03	126.9	deg_C
ch 04	126.7	deg_C
ch 05	126.3	deg_C
ch 06	124.6	deg_C
ch 07	129.9	deg_C
ch 08	130.9	deg_C
ch 09	132.9	deg_C
ch 10	131.5	deg_C
ch 11	135.9	deg_C
ch 12	136.3	deg_C
ch 13	128.1	deg_C
ch 14	126.7	deg_C

EXP 01--SCAN 372--12 17 19 45 S1
Thermal Survey DAY 4

ch 01	122.5	dev_C
ch 02	121.5	dev_C
ch 03	123.9	dev_C
ch 04	128.0	dev_C
ch 05	128.5	dev_C
ch 06	125.7	dev_C
ch 07	131.2	dev_C
ch 08	132.3	dev_C
ch 09	133.0	dev_C
ch 10	137.2	dev_C
ch 11	139.7	dev_C
ch 12	129.4	dev_C
ch 13	130.3	dev_C

EXP 01--SCAN 376--12 17 19 50 S1
Thermal Survey DAY 4

ch 01	123.7	dev_C
ch 02	120.8	dev_C
ch 03	130.6	dev_C
ch 04	128.9	dev_C
ch 05	130.6	dev_C
ch 06	126.5	dev_C
ch 07	132.6	dev_C
ch 08	135.8	dev_C
ch 09	134.0	dev_C
ch 10	138.2	dev_C
ch 11	140.6	dev_C
ch 12	130.5	dev_C
ch 13	131.3	dev_C

EXP 01--SCAN 380--12 17 19 54 S1
Thermal Survey DAY 4

ch 01	123.9	dev_C
ch 02	121.9	dev_C
ch 03	121.5	dev_C
ch 04	129.6	dev_C
ch 05	130.6	dev_C
ch 06	126.6	dev_C
ch 07	133.5	dev_C
ch 08	134.1	dev_C
ch 09	137.1	dev_C
ch 10	134.7	dev_C
ch 11	138.6	dev_C
ch 12	141.3	dev_C
ch 13	131.3	dev_C
ch 14	132.0	dev_C

EXP 01--SCAN 384--12 17 19 58 S1
Thermal Survey DAY 4

ch 01	123.3	dev_C
ch 02	122.4	dev_C
ch 03	121.9	dev_C
ch 04	129.0	dev_C
ch 05	130.9	dev_C
ch 06	127.0	dev_C
ch 07	132.6	dev_C
ch 08	134.5	dev_C
ch 09	137.7	dev_C
ch 10	135.2	dev_C
ch 11	139.3	dev_C
ch 12	141.7	dev_C
ch 13	131.6	dev_C
ch 14	132.6	dev_C

EXP 01--SCAN 388--12 17 20 02 S1
Thermal Survey DAY 4

ch 01	129.5	dev_C
ch 02	124.7	dev_C
ch 03	130.5	dev_C
ch 04	127.2	dev_C
ch 05	123.4	dev_C
ch 06	124.8	dev_C
ch 07	127.5	dev_C
ch 08	135.4	dev_C
ch 09	139.5	dev_C
ch 10	142.0	dev_C
ch 11	132.0	dev_C
ch 12	133.0	dev_C

20:04 BEGIN DWELL 8/0

BEGIN DATA AVG.

EXP 01--SCAN 392--12 17 20 05 S1
Thermal Survey DAY 4

ch 01	103.8	dev_C
ch 02	122.3	dev_C
ch 03	132.3	dev_C
ch 04	120.5	dev_C
ch 05	121.7	dev_C
ch 06	127.4	dev_C
ch 07	134.5	dev_C
ch 08	135.1	dev_C
ch 09	138.2	dev_C
ch 10	135.7	dev_C
ch 11	139.7	dev_C
ch 12	132.1	dev_C
ch 13	132.5	dev_C
ch 14	133.2	dev_C

20:06 TCI DROPS OUT &
IS FLUCTUATING. IS
INACCURATE FOR DATA.

EXP 01--SCAN 396--12 17 20 10 S1
Thermal Survey DAY 4

ch 01	93.1	dev_C
ch 02	120.9	dev_C
ch 03	132.5	dev_C
ch 04	130.7	dev_C
ch 05	132.1	dev_C
ch 06	127.6	dev_C
ch 07	134.1	dev_C
ch 08	135.2	dev_C
ch 09	137.5	dev_C
ch 10	135.7	dev_C
ch 11	139.8	dev_C
ch 12	142.3	dev_C
ch 13	132.6	dev_C
ch 14	133.3	dev_C

EXP 01--SCAN 400--12 17 20 14 S1
Thermal Survey DAY 4

ch 01	103.8	dev_C
ch 02	120.7	dev_C
ch 03	132.5	dev_C
ch 04	130.6	dev_C
ch 05	132.1	dev_C
ch 06	127.6	dev_C
ch 07	133.9	dev_C
ch 08	136.4	dev_C
ch 09	137.6	dev_C
ch 10	135.6	dev_C
ch 11	139.8	dev_C
ch 12	142.4	dev_C
ch 13	132.6	dev_C
ch 14	133.4	dev_C

EXP 01--SCAN 404--12 17 20 18 S1
Thermal Survey DAY 4

ch 01	95.7	dev_C
ch 02	121.0	dev_C
ch 03	132.6	dev_C
ch 04	130.9	dev_C
ch 05	133.4	dev_C
ch 06	127.6	dev_C
ch 07	134.7	dev_C
ch 08	135.6	dev_C
ch 09	136.7	dev_C
ch 10	138.9	dev_C
ch 11	140.9	dev_C
ch 12	132.7	dev_C
ch 13	133.6	dev_C

EXP 01--SCAN 408--12 17 20 22 51
Thermal Survey DAY 4

ch 01	76.7	dev_C
ch 02	122.0	dev_C
ch 03	132.6	dev_C
ch 04	138.6	dev_C
ch 05	131.7	dev_C
ch 06	127.5	dev_C
ch 07	134.7	dev_C
ch 08	135.6	dev_C
ch 09	136.6	dev_C
ch 10	136.0	dev_C
ch 11	140.0	dev_C
ch 12	142.5	dev_C
ch 13	132.8	dev_C
ch 14	133.5	dev_C

EXP 01--SCAN 420--12 17 20 34 51
Thermal Survey DAY 4

TCL RECOVERS (BEGIN ITS AVG. HERE)

ch 01	128.5	dev_C
ch 02	122.2	dev_C
ch 03	132.7	dev_C
ch 04	138.6	dev_C
ch 05	131.0	dev_C
ch 06	127.0	dev_C
ch 07	134.2	dev_C
ch 08	135.4	dev_C
ch 09	138.4	dev_C
ch 10	135.0	dev_C
ch 11	140.1	dev_C
ch 12	142.5	dev_C
ch 13	132.4	dev_C
ch 14	133.4	dev_C

EXP 01--SCAN 432--12 17 20 46 51
Thermal Survey DAY 4

ch 01	128.5	dev_C
ch 02	121.9	dev_C
ch 03	132.6	dev_C
ch 04	138.8	dev_C
ch 05	131.9	dev_C
ch 06	126.1	dev_C
ch 07	134.2	dev_C
ch 08	135.2	dev_C
ch 09	138.5	dev_C
ch 10	138.0	dev_C
ch 11	140.1	dev_C
ch 12	142.5	dev_C
ch 13	132.5	dev_C
ch 14	133.4	dev_C

EXP 01--SCAN 412--12 17 20 28 51
Thermal Survey DAY 4

PRINTER JAM: LOST DATA TC5
EXP 01--SCAN 416--12 17 20 30 51
Thermal Survey DAY 4

ch 01	122.9	dev_C
ch 02	122.4	dev_C
ch 03	132.6	dev_C
ch 04	138.6	dev_C
ch 05	132.3	dev_C
ch 06	127.4	dev_C
ch 07	134.6	dev_C
ch 08	135.5	dev_C
ch 09	136.1	dev_C
ch 10	136.0	dev_C
ch 11	140.1	dev_C
ch 12	142.5	dev_C
ch 13	132.4	dev_C

EXP 01--SCAN 424--12 17 20 38 51
Thermal Survey DAY 4

ch 01	128.7	dev_C
ch 02	120.9	dev_C
ch 03	132.7	dev_C
ch 04	138.7	dev_C
ch 05	131.9	dev_C
ch 06	129.1	dev_C
ch 07	134.2	dev_C
ch 08	135.4	dev_C
ch 09	137.4	dev_C
ch 10	136.0	dev_C
ch 11	140.1	dev_C
ch 12	142.5	dev_C
ch 13	132.4	dev_C
ch 14	133.4	dev_C

EXP 01--SCAN 436--12 17 20 50 51
Thermal Survey DAY 4

ch 01	128.5	dev_C
ch 02	122.4	dev_C
ch 03	132.5	dev_C
ch 04	138.8	dev_C
ch 05	138.9	dev_C
ch 06	128.3	dev_C
ch 07	134.1	dev_C
ch 08	135.4	dev_C
ch 09	138.5	dev_C
ch 10	136.0	dev_C
ch 11	140.1	dev_C
ch 12	142.5	dev_C
ch 13	132.5	dev_C
ch 14	133.4	dev_C

EXP 01--SCAN 426--12 17 20 42 51
Thermal Survey DAY 4

ch 01	128.7	dev_C
ch 02	122.2	dev_C
ch 03	132.6	dev_C
ch 04	138.6	dev_C
ch 05	131.7	dev_C
ch 06	126.1	dev_C
ch 07	134.2	dev_C
ch 08	135.4	dev_C
ch 09	138.5	dev_C
ch 10	136.0	dev_C
ch 11	140.1	dev_C
ch 12	142.5	dev_C
ch 13	132.5	dev_C
ch 14	133.4	dev_C

EXP 01--SCAN 438--12 17 20 54 51
Thermal Survey DAY 4

ch 01	128.5	dev_C
ch 02	121.5	dev_C
ch 03	132.7	dev_C
ch 04	138.7	dev_C
ch 05	138.9	dev_C
ch 06	124.6	dev_C
ch 07	134.9	dev_C
ch 08	139.4	dev_C
ch 09	137.6	dev_C
ch 10	136.0	dev_C
ch 11	140.1	dev_C
ch 12	142.5	dev_C
ch 13	132.4	dev_C
ch 14	133.4	dev_C

EXP 01--SCAN 444--12 17 20 58 51

Thermal Survey DAY 4

ch 01	123.7	deg_C
ch 02	122.8	deg_C
ch 03	132.7	deg_C
ch 04	130.8	deg_C
ch 05	131.3	deg_C
ch 06	124.8	deg_C
ch 07	135.2	deg_C
ch 08	135.5	deg_C
ch 09	136.2	deg_C
ch 10	136.1	deg_C
ch 16	140.2	deg_C
ch 17	142.5	deg_C
ch 18	132.5	deg_C
ch 19	133.4	deg_C

EXP 01--SCAN 455--12 17 21 10 51

Thermal Survey DAY 4

ch 01	126.6	deg_C
ch 02	121.7	deg_C
ch 03	132.7	deg_C
ch 04	130.8	deg_C
ch 05	131.0	deg_C
ch 06	125.4	deg_C
ch 07	136.2	deg_C
ch 08	135.5	deg_C
ch 09	137.8	deg_C
ch 10	135.8	deg_C
ch 16	140.1	deg_C
ch 17	142.6	deg_C
ch 18	132.6	deg_C
ch 19	133.5	deg_C

EXP 01--SCAN 468--12 17 21 22 51

Thermal Survey DAY 4

ch 01	128.6	deg_C
ch 02	121.5	deg_C
ch 03	132.7	deg_C
ch 04	130.8	deg_C
ch 05	132.2	deg_C
ch 06	125.1	deg_C
ch 07	135.2	deg_C
ch 08	135.5	deg_C
ch 09	138.5	deg_C
ch 10	135.8	deg_C
ch 16	140.1	deg_C
ch 17	142.6	deg_C
ch 18	132.7	deg_C
ch 19	133.5	deg_C

EXP 01--SCAN 448--12 17 21 02 51

Thermal Survey DAY 4

ch 01	123.7	deg_C
ch 02	122.4	deg_C
ch 03	132.7	deg_C
ch 04	130.8	deg_C
ch 05	131.5	deg_C
ch 06	125.3	deg_C
ch 07	135.2	deg_C
ch 08	135.5	deg_C
ch 09	136.5	deg_C
ch 10	136.1	deg_C
ch 16	140.2	deg_C
ch 17	142.5	deg_C
ch 18	132.5	deg_C
ch 19	133.5	deg_C

EXP 01--SCAN 460--12 17 21 14 51

Thermal Survey DAY 4

ch 01	123.6	deg_C
ch 02	121.3	deg_C
ch 03	132.7	deg_C
ch 04	130.8	deg_C
ch 05	131.0	deg_C
ch 06	125.7	deg_C
ch 07	135.2	deg_C
ch 08	135.5	deg_C
ch 09	137.5	deg_C
ch 10	135.8	deg_C
ch 16	140.1	deg_C
ch 17	142.6	deg_C
ch 18	132.6	deg_C
ch 19	133.5	deg_C

EXP 01--SCAN 472--12 17 21 26 51

Thermal Survey DAY 4

ch 01	128.6	deg_C
ch 02	121.4	deg_C
ch 03	132.7	deg_C
ch 04	130.8	deg_C
ch 05	132.2	deg_C
ch 06	125.3	deg_C
ch 07	135.2	deg_C
ch 08	135.5	deg_C
ch 09	138.6	deg_C
ch 10	135.8	deg_C
ch 16	140.2	deg_C
ch 17	142.5	deg_C
ch 18	132.7	deg_C
ch 19	133.5	deg_C

EXP 01--SCAN 452--12 17 21 08 51

Thermal Survey DAY 4

ch 01	128.6	deg_C
ch 02	121.2	deg_C
ch 03	132.7	deg_C
ch 04	130.8	deg_C
ch 05	131.5	deg_C
ch 06	124.7	deg_C
ch 07	135.2	deg_C
ch 08	135.5	deg_C
ch 09	137.7	deg_C
ch 10	136.6	deg_C
ch 16	140.1	deg_C
ch 17	142.6	deg_C
ch 18	132.6	deg_C
ch 19	133.6	deg_C

EXP 01--SCAN 461--12 17 21 18 51

Thermal Survey DAY 4

ch 01	126.7	deg_C
ch 02	122.0	deg_C
ch 03	132.7	deg_C
ch 04	130.8	deg_C
ch 05	131.6	deg_C
ch 06	125.5	deg_C
ch 07	135.2	deg_C
ch 08	135.5	deg_C
ch 09	136.5	deg_C
ch 10	135.6	deg_C
ch 16	140.1	deg_C
ch 17	142.6	deg_C
ch 18	132.6	deg_C
ch 19	133.6	deg_C

EXP 01--SCAN 478--12 17 21 30 51

Thermal Survey DAY 4

ch 01	128.6	deg_C
ch 02	122.5	deg_C
ch 03	132.6	deg_C
ch 04	130.8	deg_C
ch 05	131.0	deg_C
ch 06	125.7	deg_C
ch 07	135.2	deg_C
ch 08	135.5	deg_C
ch 09	137.7	deg_C
ch 10	135.8	deg_C
ch 16	140.1	deg_C
ch 17	142.5	deg_C
ch 18	132.5	deg_C
ch 19	133.5	deg_C

END DATA AVG. (TC5 DATA LOST FOR 20:26)

POST 21:30

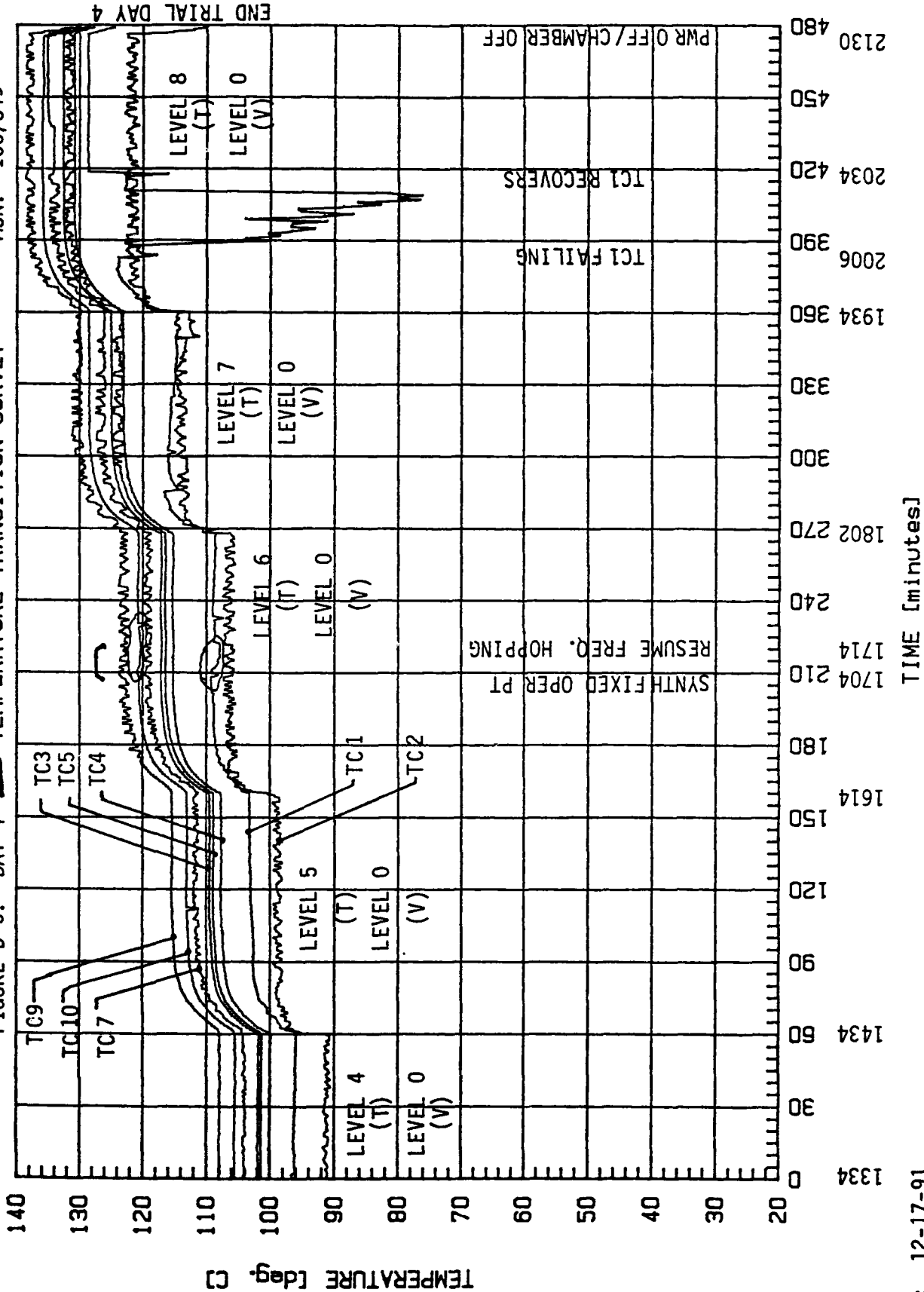
XP 01--SCAN 488--12 17 21 34 51

Thermal Survey DAY 4

ch 01	124.4	Dev_C
ch 02	110.0	Dev_C
ch 03	128.3	Dev_C
ch 04	127.6	Dev_C
ch 05	128.5	Dev_C
ch 06	125.0	Dev_C
ch 07	128.9	Dev_C
ch 08	129.4	Dev_C
ch 09	131.3	Dev_C
ch 10	130.2	Dev_C
ch 16	130.7	Dev_C
ch 17	130.2	Dev_C
ch 18	128.7	Dev_C
ch 19	129.4	Dev_C

AFTER 21:30 TURNED UNIT OFF & REDUCED TEMPERATURE TO ROOM AMBIENT
VOLTAGE STRESS WAS MAINTAINED AT LEVEL 0 FOR DAY 4.

FIGURE D-5: DAY 4 TEMPERATURE TRANSITION SURVEY MSN: -100/349



TRIAL TEST RUN

DATE: 12-17-91

538
92486
TEST

SECTION 4

Test Data Sheets
Performance Monitoring
prepared by S. D. Mueller

REF. NO. 277804

MODEL LEVEL		HISTORICAL RECORD TAG	
UNIT STU	PART OR ASSEMBLY NO.	SYST. NOMEN.	
1650062-100	SYNTH/DETECTOR ASSY		
PLANNING CHANGE 9	DEPT. ORIGINATED NEXT ASSEMBLY NO.	HACMFG. SERIAL NO.	
EFFECTIVE AMENDING DOCUMENTS	W/O NO.	SERIAL NO.	349

ITEM NO.	ORIG. INSP. STAMP	DATE	DETAILED DESCRIPTION	INSP./TEST ACCEPT.
01	92466 TEST	8-3-89	PASSES OUTPUT POWER & DETECTOR SENSITIVITY AT 144	8-3-89
02	92466 TEST	8/10/89	Removed cover for test. A4 Detector 1650092 SIN 144	
			A2 Synth 1634609 SIN 296 (SEE ITEM 03)	
			A3 Synth 1634609 SIN 300	
03	92466 TEST	8/10/89	Removed A4 and stored	
04	92466 TEST	8/10/89	ALL Dip Micro Caps Bombed	
05	92466 TEST	8/10/89	6 Cr. Random Vib	
06	92466 TEST	8/10/89	Temp test 10 cycles	
07	92466 TEST	8/10/89	A3 SYNTH 291 WILL NOT CENTER AT ZERO VDC FOR THIS POWER TEST. A4 DETECTOR ADJUSTED AT 291. OUTPUT OF A2 412 PIN 6 IS QUANTITATIVE OUTPUT IS ONE REPEATABLE. REMOVE A2 PM 1634609 SIN 291 and replace AT A3 with PM 1634609 SIN 225.	8/10/89
08	92466 TEST	8/10/89	Acceptance Test Complete from Temp	8/10/89

-100 NIN 349

ITEM NO.	ORIG. INSP. STAMP	DATE	DETAILED DESCRIPTION	INSP./TEST ACCEPT.
09	92466 TEST	11/25/91	ENG'S NOTE: Subjected unit to +68°C temperature as per test for Accelerated Step Stress Screen Project. Thermocouples attached to A3-U3, U11, Q6, A2-U10, A4-U4, U6, U7, U11 and A2-U1 of damage. ±5Vdc subjected to 8% increase; ±15Vdc to 4% increase.	92466 TEST 11/25/91
10	92466 TEST	11/25/91	ENG'S NOTE: Detector I&Q outputs nailed to +5V side due to thermal increase of capacitor A4-R4 & heating of Zener A4-VRL (adjunct).	92466 TEST 11/25/91
11	92466 TEST	11/26/91	Removed A4-VRL (clipped) & -15V side of A4-R4 and soldered wires to -5V side and ground to facilitate use of an external 0-5V regulated supply. This to continue step-stress testing.	92466 TEST 11/26/91
12	92466 TEST	11/28/91	ENG'S NOTE: A4-VRL (clipped) & -15V side of A4-R4 and soldered wires to -5V side and ground to facilitate use of an external 0-5V regulated supply. This to continue step-stress testing.	92466 TEST 11/28/91
13	92466 TEST	11/27/91	ENG'S NOTE: A4-VRL (clipped) & -15V side of A4-R4 and soldered wires to -5V side and ground to facilitate use of an external 0-5V regulated supply. This to continue step-stress testing.	92466 TEST 11/27/91
14	92466 TEST	12-17-91	CONTINUED TEST WITH UNIT AT NOMINAL VOLTAGES. SUBJECTED UNIT TO LEVEL 2, 5, 6, 7, AND 8 (ONLY TEMPERATURE STRESSES). Unit has non-recoverable failure of Synthesizer.	92466 TEST 12-17-91

DATE: 11-24-91 TIME: 09:51

Synth_ref= 149990
Freq_mod_rfr= 999990
Sp_clock_output = 0
Phase_lo_output = -48
Phase_if_output = 0
Up_dn_conv_lo = .92
313.75_10 = 12 dBm / 313.751816MHz

Test Station Auto Calibration
Test of UUT -100 MSN: 349
(PRETEST CONDITIONS)
TP 000-Test number-0811-0 Rev G

Channel	Freq	Dn_conv_output	Synth_lo_output	Hit_sgnl_i_o
38	684	-69	-68	-14
49	687	-62	-71	-14
48	690	-61	-73	-13
47	693	-66	-71	-27
46	696	-11	-67	-35
45	699	-2	-66	-45
44	702	-27	-65	-54
43	705	-35	-63	-61
42	708	-37	-69	-64
41	711	-4	-73	-62
40	714	-37	-76	-61

39	717	-3	-77	-62
24	720	-24	-73	-61
37	723	-16	-69	-62
36	726	-11	-61	-68
35	729	-66	-53	-74
34	732	-63	-47	-82
33	735	-62	-41	-87
32	738	-63	-41	-91
31	741	-61	-42	-89
30	744	-61	-44	-84
29	747	-61	-48	-8
28	750	-73	-49	-63
27	753	-64	-5	-63
26	756	-67	-47	-67
25	759	-67	-4	-68
24	762	-60	-33	-7
23	765	-66	-3	-72
22	768	-66	-26	-76
21	771	-62	-25	-79
20	774	-61	-3	-77
19	777	-61	-31	-72
18	825	-18	-85	-55
17	828	-22	-82	-61
16	831	-23	-81	-66
15	834	-71	-83	-71
14	837	-29	-83	-7
13	882	-37	-81	-56
12	885	-32	-82	-51
11	888	-31	-84	-51
10	891	-26	-86	-54
9	894	-27	-87	-6
8	897	-26	-89	-64
7	900	-31	-89	-7
6	903	-33	-7	-7
5	906	-37	-14	-67
4	909	-37	-18	-61
3	912	-37	-23	-54
2	915	-37	-23	-47
1	918	-36	-23	-44
0	921	-36	-36	-45

FAIL DATA (if any) of Power Output requirements will be printed between the
starred borders.

TEST #4

FULL PRINT-OUT OF Power Output and Frequency Ser. # -100/349

Power at J5	13	11.3	dBm	684.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	11.4	dBm	687.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	11.5	dBm	690.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	11.7	dBm	693.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	12.1	dBm	696.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	12.6	dBm	699.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	12.9	dBm	702.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.4	dBm	705.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.5	dBm	708.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.6	dBm	711.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.4	dBm	714.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.5	dBm	717.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.5	dBm	720.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.6	dBm	723.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.8	dBm	726.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.0	dBm	729.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.1	dBm	732.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.2	dBm	735.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.2	dBm	738.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.0	dBm	741.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.8	dBm	744.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.7	dBm	747.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.7	dBm	750.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.8	dBm	753.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.7	dBm	756.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.0	dBm	759.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.1	dBm	762.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.1	dBm	765.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.0	dBm	768.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.0	dBm	771.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.7	dBm	774.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.7	dBm	777.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.1	dBm	825.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.0	dBm	828.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.1	dBm	831.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.1	dBm	834.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	14.1	dBm	837.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.4	dBm	882.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.3	dBm	885.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.4	dBm	888.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.3	dBm	891.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.3	dBm	894.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.2	dBm	897.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.1	dBm	900.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.0	dBm	903.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	13.0	dBm	906.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	12.9	dBm	909.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	12.8	dBm	912.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	12.6	dBm	915.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	12.7	dBm	918.0	MHz	(Spec=+9dBm minimum).
Power at J5	13	12.6	dBm	921.0	MHz	(Spec=+9dBm minimum).

FAIL DATA (if any) of Power Output requirements will be printed between the
starred borders.

FULL PRINT-OUT OF Power Output and Frequency Ser. # -100/349

Power at J4 13 5.5 dBm 684.0 MHz (Spec=0dBm minimum).

UUT Precondition Room temp.

Power at J11 is 4.6 dBm @ 735.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.7 dBm @ 738.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.5 dBm @ 741.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.4 dBm @ 744.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.4 dBm @ 747.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.5 dBm @ 750.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.6 dBm @ 753.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.6 dBm @ 756.0 MHz (Spec=0dBm minimum).
 Power at J11 is 5.2 dBm @ 759.0 MHz (Spec=0dBm minimum).
 Power at J11 is 5.5 dBm @ 762.0 MHz (Spec=0dBm minimum).
 Power at J11 is 5.0 dBm @ 765.0 MHz (Spec=0dBm minimum).
 Power at J11 is 6.1 dBm @ 768.0 MHz (Spec=0dBm minimum).
 Power at J11 is 6.4 dBm @ 771.0 MHz (Spec=0dBm minimum).
 Power at J11 is 6.6 dBm @ 774.0 MHz (Spec=0dBm minimum).
 Power at J11 is 6.7 dBm @ 777.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.7 dBm @ 825.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.6 dBm @ 828.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.6 dBm @ 831.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.6 dBm @ 834.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.6 dBm @ 837.0 MHz (Spec=0dBm minimum).
 Power at J11 is 3.8 dBm @ 882.0 MHz (Spec=0dBm minimum).
 Power at J11 is 3.9 dBm @ 885.0 MHz (Spec=0dBm minimum).
 Power at J11 is 3.9 dBm @ 888.0 MHz (Spec=0dBm minimum).
 Power at J11 is 3.9 dBm @ 891.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.0 dBm @ 894.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.1 dBm @ 897.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.2 dBm @ 900.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.3 dBm @ 903.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.3 dBm @ 906.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.2 dBm @ 909.0 MHz (Spec=0dBm minimum).
 Power at J11 is 4.1 dBm @ 912.0 MHz (Spec=0dBm minimum).
 Power at J11 is 3.6 dBm @ 915.0 MHz (Spec=0dBm minimum).
 Power at J11 is 3.6 dBm @ 918.0 MHz (Spec=0dBm minimum).
 Power at J11 is 3.3 dBm @ 921.0 MHz (Spec=0dBm minimum).

 J5 TEST #6
 The 1/2 harmonic level of the 921 MHz signal is greater than 60 dB below the
 Carrier as required at 83 dB

 J5
 The 3/2 harmonic level of the 921 MHz signal is greater than 30 dB below the
 Carrier as required at 77.9 dB

 J5
 The 1/2 harmonic level of the 684 MHz signal is greater than 60 dB below the
 Carrier as required at 83 dB

 J5
 The 3/2 harmonic level of the 684 MHz signal is greater than 30 dB below the
 Carrier as required at 37.5 dB

 J12
 The 1/2 harmonic level of the 921 MHz signal is greater than 60 dB below the
 Carrier as required at 82.8 dB

 J12
 The 3/2 harmonic level of the 921 MHz signal is greater than 30 dB below the
 Carrier as required at 79.5 dB

 PASSED

90dB
 (15dB)

P.5 of 9

UUT Precondition Room

J12

The 1/2 harmonic level of the 684 MHz signal is greater than 60 dB below the
 Carrier as required at 84.5 dB

 PASSED

J12

The 3/2 harmonic level of the 684 MHz signal is greater than 30 dB below the
 Carrier as required at 39.9 dB
 FAIL DATA (if any) of 1/2 Harmonics will be printed between the
 starred borders.

TEST #7

FULL PRINT-OUT OF 1/2 HARMONIC LEVELS

90dB
 (15dB)

1/2 Hz
 SER. # -100/349

J4

1/2 Harm.	Level of	921.0 MHz	-16.4 dBc	at	450.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	918.0 MHz	-16.4 dBc	at	458.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	915.0 MHz	-16.6 dBc	at	457.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	912.0 MHz	-16.8 dBc	at	455.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	909.0 MHz	-17.0 dBc	at	454.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	906.0 MHz	-17.1 dBc	at	452.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	903.0 MHz	-17.3 dBc	at	451.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	900.0 MHz	-17.7 dBc	at	449.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	897.0 MHz	-17.8 dBc	at	448.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	894.0 MHz	-18.2 dBc	at	446.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	891.0 MHz	-18.4 dBc	at	445.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	888.0 MHz	-18.6 dBc	at	443.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	885.0 MHz	-18.8 dBc	at	442.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	882.0 MHz	-19.0 dBc	at	441.0 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	879.0 MHz	-20.3 dBc	at	418.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	876.0 MHz	-20.5 dBc	at	416.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	873.0 MHz	-20.3 dBc	at	415.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	870.0 MHz	-20.2 dBc	at	414.0 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	867.0 MHz	-20.2 dBc	at	412.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	864.0 MHz	-18.9 dBc	at	388.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	861.0 MHz	-18.9 dBc	at	387.0 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	858.0 MHz	-18.8 dBc	at	385.5 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	855.0 MHz	-18.9 dBc	at	383.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	852.0 MHz	-19.0 dBc	at	382.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	849.0 MHz	-19.0 dBc	at	380.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	846.0 MHz	-19.0 dBc	at	379.5 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	843.0 MHz	-19.2 dBc	at	377.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	840.0 MHz	-19.2 dBc	at	376.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	837.0 MHz	-19.2 dBc	at	374.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	834.0 MHz	-19.2 dBc	at	373.5 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	831.0 MHz	-19.1 dBc	at	371.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	828.0 MHz	-18.8 dBc	at	370.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	825.0 MHz	-18.5 dBc	at	369.0 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	822.0 MHz	-18.1 dBc	at	367.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	819.0 MHz	-17.7 dBc	at	365.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	816.0 MHz	-17.2 dBc	at	364.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	813.0 MHz	-16.6 dBc	at	362.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	810.0 MHz	-15.9 dBc	at	361.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	807.0 MHz	-15.4 dBc	at	360.0 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	804.0 MHz	-14.6 dBc	at	358.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	801.0 MHz	-14.0 dBc	at	356.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	798.0 MHz	-13.3 dBc	at	355.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	795.0 MHz	-12.6 dBc	at	353.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	792.0 MHz	-11.9 dBc	at	352.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	789.0 MHz	-11.3 dBc	at	350.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	786.0 MHz	-10.8 dBc	at	349.5 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	783.0 MHz	-10.6 dBc	at	347.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	780.0 MHz	-10.7 dBc	at	346.4 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	777.0 MHz	-10.7 dBc	at	344.9 MHz	Spec Limit	-6dBc
1/2 Harm.	Level of	774.0 MHz	-10.5 dBc	at	343.4 MHz	Spec Limit	-6dBc

P.6 of 9

WRT Precondition Room Temp.

3/2 Hama.	level of 905.0 MHz	-15.0 dBc	at 1358.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 903.0 MHz	-15.5 dBc	at 1354.5 MHz..Spec	limit -6dBc
3/2 Hama.	level of 900.0 MHz	-15.2 dBc	at 1349.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 897.0 MHz	-14.6 dBc	at 1345.5 MHz..Spec	limit -6dBc
3/2 Hama.	level of 894.0 MHz	-14.5 dBc	at 1340.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 891.0 MHz	-14.5 dBc	at 1336.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 888.0 MHz	-14.7 dBc	at 1331.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 885.0 MHz	-15.0 dBc	at 1327.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 882.0 MHz	-15.4 dBc	at 1323.0 MHz..Spec	limit -6dBc
3/2 Hama.	level of 879.0 MHz	-20.9 dBc	at 1250.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 876.0 MHz	-21.3 dBc	at 1246.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 873.0 MHz	-21.7 dBc	at 1241.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 870.0 MHz	-22.2 dBc	at 1237.5 MHz..Spec	limit -6dBc
3/2 Hama.	level of 867.0 MHz	-36.1 dBc	at 1165.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 864.0 MHz	-37.3 dBc	at 1160.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 861.0 MHz	-38.3 dBc	at 1156.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 858.0 MHz	-39.0 dBc	at 1152.0 MHz..Spec	limit -6dBc
3/2 Hama.	level of 855.0 MHz	-41.5 dBc	at 1147.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 852.0 MHz	-43.4 dBc	at 1143.0 MHz..Spec	limit -6dBc
3/2 Hama.	level of 849.0 MHz	-44.9 dBc	at 1138.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 846.0 MHz	-46.4 dBc	at 1134.0 MHz..Spec	limit -6dBc
3/2 Hama.	level of 843.0 MHz	-47.3 dBc	at 1129.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 840.0 MHz	-47.3 dBc	at 1124.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 837.0 MHz	-48.2 dBc	at 1120.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 834.0 MHz	-44.1 dBc	at 1115.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 831.0 MHz	-41.7 dBc	at 1111.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 828.0 MHz	-39.6 dBc	at 1106.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 825.0 MHz	-37.2 dBc	at 1102.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 822.0 MHz	-35.4 dBc	at 1097.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 819.0 MHz	-33.6 dBc	at 1093.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 816.0 MHz	-32.2 dBc	at 1088.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 813.0 MHz	-30.6 dBc	at 1084.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 810.0 MHz	-29.1 dBc	at 1080.0 MHz..Spec	limit -6dBc
3/2 Hama.	level of 807.0 MHz	-27.5 dBc	at 1075.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 804.0 MHz	-25.9 dBc	at 1071.0 MHz..Spec	limit -6dBc
3/2 Hama.	level of 801.0 MHz	-24.0 dBc	at 1066.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 798.0 MHz	-22.3 dBc	at 1061.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 795.0 MHz	-20.8 dBc	at 1057.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 792.0 MHz	-19.4 dBc	at 1052.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 789.0 MHz	-18.5 dBc	at 1048.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 786.0 MHz	-17.9 dBc	at 1044.0 MHz..Spec	limit -6dBc
3/2 Hama.	level of 783.0 MHz	-17.4 dBc	at 1039.4 MHz..Spec	limit -6dBc
3/2 Hama.	level of 780.0 MHz	-16.7 dBc	at 1034.9 MHz..Spec	limit -6dBc
3/2 Hama.	level of 777.0 MHz	-15.8 dBc	at 1030.5 MHz..Spec	limit -6dBc
3/2 Hama.	level of 774.0 MHz	-14.7 dBc	at 1026.0 MHz..Spec	limit -6dBc

TEST # 3 : Synthesizer 1.5MHz Subband clock

f _c ±1.5 MHz		14	11
3.0	51.9 dBc	50.7 dBc	
4.5	51.0	45.0	
6.0	55.0	52.8	
7.5	62.1	57.0	
9.0	65.1	60.2	
10.5	70.7	60.4	
20 +	72.5	66.7	
		834 max. 76.0 max.	

102450
1751
1/24/91
J. J. J. J.

HRT# 277804
UNIT READY FOR
TRIAL TEST

TRIAL TEST RUN

TEST EQUIPMENT & CALIBRATION LOG

Maintain Log for testing conducted 11-25-91 through 11-27-91:
(date) (date)

Item	DESCRIPTION	Manuf. & Part No.	ID NUMBER	LAST CAL*	CAL* DUE	Item Notes
01	T/R Test Station	HAC; SPECIAL	G-132043		NCR	F-A15223
02	Control Panel	HAC; SPECIAL	G-132290		NCR	
03	Signal Generator	HP; 8660C	G-128061	12-03-90	12-19-91	
04	Auxiliary Section	HP; 86631B	G-128062		NCR	P/o Item 03
05	RF Section	HP; 86603A	G-128063	12-03-90	12-19-91	P/o Item 03
06	Spectrum Analyzer	HP; 8568A w/ Opt E16	—			Sub Item 29
07	FET Probe	HP; 1120A	G-132055	12-14-90	04-30-92	
08	Power Meter	HP; 436A	G-128036	06-18-91	11-24-92	
09	Power Sensor	HP; 8482A	G-128059	09-09-91	10-21-92	
10	Oscilloscope	HP; 1980B	G-132049	09-24-91	08-11-92	
11	Digital Multimeter	Systron Donner; 7344A	G-127998	06-06-91	08-18-92	
12	Digital Multimeter	HP; 3478A	H-A53624	09-06-91	06-25-92	
13	Power Splitter	MiniCkts; ZFSC-2-5	NONE		NCR	
14	Power Splitter	MiniCkts; ZFSC-2-5	NONE		NCR	
15	Reg. Power Supply	Lambda; LP-531-FM	G-132292		NCR	+15V Supply
16	Reg. Power Supply	Lambda; LP-531-FM	P/o Item 15		NCR	-15V Supply
17	Reg. Power Supply	Lambda; LP-530-FM	G-132291		NCR	+5V Supply
18	Reg. Power Supply	Lambda; LP-520-FM	P/o Item 17		NCR	-5V Supply
19	Computer	HP; 9845B	G-128030		NCR	
20	Flex. Disk Memory	HP; 9895A	G-133309		NCR	
21	Signal Generator		—			Not Used
22	Oscilloscope	Tektronix; 2465	—			Not Used
23	Digital Multimeter	Fluke; 8050A	E-A41119	07-10-91	09-21-92	
24	Digital Multimeter		—			Not Used
25	Digital Multimeter		—			Not Used
26	Thermal Chamber	Thermotron; S-4 w/Cntl	H-B07567	09-18-91	09-02-92	
27	Data Acqtn Cntl Unit	HP; 3497A	H-428499	11-14-91	07-29-93	
28	Computer	HP; Model 85	G-595184		NCR	
29	Spectrum Analyzer	HP; 8568B	H-374666	08-08-91	05-29-92	Sub Item 06
30	Printer	HP; Thinkjet	H-A51399		NCR	
31	Plotter	HP; 7470A	H-512478		NCR	
32	Attenuator; 1dB	Midwest Microwave; 238	NONE		NCR	} P/o 2dB pad
33	Attenuator; 1dB	Midwest Microwave; 294	NONE		NCR	
34	Power Supply	HP; 6299A	H-357054		NCR	-5V Aux./Det.
35	Thermocouple Wire	Copper/Constantan; Type T	NONE		Prior to test	as Required
36						
37						
38						
39						
40						
41						
42						

Stan D. Mueller GSG 92466 EST

*NCR = No Calibration Required

DATE: 11/25/91 TIME: 23:28

TRIAL TEST #80 - STRESS TEST
STATION AUTO CALIBRATION DATA
(MSN -100/949)

Synth_ref = 1499990
Freq_mod_ref = 999990
Sp_clock_output = 0
Phase_lo_output = -0.33
Phase_if_output = 0
Up_dn_conv_lo = 1.77
313.75_lo = 15.8 dBm / 313.751736MHz

Channel	Freq	Dn_conv_output	Synth_lo_output	Hit_sgnl_i_o
50	684	-.01	-.32	.49
49	687	0	-.27	.33
48	690	.06	-.21	.16
47	693	.14	-.2	.09
46	696	.27	-.24	.11
45	699	.39	-.32	.1
44	702	.53	-.42	.04
43	705	.58	-.46	0
42	708	.58	-.42	-.08
41	711	.51	-.37	-.14
40	714	.49	-.32	-.15
39	717	.46	-.32	-.08
38	720	.41	-.3	-.06
37	723	.39	-.3	-.06
36	726	.31	-.26	-.15
35	729	.26	-.2	-.27
34	732	.19	-.09	-.37
33	735	.16	-.06	-.37
32	738	.16	-.08	-.31
31	741	.19	-.19	-.22
30	744	.15	-.26	-.18
29	747	.11	-.27	-.16
28	750	.08	-.18	-.2
27	753	.05	-.06	-.27
26	756	.04	.05	-.3
25	759	.07	.15	-.28
24	762	.14	.14	-.2
23	765	.19	.07	-.16
22	768	.21	.05	-.16
21	771	.21	.06	-.22
20	774	.23	.1	-.24
19	777	.2	.14	-.25
18	780	-.09	.44	-.09
17	783	-.1	.42	-.04
16	786	-.12	.42	-.06
15	789	-.11	.44	-.13
14	792	-.09	.44	-.17
13	795	-.11	.32	-.17
12	798	-.1	.32	-.13
11	801	-.15	.38	-.05
10	804	-.16	.41	-.02
9	807	-.17	.38	.01
8	810	-.13	.36	-.04
7	813	-.04	.32	-.15
6	816	0	.3	-.24
5	819	0	.31	-.2
4	822	-.07	.3	-.11
3	825	-.13	.22	-.02
2	828	-.17	.13	.03
1	831	-.23	.07	.03
0	834	-.25	.05	-.06

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET

UUT Serial Number (per MFR): -100/344 Test Date: 11-26-91 Sheet 1 of 4

STEP-STRESS Level (per MFR): 0 Tester: (Name & stamp below) [Signature] 656
92466
1131

STEP-STRESS LEVEL DATA

TEMPERATURE STEP-STRESS: Ramp Chamber Temperature to STEP-STRESS Level; Stabilize, and Start Dwell at STEP-STRESS Level.

Begin RAMP: 20:10 (TIME HR:MIN) (Stabilize for 30:45) Start DWELL: 20:55 (TIME HR:MIN)

STEP-STRESS Level Chamber Air Temperature: +60.3 (°C) Ramp Temperature: +65.6 (°C)

STEP-STRESS Level Component Temperature: +70.4 (°C) +1.1°C/-1.9°C (Thermocouple reading)

VOLTAGE STEP-STRESS: During Temperature Ramp; Increment Voltage to STEP-STRESS Level. (Record settings below)

Supply Voltages: +5 Volts dc: +5.00 (Volts) -5 Volts dc: -5.00 (Volts)

+15 Volts dc: +15.00 (Volts) -15 Volts dc: -15.00 (Volts)

Am. Constant -5 Volts dc Setting: -5.007 (Volts) A4-R44 V81
Removed

UUT PERFORMANCE TEST DATA

TESTS MAY BE PERFORMED IN ANY ORDER

UUT CURRENT TEST: At Dwell; Set UUT Frequency Word, Synthesized Signal, & Received (0 dBm) Signal Inputs for Channel 00. Record UUT Currents for this STEP-STRESS Level.

Start TEST: 04:17 (TIME HR:MIN) [Signature]

Settings: Freq Word (11.01 & 13.01) = CH 00; Synth Sig (J7 & J9) = 921 MHz; Rev Sig (J8) = 607.35 MHz at 0 dBm

UUT Currents: +5 Volts dc: _____ (mA) -5 Volts dc: _____ (mA)

+15 Volts dc: _____ (mA) -15 Volts dc: _____ (mA)

End TEST: 04:17 (TIME HR:MIN) [Signature]

TEST continued next page

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (per MFR): -100/344 Test Date: 11-26-91 Sheet 2 of 4

STEP-STRESS Level (per MFR): 0 656
92466
1131

UUT PERFORMANCE TEST DATA

CONTINUED

UUT DIGITAL OUTPUT TEST: At Dwell; Set UUT Synthesized Signal and Received Signal Inputs for Channel 00. Record Received Signal Input from 0 dBm to -75 dBm and record Duty Cycle (DTC) for each UUT Digital Output. Repeat with setting for Channels 50 at the STEP-STRESS Level.

Start TEST: 21:50
(TIME HR:MIN)

Channel 00: Settings: Synth Sig (J7 & J9) = 921 MHz; Rev Sig (J8) = 607.35 MHz at 0 to -75 dBm

Rev Sig Input	1 A O Input	Duty Cycle (DTC)	Detector 1 (L (dBm))	Duty Cycle (DTC)	Detector 2 (L (dBm))	Observations
0 dBm	1 > 0	<u>4.80/9.60</u>	<u>50.0</u>	<u>4.80/9.60</u>	<u>50.0</u>	
	1 > 0	<u>4.80/9.60</u>	<u>50.0</u>	<u>4.80/9.60</u>	<u>50.0</u>	
	1 > 0 > 0	<u>4.80/9.60</u>	<u>50.0</u>	<u>4.80/9.60</u>	<u>50.0</u>	
	0 > 0	<u>4.80/9.60</u>	<u>50.0</u>	<u>4.48/9.60</u>	<u>46.7</u>	

Other: _____

Specify _____

(dBm) _____

Q > 0 _____

1 > 0 _____

Other: _____

Specify _____

(dBm) _____

Q > 0 _____

1 > 0 _____

Other: _____

Specify _____

(dBm) _____

Q > 0 _____

TEST continued next page

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (enter MFG): -100/349 Test Date: 11-26-91

STEP-STRESS Level (enter 0, 10): 0 92466 TEST

UUT PERFORMANCE TEST DATA

DIGITAL OUTPUT TEST: Continued. (Refer to Procedures on previous page)

Channel 50: Settings: Synth Sig (17 & 19) = 684 MHz; Rev Sig (18) = 370.35 MHz at 0 to -75 dBm

Rev Sig Level -dBm	I (dBm)	Detector 1		Detector 2		Observations
		Level I (dBm)	Duty Cycle (percent)	Level I (dBm)	Duty Cycle (percent)	
0 dBm	1 > 0	4.80/9.60	50.0	4.80/9.60	50.0	
	1 > 0	4.80/9.60	50.0	4.80/9.60	50.0	
	1 > 0 > 0	4.80/9.60	50.0	4.80/9.60	50.0	
	0 > 0	4.80/9.60	50.0	4.80/9.60	50.0	
Other: Specify (dBm)	1 > 0					
	1 > 0					
	1 > 0 > 0					
	0 > 0					
-75 dBm	1 > 0	5.12/9.60	53.3	4.48/9.60	46.7	
	1 > 0	4.80/9.60	50.0	4.80/9.60	50.0	
	1 > 0 > 0	5.12/9.60	53.3	4.48/9.60	46.7	
	0 > 0	4.80/9.60	50.0	4.32/9.60	45.0	

End TEST: 22:11 (elapsed time 00:21)

TEST continued next page

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (enter MFG): -100/349 Test Date: 11-26-91

STEP-STRESS Level (enter 0, 10): 0 92466 TEST

UUT PERFORMANCE TEST DATA

RADIO FREQUENCY OUTPUT TEST: At Dwell: Set UUT Frequency Word Input to Channel 50. Record the Synthesizer Mixer Port Output Frequency & Power. Repeat with settings for Channels 35, 18, and 00 at this STEP-STRESS Level.

Start TEST: 21:05 (TIME HR:MIN)

Channel	Synthesizer 1 (35) Frequency (MHz)	Power* (dBm)	Synthesizer 2 (112) Frequency (MHz)	Power* (dBm)
50 (m)	684.00	+12.4	683.99	+11.8
35 (m)	729.00	+12.6	729.00	+12.2
18 (m)	825.00	+13.6	825.00	+11.4
00 (m)	920.99	+11.4	920.99	+9.7

Observations:
 *Account for cable losses
 Spectrometer Analyzer Settings
 Span: 15 MHz
 Res: 100 KHz
 Cable Losses measured (dB):
 35 312
 684 1.04
 729 0.98
 825 1.10
 921 1.18
 925 1.14

Additional Testing (OPTIONAL):

At Dwell: Set UUT Frequency Word Input at Channel 50 then Channel 00 and measure Synthesizer Mixer Port Output Power at each Frequency.

ATTACH the Data Printout (copy) to this STEP-STRESS TEST DATA SHEET. Label attachment with UUT Serial Number & STEP-STRESS Level. Tester Name & Date. ATTACHMENT 1 (Check item)

End TEST: 21:28 (elapsed time 00:23)

STEP-STRESS LEVEL DATA

CONTINUED

TEMPERATURE STEP-STRESS: The Dwell will have a duration of 1-hour at this STEP-STRESS Level.

(Dwell elapsed for 01:19) End DWELL: 22:14 (TIME HR:MIN)

STEP-STRESS LEVEL COMPLETE

TRIAL TEST RUN

Sheet 4A of 4

FULL PRINT-OUT OF Power Output and Frequency 100 100 Ser. # 349

Power at J5 is 8.9 dBm @ 684.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 6.7 dBm @ 687.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 6.5 dBm @ 690.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 5.2 dBm @ 693.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 5.1 dBm @ 696.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 5.2 dBm @ 699.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 10.7 dBm @ 702.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 11.5 dBm @ 705.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 10.9 dBm @ 708.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 11.6 dBm @ 711.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 11.2 dBm @ 714.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 11.5 dBm @ 717.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 11.2 dBm @ 720.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 9.8 dBm @ 723.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 9.7 dBm @ 726.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 10.7 dBm @ 729.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 10.3 dBm @ 732.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 10.1 dBm @ 735.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 9.4 dBm @ 738.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 11.3 dBm @ 741.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 8.5 dBm @ 744.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 10.6 dBm @ 747.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 3.6 dBm @ 750.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 8.9 dBm @ 753.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 7.9 dBm @ 756.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 8.9 dBm @ 759.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 7.2 dBm @ 762.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 10.4 dBm @ 765.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 10.5 dBm @ 768.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 7.7 dBm @ 771.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 10.6 dBm @ 774.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 1.5 dBm @ 777.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 8.8 dBm @ 825.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 8.4 dBm @ 828.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 10.7 dBm @ 831.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 7.7 dBm @ 834.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 9.3 dBm @ 837.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 9.1 dBm @ 840.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 9.3 dBm @ 843.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 4.7 dBm @ 846.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 7.9 dBm @ 849.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 5.5 dBm @ 852.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 8.9 dBm @ 855.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 9.7 dBm @ 858.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 7.4 dBm @ 861.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 7.2 dBm @ 864.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 5.8 dBm @ 867.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 4.6 dBm @ 870.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 7.4 dBm @ 873.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 5.6 dBm @ 876.0 MHz (Spec=+9dBm minimum).
 Power at J5 is 11.2 dBm @ 879.0 MHz (Spec=+9dBm minimum).

MSN -100/349
 STEP-STRESS Level 0
 11-26-91
 92466
 TEST

TRIAL TEST RUN

Sheet 4B of 4

FULL PRINT-OUT OF Power Output and Frequency 100 100 Ser. # 349

Power at J12 is 2.5 dBm @ 684.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 5.6 dBm @ 687.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 4.7 dBm @ 690.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 4.9 dBm @ 693.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 4.9 dBm @ 696.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 4.0 dBm @ 699.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 7.7 dBm @ 702.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 8.2 dBm @ 705.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 7.1 dBm @ 708.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 5.4 dBm @ 711.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 5.6 dBm @ 714.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 6.7 dBm @ 717.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 6.1 dBm @ 720.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 4.0 dBm @ 723.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 5.5 dBm @ 726.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 9.1 dBm @ 729.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 7.3 dBm @ 732.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 7.6 dBm @ 735.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 9.4 dBm @ 738.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 2.1 dBm @ 741.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 6.4 dBm @ 744.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 6.8 dBm @ 747.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 6.3 dBm @ 750.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 6.6 dBm @ 753.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 4.0 dBm @ 756.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 4.6 dBm @ 759.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 9.1 dBm @ 762.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 7.7 dBm @ 765.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 11.1 dBm @ 768.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 8.9 dBm @ 771.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 9.3 dBm @ 774.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 9.0 dBm @ 777.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 9.8 dBm @ 825.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 8.7 dBm @ 828.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 8.9 dBm @ 831.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 8.4 dBm @ 834.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 8.0 dBm @ 837.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 8.0 dBm @ 840.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 3.8 dBm @ 843.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 5.6 dBm @ 846.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 1.1 dBm @ 849.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 6.5 dBm @ 852.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 3.8 dBm @ 855.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 2.9 dBm @ 858.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 1.2 dBm @ 861.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 5.9 dBm @ 864.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 4.1 dBm @ 867.0 MHz (Spec=+9dBm minimum).
 Power at J12 is 10.0 dBm @ 870.0 MHz (Spec=+9dBm minimum).

MSN -100/349
 STEP-STRESS Level 0
 11-26-91
 92466
 TEST

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET

UUT Serial Number (near MPT): -100/349 Test Date: 11-26-91
 STEP-STRESS Level (near 0-10): 1 Tester: (Name & stamp below)
 UUT Serial Number (near MPT): -100/349 Test Date: 11-26-91
 STEP-STRESS Level (near 0-10): 1 Tester: (Name & stamp below)

DAY 2

STEP-STRESS LEVEL DATA

TEMPERATURE STEP-STRESS: Ramp Chamber Temperature to STEP-STRESS Level; Stabilize, and Start Dwell at STEP-STRESS Level.
 Begin RAMP: 22:14 (Ramp & stabilize 00:35) Start DWELL: 22:49
 STEP-STRESS Level Chamber Air Temperature: +68.1 (°C) Flange Temperature: +73.8 (°C)
 (Chamber temperature reading) (Flange temperature reading)
 STEP-STRESS Level Component Temperature: +78.8 (°C) ± 1.3 °C / ± 2.0 °C
 (Values in Appendix D Table)

VOLTAGE STEP-STRESS: During Temperature Ramp, Increment Voltage to STEP-STRESS Level. (Record settings below)
 Supply Voltages: ± 5 Volts dc: +5.20 (Vdc) -5 Volts dc: -5.20 (Vdc)
 ± 15 Volts dc: +15.30 (Vdc) -15 Volts dc: -15.30 (Vdc)
 Aux. Constant - 5 Volts dc Scaling: -5.097 (Vdc) Atch. Atch and Yel

UUT PERFORMANCE TEST DATA

UUT CURRENT TEST: At Dwell; Set UUT Frequency Word, Synthesized Signal, & Received (0 dBm) Signal Inputs for Channel 00. Record UUT Currents for this STEP-STRESS Level.
 Start TEST: DMIT SDM
 Settings: Freq Word (11-01 & J3-01) = C11 00; Synth Sig (J7 & J9) = 921 MHz; Rev Sig (R8) = 607.35 MHz at 0 dBm
 UUT Currents: ± 5 Volts dc: _____ (mA) -5 Volts dc: _____ (mA)
 ± 15 Volts dc: _____ (mA) -15 Volts dc: _____ (mA)
 End TEST: DMIT SDM

TEST continued next page

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (near MPT): -100/349 Test Date: 11-26-91
 STEP-STRESS Level (near 0-10): 1 UUT Serial Number (near MPT): -100/349
 STEP-STRESS Level (near 0-10): 1 UUT Serial Number (near MPT): -100/349

UUT PERFORMANCE TEST DATA

UUT DIGITAL OUTPUT TEST: At Dwell; Set UUT Synthesized Signal and Received Signal Inputs for Channel 00. Decrease Received Signal Input from 0 dBm to -75 dBm and record Duty Cycle (DUT) for each UUT Digital Output. Repeat with setting for Channels 30 at the STEP-STRESS Level.
 Start TEST: 22:52 (TIME MEANS)
 Channel 00: Settings: Synth Sig (J7 & J9) = 921 MHz; Rev Sig (R8) = 607.35 MHz at 0 to -75 dBm

Rev Sig Input	1 & Q Bits	Duty Cycle (DUT)	Detector 1 (J1085)	Duty Cycle (DUT)	Detector 2 (J1085)	Observations
1 > 0	474/9.48	50.0	474/9.54	48.3	474/9.48	50.0
1 > 0	474/9.48	48.3	474/9.48	50.0	474/9.48	50.0
1 > 0	474/9.48	50.0	474/9.48	48.3	474/9.48	44.7
0 > 0	474/9.48	48.3	474/9.48	50.0	474/9.48	50.0
0 > 0	474/9.48	50.0	474/9.48	48.3	474/9.48	44.7
Other: Specify	1 > 0					
(dBm)	1 > 0					
(dBm)	1 > 0					
Other: Specify	1 > 0					
(dBm)	1 > 0					
(dBm)	1 > 0					
-75 dBm	1 > 0	474/9.48	51.7	474/9.54	46.7	
	1 > 0	474/9.48	49.4	474/9.60	49.4	
	1 > 0	474/9.48	51.7	474/9.60	43.9	
	0 > 0	474/9.48	51.7	474/9.54	45.0	23.06

 TEST continued next page

STEP-STRESS TEST DATA SHEET (CONTINUED)

UNIT Serial Number (see note) 720/349 Test Date: 11-26-91

STRESS Level (see note) 1

634
92466
TEST

MULTI PERFORMANCE TEST DATA

DIGITAL OUTPUT TEST: Continued. (Refer to Procedure on previous page)

Channel 50: Settings: Synch Sig (17 & 19) = 484 MHz; Rev Sig (18) = 370.35 MHz at 0 to .75 dBm

Rev Sig Level	I & Q -dBm	Detector 1		Detector 2		Observations
		Limit T (sec)	Duty Cycle Percent	Limit T (sec)	Duty Cycle Percent	
0 dBm	1 > 0	4.80/4.60	50.0	4.80/4.60	50.0	
	1 > 0	4.64/4.60	48.3	4.80/4.60	50.0	
	1 > 0 > 0	4.80/4.60	50.0	4.80/4.60	50.0	
	0 > 0	4.80/4.60	50.0	4.64/4.60	48.3	
Other: Specify	1 > 0					
	1 > 0					
	1 > 0 > 0					
	0 > 0					
Other: Specify	1 > 0					
	1 > 0					
	1 > 0 > 0					
	0 > 0					
-75 dBm	1 > 0	4.96/4.60	51.7	4.48/4.60	46.7	
	1 > 0	4.80/4.60	50.0	4.80/4.60	50.0	
	1 > 0 > 0	4.96/4.60	51.7	4.32/4.60	45.0	
	0 > 0	4.86/4.60	51.7	4.32/4.60	45.0	

End TEST: 23:14 (elapsed time 00:22)

LIST continued next page

STEP-STRESS TEST DATA SHEET (CONTINUED)

UNIT Serial Number (mmr step): 700/349
STEP-STRESS Level (mmr 0 - 10): 1
Test Date: 11-26-91

UUT PERFORMANCE TEST DATA

At Dwell: Set UUT Frequency Word Input to Channel 50. Record the Synthesizer Mixer Port Output Frequency & Power. Repeat with settings for Channels 35, 18, and 00 at the STEP-STRESS Level.

Start TEST: 23:15 (TIME: HR:MIN)

RADIO FREQUENCY OUTPUT TEST:

Channel	Synthesizer 1 (15) Frequency (MHz)	Power* (dBm)	Synthesizer 2 (112) Frequency (MHz)	Power* (dBm)	Observation
50 (µm)	640.97	-7.1	683.99	+10.0	640.6 1.04 1.12
35 (nm)	922.72	+12.7	724.01	+11.0	684 1.04 1.04
18 (µm)	772.26	+13.4	825.02	+11.6	625 1.10 1.08
00 (µm)	842.30	+12.3	921.00	+10.3	921 1.18 1.14

Additional Testing (OPTIONAL):
Synth partially unbalanced and pulled off frequency. Cycled UUT power on/off to see effect on UUT. Did not change for 1000.

At Dwell: Set UUT Frequency Word Input at Channel 50 then Channel 00 and measure Synthesizer Mixer Port Output Power at each Frequency.

ATTACH the Data Printout (copy) to this STEP-STRESS TEST DATA SHEET. Label attachment with UUT Serial Number & STEP-STRESS Level. Tester Name & Date. ATTACHMENT (Each two)

End TEST: 23:42 (elapsed time 00:27) (TIME: HR:MIN)

STEP-STRESS LEVEL DATA

TEMPERATURE/STEP-STRESS: The Dwell will have a duration of 1-hour at this STEP-STRESS Level.

END DWELL: 23:44
(about Time 00:55)
(YOUR NAME)

SHIP-STRESS LEVEL COMPLETE

TRIAL TEST RUN

FULL PRINT-OUT OF Power Output and Frequency

Power at J5 15-61.2 dBm @ 684.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-64.8 dBm @ 687.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-62.7 dBm @ 690.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-65.0 dBm @ 693.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-60.9 dBm @ 696.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-62.8 dBm @ 699.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-62.2 dBm @ 702.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.7 dBm @ 705.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.4 dBm @ 708.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-63.7 dBm @ 711.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-65.1 dBm @ 714.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-64.2 dBm @ 717.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-64.6 dBm @ 720.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-63.5 dBm @ 723.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-62.2 dBm @ 726.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-62.5 dBm @ 729.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-64.3 dBm @ 732.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-67.9 dBm @ 735.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-65.3 dBm @ 738.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-64.4 dBm @ 741.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-63.1 dBm @ 744.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.6 dBm @ 747.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-60.2 dBm @ 750.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.7 dBm @ 753.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.7 dBm @ 756.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-63.5 dBm @ 759.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.8 dBm @ 762.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.8 dBm @ 765.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.8 dBm @ 768.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.1 dBm @ 771.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-64.9 dBm @ 774.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-62.0 dBm @ 777.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.7 dBm @ 780.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.1 dBm @ 825.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-65.8 dBm @ 828.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-65.3 dBm @ 831.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-63.4 dBm @ 834.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-59.5 dBm @ 837.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-63.2 dBm @ 840.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-63.7 dBm @ 885.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-63.0 dBm @ 888.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-65.7 dBm @ 891.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-62.5 dBm @ 894.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-60.3 dBm @ 897.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-63.8 dBm @ 900.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.3 dBm @ 903.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-62.8 dBm @ 906.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-53.7 dBm @ 909.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-62.6 dBm @ 912.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-62.7 dBm @ 915.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-63.4 dBm @ 918.0 MHz (Spec=+9dBm minimum).
 Power at J5 15-61.0 dBm @ 921.0 MHz (Spec=+9dBm minimum).

Sheet 4A of 4
 100-402 Ser. # 349

MSN -100/349
 STEP-STRESS Level 1
 11-26-91
 ADW

TRIAL TEST RUN

FULL PRINT-OUT OF Power Output and Frequency

Power at J12 15 8.4 dBm @ 684.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 4.3 dBm @ 687.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 2.2 dBm @ 690.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 -8.1 dBm @ 693.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 -2.8 dBm @ 696.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 -8 dBm @ 699.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 4.7 dBm @ 702.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.0 dBm @ 705.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 3.5 dBm @ 708.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 4.2 dBm @ 711.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 4.9 dBm @ 714.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 -1.6 dBm @ 717.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 2.8 dBm @ 720.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 5.2 dBm @ 723.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 6.3 dBm @ 726.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 8.1 dBm @ 729.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 5.6 dBm @ 732.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 9.5 dBm @ 735.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.9 dBm @ 738.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 8.0 dBm @ 741.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 8.6 dBm @ 744.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 9.5 dBm @ 747.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.1 dBm @ 750.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 1.1 dBm @ 753.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.7 dBm @ 756.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 3 dBm @ 759.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 8.0 dBm @ 762.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 9.9 dBm @ 765.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.9 dBm @ 768.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 9.3 dBm @ 771.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 9.6 dBm @ 774.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.5 dBm @ 777.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 10.2 dBm @ 825.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.3 dBm @ 828.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.1 dBm @ 831.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 5.0 dBm @ 834.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 8.5 dBm @ 837.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 3.0 dBm @ 840.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.4 dBm @ 885.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 3.7 dBm @ 888.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 6.5 dBm @ 891.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.5 dBm @ 894.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 4 dBm @ 897.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 6.2 dBm @ 900.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 5.9 dBm @ 903.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 5.8 dBm @ 906.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.9 dBm @ 909.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 7.7 dBm @ 912.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 3.9 dBm @ 915.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 4.6 dBm @ 918.0 MHz (Spec=+9dBm minimum).
 Power at J12 15 6.8 dBm @ 921.0 MHz (Spec=+9dBm minimum).

Sheet 4B of 4
 100-402 Ser. # 349

MSN -100/349
 STEP-STRESS Level 1
 11-26-91
 ADW

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET

Sheet 1 of 4

UUT Serial Number (from label): -100/919 Test Date: 11-26-91

STEP-STRESS Level (enter 0-10): 2 Tester: A. K. Mullen

UUT TEST

STEP-STRESS LEVEL DATA

TEMPERATURE STEP-STRESS: Ramp Chamber Temperature to STEP-STRESS Level; Stabilize, and Start Dwell at STEP-STRESS Level.

Ramp Rate: 23.44 (deg/sec) Start Dwell: 00:14 (min)

STEP-STRESS Level Chamber Air Temperature: +77.8 (°C) Plunge Temperature: +81.8 (°C)

STEP-STRESS Level Component Temperature: +87.1 (°C) +1.82/-2.0 °C

VOLTAGE STEP-STRESS: During Temperature Ramp, Increment Voltage to STEP-STRESS Level. (Record settings below)

Supply Voltage: +5 Volts dc: +5.40 (Vdc) -5 Volts dc: -5.40 (Vdc)

+15 Volts dc: +15.60 (Vdc) -15 Volts dc: -15.60 (Vdc)

Attn. Constant: -5 Volts dc Setting: -5.096 (Vdc) 94-84 p. 121

UUT PERFORMANCE TEST DATA

TESTS MAY BE PERFORMED IN ANY ORDER

UUT CURRENT TEST: At Dwell, Set UUT Frequency Word, Synthesized Signal, & Received (0 dBm) Signal Inputs for Channel 00. Record UUT Currents for this STEP-STRESS Level.

Start Test: 04:17 (min)

Settings: Freq Word (J1-01 & J2-01) = C11 00; Synch Sg (J7 & J9) = 921 MHz; Rev Sg (J8) = 607.35 MHz at 0 dBm

UUT Currents: +5 Volts dc: (mA) -5 Volts dc: (mA)

+15 Volts dc: (mA) -15 Volts dc: (mA)

End Test: 04:17 (min)

TEST continued next page

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

Sheet 2 of 4

UUT Serial Number (from label): -100/919 Test Date: 11-27-91

STEP-STRESS Level (enter 0-10): 2 UUT TEST

UUT PERFORMANCE TEST DATA

CONTINUED

UUT DIGITAL OUTPUT TEST: At Dwell, Set UUT Synthesized Signal and Received Signal Inputs for Channel 00. Decrease Received Signal Input from 0 dBm to -75 dBm and record Duty Cycle (UT) for each UUT Digital Output. Repeat with setting for Channels 50 at this STEP-STRESS Level.

Start Test: 04:17 (min)

Channel 00: Settings: Synch Sg (J7 & J9) = 921 MHz; Rev Sg (J8) = 607.35 MHz at 0 to -75 dBm

Rev Sg Input	1 & 0	Detector 1 Limit	Duty Cycle (sec)	Detector 2 Limit	Duty Cycle (sec)	Observations
0 dBm	1 > 0	OMIT	OMIT	OMIT	OMIT	
	1 > 0	OMIT	OMIT	OMIT	OMIT	
	1 > 0	OMIT	OMIT	OMIT	OMIT	
	Q > 0	OMIT	OMIT	OMIT	OMIT	
	1 > 0	OMIT	OMIT	OMIT	OMIT	
	1 > 0	OMIT	OMIT	OMIT	OMIT	
	1 > 0	OMIT	OMIT	OMIT	OMIT	
	1 > 0	OMIT	OMIT	OMIT	OMIT	
	Q > 0	OMIT	OMIT	OMIT	OMIT	

Other: Specify

(dBm)

Other: Specify

(dBm)

Other: Specify

(dBm)

Other: Specify

(dBm)

SEE NOTE

OMITTED

TEST continued next page

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (new mark) -100/344 Test Date: 11-27-91

STEP-STRESS Level (new & old) 2

628
92486
1151

UUT PERFORMANCE TEST DATA

RADIO FREQUENCY OUTPUT TEST: At Dwell: Set UUT Frequency Word Input to Channel 50. Record the Synthesizer Mixer Port Output Frequency & Power. Repeat with settings for Channels 35, 18, and 00 at this STEP-STRESS Level.

Channel	Synthesizer 1 (J15) Frequency (MHz)	Power* (dBm)	Synthesizer 2 (J12) Frequency (MHz)	Power* (dBm)	Observation
50 MHz					
35 MHz					
18 MHz					
00 MHz					

Sun TEST: **MONITORED** (Print the unit)
 End TEST: **MONITORED** (Print the unit)

At Dwell: Set UUT Frequency Word Input at Channel 50 thru Channel 00 and measure Synthesizer Mixer Port Output Power at each Frequency.

ATTACH the Data Printout (copy) to this STEP-STRESS TEST DATA SHEET. Label attachment with UUT Serial Number & STRLP-STRESS Level. Tester Name & Date. ATTACHMENT.

(Print Name)

MINUTED CH 00
 OUTPUT J5 P J12
 ONLY
 A. R. M. (Signature)
 11-22-00

CONTINUED

STEP-STRESS Level: 00:29
End DWELL: 00:29

STEP-STRESS LEVEL COMPLETE

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET

UNIT Serial Number (see 1000) 11-27-91 Test Date: 11-27-91
 STEP-STRESS Level (see 0.10) 3 Test Date: 11-27-91
 (SEE 0246 (121))

DAY # 2

STEP-STRESS LEVEL DATA

TEMPERATURE SIZE-STRESS: Ramp Chamber Temperature to STEP-STRESS Level; Stabilize, and Start Dwell at STEP-STRESS Level.
 Begin Ramp: 00:29 (TIME IN MIN) 00:30 (TIME IN MIN) Start Dwell: 00:59 (TIME IN MIN)
 STEP-STRESS Level Chamber Air Temperature: +85.0 (°C) +89.0 (°C)
 STEP-STRESS Level Chamber Air Temperature: +85.0 (°C) +89.0 (°C)
 STEP-STRESS Level Chamber Air Temperature: +85.0 (°C) +89.0 (°C)
 STEP-STRESS Level Chamber Air Temperature: +85.0 (°C) +89.0 (°C)

VOLTAGE STEP-STRESS: During Temperature Ramp, Increment Voltage to STEP-STRESS Level. (Round voltage to 0.1V)
 Supply Voltage: +5.60 (Vdc) -5.60 (Vdc) -5.60 (Vdc)
+15.90 (Vdc) -15.90 (Vdc) -15.90 (Vdc)
 Aux. Constant -5 Volts dc Setting: -5.097 (Vdc) 14-14 (Vdc) 14-14 (Vdc)

UUT PERFORMANCE TEST DATA TESTS MAY BE PERFORMED IN ANY ORDER

UUT CURRENT TEST: At Dwell, Set UUT Frequency Word, Synthesized Signal, & Received (dBm) Signal Inputs for Channel 00. Record UUT Currents for this STEP-STRESS Level.
 Start TEST: OMIT (TIME IN MIN)
 Settings: Freq Word (J1-01 & J3-01) = C11 00; Synth Sig (J7 & J9) = 921 MHz; Rev Sig (J8) = 607.35 MHz at 0 dBm
 UUT Currents: +5.60 (Vdc) -5.60 (Vdc) -5.60 (Vdc)
+15.90 (Vdc) -15.90 (Vdc) -15.90 (Vdc)
 End TEST: OMIT (TIME IN MIN)

TEST continued next page

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UNIT Serial Number (see 1000) 11-27-91 Test Date: 11-27-91
 STEP-STRESS Level (see 0.10) 3 Test Date: 11-27-91
 (SEE 0246 (121))

UUT PERFORMANCE TEST DATA CONTINUED

UUT DIGITAL OUTPUT TEST: At Dwell, Set UUT Synthesized Signal and Received Signal Inputs for Channel 00. Decrease Received Signal Input from 0 dBm to -75 dBm and record Duty Cycle (D/C) for each UUT Digital Output. Repeat with setting for Channels 10 at this STEP-STRESS Level.

Start TEST: OMIT (TIME IN MIN)

Channel 00: Settings: Synth Sig (J7 & J9) = 921 MHz; Rev Sig (J8) = 607.35 MHz at 0 to -75 dBm

Rev Sig Input	Duty Cycle (D/C)	Duty Cycle (D/C)	Duty Cycle (D/C)	Observations
0 dBm	<u>1 > 0</u>	<u>1 > 0</u>	<u>1 > 0</u>	<u>MONITORED AT MIN 1000 ONLY</u>
-75 dBm	<u>1 > 0</u>	<u>1 > 0</u>	<u>1 > 0</u>	<u>MONITORED THESE BITS ONLY</u>
Other: Specify	<u>1 > 0</u>	<u>1 > 0</u>	<u>1 > 0</u>	<u>25.00 & -75.00 MHz</u>
(dBm)	<u>1 > 0</u>	<u>1 > 0</u>	<u>1 > 0</u>	<u>Detector - 1 dB</u>
Other: Specify	<u>1 > 0</u>	<u>1 > 0</u>	<u>1 > 0</u>	<u>Noise duty increased, but</u>
(dBm)	<u>1 > 0</u>	<u>1 > 0</u>	<u>1 > 0</u>	<u>noise duty cycles similar to Level 1 & 2</u>
Other: Specify	<u>1 > 0</u>	<u>1 > 0</u>	<u>1 > 0</u>	<u>5020 ± 22</u>
(dBm)	<u>1 > 0</u>	<u>1 > 0</u>	<u>1 > 0</u>	<u>5020 ± 22</u>
Other: Specify	<u>1 > 0</u>	<u>1 > 0</u>	<u>1 > 0</u>	<u>TEST Continued next page</u>
(dBm)	<u>1 > 0</u>	<u>1 > 0</u>	<u>1 > 0</u>	<u>11-27-91</u>

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (see map): 100/349 Test Date: 11-27-91
 STEP-STRESS Level (see 0-10): 3 (SEE 0-10)

UUT PERFORMANCE TEST DATA CONTINUED

DIGITAL OUTPUT TEST: Continued. (Refer to Procedures on previous page)

Channel 50: Settings: Synth Sig (17 & 18) = 404 MHz; Rev Sig (19) = 370.33 MHz at 0 to -75 dBm

Rev Sig	I & Q	Detector 1	Detector 2	Observations
Level	dBm	I (msec)	Q (msec)	
1 > 0				
1 > 0				
1 > 0				
Q > 0				
1 > 0				
1 > 0				
1 > 0				
Q > 0				

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

Other: Specify (dBm) 50 CH 50 11-27-91

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (see map): 100/349 Test Date: 11-27-91
 STEP-STRESS Level (see 0-10): 3 (SEE 0-10)

UUT PERFORMANCE TEST DATA CONTINUED

RADIO FREQUENCY OUTPUT TEST: At Dwell: Set UUT Frequency Word Input to Channel 50. Record the Synthesizer Mixer Port Output Frequency & Power. Repeat with settings for Channels 35, 18, and 00 at this STEP-STRESS Level.

Start TEST: MONITORING
 (TIME IN MIN)

Channel	Synthesizer 1 (15) Frequency (MHz)	Synthesizer 2 (112) Frequency (MHz)	Power* (dBm)	Observation
50 (MHz)	<u>ONIT</u>	<u>ONIT</u>	<u>ONIT</u>	
35 (MHz)	<u>ONIT</u>	<u>ONIT</u>	<u>ONIT</u>	
18 (MHz)	<u>ONIT</u>	<u>ONIT</u>	<u>ONIT</u>	
00 (MHz)	<u>MONITORING</u>	<u>MONITORING</u>	<u>MONITORING</u>	<u>ONIT</u>

*account for cable losses

TEMPERATURE STEP-STRESS: The Dwell will have a duration of 1-hour at this STEP-STRESS Level.

(Doubled 00:29 total) End DWELL: 01:28 (1 HOUR 28 MIN)

STEP-STRESS LEVEL DATA CONTINUED

STEP-STRESS LEVEL COMPLETE

TEST continued next page

STEP-STRESS TEST DATA SHEET

UNIT Serial Number (over 1000) -100/349
UNIT-STATUS Level (over 0-10) 4
Test Date: 11-27-91
Tester: (Name & company initials) A. B. Zupka
GAS
02400
1151

STEP-STRESS LEVEL DATA

TEMPERATURE STEP-STRESS Ramp Chamber Temperature to STEP-STRESS Level; Stabilize, and Start Dwell at STEP-STRESS Level.

Begin RAMP: 01:26 (FROM DELTA) Start DWELL: 01:58 (FROM DELTA)

STEP-STRESS Level Chamber Air Temperature: +93.5 (°C) (Thermocouple reading)

STEP-STRESS Level Component Temperature: +91.3 (°C) (Thermocouple reading)

STEP-STRESS Level Ambient Temperature: +10.4 (°C) (+18.2/-2.4) (Thermocouple reading)

VOLTAGE STEP-STRESS: During Temperature Ramp; Increment Voltage to STEP-STRESS Level. (Record settings below)

Supply Voltages: +5 Volts dc: +5.80 (Vol) -5 Volts dc: -5.80 (Vol)

+15 Volts dc: +16.80 (Vol) -15 Volts dc: -16.20 (Vol)

Aux. Channel - 5 Volts dc Setting: -5.097 (Vol) *At 1.85 and 16.0 p.p.m.*

UNIT PERFORMANCE TEST DATA

UNIT CURRENT TEST: At Dwell; Set UUT Frequency Word, Synthesized Signal, & Received (0 ohm) Signal Inputs for Channel 00. Record UUT Currents for this STEP-STRESS Level.

Start TEST: 0M15 S2D4
(FROM 100.000)

Settings: Freq Word (21-01 & 23-01) = C11 00; Synth Sig (17 & 19) = 921 MHz; Rev Sig (18) = 607.35 MHz at 0 dBm

UUT Currents: + 5 Volts dc: _____ (mA) - 5 Volts dc: _____ (mA)

+15 Volts dc: _____ (mA) -15 Volts dc: _____ (mA)

End TEST: 0M15 S2D4
(FROM 100.000)

TEST continued next page

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UNIT Serial Number (mm 129): -100/349 Test Date: 11-27-91

STEP-STRESS Level (mm 0 10): 4

444
92466
(231)

UUT PERFORMANCE TEST DATA

UNIT DIGITAL OUTPUT TEST At Default: Set UUT Synthesized Signal and Received Signal Levels for Channel 00. Decrease Received Signal Input from 0 dbm to -75 dbm and record Duty Cycle (U/T) for each UUT Digital Output. Repeat with setting for Channels 50 at the STEP STRESS Level.

Start TEST: 02:00 (TIME REMAINS)

Channel 00: Settings: Synch Sg (J7 & J9) = 921 MHz; Rev Sg (J8) = 607.55 MHz at 0 to -75 dBm

	Rev Sg Input -dBm	Detector 1		Detector 2		Observations
		L (ms) T (ms)	Duty Cycle (Percent)	L (ms) T (ms)	Duty Cycle (Percent)	
	I > 0	4.00/9.60	50.0	4.00/9.60	50.0	
0 dbm	I > 0	4.00/9.60	50.0	4.00/9.60	50.0	
	I + Q > 0	4.00/9.60	50.0	4.00/9.60	50.0	
	Q > 0	4.00/9.60	50.0	4.00/9.60	50.0	
Other:	I > 0					
Specify	I > Q					
(dbm)	I + Q > 0					
	Q > 0					
Other:	I > 0					
Specify	I > Q					
(dbm)	I + Q > 0					
	Q > 0					
-75 dbm	I > 0	4.00/9.60	51.7	4.16/9.60	49.3	
	I > Q	4.77/9.64	50.0	4.16/9.60	49.3	
	I + Q > 0	5.08/9.54	53.3	4.16/9.60	46.7	
	Q > 0	4.68/9.48	51.7	4.77/9.54	50.0	

Inward Noise both Detectors SDY
02:10
100% TO ahead

UNIT DIGITAL OUTPUT TEST CONTINUED ON NEXT PAGE

TEST Continued next page.

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (from UUT): 110/349 Test Date: 11-27-91

STEP-STRESS Level (from UUT): 4 (SEE 92469 TEST)

UUT PERFORMANCE TEST DATA

DIGITAL OUTPUT TEST: Continued. (Refer to Procedures on previous page) Started 02:39

Channel 50: Settings: Synth Sig (7 & 9) = 684 MHz; Rev Sig (8) = 370.15 MHz at 0 to -75 dBm

Rev Sig Level (dBm)	I (dBm) J (dBm)	Detector 1		Detector 2		Observations
		Limit	Duty Cycle (Percent)	Limit	Duty Cycle (Percent)	
1 > 0	4.77/9.54	50.0	4.77/9.54	50.0		
0 dBm	4.77/9.54	50.0	4.77/9.54	51.7		
1 > 0	4.77/9.54	50.0	4.77/9.54	50.0		
0 > 0	4.77/9.54	48.4	4.77/9.54	50.0		
1 > 0						
Other: Specify						
1 > 0						
0 > 0						
1 > 0						
0 > 0						
1 > 0	4.77/9.54	51.6	4.77/9.54	46.7		
0 dBm	4.77/9.54	50.0	4.77/9.54	43.3		
1 > 0	4.77/9.54	51.6	4.77/9.54	48.3		
0 > 0	4.77/9.54	50.0	4.77/9.54	51.7		

End TEST: 02:48 (elapsed 00:09) (Elapsed Digital Test 00:19)

TEST continued next page

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (from UUT): 110/349 Test Date: 11-27-91

STEP-STRESS Level (from UUT): 4 (SEE 92469 TEST)

UUT PERFORMANCE TEST DATA

RADIO FREQUENCY OUTPUT TEST: At Dwell: Set UUT Frequency Word Input to Channel 50. Record the Synthesizer Mixer Port Output Frequency & Power. Repeat with settings for Channels 33, 18, and 00 at this STEP-STRESS Level.

Start TEST: 02:13 (TIME HR:MIN)

Channel	Synthesizer 1 (15) Frequency (MHz)	Power* (dBm)	Synthesizer 2 (112) Frequency (MHz)	Power* (dBm)	Observations
50 (MHz)	642.46	-24.2	651.14	-20.7	Account for cable losses (See Step 0)
33 (MHz)	848.45	-2.0	846.64	+13.4	Synth 1 has low output power. Looks like Synth 1/2 fired output to PLL is not in power.
18 (MHz)	776.30	-0.4	768.83	+10.8	Both Synths pulled off frequency by voltage applied during lock.
00 (MHz)	847.97	-2.9	845.94	+10.0	Applied during lock during hopping.

SEE PHOTOS

Additional Testing (OPTIONAL):

RADIO FREQUENCY OUTPUT TEST: At Dwell: Set UUT Frequency Word Input at Channel 50 then Channel 00 and measure Synthesizer Mixer Port Output Power at each Frequency.

ATTACH the Data Protocol (copy) to this STEP-STRESS TEST DATA SHEET. Label attachment with UUT Serial Number & STEP-STRESS Level. Tester Name & Date. ATTACHMENT (SEE TEST)

End TEST: 02:39 (TIME HR:MIN) (00:26 elapsed)

STEP-STRESS LEVEL DATA

CONTINUED

TEMPERATURE STEP-STRESS: The Dwell will have a duration of 1-hour at this STEP-STRESS Level.

(Dwell time 01:00 elapsed) End DWELL: 02:58 (TIME HR:MIN)

END DAY 2

STEP-STRESS LEVEL COMPLETE

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

Sheet 4A of 4

UUT Serial Number (enter MSN): -100/349

Test Date: 11-27-91

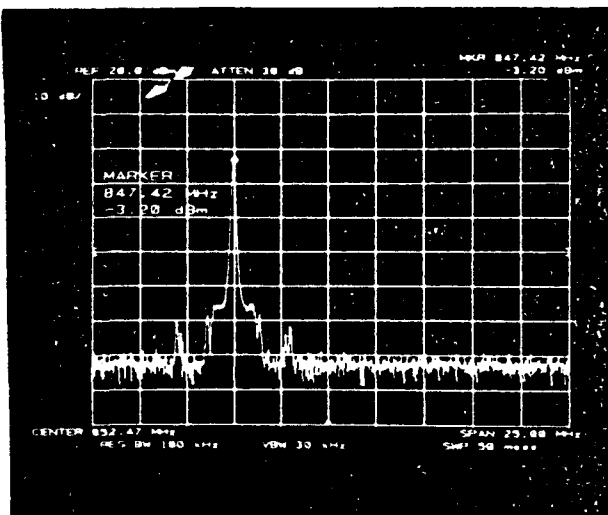
STEP-STRESS Level (enter 0 - 10): 4

A. D. Mueller

GSG
92466
TEST

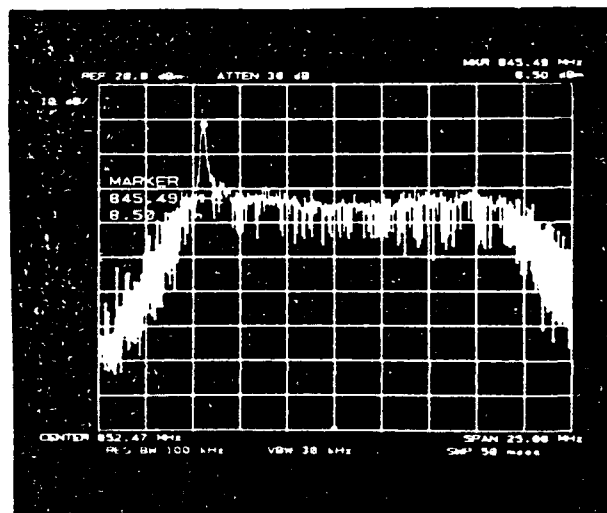
UUT PERFORMANCE TEST DATA

CONTINUED

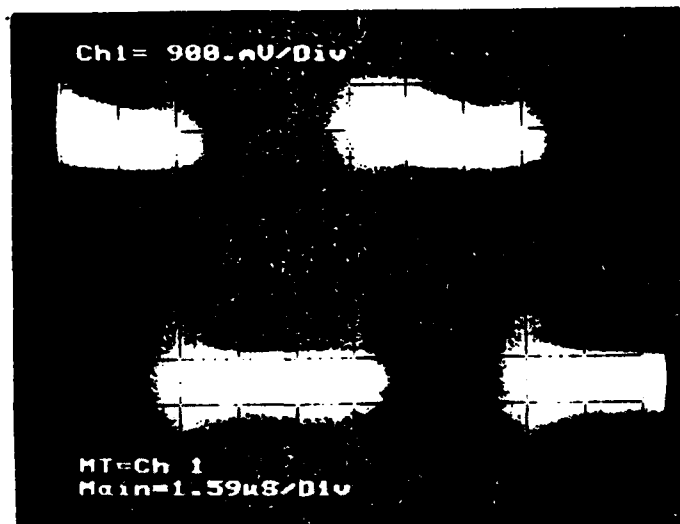


Synthesizer 1 (J5) Output for Channel 00
Shown is output off frequency with low output power.

[Frequency should be at 921 MHz with power level > +9 dBm (cable loss is 1 dB)]



Synthesizer 2 (J12) Output for Channel 00
Shown is partial unlock and sweeping to regain lock.



Detector 1 I + Q > 0 Output Bit Channel 00
Shown for -75 dBm Rcv Signal input, duty cycle is 53.3%

Sheet 40 of 4
Lot Ser. # 349

TRIAL TEST RUN

FULL PRINT-OUT OF Power Output and Frequency

Power at J12 13-62.1 dBm @ 684.0 MHz (Spec=+9dBm minimum).
Power at J12 13-63.8 dBm @ 687.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.4 dBm @ 690.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.8 dBm @ 693.0 MHz (Spec=+9dBm minimum).
Power at J12 13-62.6 dBm @ 696.0 MHz (Spec=+9dBm minimum).
Power at J12 13-66.0 dBm @ 699.0 MHz (Spec=+9dBm minimum).
Power at J12 13-60.9 dBm @ 702.0 MHz (Spec=+9dBm minimum).
Power at J12 13-63.6 dBm @ 705.0 MHz (Spec=+9dBm minimum).
Power at J12 13-62.4 dBm @ 708.0 MHz (Spec=+9dBm minimum).
Power at J12 13-64.0 dBm @ 711.0 MHz (Spec=+9dBm minimum).
Power at J12 13-63.1 dBm @ 714.0 MHz (Spec=+9dBm minimum).
Power at J12 13-64.0 dBm @ 720.0 MHz (Spec=+9dBm minimum).
Power at J12 13-63.9 dBm @ 723.0 MHz (Spec=+9dBm minimum).
Power at J12 13-69.3 dBm @ 726.0 MHz (Spec=+9dBm minimum).
Power at J12 13-64.2 dBm @ 729.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.3 dBm @ 732.0 MHz (Spec=+9dBm minimum).
Power at J12 13-60.1 dBm @ 735.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.4 dBm @ 738.0 MHz (Spec=+9dBm minimum).
Power at J12 13-63.8 dBm @ 741.0 MHz (Spec=+9dBm minimum).
Power at J12 13-62.3 dBm @ 744.0 MHz (Spec=+9dBm minimum).
Power at J12 13-64.5 dBm @ 747.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.1 dBm @ 750.0 MHz (Spec=+9dBm minimum).
Power at J12 13-65.3 dBm @ 753.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.9 dBm @ 756.0 MHz (Spec=+9dBm minimum).
Power at J12 13-64.4 dBm @ 759.0 MHz (Spec=+9dBm minimum).
Power at J12 13-59.5 dBm @ 762.0 MHz (Spec=+9dBm minimum).
Power at J12 13-62.2 dBm @ 765.0 MHz (Spec=+9dBm minimum).
Power at J12 13-63.2 dBm @ 768.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.2 dBm @ 771.0 MHz (Spec=+9dBm minimum).
Power at J12 13-66.8 dBm @ 774.0 MHz (Spec=+9dBm minimum).
Power at J12 13-63.4 dBm @ 777.0 MHz (Spec=+9dBm minimum).
Power at J12 13-59.9 dBm @ 825.0 MHz (Spec=+9dBm minimum).
Power at J12 13-65.5 dBm @ 828.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.5 dBm @ 831.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.5 dBm @ 834.0 MHz (Spec=+9dBm minimum).
Power at J12 13-62.6 dBm @ 837.0 MHz (Spec=+9dBm minimum).
Power at J12 13-62.8 dBm @ 840.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.3 dBm @ 885.0 MHz (Spec=+9dBm minimum).
Power at J12 13-63.9 dBm @ 888.0 MHz (Spec=+9dBm minimum).
Power at J12 13-60.7 dBm @ 891.0 MHz (Spec=+9dBm minimum).
Power at J12 13-60.2 dBm @ 894.0 MHz (Spec=+9dBm minimum).
Power at J12 13-63.2 dBm @ 897.0 MHz (Spec=+9dBm minimum).
Power at J12 13-62.2 dBm @ 900.0 MHz (Spec=+9dBm minimum).
Power at J12 13-62.0 dBm @ 903.0 MHz (Spec=+9dBm minimum).
Power at J12 13-62.7 dBm @ 906.0 MHz (Spec=+9dBm minimum).
Power at J12 13-63.1 dBm @ 909.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.4 dBm @ 912.0 MHz (Spec=+9dBm minimum).
Power at J12 13-60.4 dBm @ 915.0 MHz (Spec=+9dBm minimum).
Power at J12 13-61.6 dBm @ 921.0 MHz (Spec=+9dBm minimum).

STEP-STRESS Level 4

11-27-91

SS 9260 TEST

Sheet 40 of 4
Lot Ser. # 349

TRIAL TEST RUN

FULL PRINT-OUT OF Power Output and Frequency

Power at J5 13-62.6 dBm @ 684.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.4 dBm @ 687.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.2 dBm @ 690.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.4 dBm @ 693.0 MHz (Spec=+9dBm minimum).
Power at J5 13-64.8 dBm @ 696.0 MHz (Spec=+9dBm minimum).
Power at J5 13-60.8 dBm @ 699.0 MHz (Spec=+9dBm minimum).
Power at J5 13-61.5 dBm @ 702.0 MHz (Spec=+9dBm minimum).
Power at J5 13-66.1 dBm @ 705.0 MHz (Spec=+9dBm minimum).
Power at J5 13-63.9 dBm @ 708.0 MHz (Spec=+9dBm minimum).
Power at J5 13-64.4 dBm @ 711.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.9 dBm @ 714.0 MHz (Spec=+9dBm minimum).
Power at J5 13-64.0 dBm @ 720.0 MHz (Spec=+9dBm minimum).
Power at J5 13-64.8 dBm @ 723.0 MHz (Spec=+9dBm minimum).
Power at J5 13-61.1 dBm @ 726.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.9 dBm @ 729.0 MHz (Spec=+9dBm minimum).
Power at J5 13-63.6 dBm @ 732.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.1 dBm @ 735.0 MHz (Spec=+9dBm minimum).
Power at J5 13-61.3 dBm @ 738.0 MHz (Spec=+9dBm minimum).
Power at J5 13-63.4 dBm @ 741.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.5 dBm @ 744.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.7 dBm @ 747.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.4 dBm @ 750.0 MHz (Spec=+9dBm minimum).
Power at J5 13-67.1 dBm @ 753.0 MHz (Spec=+9dBm minimum).
Power at J5 13-63.0 dBm @ 756.0 MHz (Spec=+9dBm minimum).
Power at J5 13-63.2 dBm @ 759.0 MHz (Spec=+9dBm minimum).
Power at J5 13-59.4 dBm @ 762.0 MHz (Spec=+9dBm minimum).
Power at J5 13-60.5 dBm @ 765.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.4 dBm @ 768.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.3 dBm @ 771.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.5 dBm @ 774.0 MHz (Spec=+9dBm minimum).
Power at J5 13-63.0 dBm @ 777.0 MHz (Spec=+9dBm minimum).
Power at J5 13-63.5 dBm @ 825.0 MHz (Spec=+9dBm minimum).
Power at J5 13-63.0 dBm @ 828.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.2 dBm @ 831.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.8 dBm @ 834.0 MHz (Spec=+9dBm minimum).
Power at J5 13-65.3 dBm @ 837.0 MHz (Spec=+9dBm minimum).
Power at J5 13-61.2 dBm @ 840.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.7 dBm @ 885.0 MHz (Spec=+9dBm minimum).
Power at J5 13-59.8 dBm @ 888.0 MHz (Spec=+9dBm minimum).
Power at J5 13-58.4 dBm @ 891.0 MHz (Spec=+9dBm minimum).
Power at J5 13-60.5 dBm @ 894.0 MHz (Spec=+9dBm minimum).
Power at J5 13-66.8 dBm @ 897.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.0 dBm @ 900.0 MHz (Spec=+9dBm minimum).
Power at J5 13-61.0 dBm @ 903.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.8 dBm @ 906.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.1 dBm @ 909.0 MHz (Spec=+9dBm minimum).
Power at J5 13-62.6 dBm @ 912.0 MHz (Spec=+9dBm minimum).
Power at J5 13-61.0 dBm @ 915.0 MHz (Spec=+9dBm minimum).
Power at J5 13-63.6 dBm @ 918.0 MHz (Spec=+9dBm minimum).
Power at J5 13-63.2 dBm @ 921.0 MHz (Spec=+9dBm minimum).

STEP-STRESS Level 4

11-27-91

SS 9260 TEST

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UNIT Serial Number (near key): -100/349 Test Date: 11-27-91 SD7
STEP-STRESS Level (near 8-10): 4 Reported

UUT PERFORMANCE TEST DATA

UUT DIGITAL OUTPUT TEST: At Test: Set UUT Synthesized Signal and Received Signal inputs for Channel 00. Decrease Received Signal Input from 0 dBm to -75 dBm and record Duty Cycle (DT) for each UUT Digital Output. Repeat with setting for Channels 50 or this STEP-STEP183 Level.

Start TEST: MONITORING 13:11
(TIME HR:MIN)

Channel 00: Settings: Synth Sig (7 & 9) = 921 MHz: Rev Sig (18) = 607.35 MHz at 0 to -75 dBm									
Rev Sig		I & Q		Detector 1		Detector 2		Observations	
		Input	HiLo	Lines	Duty Cycle	Lines	Duty Cycle		
				T _{avg}	T _{peak}	T _{avg}	T _{peak}		
		I > 0		_____	_____	_____	_____		
		I > Q		_____	_____	_____	_____		
0 dBm		I + Q > 0		_____	_____	_____	_____		

TESTS MAY BE PERFORMED IN ANY ORDER

I > 0	
Other:	
Specify	
I > Q	
I + Q > 0	
(dlm)	
Q > 0	
I > 0	Detectra compare
I > Q	No previous DAY # 2
I + Q > 0	data at 02:10 11-27-91
Q > 0	for -75 dpm input SPINBUCKLE
-75 dlm	
	TEST Continued next one.

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (see UUT): -100/349 Test Date: 11-27-91 Sheet 3 of 4
92469
TEST

STEP-STRESS Level (see 0-10): 4 *Repaired*

UUT PERFORMANCE TEST DATA CONTINUED

DIGITAL OUTPUT TEST: Continued. (Refer to Procedures on previous page)

Channel 50: Settings: Synth Sg (7 & 39) = 684 MHz; Rev Sg (18) = 370.35 MHz at 0 to -75 dBm

Rev Sg	1 & 0	Detector 1	Detector 2	Observations
Level	dBm	L (msec)	Duty Cycle T (msec)	
0 dBm	1 > 0			
	1 > 0			
	1 > 0 > 0			
	0 > 0			
	1 > 0			
Other:	1 > 0			
Specify	1 > 0 > 0			
(dBm)	0 > 0			
	1 > 0			
Other:	1 > 0			
Specify	1 > 0 > 0			
(dBm)	0 > 0			
	1 > 0			
-75 dBm	1 > 0			
	1 > 0 > 0			
	0 > 0			

End TEST: 13:18
(TIME HR:MIN)

TEST continued next page

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (see UUT): -100/349 Test Date: 11-27-91 Sheet 4 of 4
92469
TEST

STEP-STRESS Level (see 0-10): 4 *Repaired*

UUT PERFORMANCE TEST DATA CONTINUED

RADIO FREQUENCY OUTPUT TEST: At Dwell: Set UUT Frequency Word Input to Channel 50. Record the Synthesizer Mixer Port Output Frequency & Power. Repeat with settings for Channels 35, 18, and 00 at this STEP-STRESS Level.

Start TEST: MONITORED ONLY 13:20
(TIME HR:MIN)

Channel	Synthesizer 1 (15)	Synthesizer 2 (112)	Frequency Power*	Power*	Observation
	(MHz)	(MHz)	(dBm)	(dBm)	
50 (MHz)					*account for cable losses
35 (MHz)					
18 (MHz)					
00 (MHz)					

Additional Testing (OPTIONAL):
At Dwell: Set UUT Frequency Word Input to Channel 50 thru Channel 00 and measure Synthesizer Mixer Port Output Power at each Frequency.

ATTACH the Data Pinout (copy) to this STEP-STRESS TEST DATA SHEET. Label attachment with UUT Serial Number & STEP-STRESS Level, Tester Name & Date. ATTACHMENT (Check here)

End TEST: 13:38
(TIME HR:MIN)

STEP-STRESS LEVEL DATA CONTINUED

TEMPERATURE STEP-STRESS: The Dwell will have a duration of 1-hour at this STEP-STRESS Level.

End DWELL: 13:38
(TIME HR:MIN)

SEE ALSO DAY #3 Plot of TEMP:

At 13:38 Reduced Package Stresses to Level 0 added monitoring temperature stress @ Level 4. Dwell to 14:20 at this STEP-STRESS LEVEL COMPLETE

Conditions to observe thermocouple & heat-contribution of components as the result of voltage stress. Also noticed at 13:50 11-27-91 that the Synth 35 remained off frequency even with -15V back to normal. The 312 Synth, however, returned fully, although noisy, returning to 0400 @ 9:21 AM 12/8/91.

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET

Sheet 1 of 4

UIT Serial Number (omit 100's) -100/349

Test Date: 11-27-91

Tester: (Name & stamp below) A. D. Mueller

STEP-STRESS Level (omit 1-100) 5

100's
10's
5's
2's

Increased Vauxages from Level 0 to Level 4, p 14:20 prior to
proceeding to Level 5. *W. J. J. J. J.*

STEP-STRESS LEVEL DATA

TEMPERATURE STEP-STRESS: Ramp Chamber Temperature to STEP-STRESS Level; Stabilize; and Start Dwell at STEP-STRESS Level.

Begin RAMP: 14:32 (TIME MIN:SS) *approximately 30 minutes* Start DWELL: 15:02 (TIME HR:MIN)

STEP-STRESS Level Chamber Air Temperature: +101 (°C) *Flange Temperature: +106 (°C)*
(Chamber thermocouple reading) *(Thermocouple reading)*

STEP-STRESS Level Component Temperature: As +18.2 (°C)
(refer to Appendix D Table) +21.2 / -2.4

VOLTAGE STEP STRESS: During Temperature Ramp; Increment Voltage to STIP STRESS Level. (Remain at steps below)

Supply Voltages: +5 Volts dc: +6.00 (V_W) -5 Volts dc: -6.00 (V_W)
+15 Volts dc: +16.50 (V_W) -15 Volts dc: -16.50 (V_W)
Avg. Constant -5 Volts dc Setting: -5.097 (V_W) *Record At 4-24-1961*
(V_W)

UNIT PERFORMANCE TEST DATA

CURRENT TEST: At Death: Set UUT Frequency Word, Synthesized Signal, & Received (n/a) Signal Inputs for Channel 00. Record UUT Current for this STEP-STRESS Level.

Start TEST: 0417.0 (TIME IN MIN) 1374

Settings: Freq Word (11-01 & 13-01) = C110; Synth Sig (17 & 19) = 921 MHz; Rev Sig (18) = 607.35 MHz at 0 dBm

UUT Current: + 5 Volts dc: _____ (mA) - 5 Volts dc: _____ (mA)
+ 15 Volts dc: _____ (mA) - 15 Volts dc: _____ (mA)

End TEST: 0417.7 (TIME IN MIN)

TEST contained acid test

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (new MAX): -100/349
 STEP-STRESS Level (new & old): 5
 Test Date: 11-27-91
 S24
 (S24 92466 1000)
 Sheet 2 of 4

UUT PERFORMANCE TEST DATA

UNIT DIGITAL OUTPUT TEST: At Desk: Set UUT Synthesized Signal and Received Signal Inputs for Channel 00. Decrease Received Signal Input from 0 dBm to -75 dBm and record Duty Cycle (6/7) for each UUT Digital Output. Repeat with setting for Channel 30 at the STOP-STRESS Level.

Start Test: 1540 MONITOR ONLY
(TIME HR:MIN)

Channel 00: Settings: Synth Sig (7 & 8) = 921 MHz Rev Sig (8) = 607.35 MHz at 0 to -75 dBm

Rev Sig Input - dBm	Detector 1		Detector 2		Observations
	I (use)	Duty Cycle (use)	I (use)	Duty Cycle (use)	
I > 0					
I > 0					
I + Q > 0					
Q > 0					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0					
I + Q > 0					
Q > 0					
Other: Specify (dlm)					
I > 0					
I > 0			</		

TEST Continued next page.

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (new 150V): 100/349 Test Date: 11-27-91 SSE TEST
 STEP-STRESS Level (new 0-10): 5

UUT PERFORMANCE TEST DATA CONTINUED

DIGITAL OUTPUT TEST: Continued. (Refer to Procedure on previous page)

Channel 50: Settings: Synth Sig (J7 & J9) = 484 MHz; Rev Sig (J8) = 370.35 MHz at 0 to -75 dBm

Rev Sig Input	Detector 1 (dBm)	Duty Cycle (Percent)	Detector 2 (dBm)	Duty Cycle (Percent)	Observations
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					
1 > 0					
1 > 0					
1 > 0 > 0					
0 > 0					</

STEP-STRESS TEST DATA SHEET

UNIT Serial Number (over MSN) -100/549

TEST DATE: 11-27-91

TESTER: (Name & stamp below) Ed B. 77466

STEP-STRESS Level (over 0 - 100) 0

QSC
92466
TSS

Between 15:36 and 16:46 no indicated effects of Load & Velocity vs. Load 0 Tanya
to determine heat conduction of Velocity Stress

STEP-STRESS LEVEL DATA

TEMPERATURE/STRESS: Ramp Chamber Temperature to STEP-STRESS Level; Stabilize, and Start Dwell at STEP-STRESS Level.

Begin RAMP: $\frac{1646}{(\text{TIME IN MIN})}$ STEP-STRESS Level: $\frac{1719}{(\text{TIME IN MIN})}$ Start DWELL: $\frac{1719}{(\text{TIME IN MIN})}$

STEP-STRESS Level Chamber Air Temperature: $+61.1^{\circ}\text{C}$ (Chamber thermocouple reading) Ramp Temperature: $+65.8^{\circ}\text{C}$ (Thermocouple reading)

STEP-STRESS Level Computed Temperature: $+70.5^{\circ}\text{C}$ (refer to Appendix 2 Table)

$\frac{1646}{(\text{TIME IN MIN})}$ $\frac{1719}{(\text{TIME IN MIN})}$ $\frac{1719}{(\text{TIME IN MIN})}$

VOLTAGE STEP-STRESS: During Temperature Ramp; Increment Voltage to STEP-STRESS level. (Record readings below)

VOLTAGE STEP-STRESS. During Temperature Ramp; Increment Voltage to STEP-STRESS Level. (Reset settings below)

Supply Voltages:	+ 5 Volts dc: <u>+5.00</u> (Vdc)	- 5 Volts dc: <u>-5.00</u> (Vdc)
	+15 Volts dc: <u>+15.00</u> (Vdc)	-15 Volts dc: <u>-15.00</u> (Vdc)
Aux. Constant - 5 Volts dc Settling: <u>-5.097</u> (Vdc)		

44-113161
Thermoflex Oct.

UUT PERFORMANCE TEST DATA

UUT PERFORMANCE TEST DATA TESTS MAY BE PERFORMED IN ANY ORDER

UUT CURRENT TEST: At Desk: Set UUT Frequency Word, Symbolized Signal, & Received (0 ohm) Signal Inputs for Channel 00. Record UUT Currents for this STEP STRESS Level.

Start TEST: 0415 (TIME HH:MM) gm

Settings: Freq Word (J1-01) = C11 00; Synth Sig (J7 & J9) = 921 MHz; Rev Sig (J8) = 607.35 MHz at 0 dBm

UUT Currents: + 5 Volts dc: _____ (mA) - 5 Volts dc: _____ (mA)
 +15 Volts dc: _____ (mA) -15 Volts dc: _____ (mA)

End TEST: 0417 (TIME HH:MM)

TT:ST continued next page

STEP-STRESS TEST DATA SHEET (CONTINUED)

UNIT 7 of 8

UNIT Serial Number (mmr 100): -100/349

STEP-STRESS Level (mmr 0 - 40): 0

Test Date: 11-27-91

FA
92466
TEST

SPM

CONTINUED

START TEST: MONITORING ONLY
(TYPE HERE)

Channel 00: Settings: Synth Sig (I7 & J9) = 921 MHz; Rev Sig (I8) = 607.35 MHz at 0 to -75 dBm

At Onset; Set UUT Synthesized Signal and Received Signal inputs for Channel 00. Decrease Received Signal input from 0 dBm to -75 dBm and record Duty Cycle (I/T) for each UUT Digital Output. Repeat with setting for Channel's 50 at this STEP-STRASS Level.

Rev Sig Input	I & Q Bits	Detector 1		Detector 2		Observations
		Limit	Duty Cycle (Percent)	Limit	Duty Cycle (Percent)	
0 dBm	I > 0	_____	_____	_____	_____	_____
	I > Q	_____	_____	_____	_____	_____
	I + Q > 0	_____	_____	_____	_____	_____
	Q > 0	_____	_____	_____	_____	_____
Other: Specify (dBm)	I > 0	_____	_____	_____	_____	_____
	I > Q	_____	_____	_____	_____	_____
	I + Q > 0	_____	_____	_____	_____	_____
	Q > 0	_____	_____	_____	_____	_____
Other: Specify (dBm)	I > 0	_____	_____	_____	_____	_____
	I > Q	_____	_____	_____	_____	_____
	I + Q > 0	_____	_____	_____	_____	_____
	Q > 0	_____	_____	_____	_____	_____
-75 dBm	I > 0	_____	_____	_____	_____	_____
	I > Q	_____	_____	_____	_____	_____
	I + Q > 0	_____	_____	_____	_____	_____
	Q > 0	_____	_____	_____	_____	_____

*Auth Detector 1 & 2
I & Q - Bits monitored
at -75 dBm input.
Bound to have reference
to given values on this & / Load 0*

TEST Continued next page.

TI:ST Continued next page.

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (see MS): 100/349 Test Date: 11-27-91 SS 02466
 STEP-STRESS Level (see 8.10): 0 SDY

UUT PERFORMANCE TEST DATA

DIGITAL OUTPUT TEST: Continued. (Refer to Procedures on previous page)

Channel 50: Settings: Synth Sg (17 & 19) = 684 MHz; Rev Sg (18) = 370.35 MHz; at 0 to 75 dBm

Rev Sg Level	Detector 1		Detector 2		Observations
	Level	Duty Cycle	Level	Duty Cycle	
0 dBm	I > 0	_____	I > 0	_____	_____
10 dBm	I > 0	_____	I > 0	_____	_____
20 dBm	I > 0	_____	I > 0	_____	_____
30 dBm	I > 0	_____	I > 0	_____	_____
40 dBm	I > 0	_____	I > 0	_____	_____
50 dBm	I > 0	_____	I > 0	_____	_____
60 dBm	I > 0	_____	I > 0	_____	_____
70 dBm	I > 0	_____	I > 0	_____	_____
80 dBm	I > 0	_____	I > 0	_____	_____
90 dBm	I > 0	_____	I > 0	_____	_____
100 dBm	I > 0	_____	I > 0	_____	_____

Other: Specify _____

End TEST: MANITORED ONLY (TIME HR:MIN)

TEST continued next page

TRIAL TEST RUN

STEP-STRESS TEST DATA SHEET (CONTINUED)

UUT Serial Number (see MS): 100/349 Test Date: 11-27-91 SS 02466
 STEP-STRESS Level (see 8.10): 0

UUT PERFORMANCE TEST DATA

RADIO FREQUENCY OUTPUT TEST: At Dwell: Set UUT Frequency Word Input to Channel 50. Record the Synthesizer Mixer Port Output Frequency & Power. Repeat with settings for Channels 35, 18, and 00 at this STEP-STRESS Level.

Start TEST: 17:20 (TIME HR:MIN)

Channel	Synthesizer 1 (15)		Synthesizer 2 (112)		Observations
	Frequency (MHz)	Power* (dBm)	Frequency (MHz)	Power* (dBm)	
50 MHz	<u>684.00</u>	<u>-15.7</u>	<u>684.01</u>	<u>+8.3</u>	*account for cable losses <u>Calc 684.05 (dB)</u>
35 MHz	<u>725.00</u>	<u>-10.9</u>	<u>729.04</u>	<u>+10.5</u>	<u>3.5</u>
18 MHz	<u>825.00</u>	<u>-9.8</u>	<u>825.06</u>	<u>+11.0</u>	<u>6.04</u>
00 MHz	<u>920.99</u>	<u>-7.7</u>	<u>920.99</u>	<u>+11.6</u>	<u>7.29</u>

Additional Testing (OPTIONAL): At Dwell: Set UUT Frequency Word Input to Channel 50 then Channel 00 and measure Synthesizer Mixer Port Output Power at each Frequency.

RADIO FREQUENCY OUTPUT TEST: *Synth #1 has permanently defective output is on frequency*

ATTACH the Data Printout (copy) to this STEP-STRESS TEST DATA SHEET. Label attachment with UUT Serial Number & STEP-STRESS Level. Tester Name & Date. ATTACHMENT (Check box)

End TEST: 17:36 (Elapsed 00:16) TIME HR:MIN

STEP-STRESS LEVEL DATA

TEMPERATURE STEP-STRESS: The Dwell will have a duration of 1-hour at this STEP-STRESS Level.

End DWELL: 17:36 (TIME HR:MIN)

STEP-STRESS LEVEL COMPLETE

TRIAL TEST RUN

FULL PRINT-OUT OF Power Output and Frequency

Sheet 4A of 4
100
Lot Ser. # 349

Power at J5 15-17.9 dBm @ 684.0 MHz (Spec=+9dBm minimum).
Power at J5 15-19.9 dBm @ 687.0 MHz (Spec=+9dBm minimum).
Power at J5 15-18.4 dBm @ 690.0 MHz (Spec=+9dBm minimum).
Power at J5 15-17.0 dBm @ 693.0 MHz (Spec=+9dBm minimum).
Power at J5 15-14.0 dBm @ 696.0 MHz (Spec=+9dBm minimum).
Power at J5 15-12.2 dBm @ 699.0 MHz (Spec=+9dBm minimum).
Power at J5 15-10.2 dBm @ 702.0 MHz (Spec=+9dBm minimum).
Power at J5 15-8.6 dBm @ 705.0 MHz (Spec=+9dBm minimum).
Power at J5 15-8.3 dBm @ 708.0 MHz (Spec=+9dBm minimum).
Power at J5 15-9.2 dBm @ 711.0 MHz (Spec=+9dBm minimum).
Power at J5 15-11.8 dBm @ 714.0 MHz (Spec=+9dBm minimum).
Power at J5 15-9.5 dBm @ 717.0 MHz (Spec=+9dBm minimum).
Power at J5 15-12.4 dBm @ 720.0 MHz (Spec=+9dBm minimum).
Power at J5 15-11.4 dBm @ 723.0 MHz (Spec=+9dBm minimum).
Power at J5 15-12.8 dBm @ 726.0 MHz (Spec=+9dBm minimum).
Power at J5 15-13.8 dBm @ 729.0 MHz (Spec=+9dBm minimum).
Power at J5 15-13.5 dBm @ 732.0 MHz (Spec=+9dBm minimum).
Power at J5 15-13.5 dBm @ 735.0 MHz (Spec=+9dBm minimum).
Power at J5 15-14.3 dBm @ 738.0 MHz (Spec=+9dBm minimum).
Power at J5 15-14.8 dBm @ 741.0 MHz (Spec=+9dBm minimum).
Power at J5 15-22.5 dBm @ 744.0 MHz (Spec=+9dBm minimum).
Power at J5 15-25.2 dBm @ 747.0 MHz (Spec=+9dBm minimum).
Power at J5 15-14.2 dBm @ 750.0 MHz (Spec=+9dBm minimum).
Power at J5 15-14.4 dBm @ 753.0 MHz (Spec=+9dBm minimum).
Power at J5 15-19.4 dBm @ 756.0 MHz (Spec=+9dBm minimum).
Power at J5 15-9.9 dBm @ 759.0 MHz (Spec=+9dBm minimum).
Power at J5 15-8.2 dBm @ 762.0 MHz (Spec=+9dBm minimum).
Power at J5 15-6.6 dBm @ 765.0 MHz (Spec=+9dBm minimum).
Power at J5 15-7.3 dBm @ 768.0 MHz (Spec=+9dBm minimum).
Power at J5 15-18.9 dBm @ 771.0 MHz (Spec=+9dBm minimum).
Power at J5 15-8.0 dBm @ 774.0 MHz (Spec=+9dBm minimum).
Power at J5 15-10.5 dBm @ 777.0 MHz (Spec=+9dBm minimum).
Power at J5 15-15.6 dBm @ 825.0 MHz (Spec=+9dBm minimum).
Power at J5 15-11.0 dBm @ 828.0 MHz (Spec=+9dBm minimum).
Power at J5 15-11.8 dBm @ 831.0 MHz (Spec=+9dBm minimum).
Power at J5 15-10.1 dBm @ 834.0 MHz (Spec=+9dBm minimum).
Power at J5 15-10.5 dBm @ 837.0 MHz (Spec=+9dBm minimum).
Power at J5 15-16.5 dBm @ 882.0 MHz (Spec=+9dBm minimum).
Power at J5 15-15.4 dBm @ 885.0 MHz (Spec=+9dBm minimum).
Power at J5 15-16.1 dBm @ 888.0 MHz (Spec=+9dBm minimum).
Power at J5 15-16.7 dBm @ 891.0 MHz (Spec=+9dBm minimum).
Power at J5 15-28.1 dBm @ 894.0 MHz (Spec=+9dBm minimum).
Power at J5 15-16.4 dBm @ 897.0 MHz (Spec=+9dBm minimum).
Power at J5 15-18.7 dBm @ 900.0 MHz (Spec=+9dBm minimum).
Power at J5 15-18.1 dBm @ 903.0 MHz (Spec=+9dBm minimum).
Power at J5 15-14.2 dBm @ 906.0 MHz (Spec=+9dBm minimum).
Power at J5 15-20.5 dBm @ 909.0 MHz (Spec=+9dBm minimum).
Power at J5 15-14.6 dBm @ 912.0 MHz (Spec=+9dBm minimum).
Power at J5 15-20.3 dBm @ 915.0 MHz (Spec=+9dBm minimum).
Power at J5 15-14.5 dBm @ 918.0 MHz (Spec=+9dBm minimum).
Power at J5 15-9.3 dBm @ 921.0 MHz (Spec=+9dBm minimum).

STEP-STRESS Level C
11-27-91

A.D. Mueller
92460
(TS)

TRIAL TEST RUN

FULL PRINT-OUT OF Power Output and Frequency

Sheet 4B of 4
100
Lot Ser. # 349

Power at J12 15 3.4 dBm @ 684.0 MHz (Spec=+9dBm minimum).
Power at J12 15 3.8 dBm @ 687.0 MHz (Spec=+9dBm minimum).
Power at J12 15 3.4 dBm @ 690.0 MHz (Spec=+9dBm minimum).
Power at J12 15 3.0 dBm @ 693.0 MHz (Spec=+9dBm minimum).
Power at J12 15 3.3 dBm @ 696.0 MHz (Spec=+9dBm minimum).
Power at J12 15 2.7 dBm @ 699.0 MHz (Spec=+9dBm minimum).
Power at J12 15 1.3 dBm @ 702.0 MHz (Spec=+9dBm minimum).
Power at J12 15 5.8 dBm @ 705.0 MHz (Spec=+9dBm minimum).
Power at J12 15 1.7 dBm @ 708.0 MHz (Spec=+9dBm minimum).
Power at J12 15 6.7 dBm @ 711.0 MHz (Spec=+9dBm minimum).
Power at J12 15 6.1 dBm @ 714.0 MHz (Spec=+9dBm minimum).
Power at J12 15 5.9 dBm @ 717.0 MHz (Spec=+9dBm minimum).
Power at J12 15 5.7 dBm @ 720.0 MHz (Spec=+9dBm minimum).
Power at J12 15 4.4 dBm @ 723.0 MHz (Spec=+9dBm minimum).
Power at J12 15 -3.3 dBm @ 726.0 MHz (Spec=+9dBm minimum).
Power at J12 15 4.5 dBm @ 729.0 MHz (Spec=+9dBm minimum).
Power at J12 15 6.7 dBm @ 732.0 MHz (Spec=+9dBm minimum).
Power at J12 15 3.8 dBm @ 735.0 MHz (Spec=+9dBm minimum).
Power at J12 15 6.1 dBm @ 738.0 MHz (Spec=+9dBm minimum).
Power at J12 15 4.9 dBm @ 741.0 MHz (Spec=+9dBm minimum).
Power at J12 15 -1.9 dBm @ 744.0 MHz (Spec=+9dBm minimum).
Power at J12 15 8.5 dBm @ 747.0 MHz (Spec=+9dBm minimum).
Power at J12 15 4.9 dBm @ 750.0 MHz (Spec=+9dBm minimum).
Power at J12 15 4.4 dBm @ 753.0 MHz (Spec=+9dBm minimum).
Power at J12 15 3.6 dBm @ 756.0 MHz (Spec=+9dBm minimum).
Power at J12 15 8.3 dBm @ 759.0 MHz (Spec=+9dBm minimum).
Power at J12 15 -2.6 dBm @ 762.0 MHz (Spec=+9dBm minimum).
Power at J12 15 5.2 dBm @ 765.0 MHz (Spec=+9dBm minimum).
Power at J12 15 7.3 dBm @ 768.0 MHz (Spec=+9dBm minimum).
Power at J12 15 4.3 dBm @ 771.0 MHz (Spec=+9dBm minimum).
Power at J12 15 5.0 dBm @ 774.0 MHz (Spec=+9dBm minimum).
Power at J12 15 6.6 dBm @ 777.0 MHz (Spec=+9dBm minimum).
Power at J12 15 5.5 dBm @ 825.0 MHz (Spec=+9dBm minimum).
Power at J12 15 5.5 dBm @ 828.0 MHz (Spec=+9dBm minimum).
Power at J12 15 -4.1 dBm @ 831.0 MHz (Spec=+9dBm minimum).
Power at J12 15 -2.3 dBm @ 834.0 MHz (Spec=+9dBm minimum).
Power at J12 15 4.9 dBm @ 837.0 MHz (Spec=+9dBm minimum).
Power at J12 15 3.3 dBm @ 882.0 MHz (Spec=+9dBm minimum).
Power at J12 15 2.1 dBm @ 885.0 MHz (Spec=+9dBm minimum).
Power at J12 15 2.6 dBm @ 888.0 MHz (Spec=+9dBm minimum).
Power at J12 15 3.8 dBm @ 894.0 MHz (Spec=+9dBm minimum).
Power at J12 15 6.5 dBm @ 897.0 MHz (Spec=+9dBm minimum).
Power at J12 15 4.6 dBm @ 900.0 MHz (Spec=+9dBm minimum).
Power at J12 15 5.6 dBm @ 903.0 MHz (Spec=+9dBm minimum).
Power at J12 15 1.5 dBm @ 906.0 MHz (Spec=+9dBm minimum).
Power at J12 15 2.8 dBm @ 909.0 MHz (Spec=+9dBm minimum).
Power at J12 15 3.8 dBm @ 912.0 MHz (Spec=+9dBm minimum).
Power at J12 15 3.0 dBm @ 915.0 MHz (Spec=+9dBm minimum).
Power at J12 15 4.8 dBm @ 918.0 MHz (Spec=+9dBm minimum).
Power at J12 15 9.0 dBm @ 921.0 MHz (Spec=+9dBm minimum).

STEP-STRESS Level O
11-27-91

A.D. Mueller
92460
(TS)

TRIAL TEST RUN

TEST EQUIPMENT & CALIBRATION LOG

Maintain Log for testing conducted 12-16-91 through 12-17-91:
(date) (date)

Item	DESCRIPTION	Manuf. & Part No.	ID NUMBER	LAST CAL*	CAL* DUE	Item Notes
01	T/R Test Station	HAC; SPECIAL	G-132043		NCR	F-A15223
02	Control Panel	HAC; SPECIAL	G-132290		NCR	
03	Signal Generator	HP; 8660C	G-132009	10/20/91	07/20/92	
04	Auxiliary Section	HP; 86631B	G-132010		NCR	P/O Item 3
05	RF Section	HP; 86603A	G-132011	10/20/91	07/20/92	P/O Item 3
06	Spectrum Analyzer	HP; 8568A w/ Opt E16	G-132082	12/11/91	10/30/92	
07	FET Probe	HP; 1120A	—			NOT USED
08	Power Meter	HP; 436A	—			NOT USED
09	Power Sensor	HP; 8482A	—			NOT USED
10	Oscilloscope	HP; 1980B	G-132049	09/24/91	08/11/92	
11	Digital Multimeter	SystronDonner; 7344A	—			NOT USED
12	Digital Multimeter	HP; 3478A	H-A53624	09/06/91	06/25/92	
13	Power Splitter	MiniCkts; ZFSC-2-5	NONE		NCR	
14	Power Splitter	MiniCkts; ZFSC-2-5	NONE		NCR	
15	Reg. Power Supply	Lambda; LP-531-FM	G-132292		NCR	+15V Supply
16	Reg. Power Supply	Lambda; LP-531-FM	P/O Item 15		NCR	-15V Supply
17	Reg. Power Supply	Lambda; LP-530-FM	G-132291		NCR	+5V Supply
18	Reg. Power Supply	Lambda; LP-520-FM	P/O Item 17		NCR	-5V Supply
19	Computer	HP; 9845B	G-128030		NCR	
20	Flex. Disk Memory	HP; 9895A	G-133309		NCR	
21	Signal Generator		—			NOT USED
22	Oscilloscope	Tektronix; 2465	—			NOT USED
23	Digital Multimeter		—			NOT USED
24	Digital Multimeter		—			NOT USED
25	Digital Multimeter		—			NOT USED
26	Thermal Chamber	Thermotron; S-4 w/Cntl	H-B07567	09/18/91	09/02/92	UNCERTAINTY ± 5°C
27	Data Acqtn Cntl Unit	HP; 3497A	H-428499	11/14/91	07/29/93	
28	Computer	HP; Model 85	H-428110		NCR	
29	Power Supply, AUX.	HP; 6299A	H-357054		NCR	
30	Plotter	HP; 7470A	H-512478		NCR	
31	Printer	HP; Thinkjet	H-A51399		NCR	
32	Atten; 1dB	Midwest Microwave; 238	NONE		NCR	?
33	Atten; 1dB	Midwest Microwave; 294	NONE		NCR	P/O 248 PAD
34	Thermocouple WIRE	COPPER/Constantan; Type E	NONE		BY TEST	AS REQUIRED
35						
36						
37						
38						
39						
40						
41						
42						

*NCR = No Calibration Required

A.D. Muller



TRIAL TEST RUN

STEP-STRESS TEST (abridged) DATA SHEET

USPT Serial Number (same as pg. 1) -100/549

STEEL-JT226 Level (same as pg. 1) 4/0

Test Date: 12-17-91

Tester: (phone if company history) D. D. Miller

ONE
INCH
SCALE

Sheet 1 of 2

TEMPERATURE STEP-STRESS: Ramp Chamber Temperature to STEP-STRESS Level; Stabilize, and Start Dwell at STEP-STRESS Level

Begin RAMP: *CHAMBER SET TO TEST AT 1015°*

LEVEL: *2:30 AT TEMP. RAMPING STOPPED*

STEP-STRESS Level: *CH. RAMPING STOPPED*

STEP-STRESS Level, Chamber Air Temperature: *+91.2 °C*

STEP-STRESS Level, Chamber Sample Temperature: *+93.2 °F*

STEP-STRESS Level, Computed Temperature: *+101.0 °C*

Not to exceed 2100h

STEP-STRESS Level, Sample Temperature: *+96.1 °C*

(Thermocouple reading) (Average of 10 readings)

STEP DWELL: *19:34 STOP*

(TIME ELAPSED)

TEMPERATURE STEP-STRESS: Ramp Chamber Temperature to STEP-STRESS Level; Stabilize, and Start Dwell at STEP-STRESS Level

VOLTAGE STEP-STRESS During Temperature Ramp: Increment Voltage to STEP-STRESS Level. (Standard settings below)

20V/200

Supply Voltages: +5 Volts dc: +5.00 (Vdc) -5 Volts dc: -5.00 (Vdc)

+15 Volts dc: +15.00 (Vdc) -15 Volts dc: -15.00 (Vdc)

Aux. Current - 5 Volts dc Settling: -5.098 (Vdc) *AV 200V/200*
200V/200

PERFORMANCE MONITORING ONLY (1/1/80 OF TEST)

14:03 Synthesizers: J12 has good output power and is stable for CH 50 and 45. (Using Software Test#2 Frequency Sweep). Unlocked at CH's 18, 14, 04 and 00. J5 output stable all CH's, but is still 15 dB low in power from previous STEP-STRESS TRIAL DAYS.

Detectors: Setup is monitoring CH 50 only. but continuously. Used signal generator

NO STATION CALIBRATION
PERFORMED. STATION MAKING
SIGNALS GENERATOR.

NOTES CONTINUED NEXT PAGE

STEP-STRESS TEST (abridged) DATA SHEET (CONTINUED)

UNIT Serial Number (new unit): -100/399 Test Date: 12-17-91

STEP-STRESS Level (new & old): 4/0 

MONITORING CONTINUED

MONITORING NOTES & OBSERVATIONS ARE AS FOLLOWS:

sent put from another LAB test station. (see equipment log) over 30ft of cable. AT-75dpm all I & Q -bits are present and stable and roughly 50%. This applies to both Detectors. Signal generator set to 370.35 MHz.

CONTINUED

TEMPERATURE STEP STRESS: The Dwell will have a duration of 1-hour at this STEP STRESS Level.

READ DWELL: 14:34

STEP-STRESS LEVEL COMPLETE

TRIAL TEST RUN

STEP-STRESS TEST (abridged) DATA SHEET

UNIT Serial Number (same as UNIT): 100/349 Test Date: 12-17-91 (TIME IN MIN)

STEP-STRESS Level (same as UNIT): 5/0 (TIME IN MIN)

STEP-STRESS LEVEL DATA

TEMPERATURE STEP-STRESS: Ramp Chamber Temperature to STEP-STRESS Level, Stabilize, and Start Dwell at STEP-STRESS Level.

Begin RAMP: 14:34 (TIME IN MIN) Start DWELL: 15:04 (TIME IN MIN)

LEVEL 5

STEP-STRESS Level Chamber Air Temperature: +28.6 °C Ramp Temperature: +103.0 °C

STEP-STRESS Level Chamber Temperature: +101.0 °C (Thermocouple reading) (Verify in advance)

STEP-STRESS Level Chamber Temperature: +101.0 °C (Thermocouple reading) (Verify in advance)

STEP-STRESS Level Chamber Temperature: +101.0 °C (Thermocouple reading) (Verify in advance)

VOLTAGE STEP-STRESS: During Temperature Ramp, Increase Voltage to STEP-STRESS Level. (Record readings below)

LEVEL 0

Supply Voltage: +5.00 (Vdc) -5.00 (Vdc)

+15.00 (Vdc) -15.00 (Vdc)

Am. Current: -5.00 (Vdc) -5.00 (Vdc)

15:40 Synthesizers: No noticeable change from Level 4/0. Using Synth. Freq. Sweep Test #2

Detectors: CH. 50 @ -75 dBm. I & Q - bits still good, both Detectors.

NOTES continued next page

TRIAL TEST RUN

STEP-STRESS TEST (abridged) DATA SHEET (CONTINUED)

UNIT Serial Number (same as UNIT): 100/349 Test Date: 12-17-91 (TIME IN MIN)

STEP-STRESS Level (same as UNIT): 5/0 (TIME IN MIN)

UNIT PERFORMANCE TEST DATA MONITORING CONTINUED

MONITORING NOTES & OBSERVATIONS ARE AS FOLLOWS:

Note this sheet.

STEP-STRESS LEVEL DATA CONTINUED

TEMPERATURE STEP-STRESS: The Dwell will have a duration of 1-hour at this STEP-STRESS Level.

End DWELL: 16:14 (TIME IN MIN)

STEP-STRESS LEVEL COMPLETE

TRIAL TEST RUN

STEP-STRESS TEST (abridged) DATA SHEET

UUT Serial Number (see MFR): -100/249 Test Date: 12-17-91

STEP-STRESS Level (see S-10): 6/0 (Name & Temp Index)

UUT Serial Number (see MFR): -100/249 Test Date: 12-17-91

STEP-STRESS Level (see S-10): 6/0 (Name & Temp Index)

STEP-STRESS LEVEL DATA

DAY #4

TEMPERATURE STEP-STRESS: Ramp Chamber Temperature to STEP-STRESS Level; Stabilize, and Start Dwell at STEP-STRESS Level.

Ramp Ramp: 16:14 (TIME INDEX)

LEVEL 6 (TIME INDEX)

STEP-STRESS Level Chamber Air Temperature: +106.1 °C Ramp Temperature: +108.8 °C

STEP-STRESS Level Chamber Air Temperature: +106.1 °C (Thermocouple reading)

STEP-STRESS Level Chamber Air Temperature: +106.1 °C (Thermocouple reading)

VOLTAGE STEP-STRESS: During Temperature Ramp: Increment Voltage to STEP-STRESS Level. (Round settings below)

LEVEL 0

Supply Voltages: +5 Volts dc: +5.00 (V) -3 Volts dc: -5.00 (V)

+15 Volts dc: +15.00 (V) -15 Volts dc: -15.00 (V)

Am. Current: -5 Volts dc Setting: -5.028 (V) 94.24 pA

UUT PERFORMANCE TEST DATA

PERFORMANCE MONITORING ONLY (N.I.J.R. OF TEST)

MONITORING NOTES & OBSERVATIONS ARE AS FOLLOWS:

17:04 Passed Synth Pay Sigs #2 TEST Program to observe effect upon thermocouple readings being plotted. Slight temperature decrease to TC1 - Stage and TC10 = 1806 observed while at fixed frequency operation of Synthesizer. Fixed at CH48.

17:14 Continued applying Synthesizer thru A CH3 50, 45, 18, 14, 04 p00. Temp of TC1 & TC10 increase on plot. TC10 lags TC1.

NOTES continued next page

TRIAL TEST RUN

STEP-STRESS TEST (abridged) DATA SHEET (CONTINUED)

UUT Serial Number (see MFR): -100/249 Test Date: 12-17-91

STEP-STRESS Level (see S-10): 6/0 (Name & Temp Index)

UUT PERFORMANCE TEST DATA

MONITORING CONTINUED

MONITORING NOTES & OBSERVATIONS ARE AS FOLLOWS:

17:30 Observed Synthesizer JS p112 Pay Sigs. Little change from prior level 6/0. Detector 142 I/Q-bits are good.

17:45 Synthesizer JS @ CH00 is down in power by > 40dB from spec now.

17:46; 17:50; 17:54 thermocouple data enter by printer. Next printout is 17:58.

STEP-STRESS LEVEL DATA

CONTINUED

TEMPERATURE STEP-STRESS: The Dwell will have a duration of 1-hour at this STEP-STRESS Level.

End DWELL: 18:02 (TIME INDEX)

STEP-STRESS LEVEL COMPLETE

TRIAL TEST RUN

STEP-STRESS TEST (abridged) DATA SHEET (CONTINUED)

UNIT Serial Number (omit zeros) -100/344 Test Date: 12-17-91
 Ticker: (Name & room below) ADP Mueller
 STEP-STRSS Level (omit 0, 10) 7/0 ADP Mueller
 STEP-STRSS LEVEL DATA DAY at 4
 TEMPERATURE STEP-STRSS: Ramp Chamber Temperature to STEP-STRSS Level; Stabilize, and Start Dwell at STEP-STRSS Level.
 Begin Ramp: 18:02 Start Dwell: 18:32
 (omit zeros) (omit minutes)
 STEP-STRSS Level Chamber Air Temperature: +113.8 (°C) Plug Temperature: +115.0 (°C)
 (Chamber atmosphere reading) 76.7 at +117°C (Thermocouple reading) 76.1 dipping at
 STEP-STRSS Level Component Temperature: +122.8 (°C) 6.5 fluctuating
 (tube in Appendix D Table) +12.0 3.5 in air
 VOLTAGE STEP-STRSS: During Temperature Ramp; Incremental Voltage to STEP-STRSS Level. (Record settings below)
 48V 40 Supply Voltage: + 5 Volts dc: +5.00 (Volts) - 5 Volts dc: -5.00 (Volts)
 +15 Volts dc: +15.00 (Volts) -15 Volts dc: -15.00 (Volts)
 Amt. Constant - 5 Volts dc Setting: -5.098 (Volts) AM 24 p 14y
 CCR Remind
 UNIT PERFORMANCE TEST DATA PERFORMANCE MONITORED ONLY (IN LUN OF TEST)
 MONITORING NOTES & OBSERVATIONS ARE AS FOLLOWS
 18:43 Synth J12 Lane output power CH 50 p 45 and only signal spread on some. CH's 18, 14, 04, 00 now lost locked through freq. sweep, although off frequency. Detectori. Still okay monitoring CH. 50. Synth J5 still same degraded signal.
 19:28 Note that TC1 = flange plot is getting clear to UUT TC2 = air temp. Semirigid cable to exterior of aluminum we want to touch and may be sinking heat to room, away from UUT. all 4 channels

NOTES continued next page

STEP-STRESS LEVEL COMPLETE

TRIAL TEST RUN

STEP-STRESS TEST (abridged) DATA SHEET

UNIT Serial Number (new UUT): 100/349 Test Date: 12-17-91
 STEP-STRESS Level (new S-10): 8/0 Tester: (Name & company initials) AB Mueller

STEP-STRESS LEVEL DATA

TEMPERATURE STEP-STRESS: Ramp Chamber Temperature to STEP-STRESS Level, Stabilize, and Start Dwell at STEP-STRESS Level.

Ramp Ramp: 19:54 (TIME READING) Start Dwell: 20:04 (TIME READING)

STEP-STRESS Level: 181.7 °C Chamber Air Temperature: 181.7 °C Phase Temperature: 181.7 °C
 (Chamber temperature reading) Temp @ 181.7 °C (Thermocouple reading) Ramp 20:04
 STEP-STRESS Level Component Temperature: 181.7 °C (Temp @ 181.7 °C) (Thermocouple reading) Day 20:04
 (Temp @ 181.7 °C) (Thermocouple reading) Step 20:04

VOLTAGE STEP-STRESS: During Temperature Ramp, Increment Voltage to STEP-STRESS Level. (Record settings below)

Supply Voltage: +5.00 (Volts) -5.00 (Volts) -15.00 (Volts)
+15.00 (Volts) +5.00 (Volts) -5.00 (Volts)
 Am. Constant -5.00 (Volts) -5.00 (Volts) -5.00 (Volts)

UNIT PERFORMANCE TEST DATA

MONITORING NOTES & OBSERVATIONS ARE AS FOLLOWS:

19:56 (22 minutes into ramp) Synth J12 unlocking now at CH00. Output power still good. J5 Synth still >15dB loss in power except at CH00 where it is >40dB.

20:06 TC1 - flange thermocouple dropped off on plot. Thermocouple is bad.

20:26 Wiggled Semi-rigid coax of TC1 came back.

NOTES continued next page

TRIAL TEST RUN

STEP-STRESS TEST (abridged) DATA SHEET (CONTINUED)

UNIT Serial Number (new UUT): 100/349 Test Date: 12-17-91
 STEP-STRESS Level (new S-10): 8/0 Tester: (Name & company initials) AB Mueller

UNIT PERFORMANCE TEST DATA

MONITORING NOTES & OBSERVATIONS ARE AS FOLLOWS:

20:27 Synth J12 now locking back @ CH00, 04, 14. Detectors are okay. Lost thermocouple data for 20:26 due to paper jam (TC1 - TC4 only recorded).

20:34 TC1 - flange has come back fully and is greater than before. Question previous data for TC1 DAY#4. Value now is comparable to DAY#1 - DAY#3 readings. Need to analyze.

21:09 Synth J12 unlocks at 00, 04, 14 & 45. CH 18 & 50 okay, but off frequency. J5 Synth still the same.

21:12 Synth J12 unlocking @ CH 18. CH 50 only one locked. TC10 = 1306 increase in plot

STEP-STRESS LEVEL DATA

TEMPERATURE STEP-STRESS: The Dwell will have a duration of 1-hour at this STEP-STRESS Level.

End Dwell: 21:30 (TIME READING)
 END DAY#4 TEST.

STEP-STRESS LEVEL COMPLETE

SECTION 5

**Data Reduction
Tables and Plots**
prepared by S. D. Mueller
and B. J. Armstrong
and J. R. Switzer

TABLE D-2: TEMPERATURE STRESS LEVEL DATA WITHOUT VOLTAGE STRESS (n / 0)

Step- Stress Level Temp/Volt	Date (Day) Time (minutes)	Trial Chamber Sealing Test	UUT Ambient Air T _{amb} = TC2	Flange Chassis T _{fg} = TC1	Component's Compartment Air			Component Stress Level T _{CSL}	7 * Data Reduction			Calibrated Chamber Sealing T _{SET}
					A3 TC3	A4 TC4	A2 TC5		$\Delta T_1 =$ cmp -amb	$\Delta T_2 =$ amb -set	$\Delta T_3 =$ CSL -cmp	
na / 0 ^{1*}	11/26/91 (Day 1) 23:49:00:24 (35)	40 ^{1*}	40.9 ^{+0.6} -0.6	46.3 ^{+0.6} -0.3	52.0 ^{+0.2} -0.7	49.5 ^{+0.4} -0.4	51.9 ^{+0.4} -0.2	70	+10.2	+0.9	+18.9	59
0 / 0 ^{2*}	11/26/91 (Day 1) 01:04:01:34 (30)	60 ^{2*}	59.3 ^{+0.1} -0.1	64.5 ^{+0.1} -0.2	71.4 ^{+0.2} -0.3	67.9 ^{+0.4} -0.9	69.8 ^{+0.1} -0.3	70	+10.4	-0.7	+0.3	60 ^{2*}
0 / 0	11/26/91 (Day 2) 20:42:22:14 (82)	61	60.3 ^{+0.2} -0.1	65.6 ^{+0.2} -0.2	71.4 ^{+0.1} -0.3	68.8 ^{+0.2} -0.3	71.0 ^{+0.1} -0.3	70	+10.1	-0.7	-0.4	61
0 / 0	11/27/91 (Day 3) 17:17:17:37 (20)	61	60.5 ^{+0.1} -0.1	65.8 ^{+0.1} -0.1	71.8 ^{+0.1} -0.0	69.2 ^{+0.1} -0.1	70.6 ^{+0.1} -0.0	70	+10.0	-0.5	-0.5	61
4 / 0	11/27/91 (Day 3) 14:06:14:17 (06)	93	91.3 ^{+0.1} -0.1	97.0 ^{+0.0} -0.0	102.7 ^{+0.0} -0.0	100.2 ^{+0.1} -0.0	101.7 ^{+0.0} -0.0	102	+10.2	-1.7	+0.5	94
4 / 0	12/17/91 (Day 4) 13:36:14:34 (56)	93	91.2 ^{+0.2} -0.3	96.1 ^{+0.2} -0.3	101.8 ^{+0.1} -0.1	100.0 ^{+0.1} -0.2	101.3 ^{+0.1} -0.0	102	+9.8	-1.8	+1.0	94
5 / 0	12/17/91 (Day 4) 15:06:16:14 (86)	101	98.6 ^{+0.5} -0.5	103.0 ^{+0.2} -0.3	109.4 ^{+0.1} -0.3	107.5 ^{+0.1} -0.4	108.8 ^{+0.1} -0.3	110	+10.0	-2.4	+1.4	102
6 / 0	12/17/91 (Day 4) 16:46:16:02 (76)	109	106.1 ^{+1.1} -0.7	108.8 ^{+0.4} -0.9	117.1 ^{+0.0} -0.3	115.2 ^{+0.1} -0.3	116.4 ^{+0.1} -0.3	118	+10.1	-2.9	+1.8	111
7 / 0	12/17/91 (Day 4) 18:34:19:34 (60)	117	113.8 ^{+1.1} -0.8	115.0 ^{+1.1} -2.7	124.9 ^{+0.0} -0.2	122.9 ^{+0.2} -0.2	123.8 ^{+0.8} -0.8	126	+10.0	-3.2	+2.2	119
8 / 0	12/17/91 (Day 4) 20:06:21:33 (84)	125	121.7 ^{+1.1} -1.0	128.6 ^{+0.1} -0.0	132.6 ^{+0.1} -0.3	130.8 ^{+0.1} -0.3	131.7 ^{+0.7} -0.8	134	+10.0	-3.3	+2.3	127

NOTES: 1* Point of trial test origination to determine ΔT_1 ;
2* First trial test setting to locate T_{CSL} and T_{SET}.
3* TC1 data Day 4 is unreliable; Bad TC1 contact with UUT.
4* No data printout 17:46-17:54 for TC1-TC5; Paper jam.
5* No data printout 20:26 for TC5 (21 pts); Paper jam.
6* Only data printout 20:34-21:30 used for TC1 (15 pts); Bad TC1.
7* ΔT_1 is a constant where no voltage stress is applied.

$$T_{CSL} - (T_{cmp} - T_{amb}) - (T_{amb} - T_{set}) = T_{SET}$$

$$T_{CSL} - \Delta T_1 - \Delta T_2 = T_{SET}$$

OR

$$T_{CSL} - (T_{cmp} - T_{amb}) - (T_{amb} - T_{set}) = T_{SET}$$

$$(T_{CSL} - T_{cmp}) + T_{set} = T_{SET}$$

$$\Delta T_3 + T_{set} = T_{SET}$$

Step- Stress Level(n) Temp(Volt)	Date (Day) Time (Minutes)	Trial Chamber Sealing Test	UUT Ambient Air $T_{ambh} = T_{C2}$	Flange Chassis $T_{fgn} = T_{C1}$	Component's Compartment Air				Component Stress Level 10^{10} TCSL	Data Reduction				Calibrated Chamber Sealing 10^{10} gET
					A3 TC3	A4 TC4	A2 TC5	Average $\bar{x}$ T_{compn}		ΔT_{1F} cmh -ambh	ΔT_{2F} cmh -ambh	ΔT_{3F} cmh -ambh	ΔT_{4F} cmh -ambh	
1 / 1	11/26/91 (Day 1) 02:19-02:39 (20)	5	67.1 ^{+0.0} -0.0	72.5 ^{+0.1} -0.0	76.1 ^{+0.1} -0.3	77.8 ^{+0.0} -0.1	77.8 ^{+1.7} -1.8	78	+10.7 -0.6(1)	-0.9	+0.2	+5.4	69	
1 / 1	11/26/91 (Day 2) 22:46-23:44 (58)	16	68.1 ^{+0.2} -0.1	73.8 ^{+0.2} -0.3	77.1 ^{+0.2} -0.3	79.5 ^{+0.1} -0.3	78.8 ^{+1.3} -2.0	78	+10.7 -0.6(1)	-0.9	-0.8	+5.7	69	
2 / 2	11/27/91 (Day 2) 00:16-00:28 (12)	4	75.8 ^{+0.0} -0.0	81.8 ^{+0.1} -0.1	85.2 ^{+0.1} -0.0	87.7 ^{+0.1} -0.1	87.1 ^{+1.3} -2.0	86	+11.3 -0.6(2)	-1.2	-1.1	+6.0	77	
3 / 3	11/27/91 (Day 2) 01:00-01:28 (28)	8	83.5 ^{+0.3} -0.1	89.8 ^{+0.1} -0.2	93.5 ^{+0.1} -0.2	96.1 ^{+0.1} -0.3	95.5 ^{+1.5} -2.2	94	+12.0 -0.6(3)	-1.5	-1.5	+6.3	85	
4 / 4	11/27/91 (Day 2) 02:00-02:58 (58)	15	91.3 ^{+0.2} -0.1	98.0 ^{+0.1} -0.2	101.8 ^{+0.2} -0.2	104.5 ^{+0.2} -0.3	104.0 ^{+1.8} -2.4	102	+12.7 -0.6(4)	-1.7	-2.0	+6.7	93	
4 / 4	11/27/91 (Day 3) 13:13-13:41 (28)	8	91.3 ^{+0.2} -0.1	98.1 ^{+0.0} -0.2	101.8 ^{+0.2} -0.2	104.2 ^{+0.1} -0.2	103.9 ^{+1.9} -2.3	102	+12.6 -0.6(4)	-1.7	-1.9	+6.8	94	
5 / 5	11/27/91 (Day 3) 15:05-15:37 (32)	9	98.9 ^{+0.1} -0.1	106.0 ^{+0.0} -0.2	110.0 ^{+0.2} -0.2	112.4 ^{+0.1} -0.1	112.2 ^{+2.1} -2.4	110	+13.3 -0.6(5)	-2.1	-2.2	+7.1	102	
0 / 5	11/27/91 (Day 3) 16:21-16:45 (24)	7	60.8 ^{+0.2} -0.1	67.7 ^{+0.3} -0.2	71.8 ^{+0.5} -0.3	74.4 ^{+0.6} -0.1	74.1 ^{+2.6} -2.6	70	+13.3 -0.6(5)	-0.2	-4.1	+6.9	60	

To cancel contributions of Voltage stress to the thermal characteristics, we define: $n = \text{stress Level } n \text{ with Voltage stress also applied.}$
 $0 = \text{stress Level } n \text{ without Voltage stress applied.}$

$$\begin{aligned} \tau_{\text{CSL}} - \{ \tau_{\text{cmp}_n} - (\tau_{\text{cmp}_0}) - \{ \tau_{\text{amb}_n} - (\tau_{\text{amb}_0}) \} \} - \{ \{ \tau_{\text{amb}_n} - (\tau_{\text{amb}_0}) \} - \tau_{\text{set}} \} &= \tau_{\text{GET}} \\ \tau_{\text{CSL}} - \{ \{ \tau_{\text{cmp}_n} - (\tau_{\text{cmp}_0}) - \{ \tau_{\text{amb}_n} - (\tau_{\text{amb}_0}) \} \} - \{ \{ \tau_{\text{amb}_n} - (\tau_{\text{amb}_0}) \} - \tau_{\text{set}} \} \} &= \tau_{\text{SET}} \end{aligned}$$
$$T_{CSL} - \{ (T_{cmp_n} - T_{cmp_0}) - (T_{amb_n} - T_{amb_0}) \} - \{ (T_{amb_n} - T_{amb_0}) \} - T_{set} = T_{SET}$$

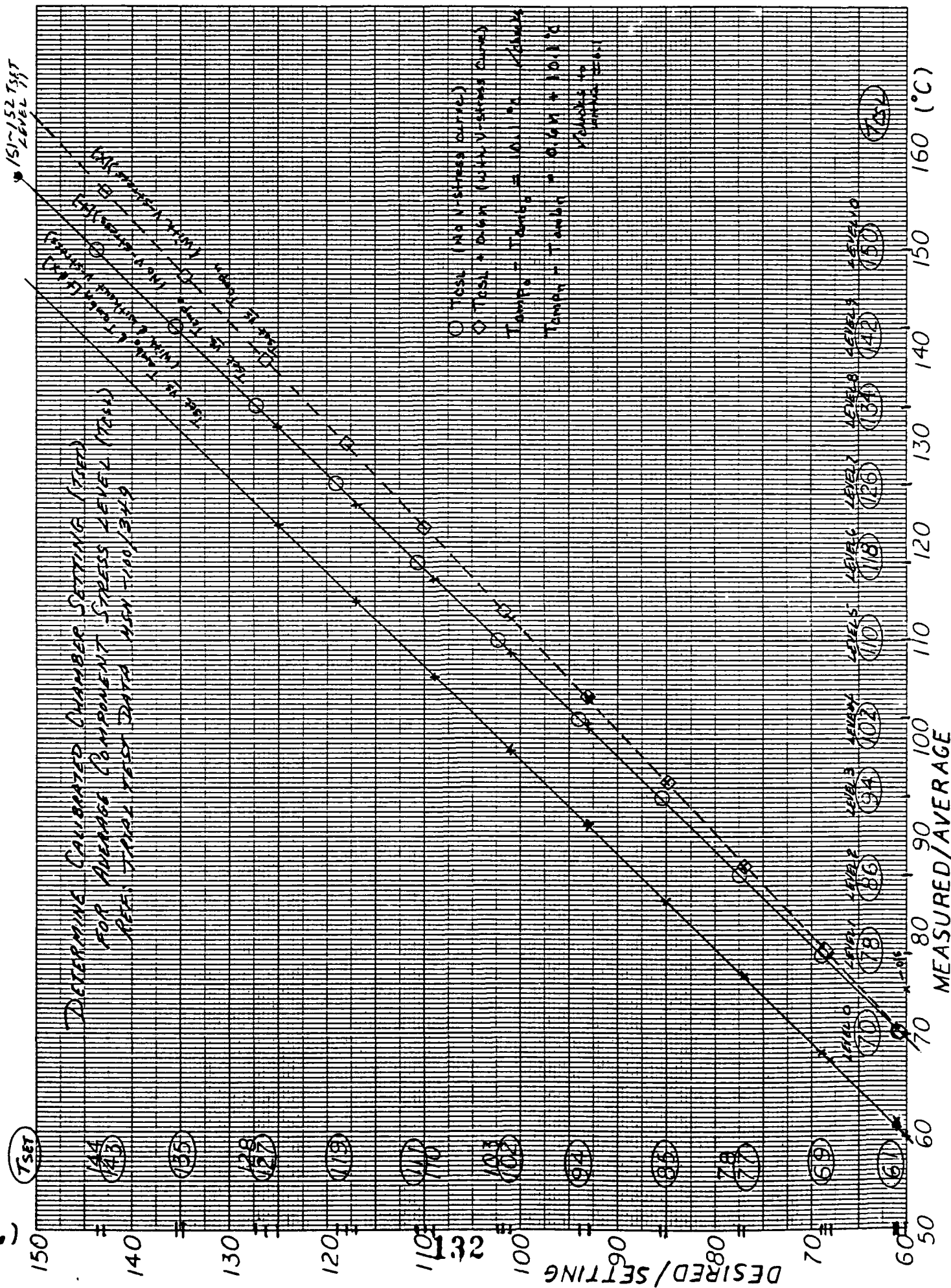
OR

$$T_{CSL} - \Delta t_1 - \Delta t_2 = T_{SET}$$
$$\begin{aligned} & \{ \text{CSL} - \{ +^{\text{Icmp}_0} \} - \{ -^{\text{Iset}} \} = \text{ISET} \\ & \Delta T_0 + T_{\text{set}} = T_{\text{SET}} \end{aligned}$$
$$\begin{aligned} \tau_{\text{CSL}} - \{(\tau_{\text{cmp}_n} - \tau_{\text{cmp}_0}) - (\tau_{\text{amb}_n} - \tau_{\text{amb}_0})\} - \{(\tau_{\text{amb}_n} - \tau_{\text{amb}_0})\} - \{\tau_{\text{set}}\} &= \tau_{\text{SET}} \\ \tau_{\text{CSL}} - \{ &+ \tau_{\text{cmp}_0} \} - \{\tau_{\text{set}}\} - \{\tau_{\text{set}}\} = \tau_{\text{SET}} \end{aligned}$$
$$\Delta I_3 + I_{\text{rot}} = I_{\text{SET}}$$

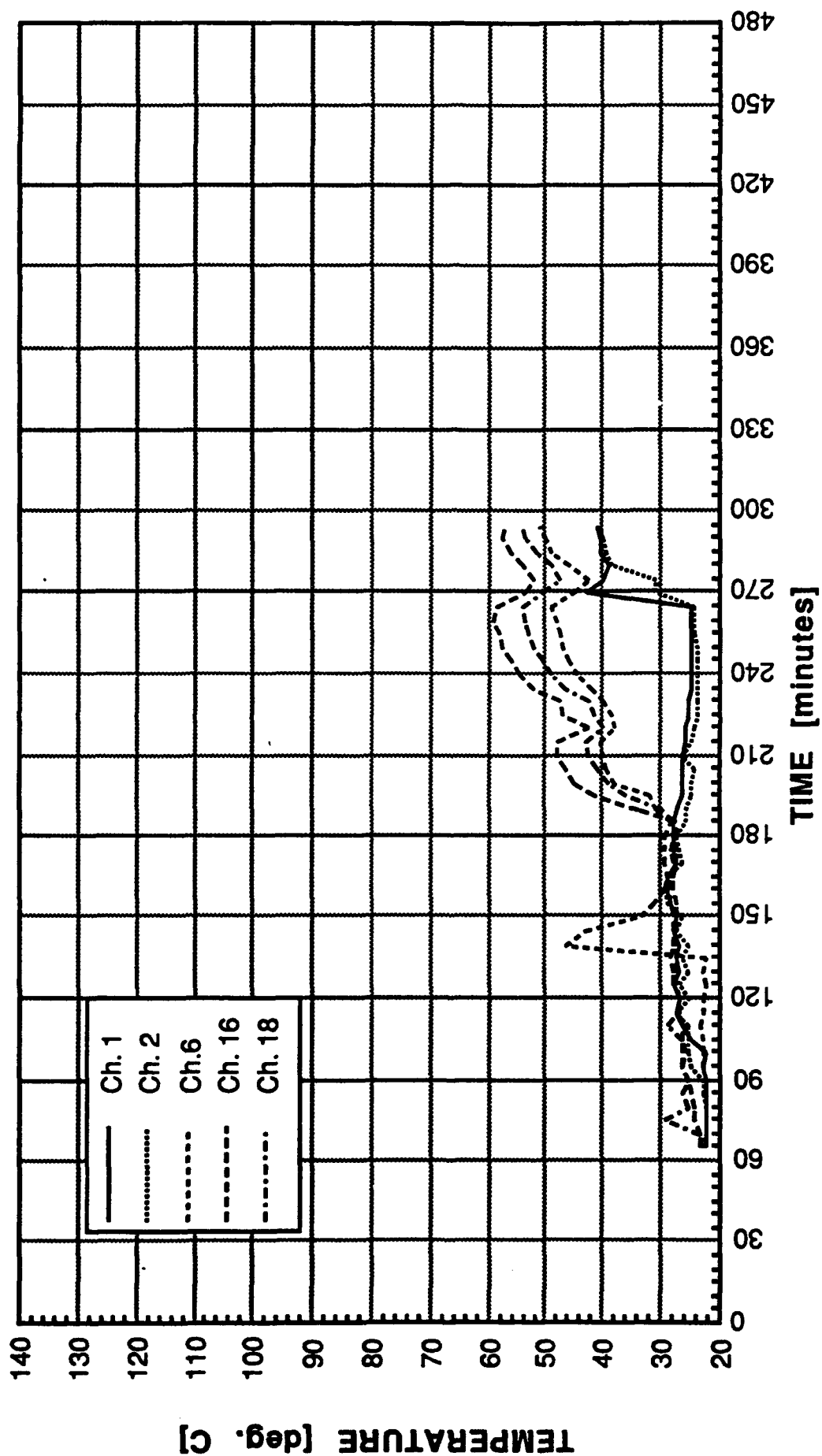
151-152 TSET
LEVEL 11

DETERMINING CALIBRATED CHAMBER SETTING (TSET)
FOR AVERAGE COMPONENT STRESS LEVEL (TSET)
REF: TAPAL TEST DATA MSN-100/349

○ TEST (No Vibration Curve)
○ TEST + DAMP (With Vibration Curve)
Tempo = Tempc = 101 °C
Tempo = Tempc = 0.641 + 101 °C
Values to
TABLE 25.1

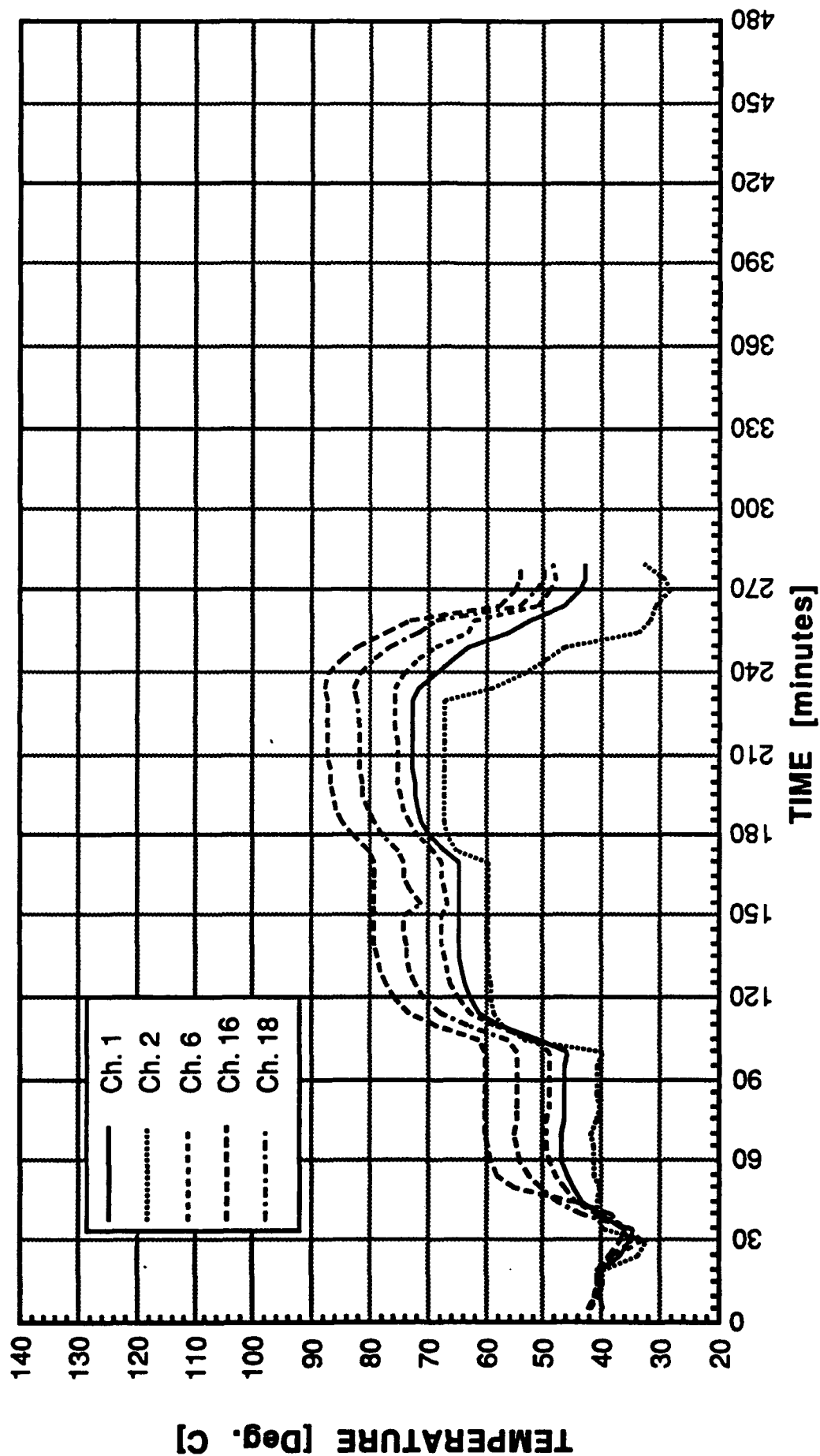


DAY 1 ■■■ TEMPERATURE TRANSITION SURVEY

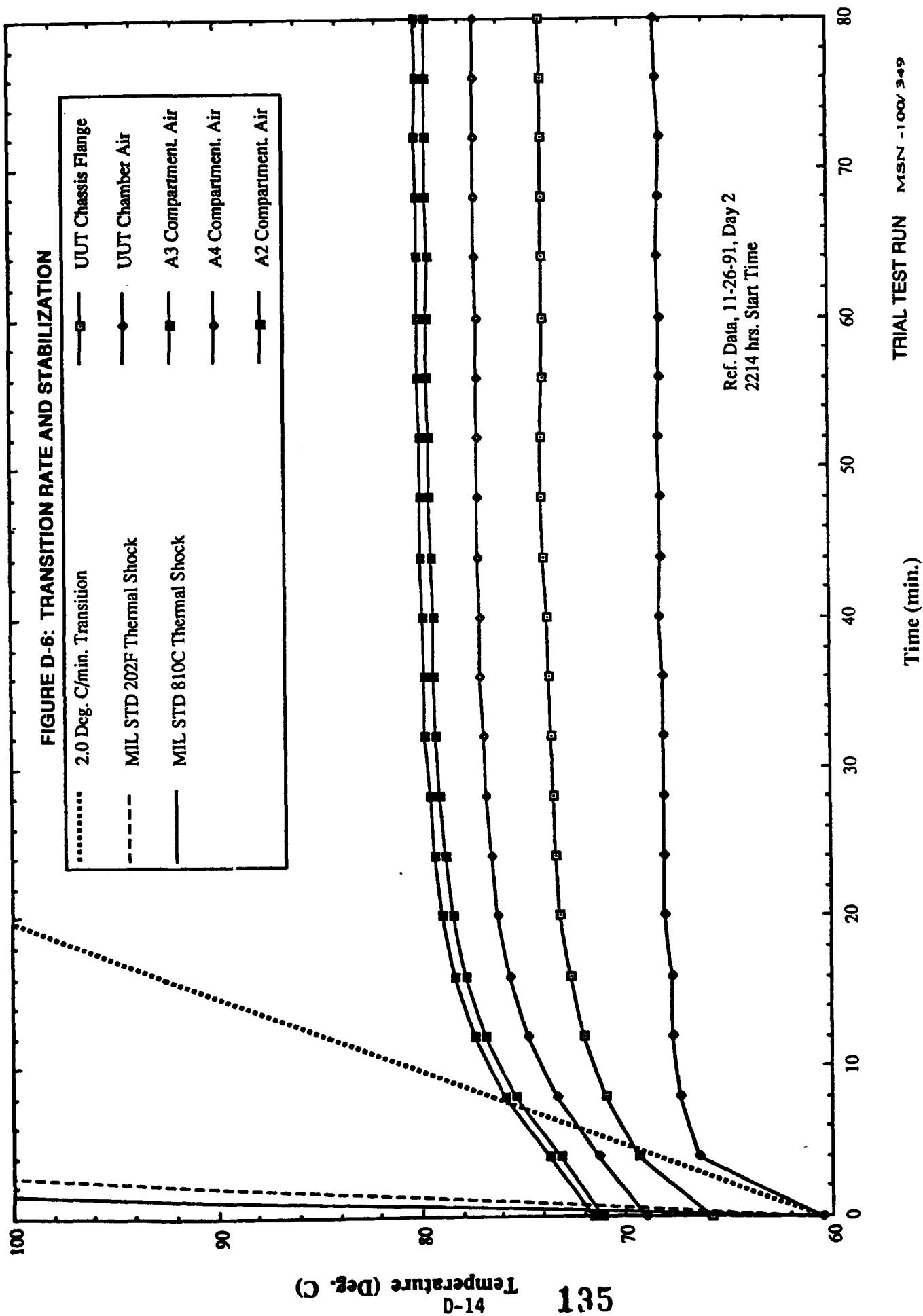


TRIAL TEST RUN MSN -100/ 349

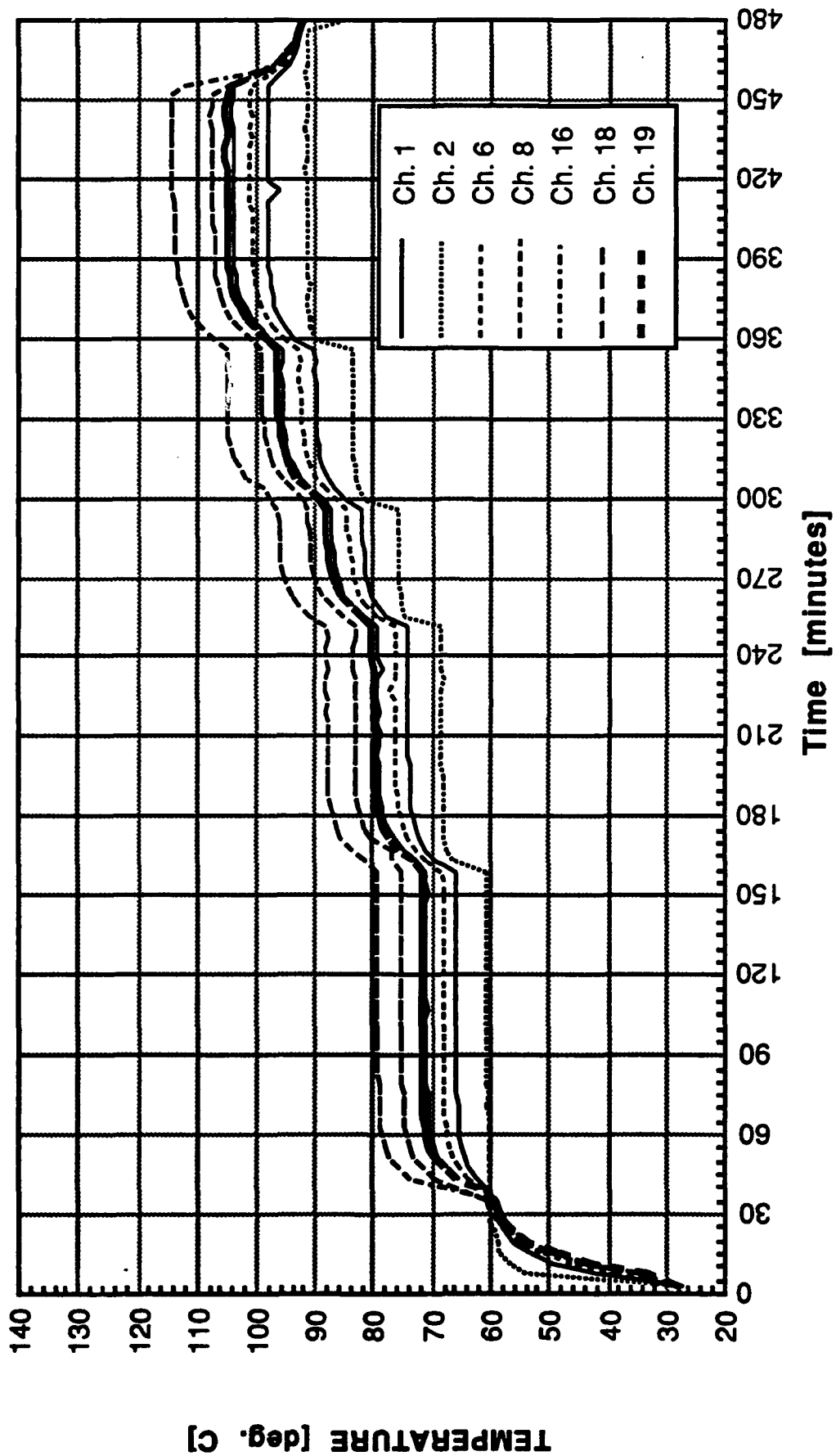
DAY 1 ████ TEMPERATURE TRANSITION SURVEY



TRIAL TEST RUN MSN -100/349

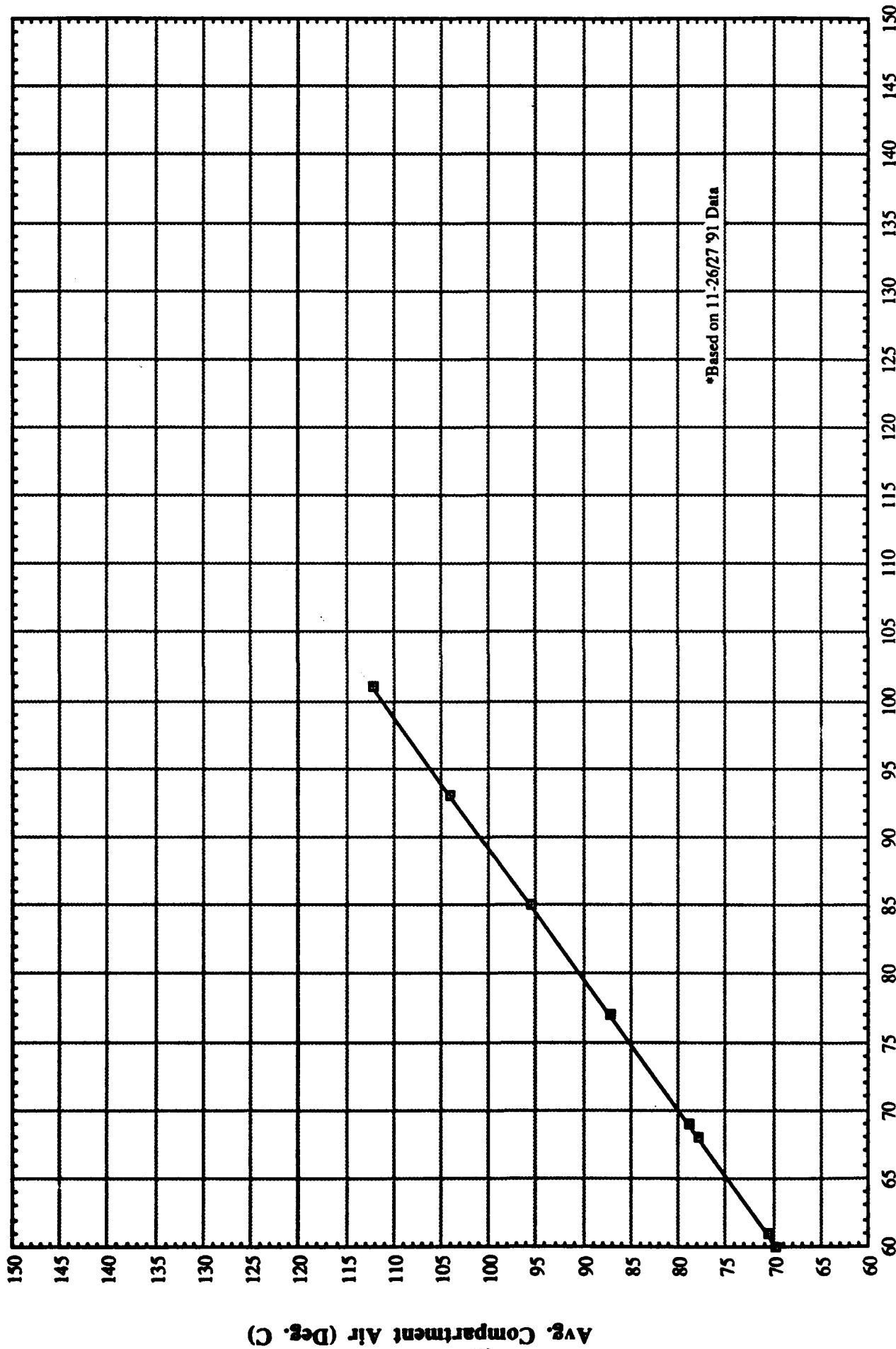


DAY 2 ■■■ TEMPERATURE TRANSITION SURVEY



TRIAL TEST RUN MSN -100/ 349

Temp/Step-Stress Compartment Air vs. Chamber Setting

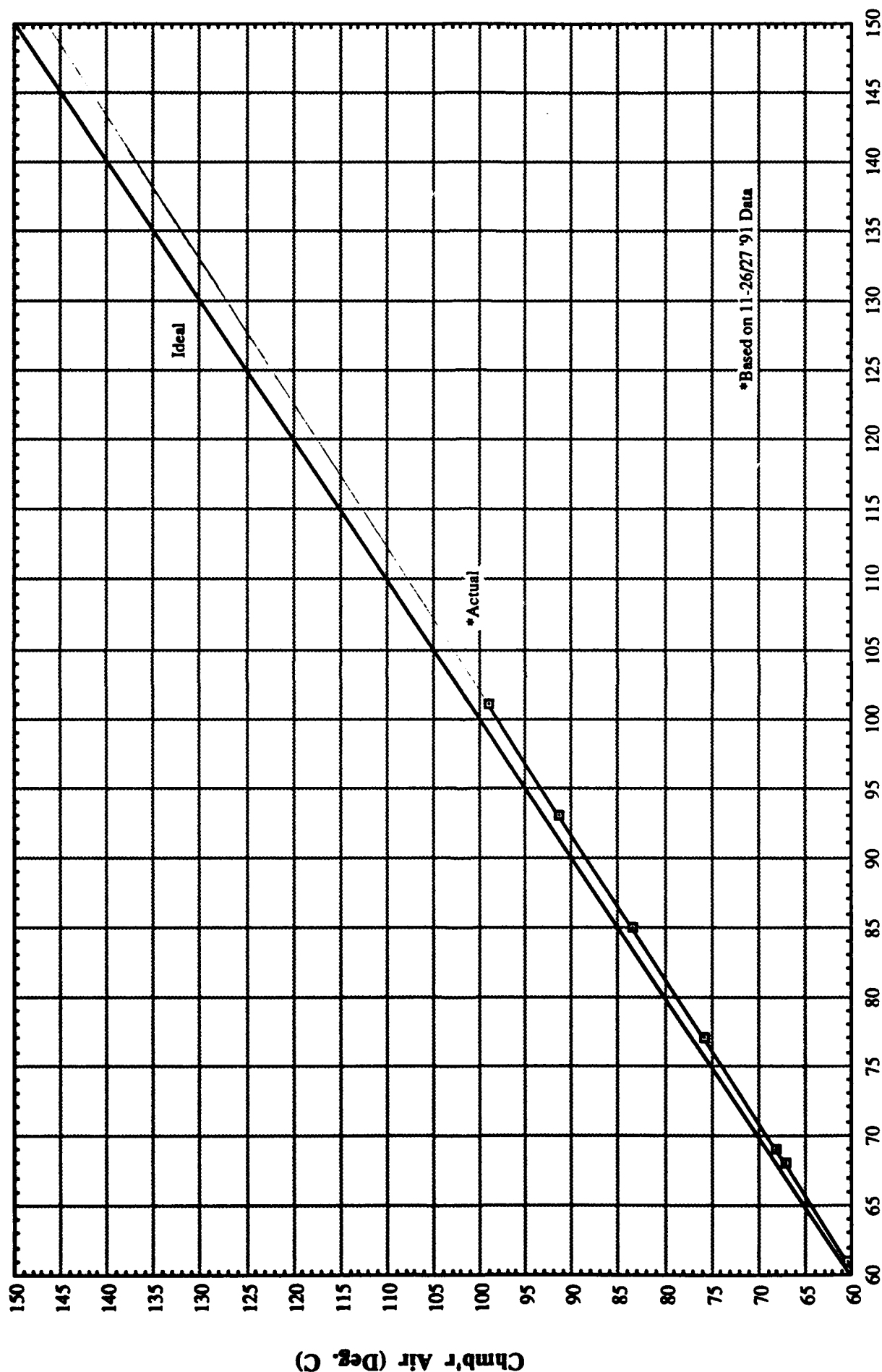


TRIAL TEST RUN MSN -100/349

Chmb'r Setting (Deg. C)

Avg. Compartment Air (Deg. C)

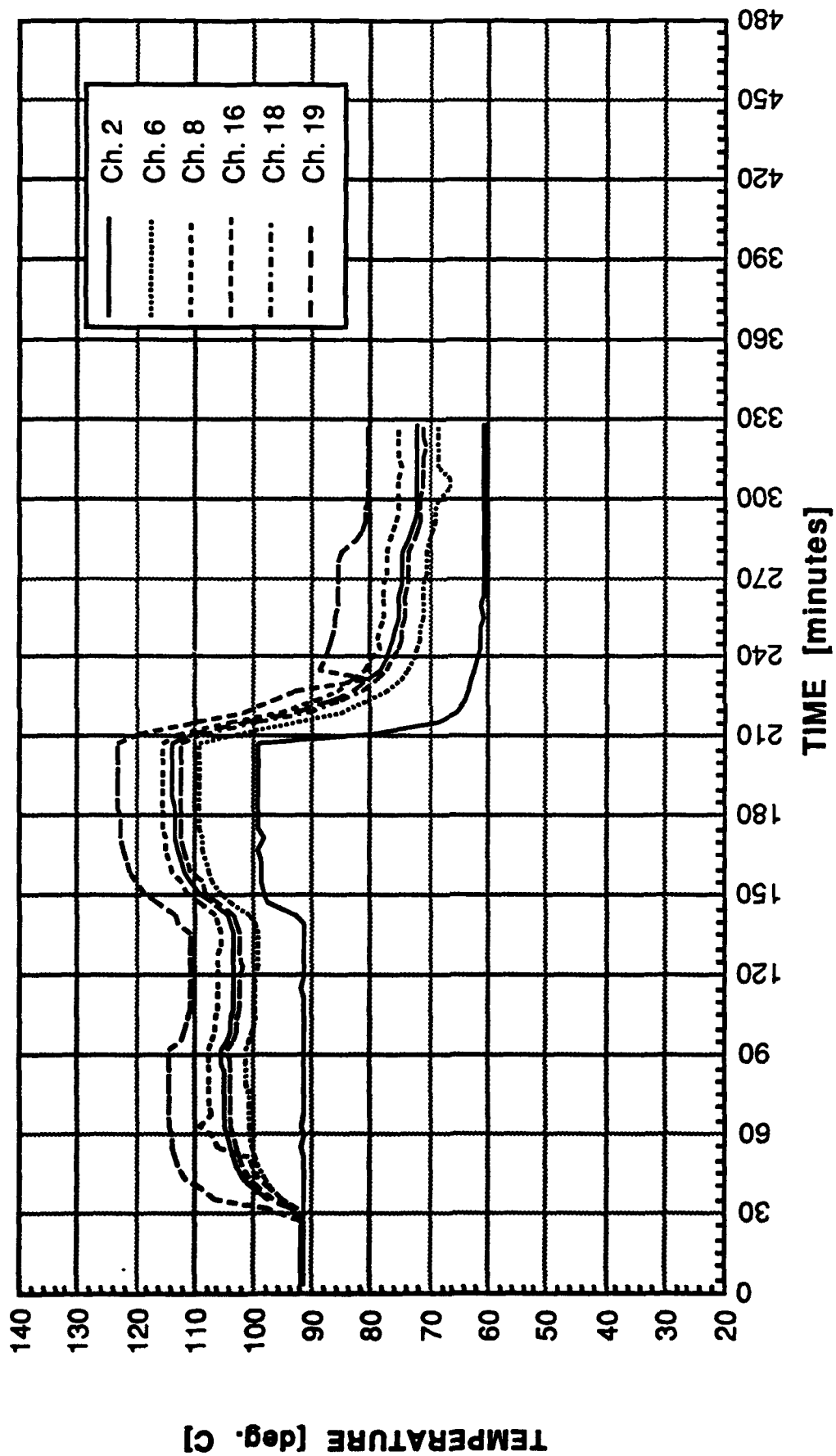
Temp/Step-Stress Chamber Setting



Chmb'r Setting (Deg. C)

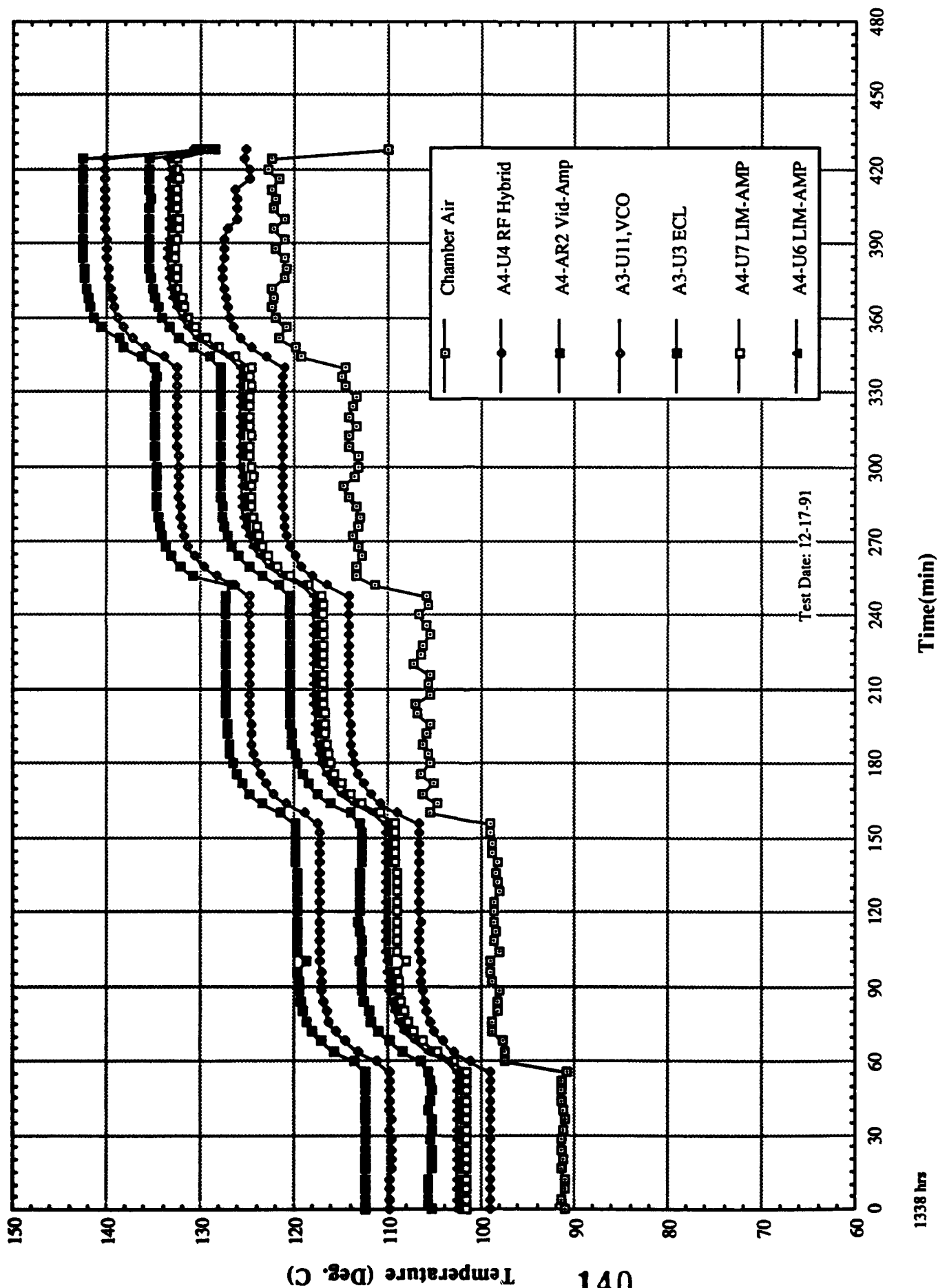
TRIAL TEST RUN MSN -100/ 349

DAY 3 ■■■ TEMPERATURE TRANSITION SURVEY



TRIAL TEST RUN MSN -100/ 349

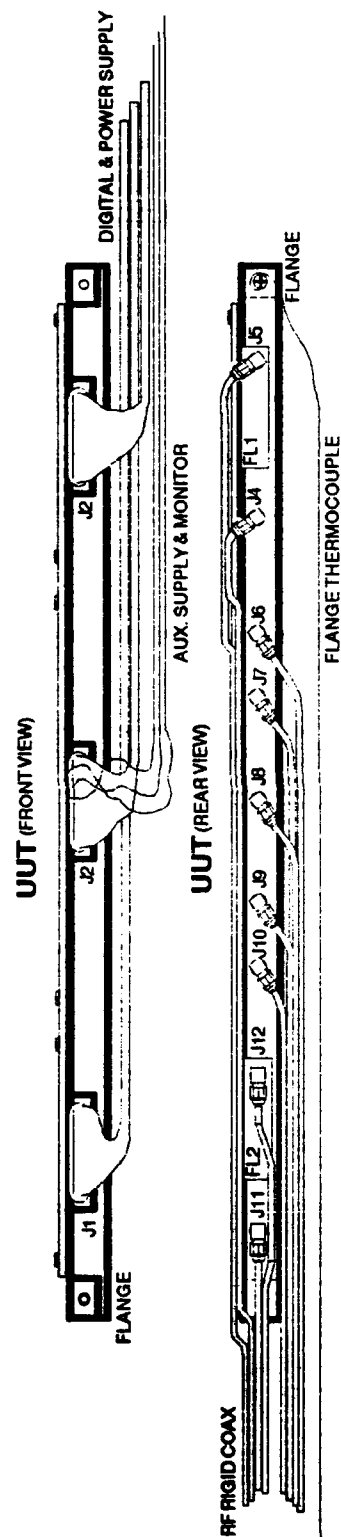
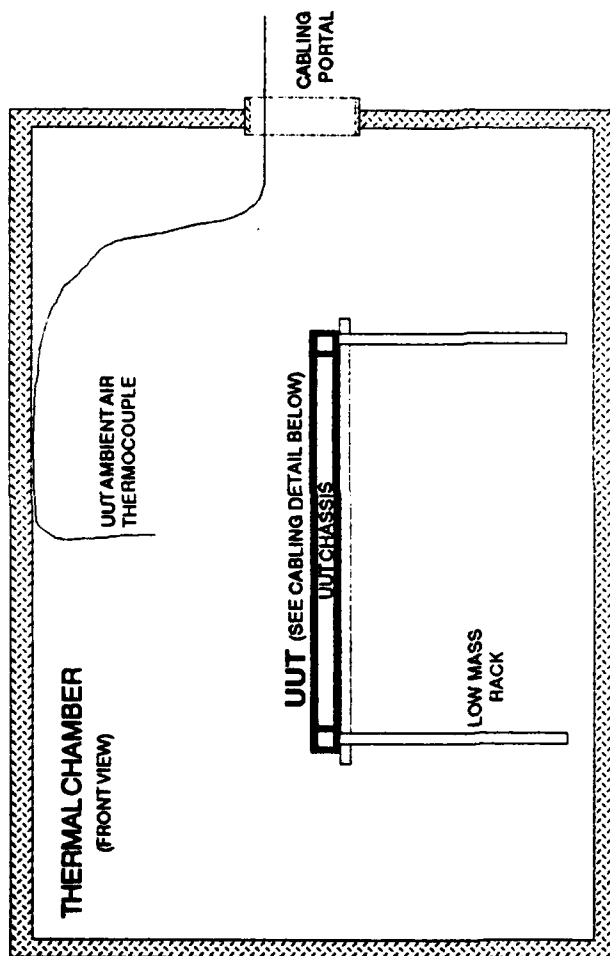
TEMP. STRESS RESULTS, DAY 4



SECTION 6

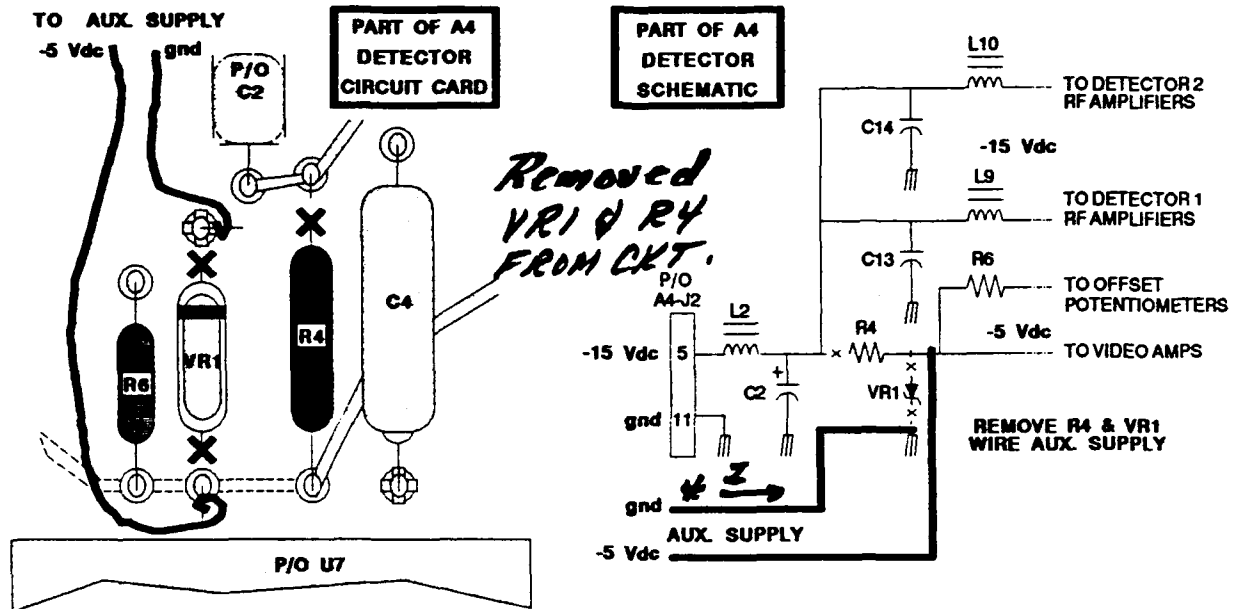
**Unit Modification
& Equipment Setup**
prepared by S. D. Mueller
and B. J. Armstrong
and W. T. Clark

CHAMBER SETUP



*R4/VR1
- PROPOSED MOD - (11-26-91)*

FIGURE D-2: A4 DETECTOR CIRCUIT CARD MODIFICATION
FOR AUXILLIARY -5 Vdc CONSTANT SUPPLY



*MOD. USED IN TRIAL TEST RUN
MSN -100/349
(DAY 2, 3 & 4 TESTING)*

*SEE MOD. PLANNING FOR CIRCUIT
REQUIREMENTS OF ACTUAL
STEP-STRESS TEST (12-13-91)*

** MEASURED SUPPLY CURRENT $I = 56 \text{ mA}$
w/ $V = -5.10 \text{ Vdc}$. $\therefore R_{\text{LOAD}} = 91.07 \Omega$
 $P_{\text{LOAD}} = 0.28 \text{ WATT}$*

*SELECT LOAD OF $91 \Omega \pm 5\%$, $1/2 \text{ WATT}$
(01-17-92)*



CAUTION!!
THIS ASSEMBLY IS STATIC
SENSITIVE!! HANDLE PER
MHI 8.53.19

REWORK/MODIFICATION PLANNING

PROJECT: XXXXXXXXXX

PAGE 1 OF 2 GROUND SYSTEMS GROUP

HUGHES

SLR NO.	PLANNED BY S.D. MUELLER	DATE 12/13/91	QUALITY OPERATIONS	PART NO.	103
IDR NO.	CHECKED BY <i>[Signature]</i>	DATE 12/14/91		NAME SYNTHESIZER/DETECTOR ASSY	
HRT NO.	CHANGED BY <i>[Signature]</i>	DATE		LEVEL	UNIT, SRU
DDT NO.	REASON FOR REVISION			WORK ORDER NO.	
OTHER	N = MODIFY FOR STEP-STRESS TEST (A4 CCA R4 & VR1 MONITORING AND AUX. -5 V SUPPLY)			QTY. OF PARTS	1
MFG. SEQ. NO.	FROM	THRU			
OPER NO.	ORG. SOURCE		OPERATION DESCRIPTION		
			CAUTION: THE FOLLOWING MOD WILL BE PERFORMED FROM THE COMPONENT SIDE OF THE A4 DETECTOR CCA P/N XXXXXXXXXX WITHOUT REMOVING THE CCA FROM THE CHASSIS.		
			NOTE: ALL WORK TO BE PERFORMED IN ACCORDANCE WITH WCM VOL II.		
10	1A-K5-55		OBTAIN SYNTHESIZER/DETECTOR ASSEMBLY P/N XXXXXXXXXX 103 AND ROUTE TO REWORK LINE.		
20	1A-55-50		REMOVE ASSEMBLY COVER AND SAVE HARDWARE. READ CAUTION ABOVE.		
30	1A-55-50		REMOVE CONFORMAL COAT FROM LEADS AND PADS OF A4-R4 (P/N RWR80S93R1FM) AND A4-VR1 (P/N JANTX1N751A-1).		
40	1A-55-50		AT PAD OF VR1 (NEAR U7 HYBRID), CLIP VR1 LEAD LEAVING 1/10-INCH LEAD PROTRUSION FROM PAD.		
50	1A-55-50		SOLDER 8-FT OF RED 22 GA WIRE (P/N XXXXXXXXXX 155-OR EQUIV.) TO LEAD PROTRUDING FROM PAD LEFT FROM OPER. NO. 40 ABOVE.		
60	1A-55-50		SOLDER 8-FT OF ~~WHT~~ RED-GREEN 22 GA WIRE (P/N XXXXXXXXXX 925, OR EQUIV.) TO GROUNDED LEAD AT OPPOSITE END OF VR1.		
70	1A-55-50		REMOVE SOLDER FROM FEEDTHROUGH HOLE OF PAD AROUND LEAD OF R4 (NEAR U7 HYBRID) AND PULL R4 LEAD AWAY FROM PAD.		
80	1A-55-50		WRAP LEAD OF R4 AROUND REMAINING LEAD OF VR1. WRAP AND SOLDER 8-FT OF ~~GREEN~~ BLK 22 GA WIRE (P/N XXXXXXXXXX 200, OR EQUIV.) TO JOIN LEADS.		
90	1A-55-50		ISOLATE LEADS OF OPER. NO. 80, ABOVE, FROM SHORTING TO PWB USING BONDING COMPOUND (P/N 760595, OR EQUIV.). AIR CURE.		
100	1A-55-50		ROUTE WIRES TO EXTERIOR OF CHASSIS, CENTERING OVER J2 CONNECTOR. USE ADDITIONAL SLEEVING OVER WIRES TO PROTECT FROM DAMAGE BETWEEN CHASSIS AND COVER.		
110	1A-55-50		INSTALL COVER ON ASSEMBLY, OMITTING SCREWS ON EACH SIDE OF J2 CONNECTOR. TORQUE 8 IN.-LB.		

NOTE: DEPOT CHANGED
CABLES DUE TO
WIRE AVAILABLE.
SDM



CAUTION!!
THIS ASSEMBLY IS STATIC
SENSITIVE!! HANDLE PER
MHI 8.53.19

REWORK/MODIFICATION PLANNING
PROJECT: **██████████**

HUGHES

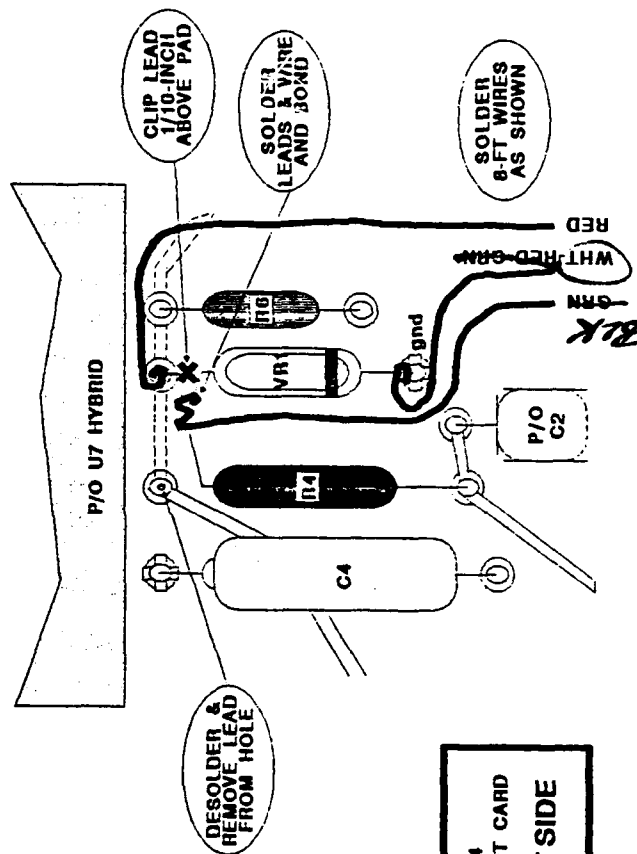
GROUND SYSTEMS GROUP

PAGE 2 OF 2

SLR NO.	PLANNED BY S. D. MUELLER	DATE 12/13/91	QUALITY OPERATIONS	PART NO.	██████████-103
IDR NO.	CHECKED BY	DATE		NAME SYNTHESIZER/DETECTOR ASSY	
HRT NO.	CHANGED BY	DATE		LEVEL	UNIT, SRU
DDT NO.	REASON FOR REVISION N = MODIFY FOR STEP-STRESS TEST (A4 CCA P4 & VR1 MONITORING AND AUX. -5 V SUPPLY)			WORK ORDER NO.	
OTHER				QTY. OF PARTS	1
MFG. SEQ. NO.	FROM	THRU			
OPER NO.	ORG. SOURCE	OPERATION DESCRIPTION			

CAUTION: THE FOLLOWING MOD WILL BE PERFORMED FROM THE COMPONENT SIDE OF THE
A4 DETECTOR CCA P/N ██████████ WITHOUT REMOVING THE CCA FROM THE CHASSIS.

NOTE: ALL WORK TO BE PERFORMED IN ACCORDANCE WITH WCM VOL II.



PART OF A4
DETECTOR CIRCUIT CARD
COMPONENT SIDE

SUPPLEMENTAL (APPENDIX D) STEP-STRESS TEST DATA SHEET

Sheet 1 of 1

UUT Serial Number (enter MSN): _____

Test Date: _____

Tester: (Name & stamp below) _____

STEP-STRESS Level (enter 0 - 10): _____

UUT PERFORMANCE TEST DATA

PERFORMANCE MONITORING

RESISTOR/ZENER DIODE MODIFICATION: At Dwell; For the modified resistor/zener diode subcircuit, record the voltage across the LOAD RESISTOR at this STEP-STRESS Level.

Start TEST: _____
(TIME HR:MIN)

Voltage across LOAD RESISTOR: _____ (Vdc) (refer to Appendix D, nominally -5 Vdc)

End TEST: _____
(TIME HR:MIN)

DETAILS: A4 DETECTOR CIRCUIT CARD MODIFICATION FOR AUX. CONSTANT -5 Vdc SUPPLY AND R4/VR1 MONITORING

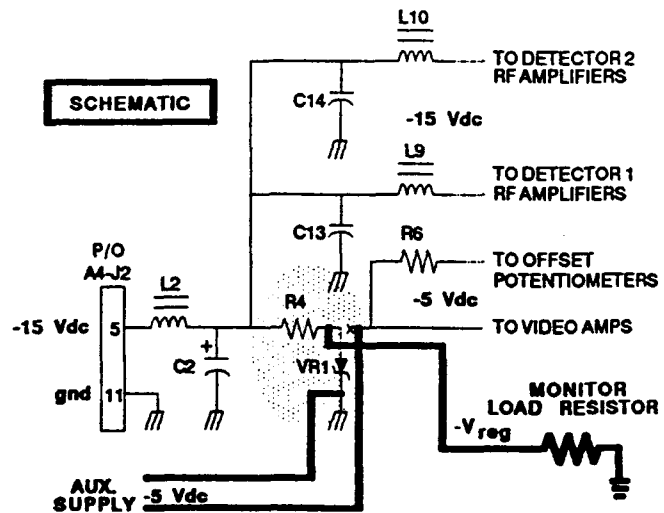
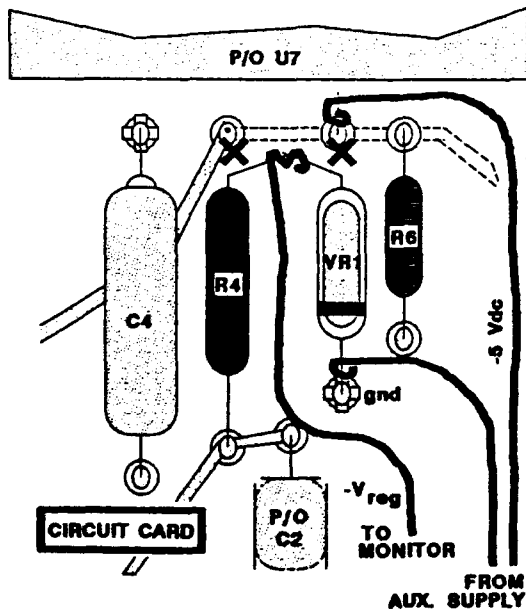
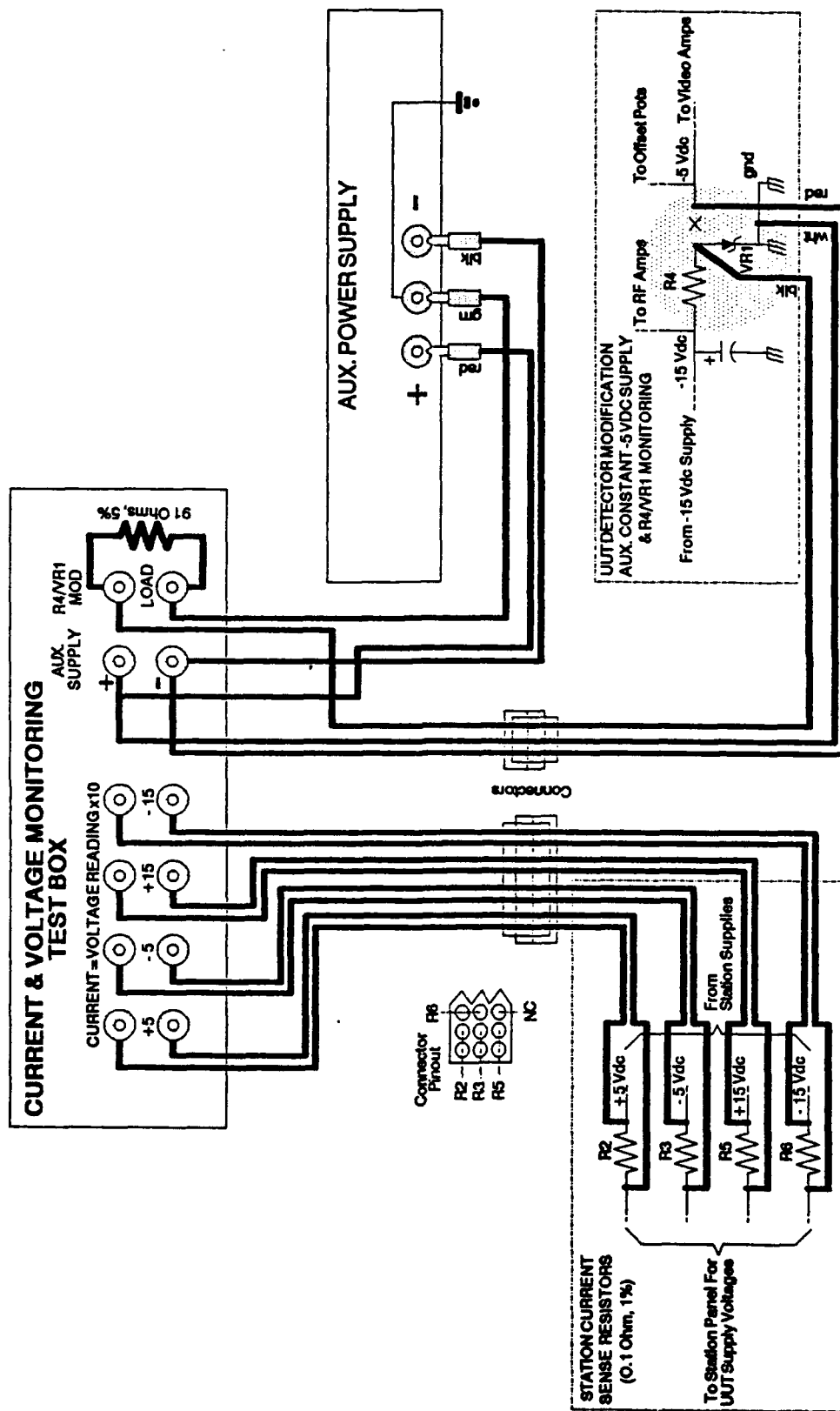


FIGURE D-7: SPECIAL TEST BOX SETUP



CHAMBER PROGRAMMING GUIDE

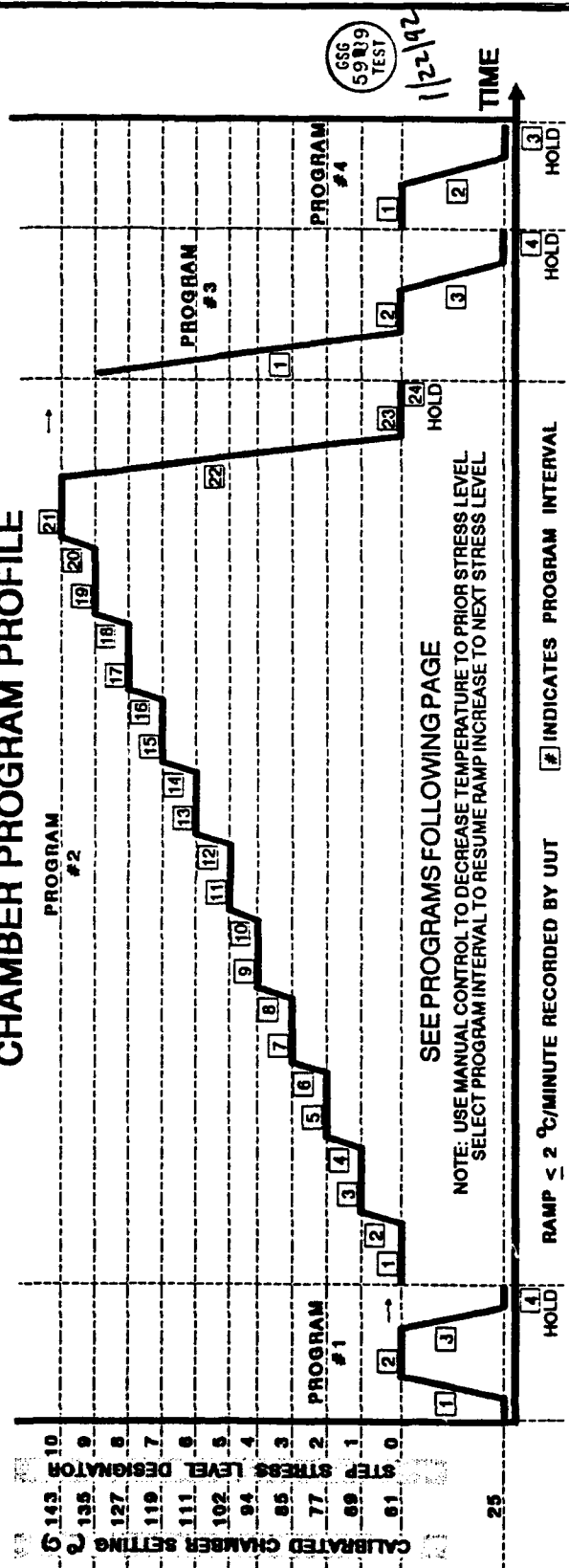
SETTING TEMP ALARMS: Prior to using Chamber, set the LOW and HIGH alarms for auto shutoff in case of over temp condition. Press **SETUP** key. Press the hidden **Y** key located behind the "TROL" letters between the two displays. Press **F** **N** **T** key twice. Enter the LOW and then HIGH alarm temperatures (°C). Press **STOP** key to end.

MANUAL MODE OPERATION: Press **STOP** key. (CODE 1 displayed) Press **RUN** key. (PROG/MAN7 displayed) Press **MAN** key. Press **VALUE** key. Press **EDIT** key. Enter the SET-PNT temperature (°C). Press **F** **N** **T** key. Chamber will be driven to setpoint temperature.

TO RUN A PROGRAM INTERVAL: Press **STOP** key. (CODE 1 displayed) Press **RUN** key. (PROG/MAN7 displayed) Press **PROG** key. Enter PROGRAM NMBR. Press **F** **N** **T** key. Enter INTERVAL number. Press **F** **N** **T** key. Toggle **STOP** key. Chamber should resume with PROGRAM INTERVAL entered.

To verify status press **VALUE** or **TIME** keys repeatedly to scroll through variables while running program.

CHAMBER PROGRAM PROFILE



TO PROGRAM CHAMBER: Press  key. (CODE 1 displayed). Press  key.

Enter PROGRAM NMBR. Press  key following each value entered.

PROGRAM NMBR	1	2	3	4
INIT VAL 1 (°C)	25	61	133	61
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT	1 61 0.18 — 2	1 61 1.0 — 2	1 61 0.36 — 2	1 25 0.18 — 2
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT	2 61 2.0 — 3	2 69 0.01 — 3	2 61 3.0 — 3	2 25 1.0 — 3
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT	3 25 0.18 — 4	3 69 1.29 — 4	3 25 0.18 — 4	3 Press  key.
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT	4 Press  key.	4 77 0.01 — 5	4 Press  key.	
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT		5 77 1.29 — 6		
Continue PROGRAM 2: Repeat INTERVALs 4 and 5 above using VARIABLES below.				
INTERVAL	6&7	8&9	10&11	12&13
FINAL VAL (°C)	85	94	102	111
INTERVAL				
FINAL VAL (°C)				
INTVL TIME (HR.MN)				
AUX				
NEXT INT				
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT		22 61 0.40 — 23		
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT		23 61 3.0 — 24		
INTERVAL FINAL VAL (°C) INTVL TIME (HR.MN) AUX NEXT INT		24 Press  key.		1/22/92 

 key interrupts & holds INTERVAL time and temperature.  key continues program INTERVAL.

APPENDIX C
Conformal Coating Analysis

HUGHES AIRCRAFT COMPANY

INTERDEPARTMENTAL CORRESPONDENCE

TO: D. Huch
ORG: 1A-62-XX

cc: Distribution

DATE: 13 February 1992
REF: 92/1A72.30/002

SUBJECT: Step-Stress Test Units
Discoloring of Conformal Coating
and Reliability, Post Stress Test

FROM: *S. D. Mueller*
S. D. Mueller
BLDG: 675 MAIL STA: Z314
EXT: 1-8360 ORG.CODE: 1A-72-30

BACKGROUND: Two (2) out of the seven (7) production R/T modules have been Accelerated Step-Stress tested per the Test & Acceptance Plan. The first unit, MSN 1030, was taken to Level 10 and then Level 11 to reach catastrophic failure. The second unit, MSN 1023, completed Level 10 without failure. Both units tested showed visible discoloring of the conformal coating. The polyurethane coating appears scorched, having a orange-brown color, over the entire unit surface. The appearance is similar to a hot coffee cup being placed upon a coated table and leaving a ring on the furniture's finish. A scrapped circuit board was placed in the thermal chamber with MSN 1023. The board's polyurethane coating began to yellow at the exposure air temperature of Level 9 & Level 10 (+140 °C). The discoloring of the test units is unacceptable to D. Ragle (who is responsible for this hardware), and makes these units depreciate significantly in value.

TASK ASSIGNMENT: Under direction from D. Ragle and D. Huch, engineering was tasks to determine the temperature level where this discoloring would be, at most, minimized to localized areas (allowing spot rework on few component surfaces) or yellowing throughout (also typical of units whose coatings have aged).

ANALYSIS:

R. Patterson (component/material engineer) has tested MSN 1023 and another unit MSN 815 (for comparison) for dielectric strength and coating thickness. The discolored coating of MSN 1023 was found to be acceptable per MIL-SPEC requirements. The unit's polyurethane coating had not carbonized (no burning) and showed no sign of breakdown when subjected to 6000 Volts through its 6 mil thickness. The MIL-SPEC indicates that usage is specified for indefinite operation to +130 °C. Color is not a criteria. D. Hahn (product operations) inspected MSN 1023 and found no defects or imperfections as judged to Hughes workmanship criteria. Again, no requirement for color exists. The exposure of the conformal coating, although in excess of its +130 °C spec, shows no degradation in performance or to its workmanship requirements.

S. Mueller (design & test plan engineer), using the MIL-SPEC +130 °C requirement for operation and the scrapped board's exposure of +140 °C for yellowing, determined that testing of the remaining units would have to be reduced to Step-Stress Level 6 or Level 7 to minimize the discoloring of the polyurethane coating. The attached figures and graphs illustrate these Levels as they apply to the Test & Acceptance Plan for Accelerated Step-Stress Testing.

Component case temperatures will exceed +130 °C at Level 6 (see excerpt Figure 2.3.1). Coating not in direct contact with components will have uniform air temperature exposure of +130 °C by Level 7. At

Level 7, yellowing will have occurred on components due to case temperatures exceeding +140 °C and browning may occur in some locations. The component case temperature information cited was taken from thermocouple data obtained from the Trial Test Runs of 25 November through 27 November 1991 and 17 December 1991. The Trial Test Run of the Step-Stress Test was conducted on a similar unit and provided the basis for the thermal criteria of the Test & Acceptance Plan. This similar unit, MSN -100/349, was not conformally coated and compartment air temperatures will be slightly increased on the -103 configuration units (ie., MSN 1023, 1030, 815, and four others) due to their coating. Above Level 7, browning will continue and be more widespread.

LIMITATIONS ON R & D: Reducing the unit exposure to Level 6 or Level 7 should minimize discoloring of the polyurethane conformal coating on future test units, and alleviate the concerns of D. Ragle and D. Huch. Reduction of the temperature stress will require a change to the Test & Acceptance Plan for future test. Using Level 6 as the maximum stress would only stress 8% of the components to their maximum survival temperature extremes (see excerpt of Figure 2.2-1). With Level 7 used as the extreme, this would increase to include 38% of the components. The original scope of the Test & Acceptance Plan, and the approach guided by the Process Action Team members, was to provide testing up to the units *Design Limit* which at present includes Level 10 and imposes accelerated stress upon 90% of the components. With the reduction of stress to Level 6 or Level 7, we will be repeating the approaches utilized by the prior two test participants (testing only to maximum *operating* specifications rather than *survival* extremes) and contribute little to the research and development of Accelerated Step-Stress Testing.

REMARKS: The browning of the conformal coating of MSN 1023, and likely MSN 1030 (not analyzed), does not indicate a degradation in the ability of the conformal coating to provide its intended function. The question remaining, however, is what the Level 10 stress environment exposure has had upon the component life of these units. By plan, these units were exposed to stresses in excess of their specified operating limits with the intent of subjecting them to extreme stresses that would accelerate failure. These units have not been evaluated, as yet, to determine the extent of damage which may have been sustained during test which could show up during a second pass of the Step-Stress Test or could happen if these units were fielded as production spares in the future. It is recommended that MSN 1023 and 1030 never be used in any situation requiring the same performance reliability as a new production unit.

sdm:sm

Distribution:

D. H. Ragle	R. F. Patterson
S. R. Burnett	D. T. Hahn
L. E. James	H. W. Homme

NIL-7114 : NO DISCREPANCY ON
@ + 30°C

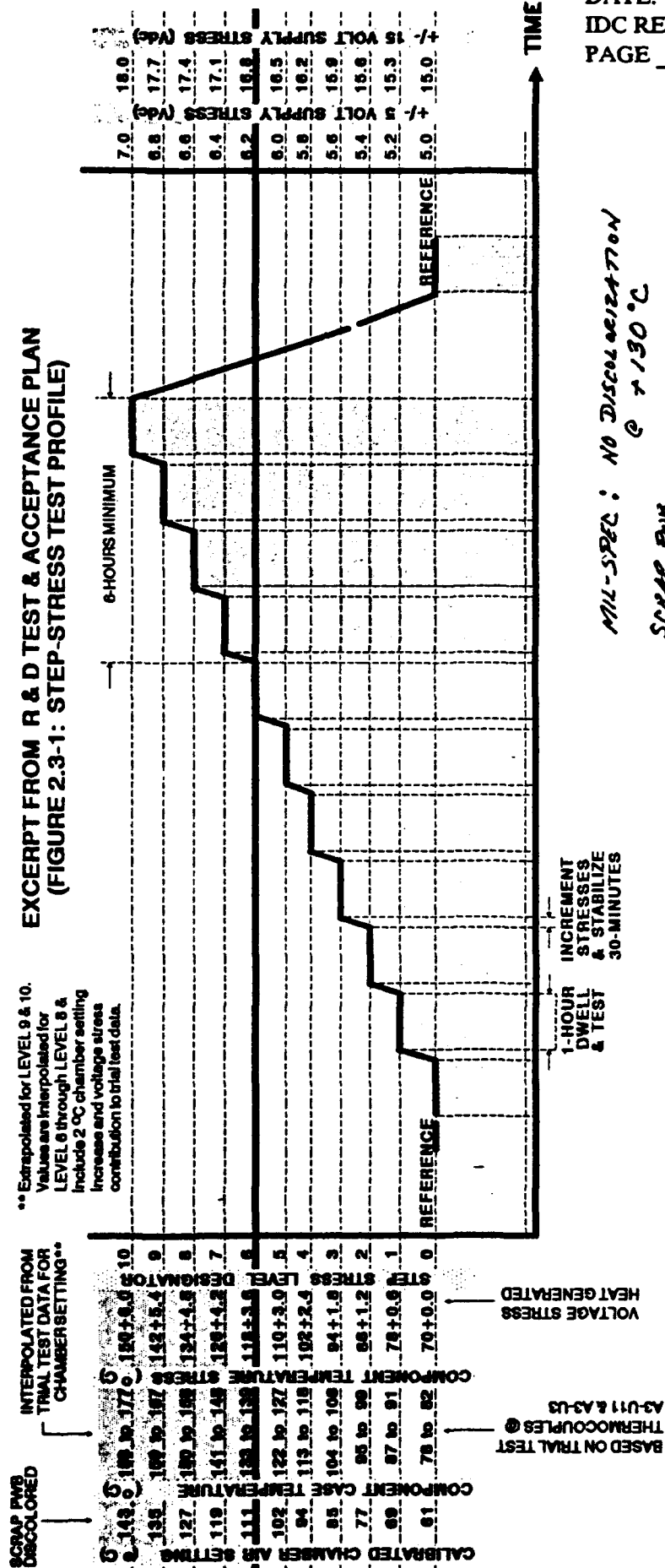
SCRAP PWD :
SAMPLE

C. 0614 + C.
C. 0614 + C.

YELLOWING -
C. 0614 + C.

(Chamber set @ + 43°C)

**EXCERPT FROM R & D TEST & ACCEPTANCE PLAN
(FIGURE 2.3-1: STEP-STRESS TEST PROFILE)**



FROM TRIP TEST DATA
MCN 400/349
(R₂/ENB 92/1472.30/001)

SLIGHT INCREASING SLOPE
NEARLY PARALLEL
(WITH V-STRESS)

○ Uniaxial
T_{CS} vs T_{CT}
OPR, PT
(w/o Y-stress)

NEAR PARALLEL
LINEAR
(NO V-STRESS)

CHAMBERLAIN

02/12/92

CHAMBER TEST (CALIBRATED)

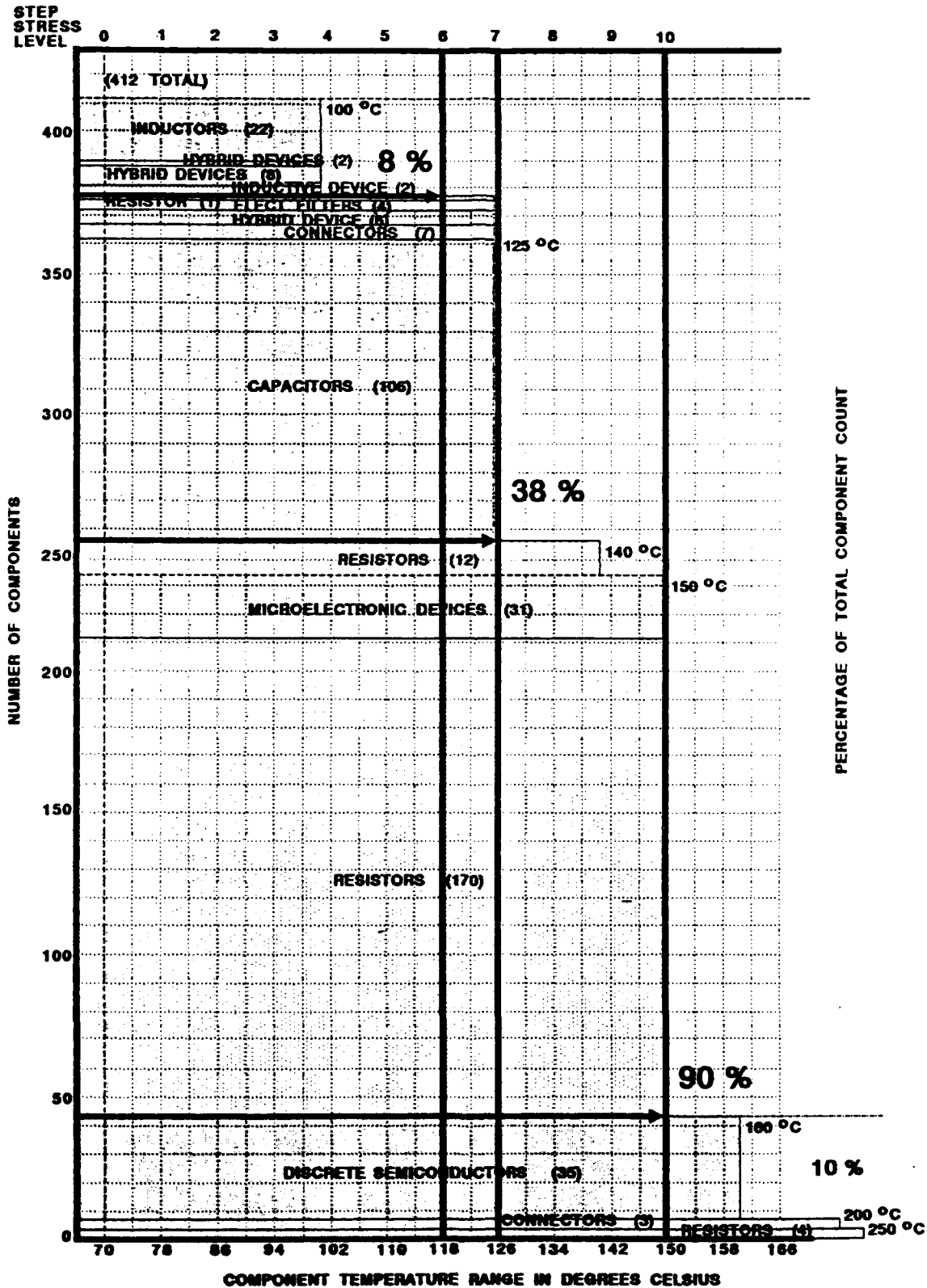
4 of 5

10 X 10 TO THE CENTIMETER 10 X 10 CM
KEUFFEL & ESSER CO. MADE IN U.S.A.

461510

AVERAGE COMPONENT AIR STRESS LEVEL

EXCERPT FROM R & D TEST & ACCEPTANCE PLAN
(FIGURE 2.2-1: MAXIMUM SURVIVAL TEMPERATURE EXTREMES
FOR UUT COMPONENTS BY DEVICE TYPE)



**MISSION
OF
ROME LABORATORY**

Rome Laboratory plans and executes an interdisciplinary program in research, development, test, and technology transition in support of Air Force Command, Control, Communications and Intelligence (C³I) activities for all Air Force platforms. It also executes selected acquisition programs in several areas of expertise. Technical and engineering support within areas of competence is provided to ESD Program Offices (POs) and other ESD elements to perform effective acquisition of C³I systems. In addition, Rome Laboratory's technology supports other AFSC Product Divisions, the Air Force user community, and other DOD and non-DOD agencies. Rome Laboratory maintains technical competence and research programs in areas including, but not limited to, communications, command and control, battle management, intelligence information processing, computational sciences and software producibility, wide area surveillance/sensors, signal processing, solid state sciences, photonics, electromagnetic technology, superconductivity, and electronic reliability/maintainability and testability.