

UNCLASSIFIED

AD NUMBER

ADB022528

LIMITATION CHANGES

TO:

Approved for public release; distribution is unlimited.

FROM:

Distribution authorized to U.S. Gov't. agencies only; Test and Evaluation; 19 AUG 1977. Other requests shall be referred to Electronics Systems Division, AFSC, Attn: DRI, Hanscom AFB, MA 01731.

AUTHORITY

USAFGL ltr, 7 Sep 1982

THIS PAGE IS UNCLASSIFIED

THIS REPORT HAS BEEN DELIMITED  
AND CLEARED FOR PUBLIC RELEASE  
UNDER DOD DIRECTIVE 5200.20 AND  
NO RESTRICTIONS ARE IMPOSED UPON  
ITS USE AND DISCLOSURE.

DISTRIBUTION STATEMENT A

APPROVED FOR PUBLIC RELEASE  
DISTRIBUTION UNLIMITED.



9

2

Report No. 131500-623  
19 August 1977

ADB022528

ACCEPTANCE TEST REPORT  
FOR THE  
AN/TRN-41 TACAN NAVIGATIONAL SET

Distribution limited to U. S. Government agencies only;  
Reason: Test and Evaluation. 19 August 1977. Other  
requests for this document must be referred to  
Department of the Air Force, Headquarters Electronic  
Systems Division (AFSC), Hanscom Air Force Base,  
Massachusetts 01731, Attention: PPG.

DDC  
NOV 3 1977  
F

Prepared for:  
Department of the Air Force  
Headquarters Electronic Systems Division (AFSC)  
Hanscom Air Force Base  
Massachusetts 01731

Prepared by:  
✓ E-Systems, Inc., Montek Division  
2268 South 3270 West  
Salt Lake City, Utah 84119

Contract No. ✓ F19628-75-C-0200  
CDRL Item A00Y

AD No. \_\_\_\_\_  
DDC FILE COPY

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

| REPORT DOCUMENTATION PAGE   |                       | READ INSTRUCTIONS<br>BEFORE COMPLETING FORM                  |
|---|-----------------------|--|
| 1. REPORT NUMBER<br><b>18</b> ESD/TR-77-319 <b>19</b>   | 2. GOVT ACCESSION NO. | 3. RECIPIENT'S CATALOG NUMBER                                |
| 4. TITLE (and Subtitle)<br><b>6</b> ACCEPTANCE TEST REPORT FOR THE <u>AN/TRN-41</u> TACAN <u>NAVIGATIONAL SET.</u>  |                       | 5. TYPE OF REPORT & PERIOD COVERED<br><b>14</b> 131500-623   |
| 7. AUTHOR(s)<br>None  |                       | 6. PERFORMING ORG. REPORT NUMBER                             |
| 9. PERFORMING ORGANIZATION NAME AND ADDRESS<br>E-Systems, Inc., Montek Division<br>2268 South 3270 West<br>Salt Lake City, Utah 84119   |                       | 8. CONTRACT OR GRANT NUMBER(s)<br><b>15</b> F19628-75-C-0200 |
| 11. CONTROLLING OFFICE NAME AND ADDRESS<br>Electronic Systems Division (AFSC)<br>Hanscom AFB, Ma. 01731   |                       | 10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS  |
| 14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)   |                       | 12. REPORT DATE<br><b>11</b> 19 August 1977                  |
|   |                       | 13. NUMBER OF PAGES<br><b>123</b> 4/p.                       |
|   |                       | 15. SECURITY CLASS. (of this report)<br>Unclassified         |
|   |                       | 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE<br>N/A            |
| 16. DISTRIBUTION STATEMENT (of this Report)<br>For Label  |                       |  |
| 17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)<br>Distribution limited to U.S. Government agencies only; Reason: Test and Evaluation. 19 August 1977. Other requests for this document must be referred to Department of the Air Force, Hq ESD (AFSC), Hanscom AFB, Ma. 01731, Attention: DRI |                       |  |
| 18. SUPPLEMENTARY NOTES   |                       |  |
| 19. KEY WORDS (Continue on reverse side if necessary and identify by block number)<br><br>AN/TRN-41 TACAN NAVIGATIONAL SET  |                       |  |
| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)<br>This report gives the results of the acceptance tests on the AN/TRN-41, TACAN Navigational Set.<br>↑   |                       |  |

408354 B

**ACCEPTANCE TEST REPORT**  
for the  
**AN/TRN-41 TACAN NAVIGATIONAL SET**

|           |      |     |             |               |    |                                 |                            |
|-----------|------|-----|-------------|---------------|----|---------------------------------|----------------------------|
| ACCESSION | NTIS | DDC | UNANNOUNCED | JUSTIFICATION | BY | DISTRIBUTION/AVAILABILITY CODES | Dist. A-AIL and/or SP-CIAL |
|           |      |     |             |               |    |                                 |                            |

**B**

This report gives the results of the acceptance tests on the AN/TRN-41, TACAN Navigational Set.

1. **Test Identification.** The acceptance tests for the AN/TRN-41 TACAN Navigational Set are those tests that will be performed during production of the AN/TRN-41 assuring proper operation of the set. These tests have been performed on preproduction units to verify compliance with the prime item development specification 404L-701-5017A Part I and Part II, dated 17 September 1976.
2. **Functional Purpose of Test.** These tests form a part of the AN/TRN-41 qualification tests.
3. **Test Objectives.** To demonstrate that the AN/TRN-41 TACAN Navigational Set, will meet the requirements of specification number 404L-701-5017A, Part I of two parts, dated 20 August 1976.
4. **Description of Test Article.** For this test, four AN/TRN-41 sets were used. These sets were tested at Montek, Salt Lake City, using the procedures and test configurations shown in Appendix I of specification 404L-701-5017 Part II.
5. **Summary of Test Results.** The following table shows the requirement of the prime item development specification 404L-701-5017A, Part I and the test number in the AN/TRN-41 acceptance test procedure, Appendix 1 of specification number 404L-701-5017 Part II. The AN/TRN-41 meets the requirements of 404L-701-5017A as shown in the data sheets of Attachments 1 and 2.

Because the filter box had to be redesigned due to interface problems with the .5 KW motor generator, ESD gave permission for E-Systems to run the 100 hour burn-in and system tests without the filter box rather than hold up the testing program. Therefore, there are blanks which are circled on some data sheets that indicate the data was not taken.

| <u>Requirements</u>                 | <u>Requirement Reference<br/>404L-701-5017<br/>Part I</u> | <u>Acceptance Test<br/>Procedure<br/>404L-701-5017<br/>Part II</u> |
|-------------------------------------|---|--|
| 100 Hour Burn-In                    | 4.2.2.1.3   | 10.3.4.1   |
| Input Power                         | 3.1.2.1, 3.7.3.1  | 10.3.4.3.2.1   |
| Receiver Sensitivity                | 3.7.1.3.4   | 10.3.4.3.2.2   |
| Power Output                        | 3.7.1.2.2   | 10.3.4.3.2.3   |
| 15 Hz Reference Burst               | 3.7.1.2.3.3   | 10.3.4.3.2.4   |
| 135 Hz Reference Burst              | 3.7.1.2.3.4   | 10.3.4.3.2.5   |
| Azimuth Alignment                   | 3.2.1.5, 3.7.2.1.10                                       | 10.3.4.3.2.6   |
| Demand Only Mode                    | 3.2.1.4   | 10.3.4.3.2.7   |
| DME Only Mode                       |   | 10.3.4.3.2.8   |
| Monitor Alarms                      | 3.2.1.11  | 10.3.4.3.2.9   |
| Conversion Operation - Airdroppable |   | 10.3.4.3.2.10  |

6. Description of Test Facility and Procedures. The test facilities and procedures are described in Appendix I of specification number 404L-701-5017, Part II, dated 17 September 1976.

7. Test Setup Diagrams. The test setup diagrams are provided in Appendix I of specification number 404L-701-5017 Part II.

8. List of Test Equipment. Following is a list of test equipment used for the AN/TRN-41 acceptance tests. The list includes manufacturer, model number, and calibration date as applicable.

| <u>Name</u>           | <u>Manufacturer and P/N</u> | <u>Serial No.</u> | <u>Calibration Due Date</u> |
|-----------------------|-----------------------------|-------------------|-----------------------------|
| DC Power Supply 0-50V | HP6274B                     | -                 | N/A                         |
| DC Power Supply 0-10V | HP721A                      |                   | N/A                         |
| DC Power Supply       | Power Design                | 72-116            | N/A                         |
| DC Power Supply       | Sorenson QRS40-75           | B289              | N/A                         |
| DC Power Supply       | Acopian                     | K20D50            | N/A                         |
| Pin Diode Switch      | Montek                      | EM135             | N/A                         |
| Pin Diode Modulator   | Montek 131500-701           | 2                 | 10/77                       |

| <u>Name</u>                        | <u>Manufacturer and P/N</u> | <u>Serial No.</u> | <u>Calibration Due Date</u> |
|------------------------------------|-----------------------------|-------------------|-----------------------------|
| Gaussian Pulse Pair Gen.           | Montek 131500-707           | 2                 | 5/77                        |
| Half Amplitude Detector            | Montek 131500-702           | EM131             | 6/77                        |
| Test Box                           | Montek 131500-703           | 1                 | N/A                         |
| Test Fixture (Azimuth Alignment)   | Montek 006893               | 1                 | N/A                         |
| Linear Detector                    | Montek 1315203-100          | 1                 | N/A                         |
| Linear Detector                    | Montek 1315203-100          | 2                 | N/A                         |
| Synthesizer                        | Montek MM-603               | EM134             | 5/77                        |
| DC Current Meter                   | HP428B                      | MH49              | 12/77                       |
| Digital Voltmeter                  | Fluke 8100B                 | 79427             | 6/77                        |
| Digital Counter                    | Fluke 1953A                 | 401-C             | 10/77                       |
| Oscilloscope                       | Tektronix 465               |                   | 7/77                        |
| Survey Transit                     | David White/Path TR303      |                   | N/A                         |
| RF Load (10W, 50Ω)                 | HP8491A                     |                   | N/A                         |
| RF Attenuator                      | Omni Spectra 20510-40       |                   | N/A                         |
| RF Attenuator                      | Narda 768-30                |                   | N/A                         |
| RF Attenuator                      | Narda 768-20                |                   | N/A                         |
| RF Attenuator<br>Variable 0-10 dB  | Weinschel 905               | 182               | N/A                         |
| RF Attenuator<br>Variable 0-10 dB  | Weinschel 905               | 4250              | N/A                         |
| RF Attenuator<br>Variable 0-110 dB | Weinschel 2576              | 1803              | N/A                         |
| Circulator                         | E&M L20T87                  | 102               | N/A                         |
| RF Generator                       | HP612A                      | 3780              | 6/77                        |
| Pulse Generator                    | Data Pulse 110B             |                   | 5/77                        |
| RF Peak Power Meter                | Boonton 8900A               |                   | 9/77                        |
| Coupler Hybrid 3 dB                | Anaren MA-38                |                   | N/A                         |
| Isolator                           | E&M Lab L20T73              | 182               | N/A                         |
| Isolator                           | E&M Lab L20T73              | 104               | N/A                         |
| UHF Signal Source                  | HP8614A                     | 822-06090         | 8/77                        |
| Linear Detector                    | AN/GRM-97                   | 3016              | 8/77                        |
| Battery                            | BB-451/U                    |                   | N/A                         |
| Generator Set .5 KW                | MEP24                       |                   | N/A                         |
| Stop Watch                         | Galco                       |                   |                             |
| Temperature Chamber                | E-Systems, No. 00501        |                   | N/A                         |

9. **Recorded Test Data.** Attachment 1 contains the data sheets resulting from the 100 hour burn-in tests. Attachment 2 contains the data sheets from the system performance tests. Attachment 3 contains a summary list of the failures incurred during the 100 hour burn-in for the four systems.

10. **Test Conditions.** The system performance tests were conducted at ambient conditions at the test site. The 100 hour burn-in tests were performed in a temperature chamber with the temperature being cycled from -55°C to +55°C.

11. **Test Result Analysis.** The test results show that the AN/TRN-41 systems met all requirements of the acceptance test procedure.

12. **Certification.** The last page of each data sheet shown in Attachments 1 and 2 have been signed by a Montek Q.A. representative and a DCAS representative, certifying that the test results are authentic, accurate, current and in accordance with the related test procedures.

**ATTACHMENT 1**  
**100 HOUR BURN-IN DATA SHEETS**

Specification Number  
404L-701-5017

Part II of two parts

1 December 1976

OFFICIAL DATA COPY

SAMPLE  
ATTACHMENT 3

100 HOUR BURN-IN TEST DATA SHEET

Date 1 DEC 76

Serial Numbers

RT 002

Ant 001

Filter —

| <u>Paragraph No.</u> | <u>Description</u>                | <u>Data</u>                                  |
|----------------------|-----------------------------------|--|
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 1)  | <u>11:35AM</u> 12/1/76                       |
| 10.3.4.1.7.1         | Check Monitor Alarms              | (Check if no alarms)                         |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <u>22.5</u> (≥22.5 Vdc)                      |
| 10.3.4.1.7.3         | RT Power Output Power             | <u>125</u> (100 Watts Minimum)               |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                       |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <u>1.9 μs</u> (2.0 ± 2.5 μs)                 |
|                      | RT Waveform Falltime              | <u>2.2 μs</u> (2.5 ± 0.5 μs)                 |
|                      | RT Waveform Pulsewidth            | <u>3.1 μs</u> (3.5 ± 0.5 μs)                 |
|                      | Random Voltage Variations         | <u>✓</u> (Check if OK)                       |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.667</u> (66.6666 ± 0.13333 ms)         |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                       |
| 10.3.4.1.7.6         | Ident Code Generation             | <u>✓</u> (Check if OK)                       |
|                      | Ident Code Repetition Rate        | <u>38.0</u> (37.5 ± 3.75 <sup>μs</sup> /sec) |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                       |
| 10.3.4.1.7.7         | Demand Only - Standby             | <u>✓</u> (Check if OK)                       |
| 10.3.4.1.7.8         | Demand Only - On Air              | <u>✓</u> (Check if OK)                       |
| 10.3.4.1.8           | Equipment Turn-Off Time (Cycle 1) | <u>8:15 AM</u> 12/2/76                       |

BEST AVAILABLE COPY

| <u>Paragraph No.</u> | <u>Description</u>                | <u>Data</u>   |
|----------------------|-----------------------------------|---|
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 2)  | <u>1:00 PM</u> 2 DEC 1976   |
| 10.3.4.1.7.1         | Check Monitor Alarms              | TURNED OFF AT 5:00 PM<br><u>✓</u> (Check if no alarms) <u>TURNED ON AGAIN AT 7:15 AM 3 DEC 76</u> |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <u>22.5</u> (≥ 22.5 Vdc) <u>TEST AT 3:45 PM</u>   |
| 10.3.4.1.7.3         | RT Peak Output Power              | <u>132</u> (100 Watts Minimum) <u>3 DEC 76</u>  |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)  |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <u>2.0</u> (2.0 ± 2.5 μs)   |
|                      | RT Waveform Falltime              | <u>2.7</u> (2.5 ± 0.5 μs)   |
|                      | RT Waveform Pulsewidth            | <u>4.0</u> (3.5 ± 0.5 μs)   |
|                      | Random Voltage Variations         | <u>✓</u> (Check if OK)  |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.669</u> (66.6666 ± 0.13333 ms)  |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)  |
| 10.3.4.1.7.6         | Ident Code Generation             | <u>✓</u> (Check if OK)  |
|                      | Ident Code Repetition Rate        | <u>37.0</u> (37.5 ± 3.75 μs) <u>SEC</u>   |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)  |
| 10.3.4.1.7.7         | Demand Only - Standby             | <u>✓</u> (Check if OK)  |
| 10.3.4.1.7.8         | Demand Only - On Air              | <u>✓</u> (Check if OK)  |
| 10.3.4.1.8           | Equipment Turn-off Time (Cycle 2) | <u>12:00 MIDNIGHT 3 DEC</u>   |
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 3)  | <u>4:15 AM</u> <u>4 DEC 1976</u>  |
| 10.3.4.1.7.1         | Check Monitor Alarms              | <u>✓</u> (Check if no alarms) <u>TEST TIME 10:30</u>  |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <u>22.5</u> (≥ 22.5 Vdc)  |
| 10.3.4.1.7.3         | RT Peak Output Power              | <u>126</u> (100 Watts Minimum)  |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)  |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <u>2.1</u> (2.0 ± 2.5 μs)   |
|                      | RT Waveform Falltime              | <u>2.6</u> (2.5 ± 0.5 μs)   |
|                      | RT Waveform Pulsewidth            | <u>3.4</u> (3.5 ± 0.5 μs)   |
|                      | Random Voltage Variations         | <u>✓</u> (Check if OK)  |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.669</u> (66.6666 ± 0.13333 ms)  |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)  |
| 10.3.4.1.7.6         | Ident Code Generation             | <u>✓</u> (Check if OK)  |
|                      | Ident Code Repetition Rate        | <u>36.0</u> (37.5 ± 3.75 μs) <u>SEC</u>   |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)  |
| 10.3.4.1.7.7         | Demand Only - Standby             | <u>✓</u> (Check if OK)  |
| 10.3.4.1.7.8         | Demand Only - On Air              | <u>✓</u> (Check if OK)  |
| 10.3.4.1.8           | Equipment Turn-off Time (Cycle 3) | <u>1:00 AM</u> <u>5 DEC 1976</u>  |

| Paragraph    | Description                       | Data                    |  |
|--------------|-----------------------------------|-------------------------|--|
| 10.3.4.1.5   | Equipment Turn-on Time (Cycle 4)  | <u>6:00 AM</u> 5 DEC 76 |  |
| 10.3.4.1.7.1 | Check Monitor Alarms              | <u>✓</u>                | (Check if no alarms) TEST TIME 12:15 PM 5 DEC 76 |
| 10.3.4.1.7.2 | Output Voltage of Filter          | <u>○</u>                | (≥ 22.5 Vdc)                                     |
| 10.3.4.1.7.3 | RT Peak Output Power              | <u>125</u>              | (100 Watts Minimum)                              |
|              | Random Voltage Variation          | <u>✓</u>                | (Check if OK)                                    |
| 10.3.4.1.7.4 | RT Waveform Risetime              | <u>2.1 μs</u>           | (2.0 ± 2.5 μs)                                   |
|              | RT Waveform Faltime               | <u>2.5 μs</u>           | (2.5 ± 0.5 μs)                                   |
|              | RT Waveform Pulsewidth            | <u>3.3 μs</u>           | (3.5 ± 0.5 μs)                                   |
|              | Random Voltage Variations         | <u>✓</u>                | (Check if OK)                                    |
| 10.3.4.1.7.5 | Antenna Rotation Period           | <u>66.669 ms</u>        | (66.6666 ± 0.13333 ms)                           |
|              | Random Voltage Variation          | <u>✓</u>                | (Check if OK)                                    |
| 10.3.4.1.7.6 | Ident Code Generation             | <u>✓</u>                | (Check it OK)                                    |
|              | Ident Code Repetition Rate        | <u>37.5</u>             | (37.5 ± 3.75 <del>μs</del> SEC)                  |
|              | Random Voltage Variation          | <u>✓</u>                | (Check if OK)                                    |
| 10.3.4.1.7.7 | Demand Only - Standby             | <u>✓</u>                | (Check it OK)                                    |
| 10.3.4.1.7.8 | Demand Only - On Air              | <u>✓</u>                | (Check if OK)                                    |
| 10.3.4.1.8   | Equipment Turn-off Time (Cycle 4) | <u>2:00 AM</u> 6 DEC 76 |  |
| 10.3.4.1.5   | Equipment Turn-on Time (Cycle 5)  | <u>6:05 AM</u> 6 DEC 76 |  |
| 10.3.4.1.7.1 | Check Monitor Alarms              | <u>✓</u>                | (Check if no alarms) TEST TIME 3:15 PM 6 DEC -   |
| 10.3.4.1.7.2 | Output Voltage of Filter          | <u>○</u>                | (≥ 22.5 Vdc)                                     |
| 10.3.4.1.7.3 | RT Peak Output Power              | <u>125</u>              | (100 Watts Minimum)                              |
|              | Random Voltage Variation          | <u>✓</u>                | (Check if OK)                                    |
| 10.3.4.1.7.4 | RT Waveform Risetime              | <u>2.1</u>              | (2.0 ± 2.5 μs)                                   |
|              | RT Waveform Faltime               | <u>2.5</u>              | (2.5 ± 0.5 μs)                                   |
|              | RT Waveform Pulsewidth            | <u>3.3</u>              | (3.5 ± 0.5 μs)                                   |
|              | Random Voltage Variations         | <u>✓</u>                | (Check if OK)                                    |
| 10.3.4.1.7.5 | Antenna Rotation Period           | <u>66.669</u>           | (66.6666 ± 0.13333 ms)                           |
|              | Random Voltage Variation          | <u>✓</u>                | (Check if OK)                                    |
| 10.3.4.1.7.6 | Ident Code Generation             | <u>✓</u>                | (Check if OK)                                    |
|              | Ident Code Repetition Rate        | <u>37.0</u>             | (37.5 ± 3.75 <del>μs</del> SEC)                  |
|              | Random Voltage Variation          | <u>✓</u>                | (Check if OK)                                    |
| 10.3.4.1.7.7 | Demand Only - Standby             | <u>✓</u>                | (Check if OK)                                    |
| 10.3.4.1.7.8 | Demand Only - On Air              | <u>✓</u>                | (Check if OK)                                    |
| 10.3.4.1.8   | Equipment Turn-off Time (Cycle 5) | <u>2:17 AM</u> 7 DEC 76 |  |

CBW

|              |                            |               |                                 |
|--------------|----------------------------|---------------|---------------------------------|
| 10.3.4.1.10  | Post Burn-In Tests         | <u>✓</u>      |                                 |
| 10.3.4.1.7.1 | Check Monitor Alarms       | <u>✓</u>      | (Check if no alarms)            |
| 10.3.4.1.7.2 | Output Voltage of Filter   | <u>22.5</u>   | ( 22.5 Vdc)                     |
| 10.3.4.1.7.3 | RT Peak Output Power       | <u>125</u>    | (100 Watts Minimum)             |
|              | Random Voltage Variation   | <u>✓</u>      | (Check if OK)                   |
| 10.3.4.1.7.4 | RT Waveform Risetime       | <u>2.1</u>    | (2.0 ± 2.5 μs)                  |
|              | RT Waveform Falltime       | <u>2.5</u>    | (2.5 ± 0.5 μs)                  |
|              | RT Waveform Pulsewidth     | <u>3.1</u>    | (3.5 ± 0.5 μs)                  |
|              | Random Voltage Variations  | <u>✓</u>      | (Check if OK)                   |
| 10.3.4.1.7.5 | Antenna Rotation Period    | <u>66.666</u> | (66.6666 ± 0.13333 ms)          |
|              | Random Voltage Variation   | <u>✓</u>      | (Check if OK)                   |
| 10.3.4.1.7.6 | Ident Code Generation      | <u>✓</u>      | (Check if OK)                   |
|              | Ident Code Repetition Rate | <u>38.5</u>   | (37.5 ± 3.75 <del>μs</del> SEC) |
|              | Random Voltage Variation   | <u>✓</u>      | (Check if OK)                   |
| 10.3.4.1.7.7 | Demand Only - Standby      | <u>✓</u>      | (Check if OK)                   |
| 10.3.4.1.7.8 | Demand Only - ON AIR       | <u>✓</u>      | (Check if OK)                   |

John Kramer  
7966

12-12-76

John H. Johnson  
12-12-76



Specification Number  
404L-701-5017

Part II of two parts

1 December 1976

SAMPLE  
ATTACHMENT 3

100 HOUR BURN-IN TEST DATA SHEET

Date 1/20/77

Serial Numbers

RT 003

Ant 002

Filter \_\_\_\_\_

| <u>Paragraph No.</u> | <u>Description</u>                | <u>Data</u>  |
|----------------------|-----------------------------------|--|
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 1)  | <u>11:45AM</u>   |
| 10.3.4.1.7.1         | Check Monitor Alarms              | <input checked="" type="checkbox"/> (Check if no alarms) |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <u>_____</u> ( $\geq 22.5$ Vdc)                          |
| 10.3.4.1.7.3         | RT Peak Output Power              | <u>no output</u> (100 Watts Minimum) <u>failure</u>      |
|                      | Random Voltage Variation          | _____ (Check if OK)                                      |
| 10.3.4.1.7.4         | RT Waveform Risetime              | _____ ( $2.0 \pm 0.25$ $\mu$ s)                          |
|                      | RT Waveform Faltime               | _____ ( $2.5 \pm 0.5$ $\mu$ s)                           |
|                      | RT Waveform Pulsewidth            | _____ ( $3.5 \pm 0.5$ $\mu$ s)                           |
|                      | Random Voltage Variations         | _____ (Check if OK)                                      |
| 10.3.4.1.7.5         | Antenna Rotation Period           | _____ ( $66.6666 \pm 0.13333$ ms)                        |
|                      | Random Voltage Variation          | _____ (Check if OK)                                      |
| 10.3.4.1.7.6         | Ident Code Generation             | _____ (Check if OK)                                      |
|                      | Ident Code Repetition Rate        | _____ ( $37.5 \pm 3.75$ $\mu$ s <u>seconds</u> )         |
|                      | Random Voltage Variation          | _____ (Check if OK)                                      |
| 10.3.4.1.7.7         | Demand Only - Standby             | _____ (Check if OK)                                      |
| 10.3.4.1.7.8         | Demand Only - On Air              | _____ (Check if OK)                                      |
| 10.3.4.1.8           | Equipment Turn-Off Time (Cycle 1) | _____ <u>6</u>   |

RT was turned off at 7:20 AM 1/21/77

~~Failure~~  
Failure were corrected and test restarted at 2:45 PM. 1/21/77

1 December 1976

SAMPLE  
ATTACHMENT 3

100 HOUR BURN-IN TEST DATA SHEET

Date 1/21/77

Serial Numbers

RT \_\_\_\_\_



Ant \_\_\_\_\_





Filter \_\_\_\_\_

| <u>Paragraph No.</u> | <u>Description</u>                | <u>Data</u>                         |   |
|----------------------|-----------------------------------|-------------------------------------|---|
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 1)  | <u>2:45 PM</u>                      |   |
| 10.3.4.1.7.1         | Check Monitor Alarms              | <input checked="" type="checkbox"/> | (Check if no alarms)                    |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <u>22.5</u>                         | ( $\geq 22.5$ Vdc)                      |
| 10.3.4.1.7.3         | RT Peak Output Power              | <u>122</u>                          | (100 Watts Minimum)                     |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> | (Check if OK)                           |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <u>2.02 <math>\mu</math>s</u>       | ( $2.0 \pm 2.5$ $\mu$ s)                |
|                      | RT Waveform Faltime               | <u>2.55 <math>\mu</math>s</u>       | ( $2.5 \pm 0.5$ $\mu$ s)                |
|                      | RT Waveform Pulsewidth            | <u>3.4 <math>\mu</math>s</u>        | ( $3.5 \pm 0.5$ $\mu$ s)                |
|                      | Random Voltage Variations         | <input checked="" type="checkbox"/> | (Check if OK)                           |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.667 ms</u>                    | ( $66.6666 \pm 0.13333$ ms)             |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> | (Check if OK)                           |
| 10.3.4.1.7.6         | Ident Code Generation             | <input checked="" type="checkbox"/> | (Check if OK)                           |
|                      | Ident Code Repetition Rate        | <u>37.5</u>                         | ( $37.5 \pm 3.75$ $\mu$ s/sec) (cycles) |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> | (Check if OK)                           |
| 10.3.4.1.7.7         | Demand Only - Standby             | <input checked="" type="checkbox"/> | (Check if OK)                           |
| 10.3.4.1.7.8         | Demand Only - On Air              | <input checked="" type="checkbox"/> | (Check if OK)                           |
| 10.3.4.1.8           | Equipment Turn-Off Time (Cycle 1) | <del>2:00</del> <u>3:30 PM</u>      |   |

NOTE - RF ABSORBER WAS PLACED IN CHAMBER DURING TEST TO PREVENT RESONANCE NOISE.

When system was turned on at 6:30 PM (-55°C) a failure occurred - failure was due to a bad solder joint on 1A4-B also a broken solder path between 1A2 R48 & 1A2 R49 was causing problems. These were corrected and test continued at 12:00 Noon 1/22/77.

| <u>Paragraph No.</u> | <u>Description</u>                | <u>Data</u>   |   |
|----------------------|-----------------------------------|---|---|
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 2)  | <u>12:00 Noon</u>   | 1/22/77   |
| 10.3.4.1.7.1         | Check Monitor Alarms              |    | (Check if no alarms) - <small>TEST TIME<br/>6:30 AM<br/>1/23/77</small> |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <u>22.5</u>   | (≥ 22.5 Vdc)  |
| 10.3.4.1.7.3         | RT Peak Output Power              | <u>128 WATTS</u>  | (100 Watts Minimum) <small>USE POWER<br/>LOSS - 31.1%</small>           |
|                      | Random Voltage Variation          | <u>—</u>  | (Check if OK)   |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <u>2.15</u>   | (2.0 ± 2.5 μs)  |
|                      | RT Waveform Faltime               | <u>2.58</u>   | (2.5 ± 0.5 μs)  |
|                      | RT Waveform Pulsewidth            | <u>3.37</u>   | (3.5 ± 0.5 μs)  |
|                      | Random Voltage Variations         | <u>✓</u>  | (Check if OK)   |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.67</u>  | (66.6666 ± 0.13333 ms)  |
|                      | Random Voltage Variation          | <u>✓</u>  | (Check if OK)   |
| 10.3.4.1.7.6         | Ident Code Generation             | <u>✓</u>  | (Check if OK)   |
|                      | Ident Code Repetition Rate        | <u>37.5</u>   | (37.5 ± 3.75 μs) <small>seconds</small>                                 |
|                      | Random Voltage Variation          | <u>✓</u>  | (Check if OK)   |
| 10.3.4.1.7.7         | Demand Only - Standby             | <u>✓</u>  | (Check if OK)   |
| 10.3.4.1.7.8         | Demand Only - On Air              | <u>✓</u>  | (Check if OK)   |
| 10.3.4.1.8           | Equipment Turn-off Time (Cycle 2) | <u>8:00 AM</u>  | 1/23/77   |
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 3)  | <u>11:55 AM</u>   | 1/23/77   |
| 10.3.4.1.7.1         | Check Monitor Alarms              |  | (Check if no alarms) <small>TEST TIME<br/>7:00 AM<br/>1/24/77</small>   |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <u>22.5</u>   | (≥ 22.5 Vdc)  |
| 10.3.4.1.7.3         | RT Peak Output Power              | <u>122 WATTS</u>  | (100 Watts Minimum)   |
|                      | Random Voltage Variation          | <u>✓</u>  | (Check if OK)   |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <u>2.11</u>   | (2.0 ± 2.5 μs)  |
|                      | RT Waveform Faltime               | <u>2.51</u>   | (2.5 ± 0.5 μs)  |
|                      | RT Waveform Pulsewidth            | <u>3.32</u>   | (3.5 ± 0.5 μs)  |
|                      | Random Voltage Variations         | <u>✓</u>  | (Check if OK)   |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.67</u>  | (66.6666 ± 0.13333 ms)  |
|                      | Random Voltage Variation          | <u>✓</u>  | (Check if OK)   |
| 10.3.4.1.7.6         | Ident Code Generation             | <u>✓</u>  | (Check if OK)   |
|                      | Ident Code Repetition Rate        | <u>36.5</u>   | (37.5 ± 3.75 μs) <small>seconds</small>                                 |
|                      | Random Voltage Variation          | <u>✓</u>  | (Check if OK)   |
| 10.3.4.1.7.7         | Demand Only - Standby             | <u>✓</u>  | (Check if OK)   |
| 10.3.4.1.7.8         | Demand Only - On Air              | <u>✓</u>  | (Check if OK)   |
| 10.3.4.1.8           | Equipment Turn-off Time (Cycle 3) | <u>8:00 AM</u>  | 1/24/77   |

| <u>Paragraph</u> | <u>Description</u>                | <u>Data</u>   |  |
|------------------|-----------------------------------|---|--|
| 10.3.4.1.5       | Equipment Turn-on Time (Cycle 4)  | <u>12:00 Noon</u>   | 1/24/77  |
| 10.3.4.1.7.1     | Check Monitor Alarms              |    | (Check if no alarms)   |
| 10.3.4.1.7.2     | Output Voltage of Filter          |    | (≥ 22.5 Vdc)   |
| 10.3.4.1.7.3     | RT Peak Output Power              | <u>126 WATT</u> ✓   | (100 Watts Minimum)  |
|                  | Random Voltage Variation          | ✓   | (Check if OK)  |
| 10.3.4.1.7.4     | RT Waveform Risetime              | <u>2.11</u>   | (2.0 ± 2.5 μs)   |
|                  | RT Waveform Falltime              | <u>2.45</u>   | (2.5 ± 0.5 μs)   |
|                  | RT Waveform Pulsewidth            | <u>3.32</u>   | (3.5 ± 0.5 μs)   |
|                  | Random Voltage Variations         | ✓   | (Check if OK)  |
| 10.3.4.1.7.5     | Antenna Rotation Period           | <u>66.67</u>  | (66.6666 ± 0.13333 ms)   |
|                  | Random Voltage Variation          | ✓   | (Check if OK)  |
| 10.3.4.1.7.6     | Ident Code Generation             | ✓   | (Check it OK)  |
|                  | Ident Code Repetition Rate        | <u>36.5</u>   | (37.5 ± 3.75 μs)   |
|                  | Random Voltage Variation          | ✓   | (Check if OK)  |
| 10.3.4.1.7.7     | Demand Only - Standby             | ✓   | (Check it OK)  |
| 10.3.4.1.7.8     | Demand Only - On Air              | ✓   | (Check if OK)  |
| 10.3.4.1.8       | Equipment Turn-off Time (Cycle 4) | <u>8:00 AM</u>  | 1/25/77  |
| 10.3.4.1.5       | Equipment Turn-on Time (Cycle 5)  | <u>1:00 PM</u>  | 1/25/77  |
| 10.3.4.1.7.1     | Check Monitor Alarms              |  | (Check if no alarms) <small>FIELD TIME 8:00 AM 1/25/77</small> |
| 10.3.4.1.7.2     | Output Voltage of Filter          |  | (≥ 22.5 Vdc)   |
| 10.3.4.1.7.3     | RT Peak Output Power              | <u>126 WATT</u>   | (100 Watts Minimum)  |
|                  | Random Voltage Variation          | ✓   | (Check if OK)  |
| 10.3.4.1.7.4     | RT Waveform Risetime              | <u>1.07</u>   | (2.0 ± 2.5 μs)   |
|                  | RT Waveform Falltime              | <u>2.47</u>   | (2.5 ± 0.5 μs)   |
|                  | RT Waveform Pulsewidth            | <u>3.32</u>   | (3.5 ± 0.5 μs)   |
|                  | Random Voltage Variations         | ✓   | (Check if OK)  |
| 10.3.4.1.7.5     | Antenna Rotation Period           | <u>66.67 ms</u>   | (66.6666 ± 0.13333 ms)   |
|                  | Random Voltage Variation          | ✓   | (Check if OK)  |
| 10.3.4.1.7.6     | Ident Code Generation             | ✓   | (Check if OK)  |
|                  | Ident Code Repetition Rate        | <u>37.0</u>   | (37.5 ± 3.75 μs)   |
|                  | Random Voltage Variation          | ✓   | (Check if OK)  |
| 10.3.4.1.7.7     | Demand Only - Standby             | ✓   | (Check if OK)  |
| 10.3.4.1.7.8     | Demand Only - On Air              | ✓   | (Check if OK)  |
| 10.3.4.1.8       | Equipment Turn-off Time (Cycle 5) | <u>10:00 AM</u>   | 1/30/77  |

|              |                            |                   | TEST TIME 1100 AM 1/30/71 |
|--------------|----------------------------|-------------------|---------------------------|
| 10.3.4.1.10  | Post Burn-In Tests         | <u>          </u> |                           |
| 10.3.4.1.7.1 | Check Monitor Alarms       | <u>✓</u>          | (Check if no alarms)      |
| 10.3.4.1.7.2 | Output Voltage of Filter   | <u>          </u> | ( 22.5 Vdc)               |
| 10.3.4.1.7.3 | RT Peak Output Power       | <u>110 W rms</u>  | (100 Watts Minimum)       |
|              | Random Voltage Variation   | <u>✓</u>          | (Check if OK)             |
| 10.3.4.1.7.4 | RT Waveform Risetime       | <u>2.07</u>       | (2.0 ± 2.5 μs)            |
|              | RT Waveform Falltime       | <u>2.47</u>       | (2.5 ± 0.5 μs)            |
|              | RT Waveform Pulsewidth     | <u>3.27</u>       | (3.5 ± 0.5 μs)            |
|              | Random Voltage Variations  | <u>✓</u>          | (Check if OK)             |
| 10.3.4.1.7.5 | Antenna Rotation Period    | <u>66.668</u>     | (66.6666 ± 0.13333 ms)    |
|              | Random Voltage Variation   | <u>✓</u>          | (Check if OK)             |
| 10.3.4.1.7.6 | Ident Code Generation      | <u>✓</u>          | (Check: if OK)            |
|              | Ident Code Repetition Rate | <u>37.5</u>       | (37.5 ± 3.75 μs)          |
|              | Random Voltage Variation   | <u>✓</u>          | (Check if OK)             |
| 10.3.4.1.7.7 | Demand Only - Standby      | <u>✓</u>          | (Check if OK)             |
| 10.3.4.1.7.8 | Demand Only - ON AIR       | <u>✓</u>          | (Check if OK)             |

MONTEK Q.A.

for J.J.  
Daulliams

SAMPLE  
ATTACHMENT 3

100 HOUR BURN-IN TEST DATA SHEET

Date 4/8/77

Serial Numbers RT 001  
Ant 004  
Filter -

| <u>Paragraph No.</u> | <u>Description</u>                | <u>Data</u>                                    |
|----------------------|-----------------------------------|--|
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 1)  | <u>✓</u> 2:00PM                                |
| 10.3.4.1.7.1         | Check Monitor Alarms              | <u>✓</u> (Check if no alarms)                  |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <u>○</u> ( $\geq 22.5$ Vdc)                    |
| 10.3.4.1.7.3         | RT Peak Output Power              | <u>120</u> (100 Watts Minimum)                 |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                         |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <u>2.0</u> ( $2.0 \pm 2.5 \mu s$ )             |
|                      | RT Waveform Falltime              | <u>2.3</u> ( $2.5 \pm 0.5 \mu s$ )             |
|                      | RT Waveform Pulsewidth            | <u>3.1</u> ( $3.5 \pm 0.5 \mu s$ )             |
|                      | Random Voltage Variations         | <u>✓</u> (Check if OK)                         |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.667</u> ( $66.6666 \pm 0.13333$ ms)      |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                         |
| 10.3.4.1.7.6         | Ident Code Generation             | <u>✓</u> (Check if OK)                         |
|                      | Ident Code Repetition Rate        | <u>37.7</u> ( $37.5 \pm 3.75 \mu s$ / seconds) |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                         |
| 10.3.4.1.7.7         | Demand Only - Standby             | <u>✓</u> (Check if OK)                         |
| 10.3.4.1.7.8         | Demand Only - On Air              | <u>✓</u> (Check if OK)                         |
| 10.3.4.1.8           | Equipment Turn-Off Time (Cycle 1) | <u>✓</u> 10:05 AM                              |

| <u>Paragraph No.</u> | <u>Description</u>                | <u>Data</u>  |
|----------------------|-----------------------------------|--|
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 2)  | <u>12:00 AM</u> 4/11/77  |
| 10.3.4.1.7.1         | Check Monitor Alarms              | <input checked="" type="checkbox"/> (Check if no alarms)               |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <input checked="" type="checkbox"/> ( $\geq 22.5$ Vdc)                 |
| 10.3.4.1.7.3         | RT Peak Output Power              | <u>118</u> (100 Watts Minimum)   |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <u>2.4</u> ( $2.0 \pm 2.5$ $\mu$ s)                                    |
|                      | RT Waveform Faltime               | <u>2.5</u> ( $2.5 \pm 0.5$ $\mu$ s)                                    |
|                      | RT Waveform Pulsewidth            | <u>3.1</u> ( $3.5 \pm 0.5$ $\mu$ s)                                    |
|                      | Random Voltage Variations         | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.67</u> ( $66.6666 \pm 0.13333$ ms)                               |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.7.6         | Ident Code Generation             | <input checked="" type="checkbox"/> (Check if OK)                      |
|                      | Ident Code Repetition Rate        | <u>37.5</u> ( $37.5 \pm 3.75$ $\mu$ s/seconds)                         |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.7.7         | Demand Only - Standby             | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.7.8         | Demand Only - On Air              | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.8           | Equipment Turn-off Time (Cycle 2) | <u>8:30 AM</u> 4/11/77   |
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 3)  | <input checked="" type="checkbox"/> <u>12:00 AM</u> 4/12/77            |
| 10.3.4.1.7.1         | Check Monitor Alarms              | <input checked="" type="checkbox"/> (Check if no alarms)               |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <input checked="" type="checkbox"/> ( $\geq 22.5$ Vdc)                 |
| 10.3.4.1.7.3         | RT Peak Output Power              | <input checked="" type="checkbox"/> (100 Watts Minimum)                |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <input checked="" type="checkbox"/> ( $2.0 \pm 2.5$ $\mu$ s)           |
|                      | RT Waveform Faltime               | <input checked="" type="checkbox"/> ( $2.5 \pm 0.5$ $\mu$ s)           |
|                      | RT Waveform Pulsewidth            | <input checked="" type="checkbox"/> ( $3.5 \pm 0.5$ $\mu$ s)           |
|                      | Random Voltage Variations         | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.667</u> ( $66.6666 \pm 0.13333$ ms)                              |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.7.6         | Ident Code Generation             | <input checked="" type="checkbox"/> (Check if OK)                      |
|                      | Ident Code Repetition Rate        | <input checked="" type="checkbox"/> ( $37.5 \pm 3.75$ $\mu$ s/seconds) |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.7.7         | Demand Only - Standby             | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.7.8         | Demand Only - On Air              | <input checked="" type="checkbox"/> (Check if OK)                      |
| 10.3.4.1.8           | Equipment Turn-off Time (Cycle 3) | <input checked="" type="checkbox"/> <u>8:30 AM</u> 4/12/77             |

2/1/1

| Paragraph    | Description                       | Data  |
|--------------|-----------------------------------|---|
| 10.3.4.1.5   | Equipment Turn-on Time (Cycle 4)  | ✓ 12:30 Noon 4/13/77                              |
| 10.3.4.1.7.1 | Check Monitor Alarms              | ✓ (Check if no alarms)                            |
| 10.3.4.1.7.2 | Output Voltage of Filter          | <del>11</del> (≥ 22.5 Vdc)                        |
| 10.3.4.1.7.3 | RT Peak Output Power              | ✓ (100 Watts Minimum)                             |
|              | Random Voltage Variation          | ✓ (Check if OK)                                   |
| 10.3.4.1.7.4 | RT Waveform Risetime              | <u>2.1</u> (2.0 ± 2.5 μs)                         |
|              | RT Waveform Falltime              | <u>2.4</u> (2.5 ± 0.5 μs)                         |
|              | RT Waveform Pulsewidth            | <u>3.5</u> (3.5 ± 0.5 μs)                         |
|              | Random Voltage Variations         | ✓ (Check if OK)                                   |
| 10.3.4.1.7.5 | Antenna Rotation Period           | <u>66.676</u> (66.6666 ± 0.13333 ms)              |
|              | Random Voltage Variation          | ✓ (Check if OK)                                   |
| 10.3.4.1.7.6 | Ident Code Generation             | ✓ (Check if OK)                                   |
|              | Ident Code Repetition Rate        | <u>37.0</u> (37.5 ± 3.75 μs) <sup>2 seconds</sup> |
|              | Random Voltage Variation          | ✓ (Check if OK)                                   |
| 10.3.4.1.7.7 | Demand Only - Standby             | ✓ (Check if OK)                                   |
| 10.3.4.1.7.8 | Demand Only - On Air              | ✓ (Check if OK)                                   |
| 10.3.4.1.8   | Equipment Turn-off Time (Cycle 4) | ✓ 8:00 AM 4/14/77                                 |
| 10.3.4.1.5   | Equipment Turn-on Time (Cycle 5)  | ✓ 11:50 AM 4/14/77                                |
| 10.3.4.1.7.1 | Check Monitor Alarms              | ✓ (Check if no alarms)                            |
| 10.3.4.1.7.2 | Output Voltage of Filter          | <del>11</del> (≥ 22.5 Vdc)                        |
| 10.3.4.1.7.3 | RT Peak Output Power              | ✓ (100 Watts Minimum)                             |
|              | Random Voltage Variation          | ✓ (Check if OK)                                   |
| 10.3.4.1.7.4 | RT Waveform Risetime              | <u>2.1</u> (2.0 ± 2.5 μs)                         |
|              | RT Waveform Falltime              | <u>2.4</u> (2.5 ± 0.5 μs)                         |
|              | RT Waveform Pulsewidth            | <u>3.6</u> (3.5 ± 0.5 μs)                         |
|              | Random Voltage Variations         | ✓ (Check if OK)                                   |
| 10.3.4.1.7.5 | Antenna Rotation Period           | ✓ (66.6666 ± 0.13333 ms)                          |
|              | Random Voltage Variation          | ✓ (Check if OK)                                   |
| 10.3.4.1.7.6 | Ident Code Generation             | ✓ (Check if OK)                                   |
|              | Ident Code Repetition Rate        | <u>36.5</u> (37.5 ± 3.75 μs) <sup>2 seconds</sup> |
|              | Random Voltage Variation          | ✓ (Check if OK)                                   |
| 10.3.4.1.7.7 | Demand Only - Standby             | ✓ (Check if OK)                                   |
| 10.3.4.1.7.8 | Demand Only - On Air              | ✓ (Check if OK)                                   |
| 10.3.4.1.8   | Equipment Turn-off Time (Cycle 5) | ✓ 7:40 4/15/77                                    |

|              |                            |                                     |   |
|--------------|----------------------------|-------------------------------------|---|
| 10.3.4.1.10  | Post Burn-In Tests         |                                     |   |
| 10.3.4.1.7.1 | Check Monitor Alarms       | <input checked="" type="checkbox"/> | (Check if no alarms)                    |
| 10.3.4.1.7.2 | Output Voltage of Filter   | <input checked="" type="checkbox"/> | ( 22.5 Vdc)                             |
| 10.3.4.1.7.3 | RT Peak Output Power       | <input checked="" type="checkbox"/> | (100 Watts Minimum)                     |
|              | Random Voltage Variation   | <input checked="" type="checkbox"/> | (Check if OK)                           |
| 10.3.4.1.7.4 | RT Waveform Risetime       | <u>2.1</u>                          | (2.0 ± 2.5 μs)                          |
|              | RT Waveform Falltime       | <u>2.4</u>                          | (2.5 ± 0.5 μs)                          |
|              | RT Waveform Pulsewidth     | <u>3.6</u>                          | (3.5 ± 0.5 μs)                          |
|              | Random Voltage Variations  | <input checked="" type="checkbox"/> | (Check if OK)                           |
| 10.3.4.1.7.5 | Antenna Rotation Period    | <u>66.67</u>                        | (66.6666 ± 0.13333 ms)                  |
|              | Random Voltage Variation   | <input checked="" type="checkbox"/> | (Check if OK)                           |
| 10.3.4.1.7.6 | Ident Code Generation      | <input checked="" type="checkbox"/> | (Check if OK)                           |
|              | Ident Code Repetition Rate | <u>37.0</u>                         | (37.5 ± 3.75 μs <sup>per second</sup> ) |
|              | Random Voltage Variation   | <input checked="" type="checkbox"/> | (Check if OK)                           |
| 10.3.4.1.7.7 | Demand Only - Standby      | <input checked="" type="checkbox"/> | (Check if OK)                           |
| 10.3.4.1.7.8 | Demand Only - ON AIR       | <input checked="" type="checkbox"/> | (Check if OK)                           |

M. B. [Signature]  
 Accepted  
 Contractor QA Representative

4/15/77  
 Date

[Signature]  
 Accepted  
 DCAS Representative

4-15-77  
 Date

Specification Number  
404L-701-5017

Part II of two parts

1 December 1976

SAMPLE  
ATTACHMENT 3

100 HOUR BURN-IN TEST DATA SHEET

Date 5/16/77

Serial Numbers

RT 004

Ant 003

Filter 002

| <u>Paragraph No.</u> | <u>Description</u>                | <u>Data</u>   |
|----------------------|-----------------------------------|---|
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 1)  | <u>9:5</u> PM   |
| 10.3.4.1.7.1         | Check Monitor Alarms              | <input checked="" type="checkbox"/> (Check if no alarms)                                      |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <u>22.5</u> ( $\geq 22.5$ Vdc)  |
| 10.3.4.1.7.3         | RT Peak Output Power              | <u>125</u> (100 Watts Minimum)  |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> (Check if OK)   |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <u>2.1</u> ( $2.0 \pm 2.5$ $\mu$ s) <input checked="" type="checkbox"/>                       |
|                      | RT Waveform Falltime              | <u>2.5</u> ( $2.5 \pm 0.5$ $\mu$ s)   |
|                      | RT Waveform Pulsewidth            | <u>3.5</u> ( $3.5 \pm 0.5$ $\mu$ s)   |
|                      | Random Voltage Variations         | <input checked="" type="checkbox"/> (Check if OK)   |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.667</u> ( $66.6666 \pm 0.13333$ ms)   |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> (Check if OK)   |
| 10.3.4.1.7.6         | Ident Code Generation             | <input checked="" type="checkbox"/> (Check if OK)   |
|                      | Ident Code Repetition Rate        | <u>37</u> ( $37.5 \pm 3.75$ $\mu$ s <sup>9</sup> seconds) <input checked="" type="checkbox"/> |
|                      | Random Voltage Variation          | <input checked="" type="checkbox"/> (Check if OK)   |
| 10.3.4.1.7.7         | Demand Only - Standby             | <input checked="" type="checkbox"/> (Check if OK) <input checked="" type="checkbox"/>         |
| 10.3.4.1.7.8         | Demand Only - On Air              | <input checked="" type="checkbox"/> (Check if OK)   |
| 10.3.4.1.8           | Equipment Turn-Off Time (Cycle 1) | <u>1:00</u> PM - MAY 27, 1977   |
| 10.3.4.1.7.9         | RT ALARM                          | <input checked="" type="checkbox"/>   |
| .10                  | ALARM RESET                       | <input checked="" type="checkbox"/>   |
| .11                  | ANT ALARM                         | <input checked="" type="checkbox"/>   |
| .12                  | ALARM RESET                       | <input checked="" type="checkbox"/>   |

THE SYSTEM WAS OPERATED FOR  $\approx$  10 HOURS IN THE SECOND CYCLE BEFORE THE TEST WAS TERMINATED ~~BECAUSE~~ BECAUSE OF SOME PROBLEMS. THEREFORE THE LAST CYCLE WAS ONLY ~~RUN~~ RUN FOR  $\approx$  16 HOURS.

| <u>Paragraph No.</u> | <u>Description</u>                | <u>Data</u>   |
|----------------------|-----------------------------------|---|
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 2)  | <del>11</del> 11 MAY 12:45 PM                             |
| 10.3.4.1.7.1         | Check Monitor Alarms              | (Check if no alarms)                                      |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <u>22.5</u> ( $\geq 22.5$ Vdc)                            |
| 10.3.4.1.7.3         | RT Peak Output Power              | <u>100</u> (100 Watts Minimum)                            |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                                    |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <u>2.0</u> ( $2.0 \pm 2.5$ $\mu$ s) ✓                     |
|                      | RT Waveform Faltime               | <u>2.4</u> ( $2.5 \pm 0.5$ $\mu$ s)                       |
|                      | RT Waveform Pulsewidth            | <u>3.6</u> ( $3.5 \pm 0.5$ $\mu$ s)                       |
|                      | Random Voltage Variations         | <u>✓</u> (Check if OK)                                    |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.667</u> ( $66.6666 \pm 0.13333$ ms)                 |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                                    |
| 10.3.4.1.7.6         | Ident Code Generation             | <u>✓</u> (Check if OK)                                    |
|                      | Ident Code Repetition Rate        | <u>37.5</u> ( $37.5 \pm 3.75$ $\mu$ s) <sup>seconds</sup> |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                                    |
| 10.3.4.1.7.7         | Demand Only - Standby             | <u>✓</u> (Check if OK) ✓                                  |
| 10.3.4.1.7.8         | Demand Only - On Air              | <u>✓</u> (Check if OK)                                    |
| 10.3.4.1.8           | Equipment Turn-off Time (Cycle 2) | <del>12</del> 9:00 AM 12 MAY                              |
| 10.3.4.1.5           | Equipment Turn-on Time (Cycle 3)  | <del>13</del> 6:15 PM 13 MAY                              |
| 10.3.4.1.7.1         | Check Monitor Alarms              | (Check if no alarms)                                      |
| 10.3.4.1.7.2         | Output Voltage of Filter          | <u>22.5</u> ( $\geq 22.5$ Vdc)                            |
| 10.3.4.1.7.3         | RT Peak Output Power              | <u>100</u> (100 Watts Minimum)                            |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                                    |
| 10.3.4.1.7.4         | RT Waveform Risetime              | <u>2.0</u> ( $2.0 \pm 2.5$ $\mu$ s) ✓                     |
|                      | RT Waveform Faltime               | <u>2.4</u> ( $2.5 \pm 0.5$ $\mu$ s)                       |
|                      | RT Waveform Pulsewidth            | <u>3.6</u> ( $3.5 \pm 0.5$ $\mu$ s)                       |
|                      | Random Voltage Variations         | <u>✓</u> (Check if OK)                                    |
| 10.3.4.1.7.5         | Antenna Rotation Period           | <u>66.667</u> ( $66.6666 \pm 0.13333$ ms)                 |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                                    |
| 10.3.4.1.7.6         | Ident Code Generation             | <u>✓</u> (Check if OK)                                    |
|                      | Ident Code Repetition Rate        | <u>37.5</u> ( $37.5 \pm 3.75$ $\mu$ s) <sup>seconds</sup> |
|                      | Random Voltage Variation          | <u>✓</u> (Check if OK)                                    |
| 10.3.4.1.7.7         | Demand Only - Standby             | <u>✓</u> (Check if OK)                                    |
| 10.3.4.1.7.8         | Demand Only - On Air              | <u>✓</u> (Check if OK)                                    |
| 10.3.4.1.8           | Equipment Turn-off Time (Cycle 3) | <del>14</del> 2:15 PM 14 MAY                              |

| Paragraph    | Description                       | Data  |
|--------------|-----------------------------------|---|
| 10.3.4.1.5   | Equipment Turn-on Time (Cycle 4)  | 5:10 PM 5/14/77                                   |
| 10.3.4.1.7.1 | Check Monitor Alarms              | (Check if no alarms)                              |
| 10.3.4.1.7.2 | Output Voltage of Filter          | ( $\geq 22.5$ Vdc)                                |
| 10.3.4.1.7.3 | RT Peak Output Power              | 120 (100 Watts Minimum)                           |
|              | Random Voltage Variation          | (Check if OK)                                     |
| 10.3.4.1.7.4 | RT Waveform Risetime              | 2.0 (2.0 $\pm$ 2.5 $\mu$ s)                       |
|              | RT Waveform Falltime              | 2.4 (2.5 $\pm$ 0.5 $\mu$ s)                       |
|              | RT Waveform Pulsewidth            | 3.5 (3.5 $\pm$ 0.5 $\mu$ s)                       |
|              | Random Voltage Variations         | (Check if OK)                                     |
| 10.3.4.1.7.5 | Antenna Rotation Period           | 66.667 (66.6666 $\pm$ 0.13333 ms)                 |
|              | Random Voltage Variation          | (Check if OK)                                     |
| 10.3.4.1.7.6 | Ident Code Generation             | (Check if OK)                                     |
|              | Ident Code Repetition Rate        | 37.0 (37.5 $\pm$ 3.75 $\mu$ s) <sup>seconds</sup> |
|              | Random Voltage Variation          | (Check if OK)                                     |
| 10.3.4.1.7.7 | Demand Only - Standby             | (Check if OK)                                     |
| 10.3.4.1.7.8 | Demand Only - On Air              | (Check if OK)                                     |
| 10.3.4.1.8   | Equipment Turn-off Time (Cycle 4) | 1:10 PM 5/15/77                                   |
| 10.3.4.1.5   | Equipment Turn-on Time (Cycle 5)  | 5:10 PM 5/15/77                                   |
| 10.3.4.1.7.1 | Check Monitor Alarms              | (Check if no alarms)                              |
| 10.3.4.1.7.2 | Output Voltage of Filter          | ( $\geq 22.5$ Vdc)                                |
| 10.3.4.1.7.3 | RT Peak Output Power              | 130 (100 Watts Minimum)                           |
|              | Random Voltage Variation          | (Check if OK)                                     |
| 10.3.4.1.7.4 | RT Waveform Risetime              | 2.1 (2.0 $\pm$ 2.5 $\mu$ s)                       |
|              | RT Waveform Falltime              | 2.5 (2.5 $\pm$ 0.5 $\mu$ s)                       |
|              | RT Waveform Pulsewidth            | 3.6 (3.5 $\pm$ 0.5 $\mu$ s)                       |
|              | Random Voltage Variations         | (Check if OK)                                     |
| 10.3.4.1.7.5 | Antenna Rotation Period           | 66.67 (66.6666 $\pm$ 0.13333 ms)                  |
|              | Random Voltage Variation          | (Check if OK)                                     |
| 10.3.4.1.7.6 | Ident Code Generation             | (Check if OK)                                     |
|              | Ident Code Repetition Rate        | (37.5 $\pm$ 3.75 $\mu$ s) <sup>seconds</sup>      |
|              | Random Voltage Variation          | (Check if OK)                                     |
| 10.3.4.1.7.7 | Demand Only - Standby             | (Check if OK)                                     |
| 10.3.4.1.7.8 | Demand Only - On Air              | (Check if OK)                                     |
| 10.3.4.1.8   | Equipment Turn-off Time (Cycle 5) | 9:10 PM 5/15/77                                   |
| 10.3.4.1.7.9 | Alarm checks                      |   |

209.1

09.12

209.1

|              |                            |                                     |                          |
|--------------|----------------------------|-------------------------------------|--------------------------|
| 10.3.4.1.10  | Post Burn-In Tests         | <input checked="" type="checkbox"/> |                          |
| 10.3.4.1.7.1 | Check Monitor Alarms       | <input checked="" type="checkbox"/> | (Check if no alarms)     |
| 10.3.4.1.7.2 | Output Voltage of Filter   | <input checked="" type="checkbox"/> | ( 22.5 Vdc)              |
| 10.3.4.1.7.3 | RT Peak Output Power       | <u>130</u>                          | (100 Watts Minimum)      |
|              | Random Voltage Variation   | <input checked="" type="checkbox"/> | (Check if OK)            |
| 10.3.4.1.7.4 | RT Waveform Risetime       | <u>2.1</u>                          | (2.0 ± 2.5 μs)           |
|              | RT Waveform Faltime        | <u>2.5</u>                          | (2.5 ± 0.5 μs)           |
|              | RT Waveform Pulsewidth     | <u>3.6</u>                          | (3.5 ± 0.5 μs)           |
|              | Random Voltage Variations  | <input checked="" type="checkbox"/> | (Check if OK)            |
| 10.3.4.1.7.5 | Antenna Rotation Period    | <u>66.67</u>                        | (66.6666 ± 0.13333 ms)   |
|              | Random Voltage Variation   | <input checked="" type="checkbox"/> | (Check if OK)            |
| 10.3.4.1.7.6 | Ident Code Generation      | <input checked="" type="checkbox"/> | (Check if OK)            |
|              | Ident Code Repetition Rate | <u>37.0</u>                         | (37.5 ± 3.75 μs SECONDS) |
|              | Random Voltage Variation   | <input checked="" type="checkbox"/> | (Check if OK)            |
| 10.3.4.1.7.7 | Demand Only - Standby      | <input checked="" type="checkbox"/> | (Check if OK)            |
| 10.3.4.1.7.8 | Demand Only - ON AIR       | <input checked="" type="checkbox"/> | (Check if OK)            |
| 10.3.4.1.7.9 | RT ALARM                   | <input checked="" type="checkbox"/> |                          |
| .10          | ALARM RESET                | <input checked="" type="checkbox"/> |                          |
| .11          | ANTI ALARM                 | <input checked="" type="checkbox"/> |                          |
| .12          | ALARM RESET                | <input checked="" type="checkbox"/> |                          |

M. B. Grant  
 Accepted  
 Contractor QA Representative

5/16/77  
 Date

John N. Johnson  
 Accepted  
 DCAS Representative

5/16/77  
 Date

**ATTACHMENT 2**  
**PERFORMANCE TEST DATA SHEETS - AN/TRN-41 ATP**



10.3.4.3.2.4 15 Hz Azimuth Reference Burst

g. Record counter period reading on blank

Reading must be between .066533

and .066800

66,666ms ✓

10.3.4.3.2.5 135 Hz Azimuth Reference Burst

e. Count 8 pulses as shown in procedure step d.

✓

f. Missing pulse is synchronized as shown in procedure step d.

✓

10.3.4.3.2.6 Azimuth Alignment

a. Sight has been calibrated as described in procedure step a.

✓

f. Measured distance from magnetic north spot to sighted spot

(< 8.3 inches)

4.0 inches ✓

n. Counter display (33,333 ± 185<sup>2</sup> μs)

37 μs

33341 μs ✓

10.3.4.3.2.7 Demand Only Mode

d. Pulse generator adjusted to look like figure 7

✓

g. Time for system to turn on (< 20 seconds)

18 sec ✓

h. Time for system to go to STANDBY (< 70 seconds)

63.5 ✓

10.3.4.3.2.8 DME Only Mode

f. Antenna stopped with no alarm

✓

g. Identity light indicates code transmitted

✓

10.3.4.3.2.9 Monitor Alarm and Shutdown

e. Parameter Tested      Alarm Indication

Synthesizer Alarm

RT

✓

High VSWR

ANT

✓

Pulse Rate

RT

✓

Peak Power

RT

✓

Rec. Squitter

RT

✓

Ant Speed

ANT

✓

Ant Trigger

ANT

✓

Reply Delay

RT

✓

Aux Burst

RT

✓

North burst

RT

✓

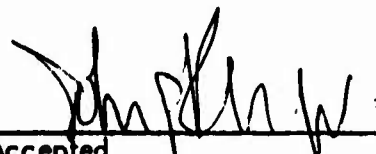
Reset button returns the system to normal

✓

- |    |   |                         |          |
|----|---|-------------------------|----------|
| f. | Time for synthesizer alarm ( $\leq 5$ ) | <u>4.25<del>0</del></u> | <u>✓</u> |
|    | Time for high VSWR alarm ( $\leq 4$ )   | <u>3.95<del>0</del></u> | <u>✓</u> |
|    |   |                         | <u>✓</u> |

10.3.4.3.2.10 Conversion From Operation, to Manportable, to Airdroppable

- |    |  |          |
|----|--|----------|
| a. | Set up for operation - units fit properly              | <u>✓</u> |
| c. | RT fits in manportable configuration                   | <u>✓</u> |
| d. | RT fits in airdroppable configuration                  | <u>✓</u> |
| e. | Antenna fits in manportable configuration              | <u>✓</u> |
| f. | Antenna fits in airdroppable configuration             | <u>✓</u> |
| g. | Ancillary equipment fits in manportable configuration  | <u>✓</u> |
| h. | Ancillary equipment fits in airdroppable configuration | <u>✓</u> |

  
 Accepted  
 Contractor QA Representative

12.17.76  
 Date

   
 Accepted  
 DCAS Representative

12-17-76  
 Date

THE CIRCLED TESTS HAVE NOT BEEN COMPLETED.

SAMPLE

ATTACHMENT 4

PERFORMANCE ACCEPTANCE TEST PROCEDURE DATA SHEET  
FOR  
NAVIGATIONAL SET, TACAN, AN/TRN-41

Date: 1/31/77

Serial No. 502

Data:

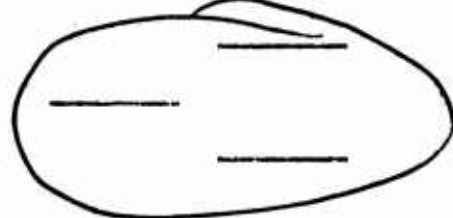
RT 003  
Aur 001  
Reading

Check if OK

10.3.4.3.2.1 Input Power

- d. ON AIR lamp illuminated ✓
- e. DC current (24 Vdc) 24.0 Vdc
- DC current is < 5 amps 4.75 Amps ✓
- g. System operates at 30 Vdc ✓
- h. System operates at 18 Vdc ✓
- i. System operates with BB-451/U Battery ✓
- j. System operates with MEP 026A Generator ✓
- k. Output ripple of power filter  
Ripple is less than 1 volt p to p \_\_\_\_\_

*Do NOT perform  
STEP 16X Motor  
Generator Problems*



10.3.4.3.2.2 Receiver Sensitivity

- i. Pulse width ( $3.5 \pm 0.5 \mu s$ ) 3.2  $\mu s$  ✓
- Pulse space, X channel ( $12 \pm 0.5 \mu s$ ) 12.0  $\mu s$  ✓
- Pulse space, Y channel ( $36 \pm 0.5 \mu s$ ) 36  $\mu s$  ✓
- j. Interrogation pulse frequency ( $200 \pm 2$  Hz) 202 Hz ✓
- o. Reply rate ( $> 60$  Hz) 75 Hz ✓
- p. Attenuator No. 2 setting for 60 Hz average reading  
on counter 100 db
- q. Calculate sensitivity as explained in text procedure 8.  
for channel 65X (-90 dBm) sensitivity 90 db ✓

10.3.4.3.2.3 Transmitter Power Output

- b. Actual loss of attenuator and cable 31.6 db
- d. Zero set the peak calibrator ✓
- e. Reading on peak power meter 19.6 db
- Power output = step b. + step e. ( $> 50.0$  dBm) 51.2 db ✓

10.3.4.3.2.4 15 Hz Azimuth Reference Burst

- g. Record counter period reading on blank  
 Reading must be between .066533  
 and .066800 66.667ms ✓

10.3.4.3.2.5 135 Hz Azimuth Reference Burst

- e. Count 8 pulses as shown in procedure step d. ✓
- f. Missing pulse is synchronized as shown in procedure step d. ✓

10.3.4.3.2.6 Azimuth Alignment

- a. Sight has been calibrated as described in procedure step a. ✓
- f. Measured distance from magnetic north spot to sighted spot  
 ( ≤ 8.3 inches) 3.5 inches ✓
- n. Counter display (33,333 ± 185 μs) 33,310 ✓

10.3.4.3.2.7 Demand Only Mode

- d. Pulse generator adjusted to look like figure 7 ✓
- g. Time for system to turn on ( < 20 seconds) 14 sec. ✓
- h. Time for system to go to STANDBY ( < 70 seconds) 66 sec ✓

10.3.4.3.2.8 DME Only Mode

- f. Antenna stopped with no alarm ✓
- g. Identity light indicates code transmitted ✓

10.3.4.3.2.9 Monitor Alarm and Shutdown


| e. <u>Parameter Tested</u> | <u>Alarm Indication</u> | ✓ |
|----------------------------|-------------------------|---|
| Synthesizer Alarm          | RT                      | ✓ |
| High VSWR                  | ANT                     | ✓ |
| Pulse Rate                 | RT                      | ✓ |
| Peak Power                 | RT                      | ✓ |
| Rec. Squitter              | RT                      | ✓ |
| Ant Speed                  | ANT                     | ✓ |
| Ant Trigger                | ANT                     | ✓ |
| Reply Delay                | RT                      | ✓ |
| Aux Burst                  | RT                      | ✓ |
| North burst                | RT                      | ✓ |

Reset button returns the system to normal ✓

- |    |   |              |               |
|----|---|--------------|---------------|
| f. | Time for synthesizer alarm ( $\leq 5$ ) | <u>4 sec</u> | <u>✓</u>      |
|    | Time for high VSWR alarm ( $\leq 4$ )   | <u>3 sec</u> | <u>✓</u>      |
|    |   |              | <u>      </u> |

10.3.4.3.2.10 Conversion From Operation, to Manportable, to Airdroppable

- |    |  |          |
|----|--|----------|
| a. | Set up for operation - units fit properly              | <u>✓</u> |
| c. | RT fits in manportable configuration                   | <u>✓</u> |
| d. | RT fits in airdroppable configuration                  | <u>✓</u> |
| e. | Antenna fits in manportable configuration              | <u>✓</u> |
| f. | Antenna fits in airdroppable configuration             | <u>✓</u> |
| g. | Ancillary equipment fits in manportable configuration  | <u>✓</u> |
| h. | Ancillary equipment fits in airdroppable configuration | <u>✓</u> |

C. Williams   
Accepted  
Contractor QA Representative

1/31/77  
Date

John N. Johnson   
Accepted  
DCAS Representative

2-1-77  
Date

SAMPLE  
ATTACHMENT 4

PERFORMANCE ACCEPTANCE TEST PROCEDURE DATA SHEET  
FOR  
NAVIGATIONAL SET, TACAN, AN/TRN-41

Date: 18 May 1977

Serial No. 003

Data:

RT 001  
ANT 004 Reading  
Filter 001

Check if OK

10.3.4.3.2.1 Input Power

- |    |   |                          |          |
|----|---|--------------------------|----------|
| d. | ON AIR lamp illuminated                 |                          | <u>✓</u> |
| e. | DC current (24 Vdc)                     | <u>4.5A</u>              |          |
|    | DC current is < 5 amps                  |                          | <u>✓</u> |
| g. | System operates at 30 Vdc               |                          | <u>✓</u> |
| h. | System operates at 18 Vdc               |                          | <u>✓</u> |
| i. | System operates with BB-451/U Battery   |                          | <u>✓</u> |
| j. | System operates with MEP 026A Generator |                          | <u>✓</u> |
| k. | Output ripple of power filter           | <u>3.8 v<sub>r</sub></u> |          |
|    | Ripple is less than 1 volt p to p       |                          | <u>✓</u> |

10.3.4.3.2.2 Receiver Sensitivity

- |    |   |             |          |
|----|---|-------------|----------|
| i. | Pulse width (3.5 ± 0.5 μs)  | <u>3.2</u>  | <u>✓</u> |
|    | Pulse space, X channel (12 ± 0.5 μs)  | <u>12.0</u> | <u>✓</u> |
|    | Pulse space, Y channel (36 ± 0.5 μs)  | <u>35.4</u> | <u>✓</u> |
| j. | Interrogation pulse frequency (200 ± 2 Hz)  | <u>201</u>  | <u>✓</u> |
| o. | Reply rate (> 60 Hz)  | <u>70</u>   | <u>✓</u> |
| p. | Attenuator No. 2 setting for 60 Hz average reading on counter                                 | <u>100</u>  |          |
| q. | Calculate sensitivity as explained in text procedure 8. for channel 65X (-90 dBm) sensitivity | <u>90</u>   | <u>✓</u> |

10.3.4.3.2.3 Transmitter Power Output

- |    |   |               |          |
|----|---|---------------|----------|
| b. | Actual loss of attenuator and cable           | <u>31.3dB</u> |          |
| d. | Zero set the peak calibrator                  |               | <u>✓</u> |
| e. | Reading on peck power meter                   | <u>19.7dB</u> |          |
|    | Power output = step b. + step e. (> 50.0 dBm) | <u>51.0dB</u> | <u>✓</u> |

10.3.4.3.2.4 15 Hz Azimuth Reference Burst

- e. Record counter period reading on blank
- f. Reading must be between .066533  
 and .066800 *seconds* 66.665<sup>ms</sup> ✓

10.3.4.3.2.5 135 Hz Azimuth Reference Burst

- e. Count 8 pulses as shown in procedure step d. ✓
- f. Missing pulse is synchronized as shown in procedure step d. ✓

10.3.4.3.2.6 Azimuth Alignment

- a. Sight has been calibrated as described in procedure step a. ✓
- f. Measured distance from magnetic north spot to sighted spot  
 ( ≤ 8.3 inches) .5 ✓
- n. Counter display (33,333 ± <sup>37</sup>185 μs) 33,343 μs ✓

10.3.4.3.2.7 Demand Only Mode

- d. Pulse generator adjusted to look like figure 7 ✓
- g. Time for system to turn on ( < 20 seconds) 14.5 ✓
- h. Time for system to go to STANDBY ( < <sup>80</sup>70 seconds) 70 sec ✓

10.3.4.3.2.8 DME Only Mode

- f. Antenna stopped with no alarm ✓
- g. Identity light indicates code transmitted ✓

10.3.4.3.2.9 Monitor Alarm and Shutdown

| e. | <u>Parameter Tested</u> | <u>Alarm Indication</u> |   |
|----|-------------------------|-------------------------|---|
|    | Synthesizer Alarm       | RT                      | ✓ |
|    | High VSWR               | ANT                     | ✓ |
|    | Pulse Rate              | RT                      | ✓ |
|    | Peak Power              | RT                      | ✓ |
|    | Rec. Squitter           | RT                      | ✓ |
|    | Ant Speed               | ANT                     | ✓ |
|    | Ant Trigger             | ANT                     | ✓ |
|    | Reply Delay             | RT                      | ✓ |
|    | Aux Burst               | RT                      | ✓ |
|    | North burst             | RT                      | ✓ |

Reset button returns the system to normal

- f. Time for synthesizer alarm ( $< 5$ ) 4.2 ✓
- Time for high VSWR alarm ( $< 4$ ) 3.5 SEC ✓
- ✓

10.3.4.3.2.10 Conversion From Operation, to Manportable, to Airdroppable

- a. Set up for operation - units fit properly ✓
- c. RT fits in manportable configuration ✓
- d. RT fits in airdroppable configuration ✓
- e. Antenna fits in manportable configuration ✓
- f. Antenna fits in airdroppable configuration ✓
- g. Ancillary equipment fits in manportable configuration ✓
- h. Ancillary equipment fits in airdroppable configuration ✓

H. J. Anderson  
Accepted  
Contractor QA Representative

9-22-77  
Date

John N. Johnson  
Accepted  
DCAS Representative

22 May 1977  
Date

SAMPLE

ATTACHMENT 4

PERFORMANCE ACCEPTANCE TEST PROCEDURE DATA SHEET

FOR

NAVIGATIONAL SET, TACAN, AN/TRN-41

Date: 24 May 1977

Serial No. 004

Data:

RT-004  
ANT-003  
Reading

FORM-002

Check if OK

10.3.4.3.2.1 Input Power

- d. ON AIR lamp illuminated ✓
- e. DC current (24 Vdc) 4.8 A
- DC current is < 5 amps ✓
- g. System operates at 30 Vdc ✓
- h. System operates at 18 Vdc ✓
- i. System operates with BB-451/U Battery ✓
- j. System operates with MEP 026A Generator ✓
- k. Output ripple of power filter 0.8 vpp
- Ripple is less than 1 volt p to p ✓

10.3.4.3.2.2 Receiver Sensitivity

- i. Pulse width ( $3.5 \pm 0.5 \mu s$ ) 3.2  $\mu s$  ✓
- Pulse space, X channel ( $12 \pm 0.5 \mu s$ ) 12.0  $\mu s$  ✓
- Pulse space, Y channel ( $36 \pm 0.5 \mu s$ ) 36.0  $\mu s$  ✓
- j. Interrogation pulse frequency ( $200 \pm 2$  Hz) 200 Hz ✓
- o. Reply rate ( $> 60$  Hz) 75 Hz ✓
- p. Attenuator No. 2 setting for 60 Hz average reading on counter 102
- q. Calculate sensitivity as explained in text procedure B. for channel 65X (-90 dBm) sensitivity -92 dBm ✓

10.3.4.3.2.3 Transmitter Power Output

- b. Actual loss of attenuator and cable 362
- d. Zero set the peak calibrator ✓
- e. Reading on peak power meter 100 mw
- Power output = step b. + step e. ( $> 50.0$  dBm) 1456

10.3.4.3.2.4 15 Hz Azimuth Reference Burst

- ~~e.~~ Record counter period reading on blank
- f. Reading must be between .066533  
 and .066800 seconds 0.06667ms ✓ ✓

10.3.4.3.2.5 135 Hz Azimuth Reference Burst

- e. Count 8 pulses as shown in procedure step d. ✓
- f. Missing pulse is synchronized as shown in procedure step d. ✓

10.3.4.3.2.6 Azimuth Alignment

- a. Sight has been calibrated as described in procedure step a. ✓
- f. Measured distance from magnetic north spot to sighted spot  
 (< 8.3 inches) Ant ser No. 003 Compass ser No. 1073 ✓
- n. Counter display (33,333 ± <sup>37</sup>~~185~~ μs) 33,329 ✓ ✓

10.3.4.3.2.7 Demand Only Mode

- d. Pulse generator adjusted to look like figure 7 ✓
- g. Time for system to turn on (< 20 seconds) 15sec ✓
- h. Time for system to go to STANDBY (< <sup>80</sup>~~70~~ seconds) ✓ ✓

10.3.4.3.2.8 DME Only Mode

- f. Antenna stopped with no alarm ✓
- g. Identity light indicates code transmitted ✓

10.3.4.3.2.9 Monitor Alarm and Shutdown

| e. | <u>Parameter Tested</u> | <u>Alarm Indication</u> |   |
|----|-------------------------|-------------------------|---|
|    | Synthesizer Alarm       | RT                      | ✓ |
|    | High VSWR               | ANT                     | ✓ |
|    | Pulse Rate              | RT                      | ✓ |
|    | Peak Power              | RT                      | ✓ |
|    | Rec. Squitter           | RT                      | ✓ |
|    | Ant Speed               | ANT                     | ✓ |
|    | Ant Trigger             | ANT                     | ✓ |
|    | Reply Delay             | RT                      | ✓ |
|    | Aux Burst               | RT                      | ✓ |
|    | North burst             | RT                      | ✓ |

Reset button returns the system to normal

f. Time for synthesizer alarm ( < 5)

4.5 sec ✓

Time for high VSWR alarm ( < 4)

3.5 sec ✓

10.3.4.3.2.10 Conversion From Operation, to Manportable, to Airdroppable

a. Set up for operation - units fit properly

✓

c. RT fits in manportable configuration

✓

d. RT fits in airdroppable configuration

✓

e. Antenna fits in manportable configuration

✓

f. Antenna fits in airdroppable configuration

✓

g. Ancillary equipment fits in manportable configuration

✓

h. Ancillary equipment fits in airdroppable configuration

✓

  
Accepted  
Contractor QA Representative

6-3-77  
Date

  
Accepted  
DCAS Representative

6-3-77  
Date

**ATTACHMENT 3**  
**FAILURES THAT OCCURRED DURING 100 HOUR BURN-IN**

## 100 HOUR BURN-IN LOG

### System 1

RT 002

ANT 001

1. 12/1/76 Burn-in started. Permission given by ESD to conduct the burn-in and system tests without the filter box because it is to be completely redesigned due to interface problems with the .5 KW motor generator.
2. 12/7/76 Burn-in complete. There were no electronic failures during this time; however, an inspection revealed that the compass leaked its fluid. It was decided to change compass types to the same one that is used in the AN/TRN-26 system.

### System 2

RT 003

ANT 002

1. 1/20/77 Burn-in started.
2. 1/21/77 RF amplifier failure. Poor solder joint.
3. 1/21/77 Peak power alarm circuitry failure due to wrong connection on the A2 CCA. Corrected by ECR 05602.
4. 1/21/77 Failure on CCA 1A4. Poor solder connection.
5. 1/22/77 Alarm caused by a poor solder connection on CCA 1A2.
6. 1/25/77 An alarm caused by the number of detected pulses from the 1A7 CCA being too low. ECR 05727 was generated to allow 1A7R13 to be a selectable value to adjust the gain on the 1A7 CCA to be optimum.

7. 1/25/77 Failure on peak power due to low output from the gated amplifier 920035-003. Amplifier was replaced.

8. 1/28/77 Peak power alarm caused by a poor solder connection in the 100 watt RF amplifier.

9. 1/30/77 Burn in complete. Last 24 hours without a failure.

### System 3

RT 001

ANT 004

1. 3/27/77 Burn-in started.

2. 3/27/77 U5 on 1A1 failed at low temperature.

3. 3/31/77 48V regulator in power supply failed.

4. 4/10/77 The antenna A1 Q1 failed.

5. 4/10/77 RT alarm caused by a cold solder joint on A7 pin 35.

6. 4/15/77 Burn-in complete. Last 24 hours without a failure.

### System 4

RT 004

ANT 003

1. 5/5/77 Burn-in started.

2. 5/5/77 Failure on 1A4U5 at cold temperature.

3. 5/5/77 Antenna alarm - 2A1U6 was replaced because of low gain and 2A3C1 was replaced because the capacitor was open.

4. 5/15/77 Burn-in complete - last 24 hours without a failure.