

Attachment X
Antenna Failure Analysis Report

March 21, 2003



Myers Engineering International, Inc.

**FAILURE ANALYSIS
for
Triple Frequency Antenna, PN A3-06-2053-001 Rev. 03**

Prepared by: Dr. Steven Myers

Date: 02/26/03

DME Approval:

Date:

REVISIONS

Revision	Date	Change Description	Approval
-	02/03/03	Initial Release	NA
A	03/21/03	Corrected typographical error per DME request dated 3/21/03. The error was located in the last sentence of paragraph 2.0, where the word "dry" was incorrectly spelled as "dray".	S. Myers

1.0 PURPOSE

This antenna failure analysis describes the failure mode, failure analysis, failure analysis conclusions, and the corrective action to prevent recurrence.

2.0 FAILURE MODE

DME Corporation provided Myers Engineering International (MEI) with supplier corrective action request (SCAR) number 5584. The SCAR reported that three antenna's, serial numbers 0031, 0044, and 0048 caused beacons to activate immediately after arming the beacon and after exposure to RTCA DO-160D, Section 14 para. 14.3.6.6. (Expose to salt fog for a minimum of 48 hours and dry at ambient temperature for a minimum of 48 hours).

4.0 FAILURE ANALYSIS

Upon receipt at MEI, All three antennas were tested for activation impedance. All three were found to be within the specification of >10 Meg ohms.

All three antennas were disassembled and the internal electronics, or printed wiring assemblies (PWAs) were inspected. All three PWAs showed signs of salt deposits and corrosion. Also noted during disassembly, all three assemblies had an inadequate RTV (E-6000) seal.

5.0 CONCLUSIONS

Salt and fog were allowed to enter the cavity where the electronic circuit is housed. At the time of DME qualification testing, this salt and fog intrusion resulted in the collection of moisture. This moisture most likely created a short circuit across the activation terminals or in other areas of the same circuit, which resulted in the reported test failure.

During transit to MEI for failure analysis, the moisture produced during the salt and fog test, most likely dried. Therefore, the testing conducted prior to disassembly at MEI was successful.

Salt fog intrusion can be attributed to an inadequate RTV potting seal, which occurred during assembly at MEI.

6.0 CORRECTIVE ACTION

MEI provided assembly operators with training on the methods of applying the RTV. All future units will be assembled with operators who are trained in this process.