

EMC - TEST REPORT

Environmental Conditions and Test Procedures for Airborne Equipment, RTCA DO-160E

Test Report File No. : **SC602252-03** Date of Issue: 02 May 2006

Part No.: : Eclipse

Product Type : Eclipse

Applicant : **SEQUAL TECHNOLOGIES**

Manufacturer : **SEQUAL TECHNOLOGIES**

License holder : **SEQUAL TECHNOLOGIES**

Address : 11436 Sorrento Valley Road

: San Diego, CA 92121

Test Result : See section 1.2.

Test Project Number **SC602252-03**

Total pages - Test Report : 89

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1. INTRODUCTION

1.1 Administrative Data

Customer: SEQUAL TECHNOLOGIES
11436 Sorrento Valley Road
San Diego, CA 92121

Contact: John Kaduk

Email/Phone: jkaduk@sequal.com / 858 202 3179

Dates of Test: 27 April 2006

Equipment Under
Test (EUT): Eclipse

Input Voltage: Internal Battery

Specification: RTCA/DO-160E

Disposition of
Specimen: EUT was returned to the SEQUAL TECHNOLOGIES.

1.2 Test Summary

The following table lists the EMI/EMS tests performed and the compliance status:

Appendix	Description	Complies	
		Yes	No
A	Emission of Radio Frequency Energy, Radiated Emisissions, Section 21	X	

NOTE: None

1.3 Purpose of Tests

The purpose of the tests was to measure levels of radiated interference emitted from the EUT. The test results were compared with the specified limits.

TUV America's Technician, William Dey performed the tests contained herein.

1.4 Description of Equipment Under Test (EUT)

The EUT is a SEQUAL TECHNOLOGIES' Eclipse.

1.5 Power Requirements

The EUT was designed to operate on internal batteries.

1.6 Interconnections

Figure 1 shows the interconnections used during the EMC tests and also, the basic test setup.

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1.7 Applicable Documents

The following documents were applicable to the preparation and performance of the EMC tests discussed:

RTCA/DO-160E December 2004	Environmental Conditions and Test Procedures for Airborne Equipment
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ANSI/NCSL Z540-1-1994	Calibration Laboratories and Measuring and Test Equipment - General Requirements
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1.8 Other Documents

None

1.9 Deviations from the Test Plan

A test plan was not provided.

1.10 Recommendations

There are no recommendations.

2. TEST CONFIGURATION AND GENERAL TEST PROCEDURES

2.1 Description of Test Site

The testing was performed at TÜV PRODUCT SERVICE within a shielded room, 12' x 24' x 10' metal, semi-anechoic chamber.

2.2 Sequence of Testing

The test technician specified the test sequence.

2.2.1 Ambient Measurements

Ambient surveys were performed to establish background noise levels where needed. For each ambient survey, EMI test equipment was configured as it would be for the test. Receiver sweep speed, bandwidth, etc. was the same during the ambient survey as during testing. The frequency range for each test method was swept and measured levels recorded. As a minimum, ambient levels were 6 dB below the applicable test limit.

2.3 Instrumentation

Calibration intervals and requirements of all measurement instrumentation used were in accordance with MIL-STD-45662A. All instruments and model numbers used during testing are listed in Appendix A.

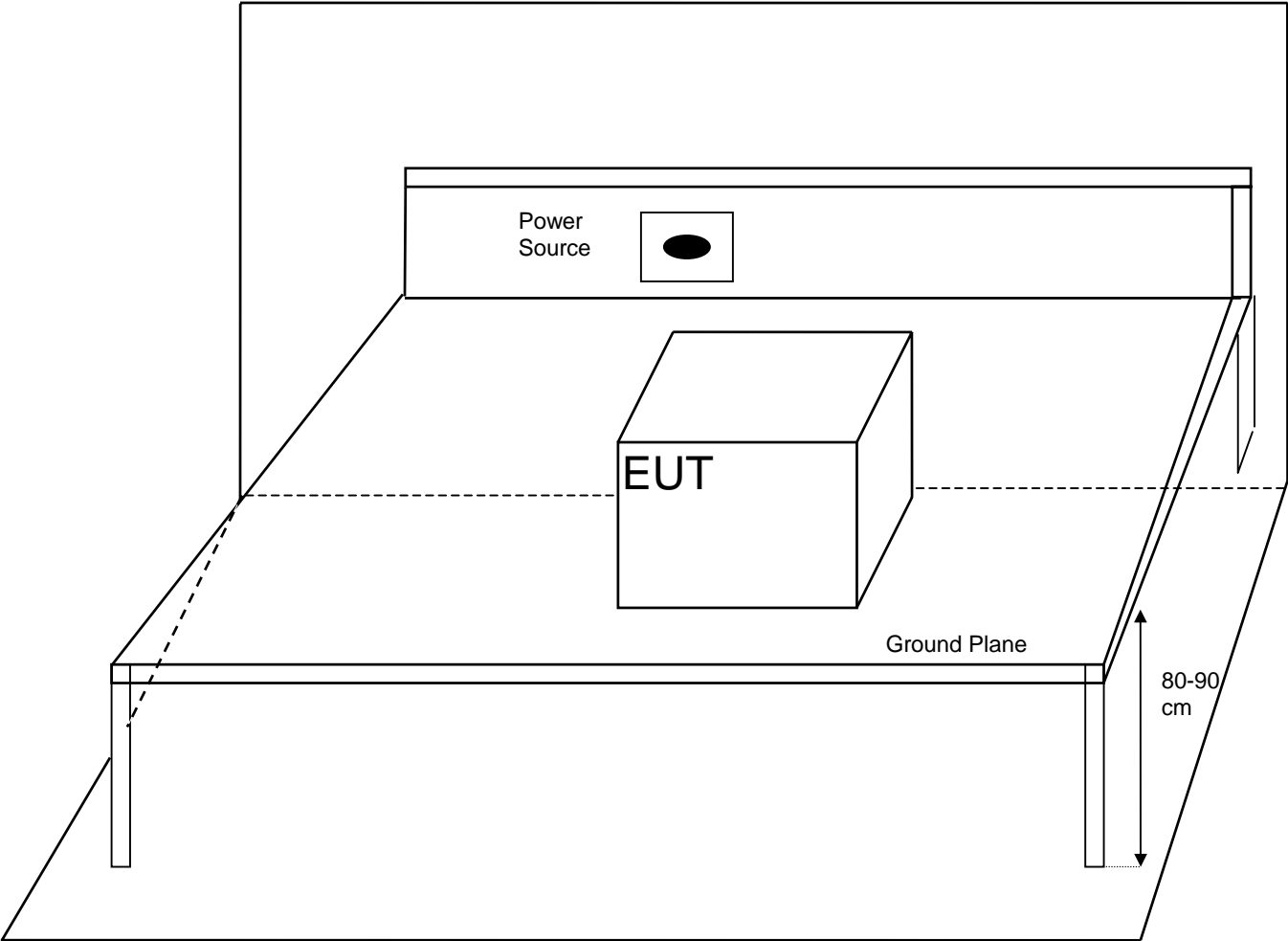
2.4 Electrical Bonding

The EUT was placed on, and electrically insulated from, a copper ground plane during EMI measurements.

2.5 Test Configuration

The general EMI/EMC test configuration was as shown in Figure 1. During all EMI/EMC tests, this configuration was used unless the detail test procedures state otherwise.

Figure 1. Basic Test Setup



2.6 I/O Cabling

I/O and power cables are not applicable to this unit.

2.7 Equipment for Monitoring EUT

Equipment was not required for monitoring and/or exercising the EUT.

2.8 Failures

Failures were not detected during testing.

2.9 Performance Criteria

The criteria for the EUT was to demonstrate compliance with the applicable limits specified in RTCA/DO 160E measurement procedures.

2.10 Test Result Documentation

Emission measurements were plotted on a semi-log graph with the applicable test limit for comparison. Each plot contains the test method, date, test configuration, narrowband or broadband indication (as applicable), and operating mode (which is always normal operating mode unless specified otherwise—non-operating mode is applicable only during ambient scans).

2.11 EMI/EMC Test Equipment

Equipment used for each test is shown in each Appendix (A through G). All test equipment used in the performance of the tests described in this report was calibrated in accordance with ANSI/NCSL Z540-1-1994, as recommended by the manufacturer and as required by MIL-STD-462. Unless otherwise specified, measurement accurateness was as follows:

Frequency: $\pm 2\%$

Amplitude: $\pm 2\text{ dB}$

Operation of all interference measuring instrumentation was in accordance with the latest version of the manufacturer's operating instructions and the requirements of this document.

Emission measurements were made using a spectrum analyzer and a personal computer with measurement software for emission measurements. Test equipment parameters were entered directly into a test setup table. Transducer factors, preamplifier gain, cable loss, and test limits were loaded from their respective libraries or directly from the computer keyboard.

Measurements are made using the spectrum analyzer's peak detector. The spectrum analyzer's selection of resolution bandwidths is from 10 Hz to 3 MHz in a 1-3-10 sequence.

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3. **GENERAL REMARKS:**

(*) See Section 1.2 for specific test results.

SUMMARY:

Testing Start Date: 27 April 2006

Testing End Date: 27 April 2006

- TÜV PRODUCT SERVICE, INC. -

Responsible Engineer:



David Gray

EMC Technician



William Dey