

**OUTLINE FOR  
REUSABLE REENTRY SATELLITE  
SYSTEM SPECIFICATION**

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Volumes 1 - Volume 9

**October 1989**

Contract NAS9-18202  
DRL 04

Prepared for:

National Aeronautics and Space Administration  
Lyndon B. Johnson Space Center  
Houston, Texas 77058

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**Science Applications International Corporation**

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# **REUSABLE REENTRY SATELLITE SYSTEM SPECIFICATION**

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RRS System Specification

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### Foreword

This document describes the outline proposed by the SAIC team for the RRS System Specification document. This document will be updated periodically during the course of the study, providing design insights and information pertinent to the various elements of the RRS design. The RRS System Specification document organization is shown schematically in Figure 1. The RRS Vehicle (RRV), Payload Module (PM), and Operations Support (OS) are the three main segments of the overall system for which formal interface control will exist. The number and relationship of these interface specifications to the main segments is also shown in Figure 1.

The following volumes of this report contain the detailed outlines created for each of the segments shown in Figure 1. The segment specification outlines were prepared following the guidelines established in MIL-STD-490A "Specification Practices" and the interface specifications were prepared in accordance with DI-E-30141 "Interface Specification."

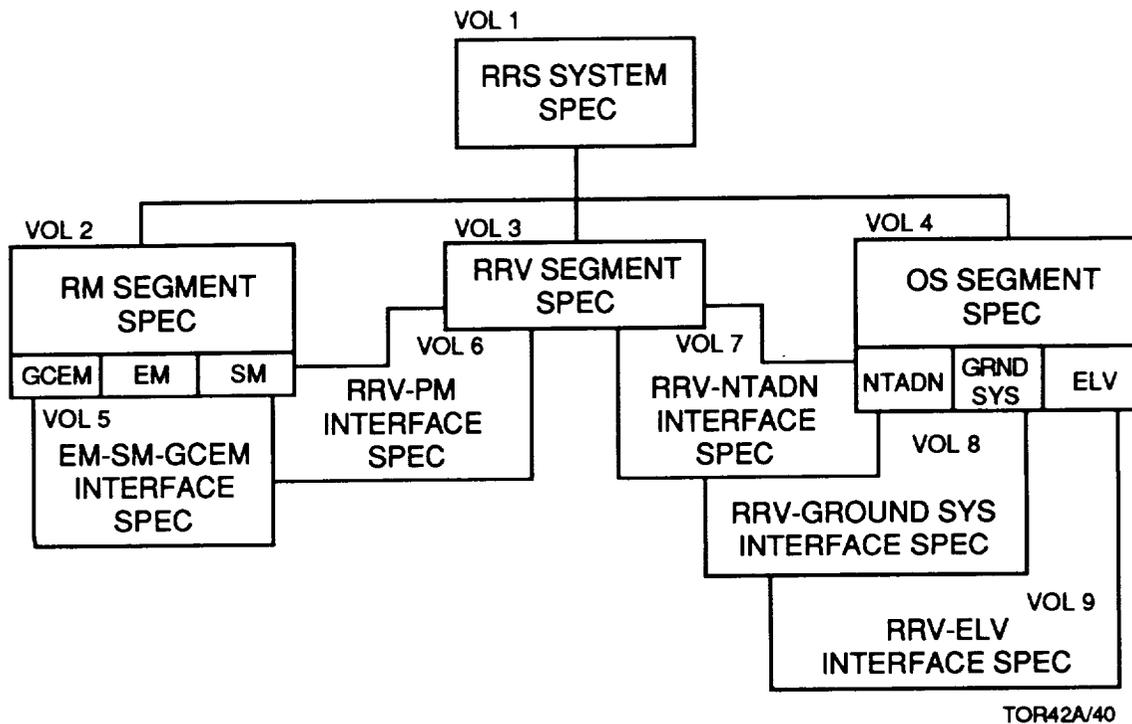


Figure 1. RRS Specification Tree

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This specifications establishes the performance, design, development, and test requirements for the Reusable Reentry Satellite (RRS) system. The RRS System Specification consists of a Rodent Module (RM) Segment, a Reusable Reentry Vehicle (RRV) Segment, and an Operations Support (OS) Segment. The segment specifications and associated interface specifications are contained in Volumes 2-8 of the RRS System Specification.

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##### 2.2.2 Non-Government

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This paragraph will include a figure defining the functional/physical relationships at the RRS System level to place the RM, RRV, and OS Segments into proper context.

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- 3.1.4 Government Furnished Property List
  
- 3.1.5 Government Loaned Property List
  
- 3.1.6 Operational and Organizational Concepts
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- 3.2.9 Accessibility
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# **REUSABLE REENTRY SATELLITE SYSTEM SPECIFICATION**

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Volume 2  
RM Segment Specification

**October 1989**

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Prepared for:

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### 1.0 SCOPE

This specifications establishes the performance, design, development, and test requirements for the Rodent Module (RM) of the Reusable Reentry Satellite (RRS). The RM described herein is a specialized adaptation of the RRS Payload Module (PM). Modification to these RM requirements as necessary to specify the PM for use with all anticipated Experiment Modules (EMs) and the Ground Control Experiment Module (GCEM) are included in the appendices and addendums to this specification.

### 2.0 APPLICABLE DOCUMENTS

#### 2.1 Compliance

- 2.1.1 Government
- 2.1.2 Non-Government

#### 2.2 Reference

- 2.2.1 Government
- 2.2.2 Non-Government

### 3.0 REQUIREMENTS

#### 3.1 System Definition

This paragraph will include a figure defining the functional/physical relationships at the RRV level to place the RM into proper context.

##### 3.1.1 Rodent Module Definition

This paragraph will provide diagrams defining the functional/physical relationships of the SM, EM, GCEM, and GSE/PSE at the next level of detail.

##### 3.1.1.1 General Description

##### 3.1.1.1.1 RM

- 3.1.1.1.1.1 Support Module
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A. ADDENDUM A. Ground Control Experiment Module

This addendum will establish the parallel requirements for the GCEM. The format for Addendums A through C will be identical.

A.1. SCOPE

A.2. APPLICABLE DOCUMENTS

- A.2.1 Government Documents
- A.2.2 Contractor Documents

A.3. REQUIREMENTS

- A.3.1 System Definition
- A.3.2 Characteristics
- A.3.3 Design and Construction
- A.3.4 Documentation
- A.3.5 Logistics
- A.3.6 Personnel and Training
- A.3.7 Major Subsystem Requirements
- A.3.8 Precedence

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C. ADDENDUM C. Other Experiment Modules

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# **REUSABLE REENTRY SATELLITE SYSTEM SPECIFICATION**

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Volume 3  
RRV Segment Specification

**October 1989**

Contract NAS9-18202  
DRL 04

Prepared for:

National Aeronautics and Space Administration  
Lyndon B. Johnson Space Center  
Houston, Texas 77058

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### 1.0 SCOPE

This specification establishes the performance, design, development, and test requirements for the Reusable Reentry Vehicle (RRV) of the Reusable Reentry Satellite (RRS). The RRV described herein consists of an RRS without an integrated Payload Module.

### 2.0 APPLICABLE DOCUMENTS

#### 2.1 Compliance

##### 2.1.1 Government

##### 2.1.2 Non-Government

#### 2.2 Reference

##### 2.2.1 Government

##### 2.2.2 Non-Government

### 3.0 REQUIREMENTS

#### 3.1 System Definition

This paragraph will include a figure defining the functional/physical relationships at the RRS level to place the RRV into proper context.

##### 3.1.1 RRV Definition

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###### 3.1.1.1.1 RRV

###### 3.1.1.1.2 PM

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# **REUSABLE REENTRY SATELLITE SYSTEM SPECIFICATION**

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Volume 4  
OS Segment Specification

**October 1989**

Contract NAS9-18202  
DRL 04

Prepared for:

National Aeronautics and Space Administration  
Lyndon B. Johnson Space Center  
Houston, Texas 77058

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**Science Applications International Corporation**  
21151 Western Avenue • Torrance, California 90501 • (213) 781-9022

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# **REUSABLE REENTRY SATELLITE SYSTEM SPECIFICATION**

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Volume 5  
EM-SM-GCEM Interface Functional Specification

**October 1989**

Contract NAS9-18202  
DRL 04

Prepared for:

National Aeronautics and Space Administration  
Lyndon B. Johnson Space Center  
Houston, Texas 77058



**Science Applications International Corporation**

21151 Western Avenue • Torrance, California 90501 • (213) 781-9022

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### 1.0 SCOPE

This Interface Specification (IFS) identifies, defines, and controls the interface between the Reusable Reentry Satellite (RRS) Support Module (SM) equipment and the Experiment Module (EM) that it will contain. Contained in this specification are the physical, functional, and environmental interface requirements between the SM and the EM. This specification is tailored to the unique requirements of the EM associated with the Rodent Module. The addendums to this specification contain the requirements for alternate EMs.

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# **REUSABLE REENTRY SATELLITE SYSTEM SPECIFICATION**

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Volume 6  
RRV/PM Interface Functional Specification

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# **REUSABLE REENTRY SATELLITE SYSTEM SPECIFICATION**

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Volume 7  
RRV/NTADN Interface Functional Specification

**October 1989**

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Lyndon B. Johnson Space Center  
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**Science Applications International Corporation**

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# **REUSABLE REENTRY SATELLITE SYSTEM SPECIFICATION**

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RRV/Ground Systems Interface Functional Specification

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Houston, Texas 77058



**Science Applications International Corporation**  
21151 Western Avenue • Torrance, California 90501 • (213) 781-9022

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Volume 9  
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