***SOFTWARE REQUIREMENTS SPECIFICATION***

**1.0 Introduction**

This section provides an overview of the entire requirement document. This document describes all data, functional and behavioral requirements for software.

**1.1 Goals and objectives**

Overall goals and software objectives are described.

**1.2 Statement of scope**

A description of the software is presented. Major inputs, processing functionality and outputs are described without regard to implementation detail.

**1.3 Software context**

The software is placed in a business or product line context. Strategic issues relevant to context are discussed. The intent is for the reader to understand the 'big picture'.

**1.4 Major constraints**

Any business or product line constraints that will impact the manner in which the software is to be specified, designed, implemented or tested are noted here.

**2.0 Usage scenario**

This section provides a usage scenario for the software. It organized information collected during requirements elicitation into use-cases.

**2.1 User profiles**

The profiles of all user categories are described here.

**2.2 Use-cases**

All use-cases for the software are presented.

**2.3 Special usage considerations**

Special requirements associated with the use of the software are presented.

**3.0 Data Model and Description**

This section describes information domain for the software

**3.1 Data Description**

Data objects that will be managed/manipulated by the software are described in this section.

**3.1.1 Data objects**

Data objects and their major attributes are described.

**3.1.2 Relationships**

Relationships among data objects are described using an ERD- like form. No attempt is made to provide detail at this stage.

**3.1.3 Complete data model**

An ERD for the software is developed

**3.1.4 Data dictionary**

A reference to the data dictionary is provided. The dictionary is maintained in electronic form.

**4.0 Functional Model and Description**

A description of each major software function, along with data flow or class hierarchy (OO) is presented.

**4.1 Description for Function n**

A detailed description of each software function is presented. Section 4.1 is repeated for each of n functions.

**4.1.1 Processing narrative (PSPEC) for function n**

A processing narrative for function n is presented.

**4.1.2 Function n flow diagram**

A diagram showing the flow of information through the function and the transformation it undergoes is presented.

**4.1.3 Function n interface description**

A detailed description of the input and output interfaces for the function is presented.

**4.1.4 Function n transforms**

A detailed description for each transform (subfunction) for function n is presented. Section 4.1.4 is repeated for each of k transforms.

**4.1.4.1 Transform k description (processing narrative, PSPEC)**

**4.1.4.2 Transform k interface description**

**4.1.4.3 Transform k lower level flow diagrams**

**4.1.4.4 Transform k interface description**

**4.1.5 Performance Issues**

Special performance required for the subsystem is specified.

**4.1.6 Design Constraints**

Any design constraints that will impact the subsystem are noted.

**4.2 Software Interface Description**

The software interface(s)to the outside world is(are) described.

**4.2.1 External machine interfaces**

Interfaces to other machines (computers or devices) are described.

**4.2.2 External system interfaces**

Interfaces to other systems, products or networks are described.

**4.2.3 Human interface**

An overview of any human interfaces to be designed for the software is presented.

**4.3 Control flow description**

The control flow for the system is presented with reference to Section 5.0 of this document.

**5.0 Behavioral Model and Description**

A description of the behavior of the software is presented.

**5.1 Description for software behavior**

A detailed description of major events and states is presented in this section.

**5.1.1 Events**

A listing of events (control, items) that will cause behavioral change within the system is presented.

**5.1.2 States**

A listing of states (modes of behavior) that will result as a consequence of events is presented.

**5.2 State Transition Diagrams**

Depict the overall behavior of the system.

**5.3 Control specification (CSPEC)**

Depict the manner in which control is managed by the software.

**6.0 Restrictions, Limitations, and Constraints**

Special issues which impact the specification, design, or implementation of the software are noted here.

**7.0 Validation Criteria**

The approach to software validation is described.

**7.1 Classes of tests**

The types of tests to be conducted are specified, including as much detail as is possible at this stage. Emphasis here is on black- box testing.

**7.2 Expected software response**

The expected results from testing are specified.

**7.3 Performance bounds**

Special performance requirements are specified.

**8.0 Appendices**

Presents information that supplements the Requirements Specification

**8.1 System traceability matrix**

A matrix that traces stated software requirements back to the system specification.

**8.2 Product Strategies**

If the specification is developed for a product, a description of relevant product strategy is presented here.

**8.3 Analysis metrics to be used**

A description of all analysis metrics to be used during the analysis activity is noted here.

**8.4 Supplementary information (as required)**