

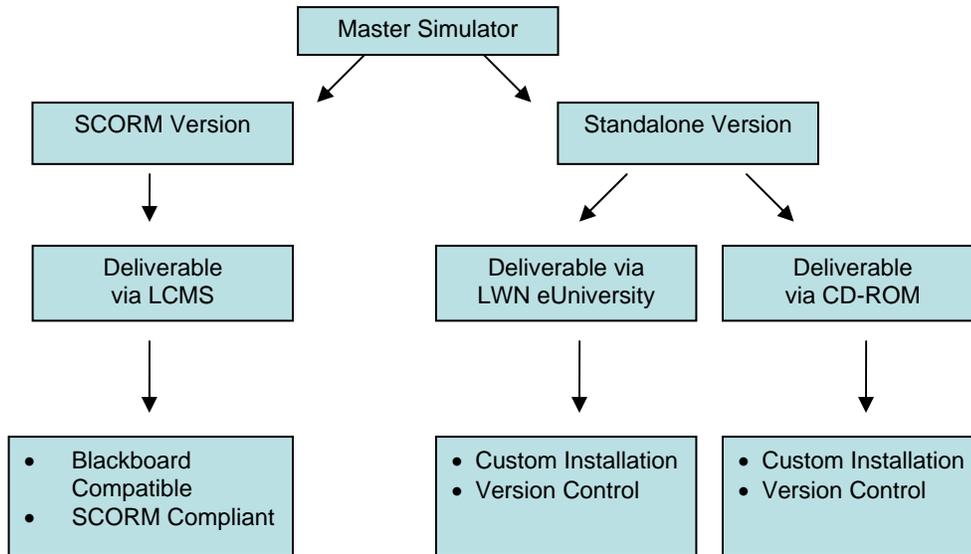
# ANNEX R

## GENERIC SIMULATOR CONTRACT

### 1.0. Simulator Design Characteristics

#### 1.1. Simulator Version Requirements

The contractor shall develop two versions of the Simulator, a Shareable Content Object Reference Model (SCORM) Version and a Standalone Version as shown in the figure below.



##### 1.1.1. SCORM Version

The SCORM® version of the Simulator shall be SCORM® 2004 industry standard compliant and Blackboard® Academic Suite™ 7.3 compatible. SCORM® standards can be found at [www.adlnet.org](http://www.adlnet.org) and Blackboard® Academic Suite™ standards can be found at <http://www.blackboard.com/us/index.aspx>.

The SCORM® version shall be capable of being uploaded by the Lifelong Learning Center (LLC) personnel as a course on the Blackboard® server located at U.S. Army Signal Center at Fort Gordon. Once the course is accessed on the Learning Content Management System (LCMS), the student shall be able to complete a lesson and have scores posted to the Blackboard® grade book.

The Contractor shall maximize reusability of the Simulator content by designing instructional content as individual Sharable Content Objects (SCOs) in accordance with the [Advanced Distributed Learning \(ADL®\) SCORM® Initiative](#) and the [SCORM® Business Rules](#). The Contractor shall develop SCOs for each Enabling Learning Objective (ELO) as defined by [TRADOC Regulation 350-70](#). In the absence of ELOs, the Contractor shall develop a SCO for the Terminal Learning Objective (TLO). The Government will only accept a higher level SCO when the instructional strategy dictates a level higher than an ELO (or TLO in the absence of ELOs). When this is the case, the Contractor shall document the requirement for SCOs at a level higher than the ELO or TLO in the Instructional Media Design Package (IMDP). The Contractor

shall develop SCOs at the sub-ELO/TLO level (for example, learning step or activity) as necessary to meet the desired educational strategy.

The Contractor shall create content aggregations by grouping two or more SCOs together to form a lesson, module, phase, or course, as defined by TRADOC Regulation 350-70, TRADOC PAM 350-70-2 paragraph “How Do I Get Effective Training with SCORM®?”, and as consistent with the instructional design strategy in the IMDP.

An SCO shall contain internal logic to provide the student logical break-points to allow for completion of ELOs or learning activities. Examples of logical break-points are the end of a learning activity, learning step, Check On Learning (COL), or topic.

### **1.1.2. Standalone Version**

The Stand alone version will contain everything the SCORM version contains except the LMS features and student grade reporting via the internet. Two versions of the Current Standalone Version of the Simulator shall be developed: a Web Deliverable Version and a CD-ROM deliverable version.

#### **1.1.2.a. Standalone Version General Install Requirements**

These general requirements apply to both the Web Based installation and the CR-ROM installation sections that follow. Each Version of the Simulator shall consist of the Simulator and all the plug-ins required for running the Simulator. The installation program will automatically check for previous installations of this simulation and provide an uninstall tool to completely uninstall the previous version. During Simulator uninstall, all files, folders, Registry entries, Dynamic Link Libraries (dlls), etc., shall be removed from the host platform.

#### **1.1.2.b. Standalone Version Web Based Install Requirements**

The Simulator files and plug-ins will be uploaded by the LLC personnel to a designated location on the LandWarNeteUniversity and the LandWarNeteUniversity-Signal Websites. The Simulator shall be accessible by the student from these websites using AKO authentication. If the Simulator files are over 200 MB, the files will be posted on the LandWarNeteUniversity and the LandWarNeteUniversity-Signal Websites as several self extracting files. The files located on the LandWarNeteUniversity and the LandWarNeteUniversity-Signal Websites shall be downloaded and executed from the local computer. Once the Simulator installation is complete, all lessons shall be accessible from the Simulator Lesson Manager on the local computer without having to remain connected to the LandWarNeteUniversity and the LandWarNeteUniversity-Signal Websites and/or the Internet.

#### **1.1.2.c. Standalone Version CD-ROM Install Requirements**

The CD-ROM Version of the Simulator shall have a self-start program to be launched by the CD-ROM Auto run feature. The CD-ROM Version also requires a Read Me file to be placed in the root directory of the CD-ROM with alternative instructions for the student in the event the Auto run feature is not successful. Once the Simulator is launched, a Flash introduction is displayed which shall include: 1) minimum system requirements, 2) information on prerequisite software updates and plug-ins required to run the Simulator, 3) steps in acquiring and installing

the updates, and 4) steps in installing the Simulator and the security classification label (See Simulator Graphic User Interface Requirements). Once the Simulator installation option is selected, a custom installation wizard screen shall prompt the student to select which parts of the Simulator he/she would like to install, if multiple systems exist to be installed. Once the system selection is completed, the installation shall continue, and the Simulator shall be installed to the local computer. Once the Simulator installation is complete, all lessons shall be accessible from the Simulator Lesson Manager on the local computer without having to access the CD-ROM to continue.

## **1.2. Four Modes of Learning**

Simulator Lessons shall support four separate modes of learning/operation [Familiarize, Acquire, Practice and Validation (FAPV)] that provide the user with progressive and sequential learning environments that culminate in the Validation Mode. An acronym sheet shall be included in each FAPV Mode Lesson in the “Reference & Tools” area of the Simulator Interface Window. Acronyms shall be defined at first use in each Familiarize Mode Lessons (*If there is no Familiarize Mode Lesson then they shall be defined at first use in the Acquire Mode Lesson*). Acronyms are not required to be defined in APV lessons. The initial number and type (FAPV) of Simulator Lessons shall be determined by the initial task list requirements mentioned in the Simulator contract. The final number and type (FAPV) of Simulator Lessons shall be specified in the Government agreed upon Instructional Media Design Package (IMDP). Each Simulator shall include two tutorial type lessons. The first is a “Getting Started” Familiarize lesson that is a 3D flash movie with sound effects. The “Getting Started” Familiarize lesson shall be used to familiarize the student with the various features of the Simulator. The second is a “3D Environment Overview” Acquire lesson. The “3D Environment Overview” Acquire lesson shall be used by the student to learn how to interact with the 3D environment. These Simulator tutorial lessons shall be designed in accordance with the Familiarize and Acquire Mode requirements described in the following paragraphs. Exact length, formatting, and content shall be mutually agreed upon by the Government and the contractor during the course of the Simulator development.

### **1.2.1. Familiarize Mode Requirements**

The Familiarize Mode Lessons shall be a level one or higher interactive multimedia instruction (IMI) in accordance with the descriptions given in TRADOC Pamphlet 350-70-2, Multimedia Courseware Development Guide.

Through the use of virtual 3D models (*Non-Theory Based Lessons*) and 2D animation (*Theory Based Lessons*), Familiarize Mode Lessons shall allow the student to explore and learn pre-requisite knowledge for performing a task, such as equipment, tools, terminology, and theory while providing access to documentation on the component being trained. Some training topics may require Familiarization only.

#### **1.2.1.a. “Non-Theory Based” Familiarize Mode Lessons**

For “Non-Theory Based” Familiarize Mode Lessons the Simulator shall provide a variety of navigational aids based on the Technical Manuals (*When available*) to help the learner navigate through the 3D environment and learn about the location, visual context, and attributes of a piece of equipment. These lessons help the student understand system block diagrams and schematics,

equipment representations, and cable or wire representations. This type of training provides an interactive reference or glossary to the TM content. The key concept of Non-Theory Based Familiarize Mode Lessons is to link text and content to the reality of the equipment and the TM information.

### **1.2.1.b. “Theory Based” Familiarize Mode Lessons**

For “Theory Based” Familiarize Mode Lessons the Simulator shall provide a means to train the student in theory based content utilizing 2D animation. These lessons are not equipment/software specific but are general information intended to establish a baseline of knowledge. Theory based lessons are simple page-turning type instruction and are familiarization only.

### **1.2.1.c. Familiarize Mode Check on Learning (COL) Questions**

Each Familiarize Mode Lesson (Whether it is a “*Theory or Non-Theory Based*” lesson) shall include Check on Learning (COL) questions to help the student gauge his retention of the subject material. COL questions shall be presented approximately every 10 steps and between topics or enabling objectives. An AAR shall be generated following all Familiarize Mode Lessons (Based on the results of the COL questions) to provide the student with immediate feedback. This AAR information shall be recorded and available for review in the Simulator AAR Screen. All Familiarize Mode Lesson COL questions shall be developed by the contractor and approved by the Government. See Annex L and M of the U.S. Army Signal Center & Ft. Gordon Simulator Development SOP for more detailed instruction on Familiarize Mode COL Question requirements.

#### (1) “*Non-Theory Based*” COL Questions -

- “Non-Theory Based” Familiarize Mode Lesson COL questions shall be presented in two formats, “Multiple Choice” and “Selection”. True and False questions shall not be used.
- Two “Multiple Choice” COL questions taken from each of the lesson TLO (s) shall be added to the end of every “*Non-Theory Based*” Familiarize Mode Lesson. For example if there are 15 TLOs in a particular lesson then there shall be no less than 30 “Multiple Choice” COL questions at the end of that “*Non-Theory Based*” Familiarize Mode Lesson. “Multiple Choice” COL questions used during the course of the lesson can be repeated at the end of the “*Non-Theory Based*” Familiarize Mode Lesson.
- “*Non-Theory Based*” COL questions should focus on critical steps and items the student shall need to remember, such as cautions, warnings, and important components.

#### (2) “*Theory Based*” COL Questions -

- “*Theory Based*” Familiarize Mode Lesson COL questions shall be presented in the following four formats, “Multiple Choice”, “Drag & Drop Fill in the Blank”, “Drag & Drop Matching” and “Drag & Drop Associative”. True and False questions shall not be used.
- Two “Multiple Choice” COL questions taken from each of the lesson TLO (s) shall be added to the end of every “*Theory Based*” Familiarize Mode Lesson. For example if there are 15 TLOs in a particular lesson then there shall be no less than 30 “Multiple Choice” COL questions at the end of that “*Theory Based*” Familiarize Mode Lesson. “Multiple Choice” COL questions used during the course of the lesson can be repeated at the end of the “*Theory Based*” Familiarize Mode Lesson.

### **1.2.2. Acquire Mode Requirements**

The Acquire Mode shall be at least level two IMI in accordance with the description given in TRADOC Pamphlet 350-70-2, Multimedia Courseware Development Guide.

In Acquire Mode, the learner is discovering how to accomplish a task in terms of a sequence of actions to be taken, the objects (or subjects) to act on, how the objects (or subjects) react, and what tools to use to perform the actions. The Acquire Mode shall provide interactive functionality to the student to acquire knowledge about specific components or tasks. The learner is shown a sequence of steps that shall be performed before continuing to the next step. The textual definition of these steps is taken directly from the appropriate TM. If a mistake is made, the instruction label changes to yellow to indicate that the correct action was not performed. If a second mistake is made, the instruction label changes to orange to indicate that the correct action was not performed. If a third mistake is made, the instruction label changes to red to indicate that the correct action was not performed. The student must perform the correct action prior to moving onto the next step. The student has to complete the provided lesson instruction at his/her own pace. This Acquire mode shall be much more sequential than the reference/glossary approach of the Familiarize Mode. No scoring information shall be stored or transmitted to the Learning Management System or the Simulator AAR while in Acquire Mode.

### **1.2.3. Practice Mode Requirements**

The Practice Mode shall be at least a level three IMI in accordance with the description given in TRADOC Pamphlet 350-70-2, Multimedia Courseware Development Guide.

During Practice Mode, the Simulator provides immediate feedback to the student when they make a mistake. If a mistake or hint option is selected, the instruction label changes to yellow and generic text is displayed in the lesson instruction box. If a second mistake or hint option is selected, the instruction label changes to orange and a more specific text is displayed in the lesson instruction box. If a third mistake or hint option is selected, the instruction label changes to red and the full text is displayed in the lesson instruction box. After three hints or mistakes, a NO-GO shall be provided for that step. If a student receives a NO-GO for a step, this shall result in a NO-GO for the lesson. In order to continue the lesson, the student must perform the step correctly. The mistake is not allowed to damage the Simulator state, since errors are trapped before they affect the Simulator state. For example, the student could not cause a catastrophic failure of the system by turning on a circuit breaker out of sequence. For the Practice Mode, multiple steps are provided for learning a specific set of tasks and associated Performance Measures. These steps are utilized so that the learner can accomplish the task under a variety of realistic conditions, such as performing similar tasks on different pieces of equipment. In Practice Mode, these Simulators are near real-time, in the sense that one of the standards for most tasks is that they be completed within a time limit that is determined by the Subject Matter Expert (SME) and Training Developer (TD) during the development of the Simulator. If the student does not complete the lesson within the allotted time, the lesson shall continue, but the student shall receive a NO-GO for a time violation. If a student receives a NO-GO for a time violation, this shall result in a NO-GO for the lesson. An AAR shall be generated following a Practice Mode Lesson to provide the student with immediate feedback. This AAR information shall be recorded and available for review in the Simulator AAR Screen. See Annex L and M of the U.S. Army Signal Center & Ft. Gordon Simulator Development SOP for a detailed instruction on Simulator AAR requirements.

## **1.2.4. Validation Mode Requirements**

The Validation Mode shall basically be level four IMI in accordance with the description given in TRADOC Pamphlet 350-70-2, Multimedia Courseware Development Guide.

In Validation Mode, the Simulator requires the student to perform a specific sequence of steps in the expected order. The student shall have no access to additional practice, acquire, or familiarize Simulator tools while performing the validation task and shall have access to only the documentation determined by the SME and TD during the development of the Simulator. These documents shall be limited to what the student would normally have available during an actual validation task (such as a cut sheet, TM, and network diagrams). In Validation Mode, the lesson is automatically ended when the last step is completed correctly. This gives the training a real-time aspect that is appropriate for critical tasks. Unlike the Practice Mode, hints are not available to the learner during the Validation Mode. If a mistake is made, the instruction label changes to yellow. If a second mistake is made, the instruction label changes to orange. If a third mistake is made, the instruction label changes to red. After three mistakes, a NO-GO shall be provided for that step. If a student receives a NO-GO for a step, this shall result in a NO-GO for the lesson. In order to continue the lesson, the student must perform the step correctly. If the student does not complete the lesson within the allotted time, the lesson shall continue, but the student shall receive a NO-GO for a time violation. If a student receives a NO-GO for a time violation, this shall result in a NO-GO for the lesson. An AAR shall be generated following a Validation Mode Lesson to provide the student with immediate feedback. This AAR information shall be recorded and available for review in the Simulator AAR Screen. See Annex L and M of the U.S. Army Signal Center & Ft. Gordon Simulator Development SOP for a detailed instruction on Simulator AAR requirements.

## **1.3. Upgrade and Modification Standards**

### **1.3.1. Upgrade Requirements**

The Simulators shall be built in such a fashion that they are modular and upgradeable so that as the equipment they were designed to simulate changes, the Government can add and/or replace additional lessons and/or models to the Simulator (while recycling as much of the old lessons and models as possible) to account for this.

### **1.3.2. Modification Requirements**

Simulators shall be built in such a fashion that the lessons are programmable and modifiable. The contractor shall provide the Government with all the necessary tools and documentation to modify the content, modify user records, set a lifespan for operation and version control, and control the encryption of both the course materials and the user files. The contractor shall supply any and all electronic documents to acquaint a potential programmer with the various aspects and skills that are necessary to change the Simulator lesson and underlying technology. These documents shall include instructions and procedures for building, modifying, installing, deploying, managing, and maintaining the simulator, its lessons and content.

## **2.0. Simulator Technical Requirements**

## 2.1. SCORM Compliance and Blackboard LCMS Compatibility Requirements

The Final Delivery of the Simulator shall be fully SCORM 2004 compliant and Blackboard 7.3 LCMS compatible. The Final Delivery of the SCORM 2004 Version of the Simulator will include an electronic document (A required contract deliverable.) that will assist the ATSC Testers in completing all of the Simulator Practice and Validate Lessons. This document will include enough information that all of the Simulator Practice and Validate Lessons could be completed without going through a Familiarize or Acquire Lesson. Below are several links that provide information on developing SCORM and Blackboard content.

- TRADOC Standards [www.tradoc.army.mil/tadlp](http://www.tradoc.army.mil/tadlp)
- ATSC Standards for TRADOC [www.atsc.army.mil](http://www.atsc.army.mil) (click on Organizations, click on Individual Training Support Directory, click on Standards and Specifications)
- SCORM Standards [www.adlnet.org](http://www.adlnet.org)
- Blackboard Academic Suite <http://www.blackboard.com/us/index.aspx>

## 2.2. Size Limitation Requirements

The Simulator shall have a self-contained WinZip file (No larger than 200 MB) containing Simulator player, lesson files, and help Files. If the Simulator is greater than 200 MB it shall be broken down into smaller modules which shall be able to run independently. If the Simulator has a large task list and/or a large group of equipment: The contractor shall break the Simulator into parts -- i.e., Player and groups of like lessons (i.e., operator tasks only) and create a separate package for maintainers allowing students to download the package they need and add as needed for additional training. The contractor shall be given the opportunity to evaluate the best way to break up the tasks and brief the Government representative (Simulations Branch Project Leader) for acceptance of the design.

## 2.3. User Minimum System Requirements

### 2.3.1. Hardware Requirements

#### 2.3.1.a. Minimum Hardware Requirements

- (1) Minimum: Taken from the Army Gold Master Standard (2008)
  - (a) CPU Cores
    - Intel Core 2 Duo E6600 to E6850
    - AMD Athlon 64 X2 6000+ Series and 6400+ Series
  - (b) Hard Drive – 120 GB.
  - (c) Random Access Memory (RAM) – 1 GB.
  - (d) Operating System – Current DoD-approved Operating System.
  - (e) As of January 23<sup>rd</sup> 2008 the supported operating systems are:
  - (f) MS XP ® Sp2
  - (g) MS Vista ® Sp1
  - (h) Sound – UAA or Intel Higher Definition.
  - (i) Graphics accelerator card with 128MB of Dedicated video memory.
  - (j) Screen Resolution 1024x768 or greater (Shall be a sizable and movable window).
  - (k) Network card (802.3u – 100BASE-TX, 802.3ab-1000Base-T).
  - (l) CD-ROM Playable.

### 2.3.1.b. Recommended Hardware Requirements

Recommended: Taken from the PEO-STRI Common Hardware Platforms Standard (2008)

- (a) Hard Drive – 240 GB.
- (b) Random Access Memory (RAM) – 4 GB.
- (c) Graphics accelerator card with 512MB of Dedicated video memory.

### 2.3.2. Software Requirements

See the [ATSC website](#) for a list of approved browsers and plug-ins and current license agreement information. The license agreements address the re-distribution of browsers and plug-ins on CD-ROM courseware for students who do not have internet access. The executable software programs associated with the licenses can be accessed via Distributed Learning Knowledge Network (DLKN) which is accessed through AKO.

Operating System Requirements are repeated in the hardware Requirements section because of the close association of the OS with the hardware. OS requirements must meet Current DoD-approved Operating System Requirements and be backwards compatible with the following Operating Systems:

- MS XP ® Sp2
- MS Vista ®

Note: At this time, January 23<sup>rd</sup>, 2008, the US Army does not support MS XP Sp3.

Note: If Direct X is used then the Simulator shall be backwards compatible with Direct X 9.0c.

### 2.4. Deliverable Content Requirements

All media content, source, binaries and executables will be delivered in CD-ROM format. DVD ROM format is not an acceptable deliverable format. Also, included in every release to the Government will be the following supporting documentation:

(1) Software Build Procedure. Typical sections of a Software Build Procedure include:  
Directory Listings  
Compiler Version or Language Version  
Instructions on running scripts for building the program  
Shell or environment variables for running the scripts  
Makefiles for building the program  
Objects to link into a compiler  
Compile flags to use  
Commands for building the program  
Any instructions or install script instructions

(2) Software Version Description. A Software Version Description in its most basic form is a “README” file. The Army is looking for something more than a “README” file but the concept is the same. A Software Version Description should contain sections on:  
Quick descriptions of New Features or Functionality  
Known Issues and workarounds

Outstanding Defects not fixed  
Defects fixed with the current release  
Any other changes to the program, install scripts, or source code since the last release

(3) All this information can be included with the source CD. However a source CD will not be accepted if it does not contain fully populated directories for building the program. This means that all the files cannot just be copied into 1 directory and burned onto a CDROM. Again, only fully populated directories with all source files will be accepted.

## **2.5. Installation Requirements**

A user with Administrator privileges shall be required to install the Training Simulator. During installation, a desktop icon shall be placed on all users' desktops so that any user with access to that computer shall have access to the Training Simulator. The files used by the Training Simulator shall be set up during installation such that users have access privileges as needed.

## **3.0. Simulator Graphic User Interface (GUI) Requirements**

The Contractor shall design the Simulator in accordance with the GUI instructions found in Annex L and M of the U.S. Army Signal Center & Ft. Gordon Simulator Development SOP.

## **4.0. Simulator Testing Requirements**

### **4.1. SCORM and Blackboard LCMS Testing**

#### **4.1.1. Testing Requirements**

The Contractor shall be required to conduct the initial SCORM 2004 compliance and Blackboard 7.3 LCMS compatibility testing of the "Final Delivery" of the Simulator on the LLC Vendor Testing Server located at <https://dl.gordon.army.mil>. The LLC Staff and the Simulation Branch Project Leader shall be available to assist the Contractor with the procedures required to load and test the "Final Delivery" of the Simulator for SCORM 2004 compliance and Blackboard 7.3 LCMS compatibility testing. To further assist the contractor with this initial testing, they shall also be given access to LLC Blackboard LCMS user manuals and a self-paced course in the Blackboard for system familiarization. Once the Contractor has conducted this initial testing (And made any required changes), they shall provide a subsequent SCORM 2004 version of the "Final Delivery" of the Simulator to the Army Training Support Center (ATSC). The contractor shall be available to answer any questions the ATSC Testers may have and they shall be required to provide the ATSC Testers with the "Answer Key" for the SCORM Version of the Final Delivery in the form of a WORD document containing the Acquire Lesson Text. ATSC will then test this SCORM 2004 version of the "Final Delivery" of the simulator for SCORM 2004 compliance and Blackboard 7.3 LCMS compatibility. Upon successful completion of the ATSC SCORM Testing the contractor shall provide the Government with the complete test results and the final updated SCORM Version of the Simulator.

#### **4.1.2. Non-Disclosure Agreements**

To facilitate both Contractor and Government testing requirements, the Contractor and the Life Long Learning Center (LLC) Staff will both enter into an Associate Contractor Agreement, Non-

Disclosure Agreement or similar such arrangement. This will allow direct coordination (via the Simulation Branch Project Leader) to occur between the Contractor and the LLC staff so that together, they may resolve any SCORM Compliancy or Blackboard LCMS Compatibility issues.

## **4.2. Graphical User Interface & Design Characteristic Testing**

The Government (Simulation Branch Project Leader) shall review each and every release of the Simulator to ensure that it is being developed by the contractors in accordance with this SOP. The contractor shall correct any deficiencies identified by the Government (Simulations Branch Project Leader) prior to the next release of the Simulator.

## **4.3. Content Validation**

Content Validation is conducted in accordance with Chapter 4, TRADOC Pam 350-70-10.

### **4.3.1. Content Validation Purpose**

The purpose of the Content Validation is to verify that all Simulator Lessons and supporting documentation are doctrinally and technically correct, uses current references, includes sufficient detail, includes all critical information, are clearly written in the Army Writing Style and uses language the target audience understands.

### **4.3.2. Content Validation Requirements.**

The contractor shall conduct their own internal Instructional Design and Subject Matter Expert review of all of the Simulator lessons to ensure that they are functional, instructionally sound, in accordance with design documents, user friendly, consistent, technically accurate, current and complete prior to release to the Government.

Upon receipt of these Simulator lessons (After they have undergone this internal contractor review) the Government shall conduct a consolidated group level analysis after each and every release of the Simulator (To include the “Final Delivery”) to ensure that the content (Lessons & Models) being developed is functional, correct, clear, uses current references, and includes all critical information. During the course of this consolidated review the Contractor shall be available (Either in person or telephonically) to answer any Government in regards to the Simulator lessons being reviewed.

On the afternoon of the final day of review the Government and the contractor shall meet in the SIM Branch Office (Conference call will occur for contractors working outside of Georgia) to review the Government’s comments regarding the SIM Product (Storyboard or IMI Lessons). More specifically the Government will provide any further clarification or answer any questions that the Contractor may have regarding the Government’s comments on the Simulator lessons.

The contractor shall correct any deficiencies identified by the Government (TD, SME, or SIM Branch Project Leader) prior to the next release of the Simulator.

## **4.4. Group Trials**

The Group Trials are conducted in accordance with Chapter 6, TRADOC Pam 350-70-10.

#### **4.4.1. Group Trials Purpose**

The purpose of the Group Trial(s) is to validate the Simulator Lesson/Lessons based on observations and statistical analysis. The trial(s) allows the training developer to gather information, by exposing a group of volunteers (a minimum of 10) from the target audience, or a group of volunteers that possess the critical characteristics of the target audience, to the Simulator Lessons. In-depth interviews or surveys, conducted with each of the volunteers, are used to gather more information about the quality of the Simulator Lessons. Finally, the training developer analyzes the volunteers' results and compares them to both the standard for the objective(s), and the computed criticality standard to determine if the Simulator Lesson is valid.

#### **4.4.2. Group Trials Requirements**

The Government shall develop the validation plan, schedule the validation, obtain the target audience, arrange for the classroom, conduct the validation, prepare and collect the administrative information, analyze the data and prepare the validation report.

The contractor shall participate in the validation by assisting in setting up the classroom environment (Load the Simulator), ensure that all technical requirements for reviewing and testing the product are met (Simulator is fully functional) and providing a representative to remain in the classroom from start to finish to record any technical issues/faults (Bugs) encountered and try to fix them on the spot.

The Validation Mode Lessons of the Simulator shall be used to measure student results. The Government will conduct a 3-5 day long review of the “Final Release, Release Candidate #1” version of the Simulator and a day long review of the “Final Release, Release Candidate #2” version of the Simulator to ensure all previously identified problems have been fixed prior to the commencement of the Group Trials. The “Final Release, Release Candidate #2” version of the Simulator is version that will be used to conduct the Group Trials.

The contractor shall correct any deficiencies identified by the Government [During the course of the Group Trial(s)] prior to the next release of the Simulator/Simulation (“Final Release, Release Candidate #3). The “Final Release, Release Candidate #3” version of the Simulator is version that will be used to conduct the Government Acceptance Testing. For additional information on the conduct of the Group Trials see Annex N (Group Trials Plan) and Annex O (Group Trials Report) to this SOP.

#### **4.5. Operational Tryouts**

The Operational Tryouts are conducted in accordance with Chapter 7, TRADOC Pam 350-70-10.

##### **4.5.1. Operational Tryouts Purpose**

The purpose of the Operational Tryouts is to validate the Simulator based on observations and statistical analysis. The Operational Tryouts allows the Government to gather information, by having actual students from the target audience use the Simulator. In-depth interviews, or surveys conducted with each of the students, allows for gathering more information about the quality of the Simulator.

#### 4.5.2. Operational Tryouts Requirements

The Government shall conduct operational tryouts utilizing the “Final Delivery” of the Simulator. The process used to conduct the Operational Tryouts will be similar to that used to conduct the Group Trials, except that the scope of the Operational Tryouts shall be greater and include an entire resident training course. In-depth interviews and/or surveys will be conducted with each of the students to gather information about the quality of the Simulator. The Validation Mode Lessons of the Simulator shall be used to measure student results.

Following the Operational Tryouts, if any of the Simulator Lesson(s) in the “Final Delivery” of the Simulator does not meet the statistical validation criteria, the contractor shall revise the Simulator Lesson(s) and the Government shall conduct another tryout on the specific Simulator Lessons that did not validate. Only those Simulator Lessons that did not validate require an additional tryout.

The contractor shall correct all errors, omissions and discrepancies identified by the Government during the course of these Operational Tryouts (To include any inaccurate 2D/3D Models).

#### 5.0. License Rights

The Contractor shall supply license rights to the Government in accordance with [DFAR 252.227-7015 Technical Data – Commercial Items](#).

In addition, in accordance with [CFR 252.227.7020 Rights in Special Works](#) the Contractor shall apply the Rights in Special Works clause.

The Government requires these license rights in all aspects of Simulator Software (Source and Executable) Code to keep training current with respect to changes in the equipment configuration and to allow future changes to the training based upon changes to the network configuration as well as the possible incorporation of new network and/or other computer software. Restricted rights will not satisfy the Government’s operation requirements to constantly update the Simulator. The Government requires the right to reproduce and distribute the Simulator Software (Source and Executable) Code without any restrictions.

#### 6.0. Simulator Development Timeline

Development of the Simulator shall be conducted within 16 months and based on the following timeline. Any changes to this Simulator development timeline shall be mutually agreed upon between the Government and the contractor. Actions in this timeline are described in subsequent paragraphs.

<b>Month</b>	<b>Event</b>	<b>Action Initiator</b>	<b>Remarks</b>
<b>1<sup>st</sup> Month</b>	Post Award Meeting (IPT #1)	Contractor	Meeting Minutes due to GOV within 10 Working Days
	Data Collection #1	Contractor	Meeting Minutes due to GOV within 10 Working Days
	GFE/GFI Report	Contractor	

<b>2<sup>nd</sup> Month</b>	Monthly Report #1 (1 <sup>st</sup> Month)	Contractor	
	Data Collection #2	Contractor	Meeting Minutes due to GOV within 10 Working Days
	Monthly Meeting (IPT #2)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>3<sup>rd</sup> Month</b>	Monthly Report #2 (2 <sup>nd</sup> Month)	Contractor	
	IMDP/Prototype	Contractor	
	Monthly Meeting (IPT #3)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>4<sup>th</sup> Month</b>	Monthly Report #3 (3 <sup>rd</sup> Month)	Contractor	
	Incremental Release #1, Release Candidate #1 (10% of Lessons Complete)	Contractor	
	Incremental Release #1, Release Candidate #1, SME/TD Review	SIM Branch POC	GOVT/Contractor Meeting/Teleconference held on the last day of the review to go over SME/TD comments.
	Monthly Meeting (IPT #4)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>5<sup>th</sup> Month</b>	Monthly Report #4 (4 <sup>th</sup> Month)	Contractor	
	Monthly Meeting (IPT #5)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>6<sup>th</sup> Month</b>	Monthly Report #5 (5 <sup>th</sup> Month)	Contractor	
	Monthly Meeting (IPT #6)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>7<sup>th</sup> Month</b>	Monthly Report #6 (6 <sup>th</sup> Month)	Contractor	
	Incremental Release #2, Release Candidate #1 (40% of Lessons Complete)	Contractor	Corrections to Incremental Release #1 will be provided w/Incremental Release #2
	Incremental Release #2, Release Candidate #1, SME/TD Review	SIM Branch POC	Corrections to Incremental Release #1 will be reviewed w/Incremental Release #2. GOVT/Contractor Meeting/Teleconference held on the last day of the review to go over SME/TD comments.
	Monthly Meeting (IPT #7)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>8<sup>th</sup> Month</b>	Monthly Report #7 (7 <sup>th</sup> Month)	Contractor	
	Monthly Meeting (IPT #8)	Contractor	Meeting Minutes due to GOV within 10 Working Days

<b>9<sup>th</sup> Month</b>	Monthly Report #8 (8 <sup>th</sup> Month)	Contractor	
	Monthly Meeting (IPT #9)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>10<sup>th</sup> Month</b>	Monthly Report #9 (9 <sup>th</sup> Month)	Contractor	
	Incremental Release #3, Release Candidate #1 (70% of Lessons Complete)	Contractor	Corrections to Incremental Release #2 will be provided w/Incremental Release #3
	Incremental Release #3, Release Candidate #1, SME/TD Review	SIM Branch POC	Corrections to Incremental Release #2 will be reviewed w/Incremental Release #3. GOVT/Contractor Meeting/Teleconference held on the last day of the review to go over SME/TD comments.
	Monthly Meeting (IPT #10)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>11<sup>th</sup> Month</b>	Monthly Report #10 (10 <sup>th</sup> Month)	Contractor	
	Monthly Meeting (IPT #11)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>12<sup>th</sup> Month</b>	Monthly Report #11 (11 <sup>th</sup> Month)	Contractor	
	Monthly Meeting (IPT #12)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>13<sup>th</sup> Month</b>	Monthly Report #12 (12 <sup>th</sup> Month)	Contractor	
	Final Release, Release Candidate #1 (100% of Lessons Complete)	Contractor	Corrections to Incremental Release #3 will be provided w/Final Release, Release Candidate #1
	Final Release, Release Candidate #1, SME/TD Review	SIM Branch POC	Corrections to Incremental Release #3 will be reviewed w/Final Release, Release Candidate #1. GOVT/Contractor Meeting/Teleconference held on the last day of the review to go over SME/TD comments.
	Monthly Meeting (IPT #13)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>14<sup>th</sup> Month</b>	Monthly Report #13 (13 <sup>th</sup> Month)	Contractor	
	Group Trials (Education Validation) IPR #1 and IPR #2 (Rehearsal)	TD/SIM Branch POC	
	Final Release, Release Candidate #2	Contractor	Corrections to Final Release, Release Candidate 1 will be provided w/Final Release, Release Candidate 2
	Final Release, Release Candidate #2, SME/TD Functionality Check	SIM Branch POC	Corrections to Final Release, Release Candidate 1 will be reviewed w/Final Release, Release Candidate 2
	Group Trials (Education	TD/SIM Branch	

	Validation) Testing	POC	
	Monthly Meeting (IPT #14)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>15<sup>th</sup> Month</b>	Monthly Report #14 (14 <sup>th</sup> Month)	Contractor	
	Monthly Meeting (IPT #15)	Contractor	Meeting Minutes due to GOV within 10 Working Days
<b>16<sup>th</sup> Month</b>	Monthly Report #15 (15 <sup>th</sup> Month)	Contractor	
	Final Release, Release Candidate #3	Contractor	Corrections to Final Release, Release Candidate 2 will be provided w/Final Release, Release Candidate 3
	Final Release, Release Candidate #3, Government Acceptance Test	SIM Branch POC	Corrections to Final Release, Release Candidate 2 will be reviewed w/Final Release, Release Candidate 3. GOVT/Contractor Meeting/Teleconference held on the last day of the review to go over SME/TD comments.
	Monthly Meeting (IPT #16)	Contractor	Meeting Minutes due to GOV within 10 Working Days
	Final Delivery	Contractor	
	Monthly Report #16 (16 <sup>th</sup> Month)	Contractor	

## 6.1. Timeline Event Explanations

### 6.1.1. Post Award Meeting [Contract Data Requirements List (CDRL) #1]

The purpose of the Post Award Meeting is to ensure complete, mutual understanding of the project and to establish a cooperative relationship between the contractor and Government personnel. All parties approach the project as a team effort. The contractor shall convene the Post Award Meeting NLT 10 working days after contract award. During the course of the Post Award Meeting the contractor shall address the following items, including but not limited too, contract clarifications (As needed), the Milestone Schedule, the contractor Simulator/Simulation Development and Testing Process, contractor Contract Deliverables and Submission Procedures and/or any other Contract Requirements. Meeting minutes shall be delivered by the contractor NLT 10 working days after the meeting was conducted. The Government has 10 working days to comment on the meeting minutes and the contractor shall be given an additional 10 working days to incorporate the Government revisions to the meeting minutes. This process will continue until the Government is satisfied that the meeting minutes accurately capture what was discussed at the Post Award Meeting.

### 6.1.2. Data Collection (s) (CDRL #2)

This is a contractor activity that involves the collection of information required to develop Simulator/Simulation Lessons and 3D Models. This may also include collecting data via questions from the project Subject Matter Experts and Training Developers. The contractor shall

provide the Government with a Data Collection Report (s) NLT than 10 working days after the completion of the Data Collection (s). At a minimum this report (s) shall highlight what data was collected, what data still needs to be collected and any issues involved with the data collection (s). The Government has 10 working days to comment on the Data Collection Report (s) and the contractor shall be given an additional 10 working days to incorporate the Government revisions to the Data Collection Report (s). This process will continue until the Government is satisfied that the Data Collection Report (s) accurately captures what data was collected.

### **6.1.3. Government Furnished Information (GFI)/Government Furnished Equipment (GFE) Report (CDRL #3)**

The purpose of the GFI/GFE report is for the contractor to list all materials identified and provided by the government necessary to design and develop the Simulator/Simulation. The GFI/GFE report should include a list of objectives which include all soldier tasks, skills, knowledge's, numbers, titles, and training objectives to be covered. The GFI/GFE report should cover each learning objective and state if the GFI/GFE is available, unavailable, not required, not current, or inadequate. The contractor will explain why GFI/GFE is inadequate, if applicable. The GFI/GFE report will be submitted within 30 calendar days after contract is let.

### **6.1.4. Monthly Reports (CDRL #4)**

The purpose the Monthly Report is for the contractor to provide the Government with a written status as to what occurred during the development of the Simulator/Simulation during the previous month. More specifically, but not limited too, the contractor shall list any accomplishments that occurred during the previous month, any travel conducted for the month, any travel planned for the next month, any planned activities for the next month, any updates to the milestone schedule and any issues/corrective actions taken and/or recommendations. The Government has 10 working days to comment on the Monthly Report and the contractor shall be given an additional 10 working days to incorporate the Government revisions to the Monthly Report. This process will continue until the Government is satisfied that the Month Report accurately captures what was done during the month. *(Note: The Government receives the monthly report covering the activities of the previous month from the contractor the first week of every month, starting the 2<sup>nd</sup> Month of the Simulator Development Timeline as shown above. The monthly meeting minutes and slides can serve in lea of the monthly reports as a means of providing a status on the Simulator project. This must be spelled out either way in the Simulator Contract, Performance Work Statement or Delivery Order).*

### **6.1.5. Monthly Meetings (and/or IPTS) (CDRL #5)**

The purpose of Monthly Meetings (and/or IPTS) is to review the status of all aspects of the training development effort. These meetings shall focus upon the project status based upon the agreements reached and direction provided by the Government in the Post Award Meeting and subsequent Monthly Meetings and/or other Integrated Product Team (IPT) meetings (Such as Data Collections) as applicable. Monthly Meetings (and/or IPTS) shall be convened by the contractor as identified in the timeline above, with meeting minutes due to the Government NLT 10 working days after each meeting. The Government has 10 working days to comment on the meeting minutes and the contractor shall be given an additional 10 working days to incorporate the Government revisions to the meeting minutes. This process will continue until the

Government is satisfied that the meeting minutes accurately capture what was discussed at the meeting.

#### **6.1.6. Instructional Media Design Package (IMDP) (CDRL #6)**

The IMDP represents the culmination of both the Training Analysis and Design Analysis phases of the Simulator/Simulation's development. After Government approval, the IMDP marks the beginning of the Lesson Development phase of the Simulator/Simulation. The purpose of the IMDP is for the contractor to provide the design strategy and the flow diagrams that support development of the Simulator/Simulation. Included in the design strategy are lesson topic information, learning objectives, audio production requirements, screen conventions, performance standards, and computer-managed instruction features. The Government has 10 working days to comment on the IMDP and the contractor shall be given an additional 10 working days to incorporate the Government revisions to the IMDP. This process will continue until the Government is satisfied that the IMDP is correct.

#### **6.1.7. Prototype (CDRL #7)**

The Prototype represents the culmination of both the Training Analysis and Design Analysis phases of the Simulator/Simulation's development. After Government approval, the Prototype marks the beginning of the Lesson Development phase of the Simulator/Simulation. The purpose of the prototype is for the contractor to provide an initial sample of the lessons to be developed so that they can demonstrate to the Government that they understand all of the Simulator requirements. More specifically the prototype shall consist of one Simulator Familiarize, one Simulator Acquire, one Simulator Practice and one Simulator Validate lesson that together train the user on one of the overall required Simulator tasks. For Simulators/Simulations that don't necessarily follow the Ft. Gordon PC Based Virtual Signal Equipment Simulator Design Characteristics and Graphical User Interface (GUI) the base contract will specifically call out the prototype requirements the contractor must meet. The Government has 10 working days to comment on the Prototype and the contractor shall be given an additional 10 working days to incorporate the Government revisions to the Prototype. This process will continue until the Government is satisfied that the Prototype is correct. The contractor shall also coordinate with and provide ATSC with the SCORM Version of the Prototype. They shall be available to answer any questions the ATSC Testers may have and they shall be required to provide the ATSC Testers with the "Answer Key" for the SCORM Version of the Prototype. Upon successful completion of the ATSC SCORM Testing the contractor shall provide the Government with the complete test results.

#### **6.1.8. Incremental Releases (CDRL #8)**

The Incremental Releases constitute the virtual, PC Based 3D (Level 1-4 IMI) Simulator lessons that the contractor are required to design and develop IAW the contract. In Incremental Release #1, 10% of all the required lessons shall be completed. In Incremental Release #2, 40% of all the required lessons shall be completed. In Incremental Release #3, 70% of all the required lessons shall be completed. The contractor shall correct any deficiencies identified by the Government prior to the next release of the Simulator/Simulation.

#### **6.1.9. Final Releases (Release Candidates #1-3) (CDRL #09)**

The Final Releases constitute the virtual, PC Based, 3D (Level 1-4 IMI) Simulator lessons that the contractor are required to design and develop IAW the contract.

#### **6.1.9.a. Final Release, Release Candidate #1**

In Final Release, Release Candidate #1, all of the required lessons shall be completed. The contractor shall correct any deficiencies identified by the Government during the course of the SME/TD review of the Final Release, Release Candidate #1 prior to the release of the Final Release, Release Candidate #2.

#### **6.1.9.b. Final Release, Release Candidate #2**

The Final Release, Release Candidate #2 version of the Simulator/Simulation shall be the version used to conduct the Group Trials. Any deficiencies identified by the Government during the course of the SME/TD functionality check of the Final Release, Release Candidate #2 shall be provided back to the contractor w/the final Group Trials (Education Validation) comments. The contractor shall correct any deficiencies identified by the Government during the course of the Final Release, Release Candidate #2 functionality test and the Group Trial(s) prior to the release of the Final Release, Release Candidate #3.

#### **6.1.9.c. Final Release, Release Candidate #3**

The Final Release, Release Candidate #3 shall be the version of the Simulator/Simulation used to conduct the Government Acceptance Testing. The contractor shall correct any deficiencies identified by the Government during the course of the Government Acceptance Test and prior to the Final Delivery of the Simulator/Simulation. *(Note: The Government receives the Final Release, Release Candidate #3 of the Simulator from the contractor the first week of the 16<sup>th</sup> Month of the Simulator Development Timeline as shown above).*

#### **6.1.10. Final Delivery (CDRL #10)**

The Final Delivery constitutes the virtual, PC Based 3D (Level 1-4 IMI) Simulator lessons that the contractor is required to design and develop IAW the contract. The Final Delivery of the Simulator/Simulation is the final version of the Simulator where the contractor shall have corrected any deficiencies noted by Government during the course of the development of the Simulator/Simulation. Besides providing the Government with the Stand Alone version of the Final Delivery the contractor shall also coordinate with and provide ATSC with the SCORM Version of the Final Delivery for testing. The contractor shall be available to answer any questions the ATSC Testers may have and they shall be required to provide the ATSC Testers with the “Answer Key” for the SCORM Version of the Final Delivery. Upon successful completion of the ATSC SCORM Testing the contractor shall provide the Government with the complete test results and the final updated SCORM Version of the Simulator/Simulation. At project completion in addition to providing the Government with the Final Stand Alone and SCORM Versions of the Simulator/Simulation, the contractor shall be required to provide the Government with the following Simulator/Simulation Supporting Products to include any authoring tool files and courseware. The contractor shall provide the following Supporting Products in electronic/digital form.

#### **6.1.10.a. Software, Databases and Project Files**

The contractor shall submit any application software programs, databases, and project files that were used to document, meta-data tag, and/or design, develop or run the courseware. The contractor shall specify the software programs and version in which the data files were created. If the contractor used proprietary software to design, develop or run the courseware, the contractor shall provide a copy of this generation software to the government to allow the government to maintain and upgrade the design and development documentation and the courseware over its life cycle.

#### **6.1.10.b. Source files**

The contractor shall deliver all source files used to develop the courseware for the following source formats:

- **Graphics and Media Source Files.** The contractor shall deliver all graphics and media source files in the format from which the graphics or media was originally derived. For example: MPEG-4 source file would be the uncompressed video file that was used to create the MPEG-4 (.mp3) file. The 2D graphics pictures that were captured from a 3D drawing would be the original AutoCAD® file.
- **Authored Content Source Files.** Authored content source files are source files (for example, ToolBook™, Flash™, etc.) that are used to produce web content through some export/conversion method. These authored source files generally contain numerous files in a folder structure needed for the export/conversion process. Authored content source files shall be delivered in the same folder structure from which the web-based courseware was exported/converted so that the export/conversion process can be repeated for update and maintenance.

#### **6.1.10.c. Shells/Templates**

The contractor shall submit any interactive, Internet-ready shells/templates used to develop this training product.

#### **6.1.11. SME/TD Reviews**

The Government Training Developer (TD), Subject Matter Expert (SME) and the Simulation Branch Project Leader shall meet in the Simulation Branch Lab (Moran Hall, Room 217) for a period of 3-5 working days (Dependant on the # of lessons to be reviewed) to conduct a consolidated group level analysis after each and every release of the Simulator (To include the “Final Delivery”) to ensure that the content (Lessons & Models) being developed is functional, correct, clear, uses current references, and includes all critical information. During the course of this consolidated review the Contractor shall be available (Either in person or telephonically) to answer any questions the TD, SME or Simulation Branch Project Leader may have in regards to the Simulator lessons being reviewed. On the afternoon of the final day of review the SIM Branch Project LDR, the project Training Department POC, SME (s), TD (s) and the contractor shall meet in the SIM Branch Office (Conference call will occur for contractors working outside of the Ft. Gordon/Augusta/Martinez/Evans, GA area) to review the Government’s comments regarding the SIM Product (Storyboard or Simulator/Simulation Lessons). The contractor shall

correct any deficiencies identified by the Government (TD, SME, or SIM Branch Project Leader) prior to the next release of the Simulator/Simulation.

#### **6.1.12. Group Trials**

The Group Trial is the process used to validate a lesson/lesson plan's individual objectives, based on observations and statistical analysis. The Group Trial allows the Training Developer to gather information, by exposing a group of volunteers (a minimum of 10) from the target audience, or a group of volunteers that possess the critical characteristics of the target audience, to the instructional materials. In-depth interviews or surveys, conducted with each of the volunteers, are used to gather more information about the quality of the materials. The contractor shall participate in the Group Trial by assisting in setting up the classroom environment (Load the Simulator), ensure that all technical requirements for reviewing and testing the product are met (Simulator is fully functional) and providing a representative to remain in the classroom from start to finish to record any technical issues/faults (Bugs) encountered and try to fix them on the spot.

#### **6.1.13. Government Acceptance Test**

This is the final testing that the Government does to the “Final Release, Release Candidate #3” of the Simulator. The contractor is required to fix any problems with the Simulator that the Government may find during the course of this test prior to the Final Delivery.

#### **7.0. Simulator Warranty**

The contractor shall provide two years of life cycle support for the Simulator, starting after Government acceptance of the Final Delivery. During the warranty period, the contractor shall correct any deficiencies identified by the Government, including but not limited to SCORM compliance, Blackboard and Personal Computer Operating System (VISTA) compatibility, lesson and 2D/3D model inaccuracies, technical problems, design characteristic problems and GUI problems.

#### **8.0. Simulator Task List**

Simulator FAPV Lessons shall be developed based on the following task list (*Note: Insert Simulator Task List Here*).