

**BY ORDER OF THE COMMANDER  
AIR FORCE SPACE COMMAND**

**AIR FORCE SPACE COMMAND  
INSTRUCTION 17-105**



**13 JUNE 2018**

**Cyberspace**

**DISTRIBUTION OF HQ AFSPC  
STANDARDIZED ASTRODYNAMIC  
ALGORITHM LIBRARY**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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OPR: HQ AFSPC A2/3/6S

Certified by: HQ AFSPC A2/3/6S  
(Lt Col Marc A. Brock)

Supersedes: AFSPCI 33-105, 2 August 2004

Pages: 23

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This instruction implements Air Force Policy Directive 17-1, Information Dominance Governance and Management, and specifies how to distribute the Standardized Astrodynamic Algorithm Library (SAAL) developed by and belonging to HQ AFSPC. It applies to all United States Government Agencies, subordinate units, supporting activities and contractors who develop, acquire, maintain or deliver computer software, including all systems that require the SAAL. It further details particular procedures for release of software developed by or for HQ AFSPC. For guidance on the DoD Freedom of Information, refer to: Department of Defense Directive (DoDD) 5400.7, The DoD Freedom of Information Act (FOIA) Program. DoD 5200.01 Manual, Information Security Program describes the use of the marking "For Official Use Only" in the context of software and other applications. Air Force Instruction (AFI) 61-202, Management of Scientific and Technical Information (STINFO) describes the process for managing export controlled software in compliance with 22 USC 2778 of the Arms Export Control Act. All contractors shall meet International Traffic In Arms Regulations (ITAR) as outlined in DoDD 5230.25, Withholding of Unclassified Technical Data From Public Disclosure, Enclosure 4 and 5. AFSPCI 60-102, Space Surveillance Astrodynamic Standards, provides guidance on the use of the SAAL in AFSPC systems requiring space vehicle trajectory data from or to the Joint Force Space Component Command (JFSCC) for interoperability. Refer to **Attachment 1** for a glossary of references and terms. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication; route AF Form 847s from the field through the appropriate functional lead's chain of command. Ensure that all records created as a

result of processes prescribed in this publication are maintained in accordance with (IAW) AFMAN 33- 363, Management of Records, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). The authorities to waive wing/unit level requirements in this publication are identified with a Tier (“T-0, T-1, T-2, T-3”) number following the compliance statement. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the Publication OPR for non-tiered compliance items.

### ***SUMMARY OF CHANGES***

Streamlined the distribution process in AFSPCI 17-105, now using Government Acknowledgement of Use and Contractor Acknowledgement of Use approval documents instead of previously used Non-Disclosure Agreement (for government) and Memorandum of Agreement (for contractors). The Military Squadron Commander/Civilian Equivalent in charge of technical oversight will sign the request letter for both the Government and Contractor Acknowledgement of Use. This document is substantially revised and must be completely reviewed.

**1. General.** This instruction defines procedures for the release of the HQ AFSPC SAAL and other Orbital Analysis Software (OAS) developed by HQ AFSPC that are used in the JFSCC for the space control mission and space surveillance sensors. **Attachment 5** provides a listing of all HQ AFSPC software currently governed by this instruction. This overall instruction defines the process for the control and release of the HQ AFSPC SAAL and OAS.

### **2. Responsibilities:**

#### **2.1. HQ AFSPC/A2/3/6Z Responsibilities:**

2.1.1. Develops and maintains the SAAL and is responsible for software updates, changes, etc.

2.1.2. Performs Verification, Validation and Accreditation (VV&A) of changes to SAAL and contractor-provided astrodynamics algorithms according to AFI 16-1001.

2.1.3. Sends the specified algorithms in executable or source code format specified by the requesting agency upon receipt of distribution authorization/approval from HQ AFSPC/A2/3/6SF.

2.1.3.1. Places VV&A software releases on the proper web server(s) for distribution per requesting agency distribution preferences.

2.1.3.2. Distributes SAAL via CD-ROM as required per requesting agency distribution preferences.

#### **2.2. SMC/SYG Responsibilities.**

2.2.1. Coordinates with HQ AFSPC A2/3/6SZ-C (C2 Section) who is responsible for Operational Test & Evaluation (OT&E) of the Integrated Space Situational Awareness (ISSA) application.

2.2.2. Develops and maintains the ISSA – Analyst Version (ISSA-AV) software.

2.2.3. With assistance of AFSPC/A2/3/6Z, tests software and performs VV&A of ISSA-AV software according to US Air Force Validation and Accreditation policy to validate correct implementation of the SAAL.

2.2.4. Authorizes distribution of ISSA and other algorithms based on HQ AFSPC/A2/3/6SF approved Acknowledgement of Use. SMC/SYG shall receive notification of the approval decision and recipient information such that SMC/SYG can proceed with the distribution of the ISSA-AV software.

### 2.3. HQ AFSPC/A2/3/6SF Responsibilities:

2.3.1. Serves as the final approving authority, on behalf of HQ AFSPC/A2/3/6, for all requests for distribution of SAAL, ISSA-AV and other Orbital Analysis Software upon receipt of a request for distribution. Resolution of non-concurs may be referred to HQ AFSPC A2/3/6S or higher, if required.

2.3.1.1. Authorizes distribution SAAL based on HQ AFSPC/A2/3/6SF approved Acknowledgement of Use.

2.3.1.2. Disapproval. HQ AFSPC/A2/3/6SF Branch Chief, or designated representative, will notify (in writing) the requesting agency, and will provide the rationale for the disapproval.

2.3.2. Reviews the request to ensure that the requesting agency has identified the government requirement for the HQ AFSPC-owned software, provided technical justification and identified the government contract that requires access to the SAAL.

2.3.3. Coordinates requests that involve contractor organizations and ensure that all sub-contractors are identified.

2.3.4. Staffs requests which deviate from standard practices to HQ AFSPC/JA (International Law). Deviation from standard practices is defined as a practice that raises the level of concern of approval authorities. For example, a request that includes modifications to the Acknowledgement of Use from the established format prescribed by this regulation would require review by HQ AFSPC/JA to ensure the original intent of the Acknowledgement of Use is maintained.

2.3.5. Staffs requests which involve possible release to foreign entities or governments (including aliens resident in the U.S.) that could have International Traffic in Arms Regulations (ITAR) implications with HQ AFSPC/JA, HQ AFSPC/A8YI (Basing and International Affairs Division) and USSTRATCOM/J513.

2.3.6. Approves requests for executable code without formal staffing.

2.3.7. Approval. Upon approval of the request, the HQ AFSPC/A2/3/6SF will:

2.3.7.1. Ensure government/contractor signatures of Acknowledgement of Use comply with **Paragraph 2.4.1**.

2.3.7.2. Ensure that Acknowledgement of Use have tracking numbers assigned if applicable.

2.3.7.3. Obtain HQ AFSPC/A2/3/6SF signature for the Acknowledgement of Use.

2.3.7.4. Notify HQ AFSPC/A2/3/6Z or SMC/SYG of approval to distribute software.

2.3.7.5. Provide copies of signed Acknowledgement of Use to the requesting agency.

2.3.7.6. Approve request in designated web server.

2.3.7.7. Maintain a library of approved and disapproved requests.

#### 2.4. Requesting Organization:

2.4.1. The requesting organization will complete the request process on the designated web server(s) for the distribution of SAAL following the instructions provided. Upon completion of the request process, the requesting agency will complete the provided request letter and either a Government or Contractor Acknowledgement of Use.

2.4.1.1. Request Letter Submission Guidance: The requesting organization will send a request letter to HQ AFSPC/A2/3/6SF, identifying the specific U.S. Government requirement, including the contract vehicle if acquiring for use by a Government contractor. Request letters will include a statement of impact describing consequence(s) if request is denied and will attach either a Government or Contractor Acknowledgement of Use, as applicable, in the format prescribed by [Attachment 2](#) and [Attachment 3](#). [Attachment 2](#) and [Attachment 3](#) will be generated by the web server.

2.4.1.1.1. The Military Squadron Commander/Civilian Equivalent in charge of technical oversight will sign the request letter. See [Attachment 2](#), Government Acknowledgement of Use, for required wording. See [Attachment 3](#), Contractor Acknowledgement of Use, for required wording. (T2)

2.4.1.1.2. All requests for distribution of HQ AFSPC SAAL, ISSA-AV and/or other Orbital Analysis Software will be submitted in writing to the following email address: [afspc.astrodynamicstandards@us.af.mil](mailto:afspc.astrodynamicstandards@us.af.mil) or to:

HQ AFSPC/A2/3/6SF

150 Vandenberg Street, Suite 1105

Peterson AFB, CO 80914-4420

2.4.1.2. Government Acknowledgement of Use Submission Guidance: When the requesting organization will utilize government personnel to meet the requirement for which the software is required, it will submit an executed Government Acknowledgement of Use ([Attachment 2](#)) to HQ AFSPC/A2/3/6SF. The organization will maintain a copy of that agreement for a minimum of one (1) year after it returns the software to HQ AFSPC/A2/3/6SF.

2.4.1.2.1. The Military Squadron Commander/Civilian Equivalent officer in charge of technical oversight will sign the Government Acknowledgement of Use (T2)

2.4.1.2.2. The Military Squadron Commander/Civilian Equivalent in charge of technical oversight will promptly report to HQ AFSPC/A2/3/6SF any violations of the signed Government Acknowledgement of Use within one week of discovery of violation (T2)

2.4.1.3. Contractor Acknowledgement of Use Submission Guidance: When the requesting agency will utilize contractor personnel to meet the requirement for which the software is requested, the responsible Contractor Program Manager will submit a Contractor Acknowledgement of Use ([Attachment 3](#)).

2.4.1.3.1. Each subcontractor organization will also complete a Sub-Contractor Acknowledgement of Use. Contractors must submit waiver request through their government sponsor. (T2)

2.4.1.3.2. The Contractor Program Manager, Contractor Chief Executive Officer or Contractor Chief Information Officer AKA Contractor Contracts Manager who manages the project that will receive the SAAL should sign the Contractor Acknowledgement of Use prior to submission to HQ AFSPC/ A2/3/6SF. See [Attachment 3](#), Contractor Acknowledgement of Use. The Military Squadron Commander/Civilian Equivalent signature is only required on the request letter. Contractors must submit waiver request through their government sponsor. (T2)

2.4.1.3.3. The responsible contractor program manager will promptly report to HQ AFSPC/A2/3/6SF any violations of the signed Contractor Acknowledgement of Use. Contractors must submit waiver request through their government sponsor. (T2)

2.4.2. During the use of the SAAL, comply with the Acknowledgement of Use.

2.4.3. Ensures that, upon termination of the contract or completion of the effort for which it was needed, permanently delete it from Government or contractor IT systems or destroy it, with proof of deletion/destruction. (T2)

2.4.4. Contractors are responsible to notify HQ AFSPC/A2/3/6SF of contract extensions to remain eligible to receive HQ AFSPC software updates. . Contractors must submit waiver request through their government sponsor. (T2)

2.4.5. Contract Re-competition/Award. There will be NO transfer of the software between outgoing and incoming contractors after contract re-competition/award. A complete new request letter and Contractor Acknowledgement of Use IAW with this instruction must be submitted.

**2.5. Special Justification for Astrodynamic Standards Software Source Code.** Requests for source code will be provided per [Attachment 4](#) as needed to ensure operational continuity by allowing the recompilation of the shared library(s) in the event of operating system upgrades or platform changes.

**2.6. Distribution and Destruction Compliance.** HQ AFSPC/A2/3/6SF is responsible for the distribution and verification of destruction/deletion of the designated HQ AFSPC SAAL and other Orbital Analysis Software and subsequent releases. HQ SMC/SYG is responsible for the distribution of ISSA-AV and subsequent releases. If the requesting agency has requested the classified version of ISSA-AV, HQ SMC/SYG is responsible in verifying the clearance of the individual who will receive the software.

### **3. Releasing HQ AFSPC SAAL, ISSA-AV or other Orbital Analysis Software:**

**3.1. HQ AFSPC/A2/3/6SF or HQ SMC/SYG Responsibilities.** Distributes the software based on HQAFSPC/A2/3/6SF approved Acknowledgement of Use.

### 3.2. New Versions:

3.2.1. If a requester has an Acknowledgement of Use on file and requires updates to specific software identified in its Acknowledgement of Use, the agency may receive updated versions. Updates will be provided given the justification in the Acknowledgement of Use on file is still valid (contract has not expired) and the requester agrees to all of the restrictions and terms described in the Acknowledgement of Use for the new software releases.

3.3. **Classification.** If the purpose for which the SAAL, ISSA-AV or other Orbital Analysis Software is being developed is classified, the request for distribution of the algorithms shall be written as an unclassified request, but shall indicate that the use for which distribution of the algorithms is desired is classified. The requesting agency will provide additional details about the request via email to AFSPC/A2/36SF using the appropriate classified email system (SIPRNet, JWICS, SGN, etc.).

3.4. **Clarifications.** If policy clarification is required, coordinate request package with HQ AFSPC/A2/3/6SF.

3.5. **New Astrodynamics Standards Software or Orbital Analysis Software.** Directions for handling additional Orbital Analysis Software will be provided IAW this regulation as new applications become available. Contact HQ AFSPC/A2/3/6F as applicable.

JOSEPH T. GUASTELLA, JR  
Major General, USAF  
Director of Integrated Air, Space,  
Cyberspace and ISR Operations

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

DoDD 5230.25, *Withholding of Unclassified Technical Data From Public Disclosure*, 6 November 1985

DoDD 5400.7, *DoD Freedom of Information Act Program. DoD Manual 5200.01, Information Security Program*, 25 January 2017

DoD 5200.01 Manual, *Information Security Program*, 24 February 2012

AFPD 17-1, *Information Dominance and Cyberspace Governance and Management*, 12 April 2016

AFI 16-1001, *Verification, Validation and Accreditation*, 22 June 2016

AFI 16-201, *Air Force Foreign Disclosure and Technology Transfer Program*, 2 June 2015

AFI 35-102, *Security and Policy Review Process*, 4 May 2016

AFI 61-201, *Management of Scientific and Technical Information*, 29 January 2016

AFSPCI 60-102, *Space Surveillance Astrodynamics Standards*, 11 March 1996

***Abbreviations and Acronyms***

**AFI**—Air Force Instruction

**AFRC**—Air Force Reserve Command

**AO**—Action Officer

**AOF**—Area Over Flight

**COMBO**—Computation of Miss Between Orbits

**DLL**—Dynamic Linked Library

**DoD**—Department of Defense

**DoDD**—Department of Defense Directive

**FOV**—Field-of-View

**GELCON**—Generalized Element Conversion

**HQ AFSPC**—Headquarters Air Force Space Command

**ISSA-AV**—Integrated Space Situational Awareness – Analyst Version

**IOMOD**—Initial Orbit MODule

**ITAR**—International Traffic In Arms Regulations

**JFSCC**—Joint Force Space Component Commander

**LAMOD**—Look Angle MODule

**ROTAS**—Report/Observation Association

**SAAL**—Standardized Astrodynamic Algorithm Library

**SAINT**—Space Analysis INtegration Tool

**SATRAK**—Satellite Trajectory and Attitude Kinetics

**SEQDC**—Sequential Differential Correction

**SGP4**—Simplified General Perturbations theory 4

**SPEPH**—Special Perturbations EPHeimeris

**VV&A**—Validation, Verification and Accreditation

### *Terms*

**Algorithm**—A step-by-step method for solving a mathematical problem. As an example for this instruction, an algorithm is used to compute a satellite’s orbit.

**Executable Code (or “Executable”)**—A commonly-used term that describes the file (or files) of a software program. The file(s) consists solely of computer machine language that can be “executed” or operated. If executable files are printed, the printout is unintelligible machine language letters, numbers, and symbols. With executable code, one can “run” the software program but cannot read it, understand it, or modify it.

**Object Code**—The code produced by a compiler. Programmers write programs in a form called source code. The source code consists of instructions in a particular language, like C or FORTRAN. Computers, however, can only execute instructions written in a low-level language called machine language. To get from source code to machine language, the programs must be transformed by a compiler. The compiler produces an intermediary form called object code. Object code is often the same as, or similar to, a computer’s machine language. The final step in producing an executable program is to transform the object code into machine language, if it is not already in this form. This can be done by a number of different types of programs, called assemblers, binders, linkers, and loaders.

**Office of Primary Responsibility**—An individual or organization within HQ AFSPC, or any military organization designated to provide information and management on a specific activity.

**Orbital Analysis Software**—HQ AFSPC Orbital Analysis Software are approved tools for operational support, decision making, orbital and missile trajectory analysis and training and education. SMAT, SCOPES and SATRAC are examples of Orbital Analysis Software.

**Product**—Standardized Astrodynamic Algorithm Library (SAAL), Integrated Space Situational Awareness – Analyst Version (ISSA-AV) and/or other Orbital Analysis Software

**Requesting Agency**—The agency requesting a copy of the executable (or object) or source code of one or more pieces of HQ AFSPC-owned software or algorithms.

**Source Code**—Program instructions in their original form. The word source differentiates code from various other forms that it can have (for example, object code and executable code). Source code is the only format that is readable by humans. Possession of source code allows modification of the program.

**Sponsoring Organization**—The Government agency requesting a copy of the executable (or object) or source code of one or more pieces of HQ AFSPC-controlled software or algorithms for use by a contractor who is providing direct support through an authorized contract vehicle.

Attachment 2

GOVERNMENT ACKNOWLEDGEMENT OF USE

Figure A2.1. Request for Standardized Astrodynamic Algorithm Library (SAAL)

Government Acknowledgement of Use

Tracking Number: XXXX-XXX

<Date>

MEMORANDUM FOR AFSPC/A2/3/6SF

FROM: <Government Agency>

SUBJECT: Request for Standardized Astrodynamic Algorithm Library (SAAL)

1. <Requesting Organization> requires the controlled software and documentation listed below in support of the <Project Name>. The purpose of this request is: <Project Description>. Additional pertinent information can be found on the completed Acknowledgement of Use attached to this request.

Software Requested	Host Platform and Operating System
<List of Software>	<Identify Host Platform and Operating System>

- 2. I acknowledge this software is classified as U.S. Only, Export Controlled and will protect both the software and its products at the appropriate level.
- 3. Government POC for this effort is <Name>, <Phone>, Email: <Email Address>
- 4. Government Technical POC for this effort is <Name>, <Phone>, Email: <Email Address>

<Government Signature Block>

Military Squadron Commander/Civilian Equivalent or military officer or civilian officer in charge of technical oversight

Attachment: Government Acknowledgement of Use

Figure A2.2. Government Acknowledgement of Use

Tracking Number: XXXX-XXX
<p><b>HEADQUARTERS AIR FORCE SPACE COMMAND (HQ AFSPC)</b></p> <p><b>STANDARDIZED ASTRODYNAMIC ALGORITHM LIBRARY (SAAL)</b></p> <p><b>GOVERNMENT ACKNOWLEDGEMENT OF USE</b></p>
<p>&lt;Requesting Organization&gt;, by its authorized representative, has requested software and/or algorithms contained in the Standardized <u>Astrodynamic</u> Algorithm Library (SAAL) from Headquarters Air Force Space Command (HQ AFSPC). The specific software and/or algorithms to be delivered are listed in Part 1 (hereafter jointly referred to as "product"). The products, developed by HQ AFSPC will be used by the requestor for purposes listed in Part 2. HQ AFSPC has exclusive authority for the software distribution to ensure the interoperability, accuracy, and cost effectiveness of space systems. The products are under the control of the Arms Export Control Act because they are part of an extensive and sensitive military capability. In consideration therefore the undersigned hereby accepts:</p>
<p>(1) &lt;Requesting Organization&gt; agrees that the products identified in Part 1 of this agreement shall be used only for the purposes listed in Part 2.</p>
<p>(2) &lt;Requesting Organization&gt; shall not provide or disclose and/or redistribute the products or any part of the package to any other company, person or entity, civilian or government agency except that disclosure may be made to a contractor with the approval of HQ AFSPC provided, however that no such disclosure to a contractor shall be made UNLESS the contractor has executed the HQ AFSPC SAAL CONTRACTOR ACKNOWLEDGEMENT OF USE under the same &lt;Program&gt; with no alterations except to suitably identify the parties and products. (e.g., Contractor must submit a separate request.)</p>
<p>(3) &lt;Requesting Organization&gt; agrees to adopt operating procedures and physical security measures designed to protect the products from disclosure or release to unauthorized third parties.</p>
<p>(4) &lt;Requesting Organization&gt; agrees to accept the terms and conditions of this agreement from the date the products are transferred until such time HQ AFSPC provides further disposition instructions for the products.</p>
<p>(5) Acceptance of Responsibility: The undersigned hereby accepts the products solely for purposes listed in Part 2. The products are under the control of the Arms Export Control Act because they are part of an extensive and sensitive military operational capability. No software code, manual or media containing any representation of the capabilities of the products may be assigned, copied or transferred to any non-authorized person, contractor or government agency. The undersigned agrees to coordinate with HQ AFSPC prior to any distribution of final products (code, documentation, utilities, web services, etc.) created that utilize the SAAL.</p>
<p>(6) This agreement shall survive HQ AFSPC's collaboration with &lt;Requesting Organization&gt;, and shall be effective until &lt;Requesting Organization&gt; is notified by HQ AFSPC that the limitation has expired.</p>

Figure A2.3. Requestor and Approval Section for Government Acknowledgement of Use

Tracking Number: XXXX-XXX

REQUESTOR  
Name: <Name>  
Title: < Military Squadron Commander/Civilian Equivalent or military officer or civilian officer in charge of activity>  
<Organization>  
<Full Address>  
<Phone>  
<Email Address>

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

USAF APPROVING AUTHORITY  
HQ AFSPC/A2/3/6SF  
150 Vandenberg St.  
Suite 1105  
Peterson AFB, CO 80914-4420

Name: FIRST M. LAST, Rank, USAF  
Title: Chief, Missile Warning, Missile Defense and  
Surveillance Operations Branch

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

If signing for the Designated Approving Authority, please print your name legibly:  
\_\_\_\_\_

Parts:  
1. Description of Products Transferred  
2. Justification for Transfer of Products

**Figure A2.4. Part 1 of the Government Acknowledgement of Use**

Tracking Number: XXXX-XXX							
<p><b>Part 1 to the ACKNOWLEDGEMENT OF USE</b>  <b>DESCRIPTION OF PRODUCTS TRANSFERRED</b>                  (Covered by the ACKNOWLEDGEMENT OF USE)</p>							
<p>The specific software and technical data to be delivered is:</p>							
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Software Requested</td> <td style="padding: 2px;">Host Platform and Operating System</td> </tr> <tr> <td style="padding: 2px;">&lt;List of Software&gt;</td> <td style="padding: 2px;">&lt;Identify Host Platform and Operating System&gt;</td> </tr> </table>	Software Requested	Host Platform and Operating System	<List of Software>	<Identify Host Platform and Operating System>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Host Platform and Operating System</td> </tr> <tr> <td style="padding: 2px;">&lt;Identify Host Platform and Operating System&gt;</td> </tr> </table>	Host Platform and Operating System	<Identify Host Platform and Operating System>
Software Requested	Host Platform and Operating System						
<List of Software>	<Identify Host Platform and Operating System>						
Host Platform and Operating System							
<Identify Host Platform and Operating System>							

**Figure A2.5. Part 2 of the Government Acknowledgement of Use**

Tracking Number: XXXX-XXX	
<p><b>Part 2 to the ACKNOWLEDGEMENT OF USE</b></p>	
<p>JUSTIFICATION FOR TRANSFER OF PRODUCTS</p> <p>Description of Purposes</p> <p>The following describes the permissible uses of the products (described in Part 1) that is covered by this ACKNOWLEDGEMENT OF USE.</p> <p>The products will be used solely in the performance of official work in support of: &lt;Project Name&gt;                  Description of the role these products play in the program above: &lt;Project Description&gt;.</p>	

## Attachment 3

## CONTRACTOR ACKNOWLEDGEMENT OF USE

Figure A3.1. Request Letter for Contractor Acknowledgement of Use

CONTRACTOR ACKNOWLEDGEMENT OF USE					
Tracking Number: XXXX-XXX					
<Date>					
MEMORANDUM FOR AFSPC/A2/3/6SF					
FROM: <Government Sponsoring Agency>					
SUBJECT: Request for Standardized <u>Astrodynamic</u> Algorithm Library (SAAL)					
<p>1. &lt;Requesting Organization&gt; under contract &lt;contract number&gt; requires the controlled software and documentation listed below in support of the &lt;Project Name&gt;. The purpose of this request is: &lt;Project Description&gt;. The &lt;Gov't Sponsor Organization&gt; is sponsoring this request for &lt;Requesting Organization&gt;. Additional pertinent information can be found on the completed Acknowledgement of Use attached to this request.</p>					
<table border="1"> <thead> <tr> <th>Software Requested</th> <th>Host Platform and Operating System</th> </tr> </thead> <tbody> <tr> <td>&lt;List of Software&gt;</td> <td>&lt;Identify Host Platform and Operating System&gt;</td> </tr> </tbody> </table>	Software Requested	Host Platform and Operating System	<List of Software>	<Identify Host Platform and Operating System>	
Software Requested	Host Platform and Operating System				
<List of Software>	<Identify Host Platform and Operating System>				
<p>2. I acknowledge this software is classified as U.S. Only, Export Controlled and will protect both the software and its products at the appropriate level.</p>					
<p>3. Government POC for this effort is &lt;Name&gt;, &lt;Phone&gt;, Email: &lt;Email Address&gt;</p>					
<p>4. I am responsible to provide technical oversight of the contractor's use of the SAAL to ensure it conforms to DoD, AF, AFSPC policies and the Acknowledgement of Use. The Government POC will be available to answer contractor questions on what the boundaries are concerning SAAL use and release. Please contact AFSPC for further information regarding the use of SAAL at <a href="mailto:afspc.astrostandards@us.af.mil">afspc.astrostandards@us.af.mil</a>.</p>					
<p>5. The Contractor Technical POC for this effort is &lt;Name&gt;, &lt;Phone&gt; Email: &lt;Email Address&gt;</p>					
<p>&lt;Government Signature Block&gt;</p> <p>Military Squadron Commander/Civilian Equivalent or military officer or civilian officer in charge of activity</p>					
<p>Attachments:</p> <ol style="list-style-type: none"> <li>Contractor Acknowledgement of Use</li> <li>Sub-Contractor Acknowledgement (s) of Use</li> </ol>					

Figure A3.2. HQ AFSPC SAAL Contractor Acknowledgement of Use

Tracking Number: XXXX-XXX

**HEADQUARTERS AIR FORCE SPACE COMMAND (HQ AFSPC)  
STANDARDIZED ASTRODYNAMIC ALGORITHM LIBRARY (SAAL)  
CONTRACTOR ACKNOWLEDGEMENT OF USE**

1. I / we the undersigned, authorized representative(s) of <Contractor Name> (hereinafter referred to as the "Prime Contractor"), request release of Headquarters Air Force Space Command (HQ AFSPC) software described in Part 1 to this agreement for use in performing efforts required pursuant to Government Contract #<Contract Number>, and agree to the following:

a. CONTRACTOR ACKNOWLEDGEMENT OF USE for HQ AFSPC software/algorithms identified in Part 1 to this agreement (Applies to commercial components with limited or restricted rights accessed through Government reuse libraries). <Contractor Name> requests from HQ AFSPC software and technical data consisting of:

Software Requested	Host Platform and Operating System
<List of Software>	<Identify Host Platform and Operating System>

And some or all of the following: other data, technical data, computer software, computer software documentation, computer programs, and their information of like kind, type or quality, either commercial or non-commercial, all of which may be subject to limited rights, restricted rights, Government purpose license right, patents, copyrights, trade secrets, or other confidential or proprietary constraints (collectively "PRODUCTS").

In consideration, therefore, <Contractor Name> agrees:

- (1) That the products shall be used only for Government purposes;
- (2) To strictly abide by and adhere to any and all restrictive markings placed on the products, and requester shall not knowingly disclose or release the products to third parties except approved subcontractors who have themselves executed ACKNOWLEDGEMENT OF USE with HQ AFSPC.
- (3) That any restrictive markings on the products shall be included on all copies, modifications, and derivative works, or any parts or portions thereof, in any form, manner or substance, which are produced by or for, <Contractor Name> including, but not limited to, incorporation of the products into any other data, technical data, computer software, computer software documentation, computer programs, or other information of like kind, type or quality. In all such events, <Contractor Name> shall clearly denote where such products initiate and conclude by use of annotations or other standard markings.
- (4) This agreement specifically extends beyond the end of any contract under which the products are provided as Government Furnished Property and is binding on the contractor, its successor, or its assignees, as long as the requester is in possession of such products or any derivative thereof.

Figure A3.3. HQ AFSPC SAAL Contractor Acknowledgement of Use Cont.

Tracking Number: XXXX-XXXX
<p>(5) To not provide, re-distribute or disclose the products or any part of the package to any other company, person or entity, civilian or government, other than the specific government agency, &lt;Gov't Sponsor Organization&gt;, that &lt;Contractor Name&gt; is supporting under the designated program, &lt;Program Name&gt; and government contract, &lt;Contract Number&gt;. The &lt;Contractor Name&gt; can also provide the products or any part of the package to its sub-contractors if they have completed a Sub-Contractor Acknowledgement of Use (see attached list of Sub-Contractor Acknowledgement of Use) supporting the effort.</p>
<p><b>b. WAIVER OF WARRANTIES AND LIMITATIONS OF DAMAGES AGREEMENT</b></p>
<p>&lt;Contractor Name&gt; and HQ AFSPC agree that:</p>
<p>(1) No guaranties, representations, or warranties either expressed or implied shall be construed to exist in any language, provision, or term contained in this ACKNOWLEDGEMENT OF USE, or in any other documentation provided by HQ AFSPC (all such items are collectively referred to as "the Acknowledgement"). Furthermore, HQ AFSPC disclaims and &lt;Contractor Name&gt; waives and excludes any and all warranties of merchantability and any and all warranties of fitness for any particular purpose;</p>
<p>(2) &lt;Contractor Name&gt; shall obtain from HQ AFSPC all of the products (defined in the ACKNOWLEDGEMENT OF USE above), or any other products or services contemplated by the Agreement, in an "as is" condition.</p>
<p>c. &lt;Contractor Name&gt; use of the products shall not prevent the Government from releasing the products at any point in the future.</p>
<p>d. &lt;Contractor Name&gt; shall not offer the released products or any modified version thereof for resale to the Government, in whole or as part or subpart of a Government deliverable, without explicitly stating that it is doing so by providing certification documentation to the contracting officer before contract award.</p>
<p>e. &lt;Contractor Name&gt; may use the released products in the specified contract with the Government, but understands that the Government shall not pay &lt;Contractor Name&gt; for rights of use of such PRODUCTS in performance of Government contracts or for the later delivery to the Government of such products. &lt;Contractor Name&gt; may be entitled to compensation for converting, modifying or enhancing the PRODUCTS into another form for reproduction and delivery to the Government, if authorized under a contract with the Government.</p>
<p>f. &lt;Contractor Name&gt; shall not release products that are subject to national defense classification or are limited rights technical data or restricted rights software (hereafter referred to as "restricted PRODUCTS"). &lt;Contractor Name&gt; shall promptly report to HQ AFSPC the discovery of any unauthorized release of products.</p>
<p>g. As required, &lt;Contractor Name&gt; shall be responsible for compliance with any proscriptions on foreign disclosure of the released products (e.g., contained in the Department of State International Traffic in Arms Regulations, the Arms Export Control Act, etc.).</p>
<p>h. There may be a fee to cover copying and shipping of the products and any documentation.</p>
<p>j. &lt;Contractor Name&gt; and HQ AFSPC intend that all agreements under this ACKNOWLEDGEMENT OF USE shall be governed by the laws of the United States of America.</p>

Figure A3.4. Requestor and Approval Section for Contractor Acknowledgement of Use

Tracking Number: XXXX-XXX

**REQUESTOR**  
Name: <Name>  
Title: <Contractor Program Manager/Chief Executive Officer/Chief Information Officer>  
<Contractor Organization>  
<Full Address>  
<Phone>  
<Email Address>

Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Government Contract #: <Contract Number>  
Contract End Date: <Contract End Date>

Optional:  
Name:  
Title: < Contractor Contracts Manager >

Signature: \_\_\_\_\_  
Date: \_\_\_\_\_

**USAF APPROVING AUTHORITY**  
HQ AFSPC/A2/3/6SF  
150 Vandenberg St.  
Suite 1105  
Peterson AFB, CO 80914-4420

Name: FIRST M. LAST, Rank, USAF  
Title: Chief, Missile Warning, Missile Defense and  
Surveillance Operations Branch

Signature: \_\_\_\_\_  
Date: \_\_\_\_\_

If signing for the Designated Approving Authority, please print your name legibly:  
\_\_\_\_\_

Parts:

1. Description of Products Transferred
2. Justification of Transfer of Products

Figure A3.5. Part 1 of the Contractor Acknowledgement of Use

Tracking Number: XXXX-XXX	
<b>Part 1 to the ACKNOWLEDGEMENT OF USE</b> <b>DESCRIPTION OF PRODUCTS TRANSFERRED</b> <b>(Covered by the ACKNOWLEDGEMENT OF USE)</b>	
The specific software and technical data to be delivered is:	
Software Requested	Host Platform and Operating System
<List of Software>	<Identify Host Platform and Operating System>

Figure A3.6. Part 2 of the Contractor Acknowledgement of Use

Tracking Number: XXXX-XXX	
<b>Part 2 to the ACKNOWLEDGEMENT OF USE</b> <b>JUSTIFICATION FOR TRANSFER OF PRODUCTS</b>	
Description of Purposes	
The following describes the permissible uses of the products (described in Part 1) that is covered by this ACKNOWLEDGEMENT OF USE.	
The products will be used solely in the performance of official work in support of: <Project Name>	
Description of the role these products play in the program above: <Project Description>	

Figure A3.7. HQ AFSPC SAAL Sub-Contractor Acknowledgement of Use

Tracking Number: XXXX-XXXX  
Subcontractor Tracking Number: XXXX-XXXX(A-Z)

**HEADQUARTERS AIR FORCE SPACE COMMAND (HQ AFSPC)  
STANDARDIZED ASTRODYNAMIC ALGORITHM LIBRARY (SAAL)  
SUB-CONTRACTOR ACKNOWLEDGEMENT OF USE**

1. Pursuant to HEADQUARTERS AIR FORCE SPACE COMMAND (HQ AFSPC) STANDARDIZED ASTRODYNAMIC ALGORITHM LIBRARY (SAAL) CONTRACTOR ACKNOWLEDGEMENT OF USE, I / we the undersigned, authorized representative(s) of <Sub-Contractor Name>, have read the ACKNOWLEDGEMENT OF USE and agree to abide by the contents thereof and to protect any copies received in the same manner as described in the agreement signed by < Prime Contractor Name> acting through its Prime Contractor (hereinafter referred to as the "Prime Contractor").
2. <Sub-Contractor Name> agrees to not provide, re-distribute or disclose the products or any part of the package to any other company, person or entity, civilian or government, other than the specific prime contractor, <Prime Contractor Name>, or the government agency, <Gov't Sponsoring Organization> that the prime and sub-contractor are supporting under the following designated program, <Program Name>, and government contract, <Contract Number>.
3. <Sub-Contractor Name> and <Prime Contractor> intend that all agreements under this HQ AFSPC SAAL ACKNOWLEDGEMENT OF USE shall be governed by the laws of the United States of America.

3. Exclusive points of contact for the Parties with respect to Agreement notices, changes, and contractual matters are as follows:

IN WITNESS WHEREOF, duly authorized representatives of the undersigned parties have executed this AFSPC SAAL ACKNOWLEDGEMENT OF USE as of the day and year first above written.

Subcontractor PM/CEO/CIO <Organization> <Full Address> <Phone> <Email Address>	Prime Contractor PM/CEO/CIO <Organization> <Full Address> <Phone> <Email Address>
Signature _____ Date: _____	Signature _____ Date: _____

**Figure A3.8. Sub-Contractor Contract Manager Signature Block**

Tracking Number: XXXX-XXXX	
Subcontractor Tracking Number: XXXX-XXXX(A-Z)	
Optional - Sub-Contractor Contracts Manager	Optional - Contractor Contracts Manager
Printed Name: _____	Printed Name: _____
Signature: _____	Signature: _____
Date: _____	Date: _____

## Attachment 4

### SPECIAL JUSTIFICATION FOR REQUESTS FOR ASTRODYNAMIC STANDARDS SOURCE CODE

**A4.1. Guidelines.** Requested Astrodynamic Standard algorithms will be provided by AFSPC IAW AFSPCI 17-105, Space Surveillance Astrodynamic Standards.

**A4.2. Dynamic Link Libraries.** Requests for source code should be separated from requests for the Dynamic Link Libraries (DLLs.) and are only considered if the user has requested the DLLs first. Use for debugging purposes is not a valid reason for requesting source code.

A4.2.1. Users must first integrate the DLLs into their application. If after using the DLLs, problems or issues arise, the user should contact AFSPC requesting assistance by email to [afspc.astrostandards@us.af.mil](mailto:afspc.astrostandards@us.af.mil). Typically problems come from how the user is trying to use the software or the specific integration and can be resolved quickly with the assistance of HQ AFSPC/2/3/6Z.

A4.2.2. If it is discovered that there are errors/issues with the DLLs, further discussions with AFSPC/2/3/6Z will be needed to determine the scope of the change and the timeframe needed. Modifications to the DLLs will be made by AFSPC/A3 and a new release of the DLLs will be issued.

A4.2.3. If it is deemed after discussions with HQ AFSPC/2/3/6Z, that it is beneficial to the government to release source code, the user will submit a request to HQ AFSPC/2/3/6SF with a clear justification on why the DLLs are not sufficient in meeting their requirements and timeframe. Coordination with the SAAL Configuration Control Board prior to that submission is necessary.

**A4.3. Source Code.** If source code is released, the source code of the shared libraries shall be used for reference and recompilation only and shall not be altered from the form provided to the contractor without specific approval of HQ AFSPC/A2/3/6SF. If changes to the source code are needed, the end user MUST work with AFSPC/2/3/6Z in making the modifications. The end user will also provide the modified source code to AFSPC/2/3/6Z so that the modifications can be incorporated into the baseline. The end user will then be issued a new release of the DLL for integration. Integration of the DLLs is highly encouraged instead of integrating the modified source code.

A4.3.1. In some circumstances, source code may be released if the end users' implementation is to support a platform other than the standard ones that AFSPC/2/3/6Z supports (i.e. AFSPC/2/3/6Z supports both 32 and 64 bit, Windows and Linux).

A4.3.2. If source code is integrated into the user's application, it will clearly state what version of the Astrodynamic Standards was used and the modifications made to it.

A4.3.3. Requests for source code are rarely approved as the standards were created to reduce time and money for both the government and the end user.

A4.3.4. Please discuss requests for source code first with AFSPC/2/3/6Z. You can contact AFSPC at [afspc.astrostandards@us.af.mil](mailto:afspc.astrostandards@us.af.mil)

## Attachment 5

## HQ AFSPC SOFTWARE REQUIRING APPROVAL FOR DISTRIBUTION

Table A5.1. HQ AFSPC Software That Requires Approval for Distribution (SAAL Requiring Approval for Distribution)

SOFTWARE FUNCTION	SOFTWARE NAME	OFFICE DISTRIBUTING SOFTWARE
EPHEMERIS GENERATION	Special Perturbations (SP)	HQ AFSPC/A2/3/6SF
INITIAL ORBIT GENERATION	Initial Orbit MODule (IOMOD)	HQ AFSPC/A2/3/6SF
ORBIT CORRECTION	Batch Differential Correction (BATCHDC)	HQ AFSPC/A2/3/6SF
	Sequential Differential Correction (SEQDC)	HQ AFSPC/A2/3/6SF
	Report/Observation Association (ROTAS)	HQ AFSPC/A2/3/6SF
	Generalized Element Conversion (GELCON)	HQ AFSPC/A2/3/6SF
ORBIT APPLICATIONS	Look Angle MODule (LAMOD)	HQ AFSPC/A2/3/6SF
	Computation of Miss Between Orbits (COMBO)	HQ AFSPC/A2/3/6SF
	Area Over Flight (AOF)	HQ AFSPC/A2/3/6SF
	Field-of-View (FOV)	HQ AFSPC/A2/3/6SF
OTHER APPLICATIONS	Computation of Coplanar Orbits (COCO)	HQ AFSPC/A2/3/6SF
	Element Set Comparisons (ElComp)	HQ AFSPC/A2/3/6SF
	Breakup Analysis Model (BAM)	HQ AFSPC/A2/3/6SF
	Satellite Attack Assessment Program(SAAS)	HQ AFSPC/A2/3/6SF

Table A5.2. Orbital Analysis Software Requiring Approval for Distribution

SOFTWARE NAME	OFFICE DISTRIBUTING SOFTWARE
ISSA-AV	HQ SMC/SYG

Satellite Trajectory and Attitude Kinetics (SATRAK)	HQ AFSPC/A2/3/6SF
Space Analysis INtegration Tool (SAINT)	HQ AFSPC/A2/3/6SF
Space Brawler with MDR	HQ AFSPC/A2/3/6SF
<b>Note:</b> See AFSPCI 60-102 for a functional description of the algorithms.	