AIR FORCE SEEK EAGLE OFFICE

Customer Information Pamphlet

Air Force SEEK EAGLE Office
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INTRODUCTION

The SEEK EAGLE Program, detailed in AFI 63-104, is the United States Air Force (USAF) certification process for determining safe/acceptable carriage and release (employment and jettison), loading and unloading, safe escape, and ballistic accuracy, when applicable, for all stores in specified loading configurations on USAF and Foreign Military Sales (FMS) aircraft.

The Air Force SEEK EAGLE Office (AFSEO), under the 96th Test Wing at Eglin AFB, was established to be the USAF Center of Excellence responsible for managing the aircraft-store compatibility process. The goal of the AFSEO is to be the most agile, trusted, and responsive provider of innovative and cost effective war-winning weapons integration and mission planning solutions in the Department of Defense (DoD). To accomplish this mission, the AFSEO employs digital modeling, simulation, and analysis, as well as ground and flight tests to obtain the data needed to verify safe and acceptable aircraft-store compatibility. Additionally, the AFSEO provides a range of engineering and analytical support to developmental weapon and aircraft system programs, as well as DoD contractors.

It is important for the customer to understand the SEEK EAGLE process and, in turn, for the AFSEO to understand and document all customer requirements. This informational pamphlet was created to help our customers understand the AFSEO process and explain how to articulate requirements to the AFSEO. If you have additional questions, please contact the AFSEO Requirements and Plans Division at (850) 883-0838.

Note: The AFSEO is not a certification authority. All authority is retained by the respective system program offices. Upon request, the AFSEO executes portions of the SEEK EAGLE process and provides a recommendation to the cognizant program office.

GENERAL INFORMATION

The aircraft-store compatibility work of the AFSEO is performed primarily by three engineering divisions and four support divisions. The engineering divisions consist of Analysis (SKA), Carriage Mechanics (SKC) and Interference Mechanics (SKI). The engineering divisions are divided into specialized disciplines as noted below:

Analysis (SKA)	**Carriage Mechanics (SKC)**	**Interference Mechanics (SKI)**
Safe Escape & Ballistics	Aircraft Flutter	Separations
Fit & Function	Stability & Control (S&C)	Computational Aeromechanics Team (CAT)
Mass Properties	Aircraft/Store Loads	Electromagnetic Compatibility/Interference (EMC/EMI)

The AFSEO's support divisions are:

Requirements and Plans (SKW)	**Weapons Certification (SKP**)	**Finance (SKF)**	**Operations (SKO)**

All of the divisions work together to achieve the AFSEO goal of improving the combat capability of the warfighter.

THE SEEK EAGLE PROCESS

The process of engaging with the AFSEO is different depending on what type of customer is making the request. There are two types of customers, the operational customer and the non-operational customer. Operational customers are those directly supporting operational Air Force units, for example Air Combat Command (ACC), Air Force Global Strike Command (AFGSC), or Air Force Special Operations Command (AFSOC).

Non-operational customers are defined as non-operational Test and Evaluation units, Air Force Materiel Command (AFMC) organizations, Navy, Army, Foreign Military Sales (FMS), and direct commercial customers.

Operational Customers and the SEEK EAGLE Process

This process begins with a customer request, referred to as a SEEK EAGLE Request (SER), which is generated by a Command Headquarters, typically HQ ACC/A5TT or HQ AFGSC/A3TW. The SER is coordinated through the affected stakeholders and ultimately forwarded to the AFSEO's Requirements and Plans Division (SKW) for processing. The AFSEO manages all certification activities and makes a recommendation to the aircraft System Program Office (SPO), which is the final certification authority for aircraft-store configurations.

The three types of requests that the AFSEO produces in response to operational units are listed in Table 1.

Table 1. Operational Customers SEEK EAGLE Requests and Products.

Request from operational units	Product provided in response to this request
Quick-Reaction Certification (QRC)	Certification Recommendation (CR)
Routine Certification (RC)	CR or Limited Certification Recommendation (LCR)
Flight Clearance (FC)	Recommended Flight Clearance (RFC)

Quick-Reaction Certification (QRC). QRCs are intended to support actual contingency or warfighting requirements. They have the highest priority and take precedence over all other projects in the AFSEO. All applicable resources will be directed to these efforts to have them completed as soon as possible. Requires 0-6 or higher level request.

Routine Certification (RC). Standard SERs submitted for non-urgent, worldwide aircraft-store certifications. Routine certification normally involves extensive analysis and ground/flight testing in order to achieve the maximum safe limits possible.

Limited Certification Recommendation (LCR). The LCR is provided at the request of the user to provide some capability in the field, while routine certification and ballistic accuracy verification tasks are being accomplished. Limited Certification provides the maximum safe limits without ground testing, flight testing, or involved analysis.

Recommended Flight Clearance (RFC). SERs submitted for specific, limited operational, or test purposes. The AFSEO issues the RFC, after testing and analysis have been performed to ensure the configuration does not pose an unacceptable risk. The RFC does not result in an entry in the flight manual.

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Figure 1 portrays the coordination process AFSEO performs when a SER is received from an Operational Customer (HQ ACC or HQ AFGSC).

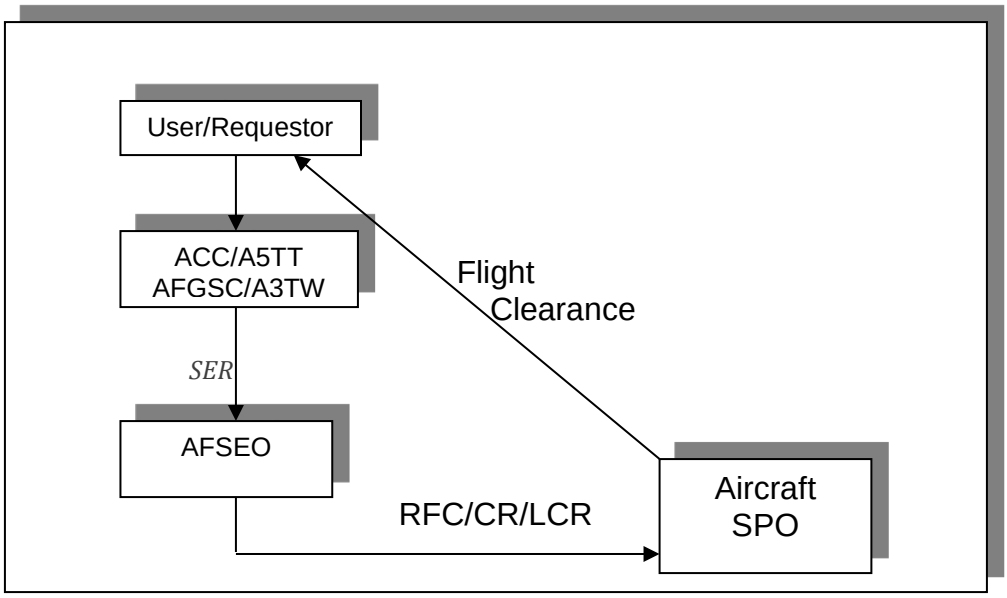

Figure 1. SEEK EAGLE Requirements Process for Operational Customers.

Figure 2 shows the eight engineering areas the AFSEO reviews to complete a certification effort. These steps indicate the thoroughness the AFSEO demands when addressing safety-of-flight issues.

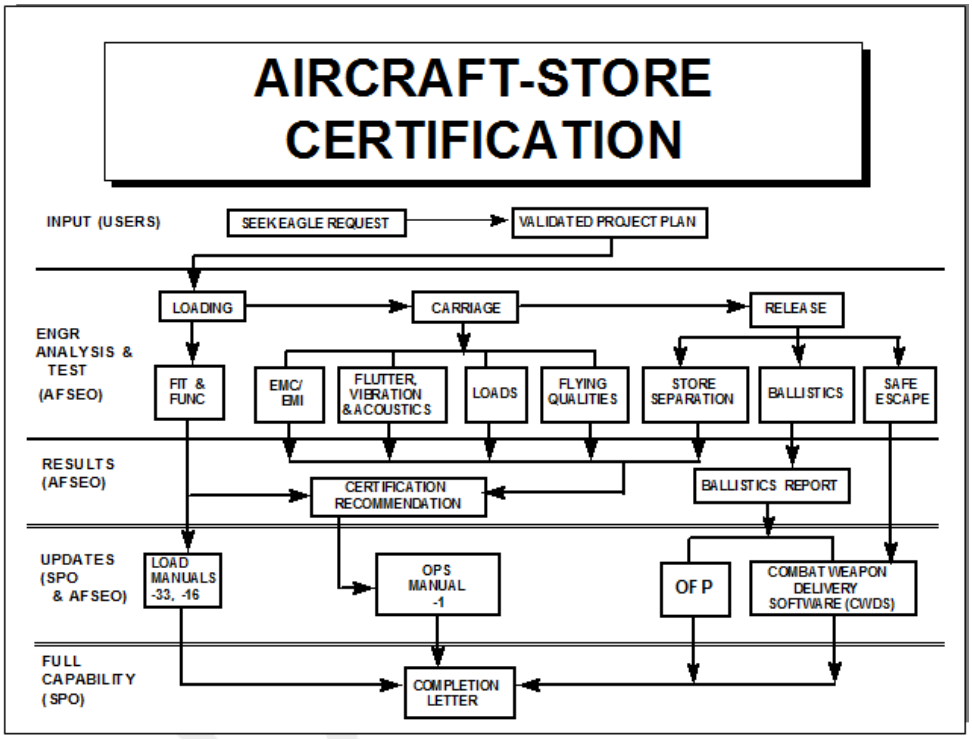

Figure 2. Aircraft-Store Certification Process.

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Non-Operational Customers and the SEEK EAGLE Process

This process also begins with a customer request (SER). With the exception of FMS requests, the SER is typically generated by the customer and submitted directly to the AFSEO's Requirements and Plans Division (SKW) for review and approval. As with operational customers, the AFSEO manages all flight clearance activities for combat aircraft, and the SPO is the final certification authority for aircraft-store configurations.

The types of requests for flight recommendations that the AFSEO publishes in response to non-operational customers are listed in Table 2.

Table 2. Non-Operational SE Requests and Products.

Request from non- operational units	**Product provided in response to this request**
Flight Clearance (FC)	Recommended Flight Clearance (RFC)
Store Modification Assessment (SMA)	SMA

Store Modification Assessment (SMA). SMAs are intended to support customers who have made slight modifications to a store such as software updates or slight hardware changes/updates that do not trigger the criteria listed in AFI 63-104 for SEEK EAGLE Review, shown in Table 3.

Table 3. Criteria Affecting Aircraft-Store Compatibility

External aerodynamic shape	Arming wire or lanyard routing system
Electromagnetic radiation environment	Suspension lug location
Electrical or electronic connectors Or characteristics	Nomenclature changes
Safing or arming design	Structural characteristic changes
Environmental tolerances	Function changes
Ballistics or propulsion	Fragmentation pattern
½ in. (12.7mm) or greater shift of store CG	10 percent or greater change in pitch or yaw moments of inertia
5 percent or greater change in store weight	
Multiple changes within the limits of CG, store weight, or pitch/yaw moments of inertia (less than the aforementioned limits) which constitute a store characteristic change.	
NOTE: Any changes or modifications listed in this table affect outstanding RFC or CR issued by AFSEO. All of these areas could have an effect on safety-of-flight. Include a summary of test results to date or test plans to be conducted. When in doubt, talk to an AFSEO representative.	

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Figure 3 portrays the coordination process the AFSEO performs when a SER is received from Non-Operational customers.

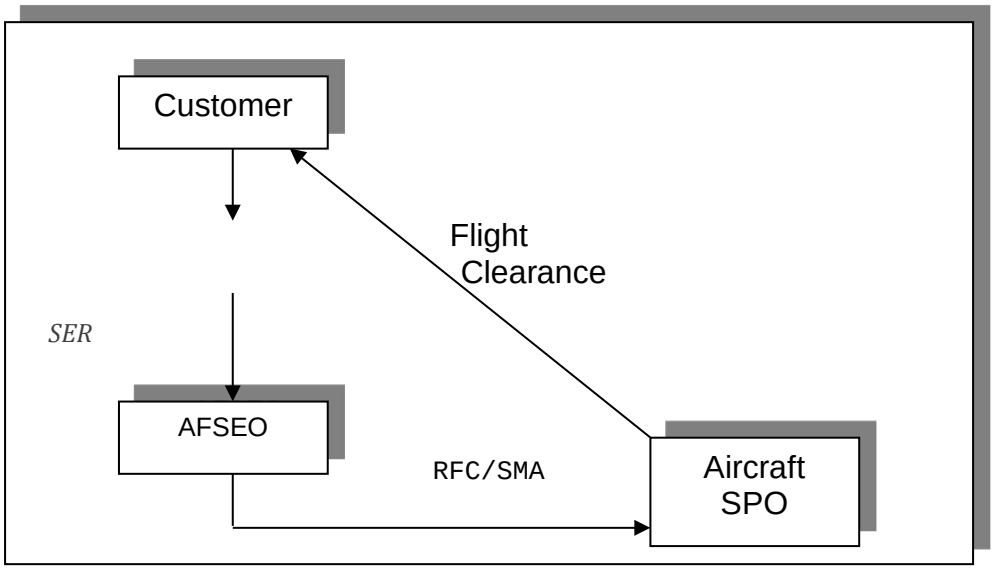

Figure 3. SEEK EAGLE Requirements Process for Non-Operational Customers.

Direct U.S. Commercial Work

Direct U.S. commercial work is defined as any work requested by an organization other than the US Government (USG) or FMS case. AFSEO support for these projects is the same as other non-operational SERs; however, work is charged using 96 TW generated commercial rates, unless AFSEO services have been included in a contractual agreement as government-furnished services. If the U.S. commercial customer is representing a foreign government directly then the AFSEO will consult with SAF/IA prior to accepting the work. The AFSEO cannot contract directly with a foreign entity.

The types of requests for flight recommendations that the AFSEO produces in response to commercial customers are listed in Table 4.

Table 4. Direct Commercial SE Requests and Products.

Request from commercial customers	**Product provided in response to this request**
Flight Clearance (FC)	Recommended Flight Clearance (RFC)
Initial Compatibility Assessment (ICA)	ICA

Initial Compatibility Assessment (ICA). ICAs are requested in support of a direct commercial sales effort, marketing requirement, or in support of a US Government or Foreign Government requirement where the customers do not directly own the aircraft.

ICAs provide developmental store and non-USAF store customers all the analysis of an actual RFC. To convert an ICA to an RFC, you need to identify the aircraft unit(s) and have them contact the AFSEO requesting an RFC. Once contacted, the AFSEO will work with the aircraft SPO to convert the ICA into an RFC and ultimately FC.

The coordination process the AFSEO performs when a SER requesting a FC is received from commercial customers in which USAF owned aircraft are involved is the same as in figure 3. However, ICA deliverables are sent directly to the customer. Figure 4 shows the coordination process for an ICA.

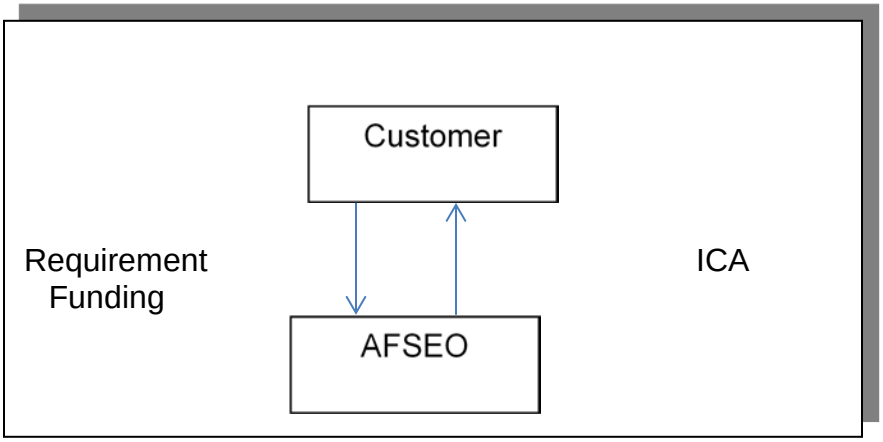

Figure 4. SEEK EAGLE Requirements Process for Initial Compatibility Assessments

Foreign Military Sales (FMS) Process

Due to the legalities of working with foreign governments, the SEEK EAGLE process is slightly different than other non-operational customers. The AFSEO provides support to FMS customers to pursue efforts to increase their operational capabilities when deemed in the best interest of the United States. FMS case implementation starts with a Letter of Offer and Acceptance (LOA) between the requester's embassy and the U.S embassy. The U.S. embassy enters the request into the FORTDIS computer program creating a case file. The Deputy Under Secretary of the Air Force for International Affairs (SAF/IA) takes the case file from the FORTDIS and generates a SEEK EAGLE Request (SER) document with the help of HQ ACC/A5TT. HQ ACC/A5TT will work with SAF/IA to create the SER and assign a SER number. SAF/IA will send the SER to the AFSEO with an info copy to HQ ACC/A5TT. At this point, the process is the same as all other SERs. The FMS execution process is shown in Figure 5.

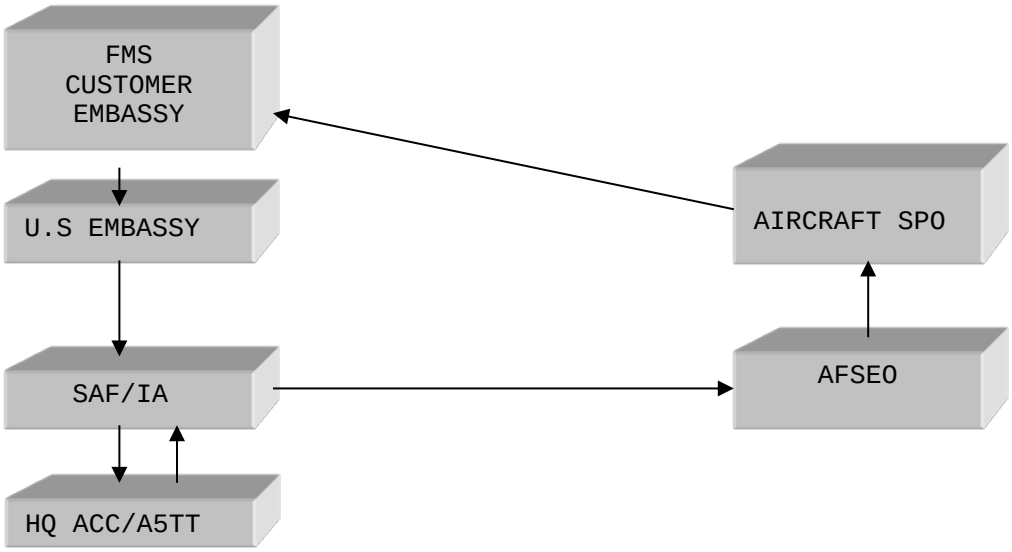

Figure 5. AFSEO FMS Execution Process

HOW THE AFSEO CAN BETTER HELP YOU

The AFSEO requires specific information that details the aircraft-store configuration and limits to ensure requirements are met. This information should include the aircraft type, a list of the stores to be carried, configurations required, and carriage and employment limits. Store Information is needed if you have a new store, modified an existing store or suspension equipment, or if the AFSEO does not have enough information on the store you would like to fly.

Information can be divided into the following areas: **Aircraft**, **Store**, **Configuration**, and **Limits**. Details of the information needed are listed below.

Aircraft

- Indicate the aircraft and model(s) to be used in your requirement.

Stores

- Identify the correct nomenclature to include any version number. If you are unsure, contact the AFSEO. Make sure to include any special racks, adapters, or pylons.

- New stores require the following information:
  - General description of the store including components, Outer Mold Line (OML), and Electromagnetic Compatibility/Electromagnetic Interference function.
  - Estimated mass properties on a draft Stores Technical and Mass Properties (STAMP) Sheet. If you do not have this type of data, the AFSEO can measure your store at Eglin AFB or go to your location and measure the store. Contact AFSEO for further details.

- Functional description document
- Interface Control Drawings/Top Level Drawings
- Ground structural testing and/or vibration report/data
- Loads/stress analysis
- AFSEC/SEW HERO Classification
- Arming or auto pilot sequencing
- CWDS information

- Modified stores require official engineering documentation, signed/approved by the SPO Chief Engineer in most cases, stating the exact changes to the store. Informal presentations or "white paper" style summaries are not sufficient.

Configurations

- Identify where the stores are to be located on the aircraft**.** Identify each configuration of stores and any options. Using an F-16 as an example, the configuration may be Optional AIM-9s on station 2 and 8, Optional AIS/ACMI pods on station 1 and 9, and ECM pod or fuel tank on centerline station 5.

- Prioritize Configurations. If you are requesting multiple configurations, indicate the relative priority of configurations. If you reduce the number of configurations and/or reduce the number of stores, you can reduce time and cost.

Limits

- Identify the maximum G limits, Mach number, and altitude.
- Also indicate the limits at which the store(s) will be released from the aircraft (employment limits).
- Indicate the limits required for emergency jettison.
- Reducing the aircraft carriage, employment and/or jettison limits often saves time and dollars.

Other information

- Identify the User Need Date (UND).
- Provide the AFSEO with as much information as possible to allow development of the best solution. As an example, you may prefer fewer configurations cleared instead of reducing the flight limits.
- Include references of test reports and previous Flight Clearances.
- Include POCs for applicable engineering disciplines

Note: When sending Scientific & Technical Information (STINFO) and/or Proprietary Information please ensure it is marked IAW AFI 64-204, DoDI 5230.24 and DoDI 5230.25.

Over the years the AFSEO has identified a few problem areas. Avoiding the problem areas listed below will help the AFSEO meet your requirements in a timely fashion.

- Broad requirements with too many permutations/configurations.
- Unrealistic or ambiguous flight limits.
- Lack of detailed engineering data on the items under review.
- Not prioritizing the work to be performed.

Note: The AFSEO is often tasked to provide FC support for Airborne Instrumentation System (AIS) pods, primarily the substitution of an AIS pod on any AIM-9 cleared station. This is typically not a problem with any aircraft except the F-16. AIS pods do not have the same mass and physical properties as the AIM-9 and; therefore, cannot be considered analogous.

The item manager or program office *should*:

- Contact the AFSEO up front and early in the program.
- Provide engineering documents, with official nomenclature, as early as possible.
- Complete all required documents received from the AFSEO.
- Limit the configurations/limits requested to those that are operationally relevant.

Attachment 1. Frequently Used Acronyms

AFMC	Air Force Materiel Command
AFSAC	Air Force Security System Assistance Center
AFSEO	Air Force SEEK EAGLE Office
AIS	Airborne Instrumentation System
CDP	Certification Data Package
CG	Center of Gravity
CR	Certification Recommendation
CTF	Combined Test Force
CWDS	Combat Weapons Delivery Software
DT&E	Developmental Test And Evaluation
ECM	Electronic Countermeasures
EMC	Electromagnetic Compatibility
EMD	Engineering and Manufacturing Development
EMI	Electromagnetic Interference
FC	Flight Clearance
FMS	Foreign Military Sales
FOC	Full Operational Capability
ICA	Initial Compatibility Assessment
ICWG	Integration Control Working Group
IOC	Initial Operational Capability
JON	Job Order Number
LCR	Limited Certification Recommendation
LOC	Limited Operational Capability
LTFT	Long-Term Functional Test
MMHE	Munition Maintenance Handling Equipment
MNS	Mission Need Statement
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
OFP	Operational Flight Program
ORD	Operational Requirements Document
OT&E	Operational Test And Evaluation
P&A	Pricing and Availability
PMD	Program Management Directive
QRC	Quick-Reaction Certification
SAF/IA	Secretary of the Air Force for International Affairs
SER	SEEK EAGLE Request
SOC	Statement of Capabilities
SOW	Statement of Work
SPD	System Program Director
SPM	System Program Manager
SPO	System Program Office
STAMP	Store Technical and Mass Property
TO	Technical Order
UND	User Need Date

Attachment 2. AFSEO Definitions

Use of these definitions will facilitate clarity of the intent of the SEEK EAGLE Program:

Aircraft. The SEEK EAGLE Program permits the broadest aircraft definition to be used, including fixed and rotary wing, powered or unpowered, manned or unmanned, as long as it is in the AF inventory (present or past) and uses suspension equipment to carry stores.

Certification. For AFSEO purposes, certification is the establishment of the authority to utilize an aircraft-store combination. The certification process is complete when publication of all data and instructions needed to load, carry, and employ a store are delivered.

Inventory. For AFSEO purposes, a system is considered to be in the inventory when it has a defined, controlled configuration, and there are published TOs that describe its configuration and operation. Except for future planning purposes, the SEEK EAGLE Program does not address developmental aircraft, stores, or suspension equipment.

Store. For AFSEO purposes, a store is an entity carried on suspension equipment, whether or not it is intended to be separated from the aircraft during flight. Common stores are deliverable ordnance such as bombs and missiles, but electronic countermeasure (ECM) pods, Global Positioning System pods, baggage pods, and fuel tanks are also included. Most stores have standardized interfaces to permit their loading on a variety of suspension equipment. Entities that are permanently attached to the aircraft, although store-like in many cases, are not considered stores for AFSEO purposes.

Suspension Equipment. For AFSEO purposes, suspension equipment includes racks and launchers that are designed to accommodate stores. Common suspension equipment includes bomb racks and missile rails, but ECM pod adapters are also included because the pods are routinely uploaded and downloaded. Most suspension equipment has standardized interfaces to facilitate the loading of a variety of stores.

Attachment 3. Key Points of Contact

AFSEO	PHONE NUMBER
Director	Commercial 850-882-9711 DSN 872-9711
Technical Director	Commercial 850-882-9711 DSN 872-9711
Financial Division (SKF) Chief:	Commercial 850-882-6784 DSN 872-6784
Certification Division (SKP) Chief:	Commercial 850-882-1376 DSN 872-1376
Combat Weapon Delivery Software (CWDS):	Commercial 850-882-0472 DSN 872-0472
Requirements and Plans Division (SKW):	Commercial 850-883-0838 DSN 875-0838

HQ ACC/ A5TT, Langley AFB VA:

Commercial 757-764-4360/7597
DSN 574-4360/7597

HQ AFGSC/A3TW, Barksdale AFB LA:

Commercial 318-456-0435/8882
DSN 781-0435/8882

Attachment 4. AFSEO Product Definitions

Recommended Flight Clearance (RFC): An AFSEO **recommendation** issued to the aircraft SPO to authorize operational units to fly store configurations not currently certified in the flight manual. The SPO will then issue a Flight Clearance to the using units based on the AFSEO's RFC. The RFC is a limited authorization for a specific Developmental or Operational Test and Evaluation requirement. The RFC identifies, as appropriate, the aircraft loading configuration, carriage, jettison and employment limitations, information needed to make drag and stability computations, cartridge and orifice combinations or settings, reference to loading procedures and delivery information, store mass and physical properties, and any other information that affects personnel, flight safety, or mission accomplishment.

Certification Recommendation (CR): An AFSEO **recommendation** issued to the aircraft SPO for a non-urgent, world-wide aircraft certification requirement. The CR process includes safe upload and download procedures, flight limits for safe carriage, employment, jettison, safe escape, and ballistic accuracy verification.

Limited Certification Recommendation (LCR): An AFSEO **recommendation** issued to the aircraft SPO to provide the using command a capability in the field while a routine certification and/or ballistic accuracy verification tasks are being accomplished. The LCR may consist of a limited employment envelope (not flight tested), unverified Operational Flight Program, or manual ballistics only.

Quick-Reaction Certification (QRC): An AFSEO **recommendation** issued to the aircraft SPO upon the completion of all activities required to certify the requested aircraft-store configuration. This is an accelerated certification recommendation and includes ballistics accuracy verification, if required. When an urgent operational need date for combat capability exists and the normal SEEK EAGLE certification process will not meet the requested timeline, then a QRC is submitted.

Initial Compatibility Assessment (ICA): An assessment for an aircraft that is not in the USAF inventory. It can be an assessment of future efforts required to clear a store for flight or take a very similar role to a Certification Recommendation.

Engineering Letter (EL): A document typically submitted to assess the risk associated with an effort that has not evaluated by every engineering area, or in as deep a scrutiny as regular projects. Although not all engineering disciplines are addressed, the engineering information/data for technical areas that are addressed is available in a manner that allows for complete compatibility analysis to be performed.

Risk Assessment (RA): An assessment provided whenever the engineering information/data pertinent to disciplines being addressed does not support a complete compatibility analysis.

Store Modification Assessment (SMA): An assessment of a modification to determine if recertification per AFI 63-104 is needed. If it is, a separate RFC/CR will be produced.

Work Request (WR): An AFSEO document that outlines the developmental test requirements for a specific certification effort. It contains the mission summary and any specified AFI guidelines for conduct of the test.

Technical Assistance (TA): The AFSEO provides as-needed technical assistance spanning the aircraft-store compatibility spectrum. Due to the extensive variety of assistance available, please contact the AFSEO Requirements and Plans Division, 96 SK/SKW, to discuss how we can best help you.

Attachment 5. AFSEO Engineering Disciplines

Mass Property Measurement Facility and Store Technical & Mass Properties (MPMF & STAMP):

The MPMF and STAMP teams measure the mass and physical properties of aircraft stores. This data is provided to the engineers and is used as the basis for flight clearance work. Users/customers throughout the world recognize STAMP sheets as the source for basic aircraft/store compatibility data. The MPMF and STAMP teams conduct aircraft-store compatibility analysis by means of:

- Physically measuring stores
- Maintaining standard configuration control of stores to ensure engineers and analysts use the same data
- Maintaining the Store Technical and Mass Properties (STAMP) sheet which defines length, width, weight, inertia etc. of the store. STAMP uses the official nomenclature, model and other information to assist in identification.

Fit and Function:

The Fit and Function team determines whether the store is physically compatible with the aircraft. This is considered a fundamental item in the SEEK EAGLE analysis process. Fit refers to determining the clearances of stores on the aircraft, in other words, making sure it “fits”. On the other hand, function is concerned with the safe operation of the store during carriage and release that may be impacted by the fit. In addition, function is concerned with how easily a store can be loaded and maintained while on the aircraft. Fit and Function conducts aircraft-store compatibility analysis and technical assistance by means of:

- Evaluates physical clearances of stores, lanyards, cables
- Physical fit tests on and off aircraft
- Store-to-aircraft clearance
- Installation of cables
- Digital fit tests using Computerized Physical Fit (CPF) software

Loads:

The Loads team analyzes aircraft and store loads. Additionally, environmental concerns such as vibration, shock, aero acoustics, and temperature are reviewed. Loads conducts aircraft-store compatibility analysis and technical assistance by means of:

- Evaluation of aircraft-store compatibility in regards to loads & environment
- Specialized structural analysis problems
- Demonstration of aircraft- store loads and environmental compatibility
- Delivering design loads and environmental profiles for new store developments
- Review of contractor provided store structural analysis and associated testing
- Providing subject matter expert technical advice on loads and environmental issues

Flutter:

The flutter team addresses aircraft and store Limit Cycle Oscillation (LCO) and flutter onset. During flight, aircraft wings will typically move up and down in a cyclical motion, known as LCO. LCO is only known to affect F-16 and F-18 aircraft, and usually is first noticeable in wing tip motion and pilot duties disrupted by the movement. The onset of flutter is dependent on many factors but must be evaluated to ensure aircraft-store compatibility is achieved. Flutter conducts aircraft-store compatibility analysis and technical assistance by means of:

- Flutter flight test data analysis
- Unsteady / flutter aerodynamics analysis
- Aeroelastic model development
- Nonlinear structural testing
- Ground vibration testing

Stability & Control (S&C):

Stability and Control is tasked with determining if the aircraft is controllable with the various store load-outs and flight limits. S&C conducts aircraft-store compatibility analysis and technical assistance by means of:

- Stability & Control analysis
- Determining the impact external stores have on aircraft flying qualities
- Ensuring all configurations meet weight and balance requirements
- Ensuring sufficient control authority exists
- Analogy to previously cleared/certified stores
- Wind tunnel test
- Flight test

Separations:

Store Separations evaluates the store's physical separation from the aircraft including both employment (release of store for its intended mission) and jettison (ejection of a store due to an emergency). The team evaluates the areas such as store-to-aircraft and store-to-store contact/collision, fly-back, and plume impingement. The Separations team conducts aircraft-store compatibility analysis and technical assistance by means of:

- Ejector rack testing and modeling
- Flight test, wind tunnel testing, and static ejection test
- Store separations 6-dof modeling
- Testing for chaff, flares, towed decoys, towed targets, towed banners, unmanned aero vehicles (as parent platform and as released store)
- Stores mass and physical properties, ejection forces, length of stroke of the ejector foot, and balance of forces between a two ejector foot rack
- Communicates safe and acceptable jettison and employment envelopes for new aircraft-store configurations through test and analysis

Electromagnetic Compatibility/Electromagnetic Interference (EMC/EMI):

EMC/EMI evaluates electromagnetic compatibility between stores and aircraft. The team determines the compatibility of a store to operate in the electrical environment of an aircraft and any adjacent stores. This includes interference with any transmission or receiver function or flight safety system. EMC/EMI also looks at hazards to explosives. EMC/EMI conducts aircraft-store compatibility analysis and technical assistance by means of:

- Evaluate stores as potential source of conducted and radiated EMI to aircraft systems
- Evaluate stores as both a source & a victim of HERO (Hazards of Electromagnetic Radiation to Ordnance) during carriage & immediate post-launch
- Much of the EMC/EMI work is accomplished by analysis, with no physical materials
- EMC/EMI does, however, work with aircraft, antennas, spectrum/network analyzers and other flight-line equipment

Computational Aeromechanics Team (CAT):

The CAT is the center of Computational Fluid Dynamics (CFD) for the AFSEO. CFD models provide aerodynamic and store trajectory data to support analysis that augments wind tunnel tests and reduce costs. CAT personnel are well experienced in applying these software tools to problems of interest to our customers.

Combat Weapon Delivery System (CWDS):

Currently CWDS is the only USAF mission planning tool that provides mission planning capability for conventional, nuclear, and laser guided weapons. CWDS provides a penetration analysis capability that is used by other Common Components like Precision Guided Mission Planning Software (PGMPS).