DEPARTMENT OF DEFENSE

Office of the Secretary

[Transmittal No. 20-66]

Arms Sales Notification


ACTION: Arms sales notice.

SUMMARY: The Department of Defense is publishing the unclassified text of an arms sales notification.

FOR FURTHER INFORMATION CONTACT: Karma Job at karma.d.job.civ@mail.mil or (703) 697-8976.

SUPPLEMENTARY INFORMATION: This 36(b)(1) arms sales notification is published to fulfill the requirements of section 155 of Public Law 104-164 dated July 21, 1996. The following is a copy of a letter to the Speaker of the House of Representatives, Transmittal 20-66 with attached Policy Justification and Sensitivity of Technology.


Kayyonne T. Marston,

Alternate OSD Federal Register Liaison Officer,

Department of Defense.
October 9, 2020

The Honorable Nancy Pelosi  
Speaker of the House  
U.S. House of Representatives  
H-209, The Capitol  
Washington, DC 20515

Dear Madam Speaker:

Pursuant to the reporting requirements of Section 36(b)(1) of the Arms Export Control Act, as amended, we are forwarding herewith Transmittal No. 20-66 concerning the Air Force’s proposed Letter(s) of Offer and Acceptance to the Government of Finland for defense articles and services estimated to cost $12.5 billion. After this letter is delivered to your office, we plan to issue a news release to notify the public of this proposed sale.

Sincerely,

[Signature]

Heidi H. Grant  
Director

Enclosures:  
1. Transmittal  
2. Policy Justification  
3. Sensitivity of Technology
Transmittal No. 20-66

Notice of Proposed Issuance of Letter of Offer
Pursuant to Section 36(b)(1)
of the Arms Export Control Act, as amended

(i) Prospective Purchaser: Government of Finland

(ii) Total Estimated Value:

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Defense Equipment*</td>
<td>$ 8.4 billion</td>
</tr>
<tr>
<td>Other</td>
<td>$ 4.1 billion</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$12.5 billion</strong></td>
</tr>
</tbody>
</table>

(iii) Description and Quantity or Quantities of Articles or Services under Consideration for Purchase:

**Major Defense Equipment (MDE):**
- Sixty-four (64) F-35 Joint Strike Fighter CTOL Aircraft
- Sixty-six (66) Pratt & Whitney F-135 Engines (64 installed and 2 spares)
- Five hundred (500) GBU-53/B Small Diameter Bomb II (SDB II) All-Up Round (AUR)
- Twelve (12) GBU-53/B SDB II Guided Test Vehicles (GTV)
- Twelve (12) GBU-53/B SDB II Captive Carry Vehicles (CCV)
- One hundred fifty (150) Sidewinder, AIM-9X Block II+ (Plus) Tactical Missiles
- Thirty-two (32) Sidewinder, AIM-9X Block II+ (Plus) Captive Air Training Missiles (CATMs)
- Thirty (30) AIM-9X Block II+ (Plus) Sidewinder Tactical Guidance Units
- Eight (8) AIM-9X Block II Sidewinder CATM Guidance Units
- One hundred (100) AGM-154C-1 Joint Stand Off Weapon (JSOW-C1) Tactical Missiles
- Two hundred (200) Joint Air-to-Surface Standoff Missile-Extended Range (JASSM-ER) AGM-158B-2 Missiles
- Two (2) AGM-158B-2 JASSM-ER Separation Test Vehicles
- Two (2) AGM-158B-2 JASSM-ER Instrumented Test Vehicles
- Two (2) AGM-158B-2 JASSM-ER Jettison Test Vehicles
- Two (2) AGM-158B-2 Inert JASSM w/Intelligent Telemetry Instrumentation Kits
- Two (2) AGM-158 Dummy Air Training Missiles
- One hundred twenty (120) KMU-556 JDAM Guidance Kits for GBU-31
- Three hundred (300) FMU-139D/B Fuzes
- Two (2) KMU-556(D-2)/B Trainer JDAM Guidance Kits for GBU-31
- Thirty (30) KMU-557 JDAM Guidance Kits for GBU-31
- One hundred fifty (150) KMU-572 JDAM Guidance Kits for GBU-38/54
- One hundred twenty (120) BLU-117, General Purpose Bomb
- Thirty-two (32) BLU-109, General Purpose Bomb
- One hundred fifty (150) BLU-111, General Purpose Bomb
- Six (6) MK-82, Inert Bomb
- One (1) FMU-139D/B (D-1) Inert Fuze

**Non-MDE:**
- Also included are Electronic Warfare Systems; Command, Control, Communications, Computer and Intelligence/Communications, Navigational, and Identification (C4I/CNI); Autonomic Logistics Global Support System (ALGS); Operational Data Integrated Network (ODIN); Air System Training Devices; Weapons Employment Capability and other Subsystems, Features, and Capabilities; F-35 unique infrared flares; reprogramming
center access; F-35 Performance Based Logistics; software development/integration; aircraft ferry and tanker support; Detector Laser DSU-38A/B, Detector Laser DSU-38A(D-2)/B, KMU-572(D-2)/B Trainer (JDAM), 40 inch Wing Release Lanyard; GBU-53/B SDB II Weapon Load Crew Trainers (WLCT); GBU-53/B SDB II Practical Explosive Ordnance Disposal System Trainers (PEST); AGM-154C-1 JSOW Captive Flight Vehicles; AGM-154C-1 JSOW Dummy Air Training Missiles; AGM-154C-1 JSOW mission planning, integration support and testing, munitions storage security and training, weapon operational flight program software development; integration of the Joint Strike Missile; weapons containers; aircraft and munitions support and test equipment; communications equipment; provisioning, spares and repair parts; weapons repair and return support; personnel training and training equipment; weapon systems software, publications and technical documents; U.S. Government and contractor engineering, technical, and logistics support services; and other related elements of logistical and program support.

(iv) Military Department: Air Force (FI-D-SAB; FI-D-YAB, FI-D-YAE, FI-D-YAJ); Navy (FI-P-AAQ, FI-P-AAS)

(v) Prior Related Cases, if any: None

(vi) Sales Commission, Fee, etc., Paid, Offered, or Agreed to be Paid: None

(vii) Sensitivity of Technology Contained in the Defense Article or Defense Services Proposed to be Sold: See Attached Annex

(viii) Date Report Delivered to Congress: October 9, 2020

*As defined in Section 47(6) of the Arms Export Control Act.
POLICY JUSTIFICATION

Finland – F-35 Joint Strike Fighter Aircraft with Air-to-Air Missiles and Air-to-Ground Precision Guided Munitions

The Government of Finland has requested to buy sixty-four (64) F-35 Joint Strike Fighter CTOL aircraft; sixty-six (66) Pratt & Whitney F-135 engines (64 installed and 2 spares); five hundred (500) GBU-53/B Small Diameter Bomb II (SDB II) All-Up Round (AUR); twelve (12) GBU-53/B SDB II Guided Test Vehicles (GTV); twelve (12) GBU-53/B SDB II Captive Carry Vehicles (CCV); one hundred fifty (150) Sidewinder AIM-9X Block II+ (Plus) Tactical Missiles; thirty-two (32) Sidewinder AIM-9X Block II+ (Plus) Captive Air Training Missiles (CATMs); thirty (30) AIM-9X Block II+ (Plus) Sidewinder Tactical Guidance Units; eight (8) AIM-9X Block II Sidewinder CATM Guidance Units; one hundred (100) AGM-154C-1 Joint Stand Off Weapon (JSOW-C1) Tactical Missiles; two hundred (200) Joint Air-to-Surface Standoff Missile-Extended Range (JASSM-ER) AGM-158B-2 Missiles; two (2) AGM-158B-2 JASSM-ER Separation Test Vehicles; two (2) AGM-158B-2 JASSM-ER Instrumented Test Vehicles; two (2) AGM-158B-2 JASSM-ER Jettison Test Vehicles; two (2) AGM-158B-2 Inert JASSM w/Intelligent Telemetry Instrumentation Kits; two (2) AGM-158 Dummy Air Training Missiles; one hundred twenty (120) KMU-556 JDAM Guidance Kits for GBU-31; three hundred (300) FMU-139D/B Fuzes; two (2) KMU-556(D-2)/B Trainer JDAM Guidance Kits for GBU-31; thirty (30) KMU-557 JDAM Guidance Kits for GBU-31; one hundred fifty (150) KMU-572 JDAM Guidance Kits for GBU-38/54; one hundred twenty (120) BLU-117, General Purpose Bombs; thirty-two (32) BLU-109, General Purpose Bomb; one hundred fifty (150) BLU-111, General Purpose Bomb; six (6) MK-82, Inert Bomb; one (1) FMU-139D/B (D-1) Inert Fuze.

Also included are Electronic Warfare Systems; Command, Control, Communications, Computer and Intelligence/Communications, Navigational, and Identification (C4I/CNI); Autonomic Logistics Global Support System (ALGS); Operational Data Integrated Network (ODIN); Air System Training Devices; Weapons Employment Capability and other Subsystems, Features, and Capabilities; F-35 unique infrared flares; reprogramming center access; F-35 Performance Based Logistics; software development/integration; aircraft ferry and tanker support; Detector Laser DSU-38A/B, Detector Laser DSU-38A(D-2)/B, KMU-572(D-2)/B Trainer (JDAM), 40 inch Wing Release Lanyard; GBU-53/B SDB II Weapon Load Crew Trainers (WLCT); GBU-53/B SDB II Practical Explosive Ordnance Disposal System Trainers (PEST); AGM-154C-1 JSOW Captive Flight Vehicles; AGM-154C-1 JSOW Dummy Air Training Missiles; AGM-154C-1 JSOW mission planning, integration support and testing, munitions storage security and training, weapon operational flight program software development; integration of the Joint Strike Missile; weapons containers; aircraft and munitions support and test equipment; communications equipment; provisioning, spares and repair parts; weapons repair and return support; personnel training and training equipment; weapon systems software, publications and technical documents; U.S. Government and contractor engineering, technical, and logistics support services; and other related elements of logistical and program support. The total estimated cost is $12.5 billion.

This proposed sale will support the foreign policy and national security of the United States by improving the security of a trusted partner which is an important force for political stability and economic progress in Europe. It is vital to the U.S. national interest to assist Finland in developing and maintaining a strong and ready self-defense capability.

The proposed sale of F-35s and associated missiles and munitions will provide Finland with a credible defense capability to deter aggression in the region and ensure interoperability with U.S. forces. The proposed sale will replace Finland's retiring F/A-18s and enhance its air-to-air and air-to-ground self-defense capability. Finland will have no difficulty absorbing these
aircraft into its armed forces.

The proposed sale of this equipment and support will not alter the basic military balance in the region.

The prime contractors will be Lockheed Martin Aeronautics Company, Fort Worth, TX; Pratt & Whitney Military Engines, East Hartford, CT; The Boeing Company, St. Charles, MO; and Raytheon Missiles and Defense, Tucson, AZ. This proposal is being offered in the context of a competition. If the proposal is accepted, it is expected that offset agreements will be required. Any offset agreement will be defined in negotiations between the purchaser and the contractor(s).

Implementation of this proposed sale will require multiple trips to Finland involving U.S. Government and contractor representatives for technical reviews/support, program management and training over the life of the program. U.S. contractor representatives will be required in Finland to conduct Contractor Engineering Technical Services (CETS) and Autonomic Logistics and Global Support (ALGS) for after-aircraft delivery.

There will be no adverse impact on U.S. defense readiness as a result of this proposed sale.
(vii) Sensitivity of Technology:

1. The F-35A Conventional Take Off and Landing (CTOL) aircraft is a single-seat, single-engine, all-weather, stealth, fifth-generation, multirole aircraft. The F-35A CTOL contains sensitive technology including the low observable airframe/outer mold line, the Pratt and Whitney F135 engine, AN/APG-81 radar, an integrated core processor central computer, a mission systems/electronic warfare suite, a multiple sensor suite, technical data/documentation, and associated software. Sensitive elements of the F-35A are also included in operational flight and maintenance trainers. Sensitive and classified elements of the F-35A CTOL aircraft include hardware, accessories, components, and associated software for the following major subsystems:

   a. The Pratt and Whitney F135 engine is a single 40,000-lb thrust class engine designed for the F-35 and assures highly reliable, affordable performance. The engine is designed to be utilized in all F-35 variants, providing unmatched commonality and supportability throughout the worldwide base of F-35 users.

   b. The AN/APG-81 Active Electronically Scanned Array (AESA) is a high processing power/high transmission power electronic array capable of detecting air and ground targets from a greater distance than mechanically scanned array radars. It also contains a synthetic aperture radar (SAR), which creates high-resolution ground maps and provides weather data to the pilot, and provides air and ground tracks to the mission system, which uses it as a component to fuse sensor data.

   c. The Electro-Optical Targeting System (EOTS) provides long-range detection and tracking as well as an infrared search and track (IRST) and forward-looking infrared (FLIR) capability for precision tracking, weapons delivery, and bomb damage assessment (BDA). The EOTS replaces multiple separate internal or podded systems typically found on legacy aircraft.

   d. The Electro-Optical Distributed Aperture System (EODAS) provides the pilot with full spherical coverage for air-to-air and air-to-ground threat awareness, day/night vision enhancements, a fire control capability, and precision tracking of wingmen/friendly aircraft. The EODAS provides data directly to the pilot's helmet as well as the mission system.

   e. The Electronic Warfare (EW) system is a reprogrammable, integrated system that provides radar warning and electronic support measures (ESM) along with a fully integrated countermeasures (CM) system. The EW system is the primary subsystem used to enhance situational awareness, targeting support and self-defense through the search, intercept, location and identification of in-band emitters and to automatically counter IR and RF threats.

   f. The Command, Control, Communications, Computers and Intelligence/Communications,
The F-35 Operational Data Integrated Network (ODIN) provides an intelligent information infrastructure that binds all the key concepts of ALGS into an effective support system. ODIN establishes the appropriate interfaces among the F-35 Air Vehicle, the warfighter, the training system, government information technology (IT) systems, and supporting commercial enterprise systems. Additionally, ODIN provides a comprehensive tool for data collection and analysis, decision support and action tracking.

j. The F-35 Training System includes several training devices to provide integrated training for pilots and maintainers. The pilot training devices include a Full Mission Simulator (FMS) and Deployable Mission Rehearsal Trainer (DMRT). The maintainer training devices include an Aircraft Systems Maintenance Trainer (ASMT), Ejection System Maintenance Trainer (ESMT), Outer Mold Line (OML) Lab, Flexible Linear Shaped Charge (FLSC) Trainer, F135 Engine Module Trainer, and Weapons Loading Trainer (WLT). The F-35 Training System can be integrated, where both pilots and maintainers learn in the same Integrated Training Center (ITC). Alternatively, the pilots and maintainers can train in separate facilities (Pilot Training Center and Maintenance Training Center).

k. Other subsystems, features, and capabilities include the F-35’s low observable air frame, Integrated Core Processor (ICP) Central Computer, Helmet Mounted Display System (HMDS), Pilot Life Support System (PLSS), Off-Board Mission Support (OMS) System and publications/maintenance manuals. The HMDS provides a fully sunlight readable, bi-ocular display presentation of aircraft information projected onto the pilot's helmet visor. The use of a night vision camera integrated into the helmet eliminates the need for separate Night Vision Goggles. The PLSS provides a measure of Pilot Chemical, Biological, and Radiological Protection through use of an On-Board Oxygen Generating System (OBOGS); and an escape system that provides additional protection to the pilot. OBOGS takes the Power and Thermal Management System (PTMS) air and enriches it by removing gases (mainly nitrogen) by adsorption, thereby increasing the concentration of oxygen in the product gas and supplying breathable air to the pilot. The OMS provides a mission
planning, mission briefing, and a maintenance/intelligence/tactical debriefing platform for the F-35.

2. The Reprogramming Center is located in the United States and provides F-35 customers a means to update F-35 electronic warfare databases.

3. The AGM-158B Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER) is an extended range low-observable, highly survivable subsonic cruise missile designed to penetrate next generation air defense systems en-route to target. It is designed to kill hard, medium-hardened, soft and area type targets. The extended range over the baseline was obtained by going from a turbo jet to a turbo-fan engine and by reconfiguring the fuel tanks for added capacity. Purchase will include test and training missiles.

4. The AGM-154 Joint Standoff Weapon (JSOW) is used by the Navy, Marine Corps, and Air Force, and allows aircraft to attack well-defended targets in day, night, and adverse weather conditions. The JSOW C and C-1 utilize GPS/INS guidance and an uncooled imaging infrared (IIR) seeker for terminal guidance, autonomous acquisition, and provides a precision targeting, 500-lb-class tandem warhead that is the Navy’s primary standoff weapon against hardened targets. The JSOW C-1 added the Link 16 data link enabling a robust and flexible capability against high-value stationary land targets and moving maritime target capability. JSOW C-1 can fly via two dimensional and three dimensional waypoints to the target, offering the optimal path around integrated air defense systems (IADS).

5. The AIM-9X Block II+ (Plus) SIDEWINDER Missile is a supersonic, short-range Air-to-Air (A/A) guided missile which employs a passive Infrared (IR) target acquisition system, proportional navigational guidance, and a closed-loop position servo Fin Actuator Unit (FAU). It represents a substantial increase in missile acquisition and kinematics performance over the AIM-9M and replaces the AIM-9X Block I Missile configuration. The missile includes a high off-boresight seeker, enhanced countermeasure rejection capability, low drag/high angle of attack airframe and the ability to integrate the Helmet Mounted Cueing System. The software algorithms are the most sensitive portion of the AIM-9X missile. The software continues to be modified via a pre-planned product improvement (P3I) program in order to improve its counter-countermeasure capabilities. No software source code or algorithms will be released.

   a. AIM-9X BLK II Captive Air Training Missile (CATM) is a flight certified inert mass simulator with a functioning Guidance Unit (GU). The CATM is the primary aircrew training device providing all pre-launch functions as well as realistic aerodynamic performance that equate to carrying a tactical missile. The CATM provides pilot training in aerial target acquisition and use of aircraft controls/displays.

   b. AIM-9X BLK II+ (Plus) Tactical GU, WGU-57/B, provides the missile tracking, guidance, and control signals. The GU provides counter-countermeasures, improved reliability and maintainability over earlier Sidewinder models. Improvements include: (1) upgrade/redesign to the Electronics Unit Circuit Card Assemblies, (2) a redesigned center section harnessing, and (3) a larger capacity missile battery.

   c. AIM-9X BLK II CATM GU, WGU-57/B, is identical to the tactical GU except the GU and Control Actuation System (CAS) batteries are inert and the software Captive. The software switch tells the missile processor that it is attached to a CATM and to ignore missile launch commands. The switch also signals software to not enter abort mode because there is no FAU connected to the GU.
d. AIM-9X BLK II Multi-Purpose Training Missile (MPTM) is a ground training device used to train ground personnel in aircraft loading, sectionalization, maintenance, transportation, storage procedures, and techniques. The missile replicates external appearance and features of a tactical AIM-9X-2 missile. The MPTM will physically interface with loading equipment, maintenance equipment, launchers, and test equipment. The missile is explosively and electrically inert and is NOT flight certified.

e. AIM-9X BLK II Dummy Air Training Missile (DATM) is used to train ground personnel in missile maintenance, loading, transportation, and storage procedures. All components are completely inert. The missile contains no programmable electrical components and is not approved for flight.

f. AIM-9X BLK II Active Optical Target Detector (AOTD) is newly designed for Block II. The AOTD/Data Link (AOTD/DL) uses the latest laser technology allowing significant increases in sensitivity, aerosol performance, low altitude performance, and Pk (Probability of Kill). The AOTD/DL design includes a DL for 2-way platform communication. The AOTD/DL communicates with the GU over a serial interface which allows the GU to receive and transmit data so that a target position and status communication with a launching platform is possible during missile flight.

6. The GBU-31 Joint Direct Attack Munition (JDAM) is a 2,000 pound Inertial Navigation System/Global Positioning System (INS/GPS) guided precision air to ground munition. The GBU-31 has two JDAM tailkit variants, KMU-556 and the KMU-557. Each tailkit is bomb body specific. The KMU-556 is assembled to the MK-84 or BLU-117 bomb body to make the GBU-31v1, and the KMU-557 is assembled with BLU-109 bomb body to make the GBU-31v3.

7. The GBU-38 Joint Direct Attack Munition (JDAM) is a 500 pound INS/GPS guided precision air to ground munition. The GBU-38 consists of a KMU-572 bomb body specific tail kit, and MK-82 or BLU-111 bomb body.

8. The GBU-54 Laser Joint Direct Attack Munition (LJDAM) is a 500 pound JDAM which incorporates all the capabilities of the JDAM guidance tail kit and adds a precision laser guidance set. The LJDAM gives the weapon system an optional semi-active laser guidance in addition to INS/GPS guidance. This provides the optional capability to strike moving targets. The GBU-54 consists of a DSU-38 laser guidance set, and a KMU-572 bomb body specific tail kit, and MK-82 or BLU-111 bomb body.

9. The GBU-53/B Small Diameter Bomb Increment II (SDB II) is a 250-lb class precision-guided, semi-autonomous, conventional, air-to-ground munition used to defeat moving targets through adverse weather from standoff range. The SDB II has deployable wings and fins and uses GPS/INS guidance, network-enabled datalink (Link-16 and UHF), and a multi-mode seeker (millimeter wave radar, imaging infrared, semi-active laser) to autonomously search, acquire, track, and defeat targets from a standoff range. The SDB II employs a multi-effects warhead (Blast, Fragmentation, and Shaped-Charge) for maximum lethality against armored and soft targets. The SDB II weapon system consists of the tactical all-up round (AUR) weapon, a 4-place common carriage system, and mission planning system munitions application program (MAP). The carriage system is the BRU-61B/A. Two other operable configurations and two maintenance training configurations are described as follows:

a. SDB II Guided Test Vehicle (GTV) is an SDB II configuration used for land or sea range-
based testing of the SDB II weapon system. The GTV has common flight characteristics of an SDB II AUR, but in place of the multi-effects warhead is a Flight Termination, Tracking, and Telemetry (FTTT) subassembly that mirrors the AUR multi-effects warhead's size and mass properties, but provides safe flight termination, free flight tracking and telemetry of encrypted data from the GTV to the data receivers. The SDB II GTV can have either inert or live fuses. All other flight control, guidance, data-link, and seeker functions are representative of the SDB II AUR.

b. SDB II Captive Carry Vehicles (CCV), formerly known as Captive Carry Reliability Test (CCRT) vehicles, are an SDB II configuration primarily used for reliability data collection during carriage. The CCV has common characteristics of an SDB II AUR but with an inert warhead and fuze. The CCV has an inert mass in place of the warhead that mimics the warhead's mass properties.

c. The SDB II Weapon Load Crew Trainer (WLCT) is a mass mockup of the tactical AUR used for load crew and maintenance training. It does not contain energetics, a live fuze, any sensitive components, or hazardous material. It is not flight certified.

d. The SDB II Practical Explosive Ordnance Disposal Trainer (PEST) is an EOD training unit with sections and internal subassemblies which are identical to, or correlate to, the external hardware, sections and internal subassemblies of the tactical AUR. The PEST does not contain energetics, a live fuze, any sensitive components, or hazardous material. It is not flight certified.

10. The highest level of classification of information included in this potential sale is SECRET.

11. If a technologically advanced adversary were to obtain knowledge of the specific hardware and software elements, the information could be used to develop countermeasures that might reduce weapon system effectiveness or be used in the development of a system with similar or advanced capabilities.

12. A determination has been made that Finland can provide substantially the same degree of protection for the sensitive technology being released as the U.S. Government. This sale is necessary in furthering U.S. foreign policy and national security objectives outlined in the Policy Justification.

13. All defense articles and services listed in this transmittal have been authorized for release and export to Finland.

[FR Doc. 2020-27291 Filed: 12/10/2020 8:45 am; Publication Date: 12/11/2020]