Information may be emailed to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/ 
certificate holding district office.

(j) Related Information

(1) For more information about this AD, contact Scott Hopper, Aerospace Engineer, 
ECO Branch, FAA, Engine and Propeller Standards Branch, 1200 District Avenue, 
Burlington, MA 01803; phone: 781–238–7154; fax: 781–238–7199; email: 
scott.hopper@faa.gov.

(2) For PW service information identified in this AD, contact Pratt & Whitney, 400 
Main St., East Hartford, CT 06108; phone: 860–565–8770; fax: 860–565–4503. You may 
view this service information at the FAA.

Issued in Burlington, Massachusetts, on 
Karen M. Grant, 
Acting Manager, Engine and Propeller 
Standards Branch, Aircraft Certification 
Service.

DEPARTMENT OF COMMERCE

Bureau of Industry and Security

15 CFR Part 744

[Docket No. 180712626–8840–01]

RIN 0694–AH61

Review of Controls for Certain 
Emerging Technologies

AGENCY: Bureau of Industry and 
Security, Commerce.

ACTION: Advance notice of proposed 
rulemaking (ANPRM).

SUMMARY: The Bureau of Industry and 
Security (BIS) controls the export of 
dual-use and less sensitive military 
items through the Export 
Administration Regulations (EAR), 
including the Commerce Control List 
(CCL). As controls on exports of 
technology are a key component of the 
effort to protect sensitive U.S.
technology, many sensitive technologies 
are listed on the CCL, often consistent 
with the lists maintained by the 
multilateral export control regimes of 
which the United States is a member. 
Certain technologies, however, may not 
be listed on the CCL or controlled 
multilaterally because they are emerging 
technologies. As such, they have not yet 
been evaluated for their national 
security impacts. This advance notice of 
proposed rulemaking (ANPRM) seeks 
public comment on criteria for 
identifying emerging technologies that are 
essential to U.S. national security, 
for example because they have potential 
conventional weapons, intelligence 
collection, weapons of mass destruction, 
or terrorist applications or could 
provide the United States with a 
qualitative military or intelligence 
advantage. Comment on this ANPRM 
will help inform the interagency process 
to identify and describe such emerging 
technologies. This interagency process 
is anticipated to result in proposed rules 
for new Export Control Classification 
Numbers (ECCNs) on the CCL.

DATES: Submit comments on or before 
December 19, 2018.

ADDRESSES: You may submit comments through either of the following: 
• Federal eRulemaking Portal: http:// 
www.regulations.gov. The identification 
number for this rulemaking is BIS 2018– 
0024. 
• Address: By mail or delivery to 
Regulatory Policy Division, Bureau of 
Industry and Security, U.S. Department 
of Commerce, Room 2099B, 14th Street 
and Pennsylvania Avenue NW, 
Washington, DC 20230. Refer to RIN 
0694–AH61.

FOR FURTHER INFORMATION CONTACT: 
Kirsten Mortimer, Office of National 
Security and Technology Transfer 
Controls, Bureau of Industry and 
Security, Department of Commerce. 
Phone: [202] 482–0092; Fax [202] 482– 
3355; Email: Kirsten.Mortimer@ 
bis.doc.gov.

SUPPLEMENTARY INFORMATION:

Background

As part of the National Defense 
Authorization Act (NDAA) for Fiscal 
Year 2019, Public Law No: 115–232, 
Congress enacted the Export Control 
Reform Act of 2018 (the Act or ECRA). 
Section 1758 of the Act authorizes 
Commerce to establish appropriate 
controls, including interim controls, on 
the export, reexport, or transfer (in-
country) of emerging and foundational 
technologies. Under the Act, emerging 
and foundational technologies are those 
esential to the national security of the 
United States and are not described in 
Section 721(a)(6)(A)(i)–(v) of the 
Defense Production Act of 1950, as 
amended. Emerging and foundational 
technologies, in keeping with ECRA, 
will be determined by an interagency 
process that will consider both public 
and classified information as well as 
information from the Emerging 
Technology Technical Advisory 
Committee and the Committee on 
Foreign Investment in the United States. 
In identifying emerging and 
foundational technologies, the process 
must consider:

• The development of emerging and 
foundational technologies in foreign 
countries;
• The effect export controls may have on 
the development of such 
technologies in the United States; and 
• The effectiveness of export controls 
on limiting the proliferation of emerging 
and foundational technologies in foreign 
countries.

To help inform this process, this 
advance notice of proposed rulemaking 
(ANPRM) proposes several general areas 
for public comment. Given the 
challenges involved in identifying 
emerging and foundational 
technologies, this ANPRM will help 
Commerce and other agencies propose 
specific emerging technologies for 
control.

Once an emerging or foundational 
technology has been identified, the Act 
authorizes Commerce to establish 
controls, including interim controls, on 
the export, reexport, or transfer (in-
country) of that technology. In 
determining the appropriate level of 
export controls, the Department must 
consider the potential end-uses and 
ed-users of the technology, and 
countries to which exports from the 
United States are restricted (e.g., 
embargoed countries). While Commerce 
has discretion to set the level of export 
controls, at a minimum it must require 
a license for the export of emerging and 
foundational technologies to countries 
subject to a U.S. embargo, including 
those subject to an arms embargo. 
Responses to this ANPRM will help 
Commerce and other agencies identify 
and assess emerging technologies for 
the purposes of updating the export control 
lists without impairing national security 
or hampering the ability of the U.S. 
commercial sector to keep pace with 
international advances in emerging 
fields.

Emerging Technologies

To assist BIS in identifying emerging 
technologies that are essential to the 
national security of the United States, 
this ANPRM seeks public comment on 
criteria for defining and identifying 
emerging technologies. This ANPRM 
describes certain categories of 
technology that are currently subject to 
the EAR but controlled only to 
embargoed countries, countries 
designated as supporters of 
international terrorism, and restricted 
end uses or end users. These categories 
are a representative list of the
The representative general categories of technology for which Commerce currently seeks to determine whether there are specific emerging technologies that are essential to the national security of the United States include:

1. Biotechnology, such as:
   - Nanobiology
   - Synthetic biology
   - Genomic and genetic engineering
2. Artificial intelligence (AI) and machine learning technology, such as:
   - Neural networks and deep learning (e.g., brain modelling, time series prediction, classification)
   - Evolution and genetic computation (e.g., genetic algorithms, genetic programming)
   - Reinforcement learning
   - Computer vision (e.g., object recognition, image understanding)
   - Expert systems (e.g., decision support systems, teaching systems)
   - Speech and audio processing (e.g., speech recognition and production)
   - Natural language processing (e.g., machine translation)
   - Planning (e.g., scheduling, game playing)
   - Audio and video manipulation technologies (e.g., voice cloning, deepfakes)
   - AI cloud technologies
3. Position, Navigation, and Timing (PNT) technology
4. Microprocessor technology, such as:
   - Systems-on-Chip (SoC)
   - Stacked Memory on Chip
5. Advanced computing technology, such as:
   - Memory-centric logic
   - Data analytics technology
   - Visualization
   - Automated analysis algorithms
   - Context-aware computing
6. Logistics technology, such as:
   - Mobile electric power
   - Model and simulation
   - Total asset visibility
   - Distribution-based Logistics Systems (DBLS)
7. Additive manufacturing (e.g., 3D printing)
8. Robotics such as:
   - Micro-drone and micro-robotic systems
9. Swarming technology
10. Self-assembling robots
11. Molecular robotics
12. Robot compilers
13. Smart Dust
14. Brain-computer interfaces
15. Neural-controlled interfaces
16. Direct neural interfaces
17. Brain-machine interfaces
18. Flight control algorithms
19. Propulsion technologies
20. Thermal protection systems
21. Specialized materials (for structures, sensors, etc.)
22. Advanced Materials
23. Adaptive camouflage
24. Functional textiles (e.g., advanced fiber and fabric technology)
25. Neural-controlled interfaces
26. Mind-machine interfaces
27. Neural-controlled interfaces
28. Brain-machine interfaces
29. Advanced surveillance technologies
30. Faceprint and voiceprint technologies
31. Quantum information and sensing technology