



FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of

Protecting Against National Security Threats to the Communications Supply Chain Through the
Equipment Authorization Program

ET Docket No. 21-232

COMMENTS OF THE ACADEMY OF MODEL AERONAUTICS

The Academy of Model Aeronautics (AMA) respectfully submits these comments in response to the Federal Communications Commission's (Commission or FCC) Third Further Notice of Proposed Rulemaking, FCC 26-50, in ET Docket No. 21-232, Protecting Against National Security Threats to the Communications Supply Chain Through the Equipment Authorization Program.

AMA supports the Commission's responsibility to protect the national security of the United States and supports reasonable, targeted measures designed to prevent communications equipment and technologies that present a legitimate national security risk from entering the United States market.

At the same time, AMA urges the Commission to carefully tailor any rules adopted in this proceeding so that measures designed to address sophisticated communications equipment, foreign supply chain risks, and advanced unmanned aircraft systems do not unintentionally encompass traditional recreational and educational model aircraft or the equipment used to operate them.

Traditional model aircraft are not simply smaller versions of advanced UAS. They are fundamentally different in their design, intended purpose, operation, communications, capabilities, and risk profile. Traditional model aircraft are manually controlled by a human operator, operated within visual line of sight, and used for recreation, education, competition, training, and experimentation. They do not possess the autonomous, networked, long range, surveillance, data collection, or remote command and control capabilities that characterize many advanced UAS.

AMA has consistently maintained that advanced-capability UAS and traditional model aircraft represent distinct areas of aviation and should be regulated accordingly. This distinction should not be interpreted as opposition to UAS or FPV technology. To the contrary, AMA supports the safe recreational, educational, and innovative use of UAS and FPV systems and recognizes the important role these technologies play in introducing individuals to aviation and developing new skills. Many AMA members safely participate in UAS and FPV activities, and AMA supports these activities through appropriate safety guidance, programming, and educational initiatives, including our FPV guidelines, UAS4STEM program, and support for competitive drone racing.

At the same time, the existence and growing use of more advanced UAS should not result in traditional model aircraft operations being subjected to regulations intended for systems with substantially different capabilities, functions, or risk profiles. Maintaining a clear distinction between these categories allows policymakers to establish appropriate requirements for emerging UAS technologies while preserving the longstanding recreational, educational, and competitive model aviation activities that have been safely conducted for decades.

AMA therefore respectfully requests that the Commission adopt a clear, functional, and risk based distinction between traditional recreational model aircraft and advanced UAS before imposing additional equipment authorization and supply chain requirements.

I. INTEREST OF THE ACADEMY OF MODEL AERONAUTICS

AMA is the world's largest community based organization dedicated to model aviation. AMA represents recreational model aircraft pilots, educators, students, clubs, manufacturers, retailers, and other participants in model aviation throughout the United States. For decades, AMA members have safely operated radio-controlled model aircraft for recreation, education, competition, experimentation, and STEM learning.

Traditional model aviation provides Americans, particularly young people, with practical opportunities to learn about aviation, engineering, electronics, aerodynamics, radio communications, programming, manufacturing, physics, mathematics, and flight safety.

AMA also represents an ecosystem of small manufacturers, distributors, specialty retailers, hobby shops, educational organizations, and other businesses that provide aircraft, radios, receivers, motors, batteries, servos, electronic speed controllers, replacement parts, and other equipment to model aviation participants.

Consequently, changes to the FCC's equipment authorization program can affect not only individual hobbyists but also a significant network of small businesses and educational organizations. AMA submits these comments to ensure that the Commission's legitimate national security objectives are accomplished without unnecessarily disrupting traditional recreational model aviation.

II. THE COMMISSION SHOULD CLEARLY DISTINGUISH TRADITIONAL MODEL AIRCRAFT FROM ADVANCED UAS

AMA's principal request is that the Commission establish a clear distinction between traditional recreational model aircraft and advanced unmanned aircraft systems. Traditional model aircraft generally have a substantially different capability and risk profile from the advanced UAS that have been the subject of recent federal national security actions.

Traditional model aircraft are generally:

1. Manually controlled by a human pilot;
2. Operated within the pilot's visual line of sight;
3. Intended primarily for recreation, education, training, competition, or other model aviation purposes;
4. Not designed to operate autonomously;
5. Not designed to make independent flight decisions;
6. Not designed for persistent surveillance or intelligence collection;
7. Not designed to connect to cellular networks for command and control;
8. Not designed to rely upon cloud-based infrastructure for operation;
9. Not designed for remote operation over the internet;
10. Not designed to conduct long range operations beyond the pilot's visual control; and
11. Not designed primarily to collect, transmit, or process sensitive information.

Advanced UAS can possess substantially different capabilities, including autonomous flight, long range communications, cellular connectivity, satellite communications, internet connectivity, cloud-based command and control, automated mission planning, advanced navigation, persistent surveillance, sophisticated sensors, cameras, remote data collection, and long range data transmission.

These differences are directly relevant to national security. A recreational model airplane operated by a pilot standing at a model aviation field is fundamentally different from a network connected, autonomous UAS capable of operating independently, transmitting information across networks, or being remotely controlled from a distant location.

The fact that both systems are capable of flight should not be sufficient to place them in the same regulatory category. AMA therefore urges the Commission to evaluate equipment based on its actual capabilities, intended purpose, and demonstrated risk rather than simply whether it can be installed on an aircraft.

III. THE FCC SHOULD USE A CAPABILITY AND RISK BASED STANDARD

The Commission should adopt a risk-based approach throughout this proceeding.

The national security concerns underlying the Covered List are not created simply by the physical ability of an aircraft to fly. They arise from particular technologies and capabilities.

Those capabilities may include:

1. Autonomous operation;
2. Long range command and control;
3. Cellular or satellite connectivity;
4. Internet or cloud connectivity;
5. Persistent surveillance;
6. Remote data collection;
7. Advanced navigation;
8. Automated mission execution;
9. Long range data transmission; and
10. Integration into sophisticated communications networks.

Traditional model aircraft generally do not possess these capabilities.

Accordingly, AMA recommends that the Commission expressly state that traditional recreational model aircraft and their generic associated equipment should not be subject to UAS specific restrictions merely because they are capable of flight or can technically be incorporated into another type of aircraft.

IV. UAS CRITICAL COMPONENTS SHOULD BE NARROWLY AND FUNCTIONALLY DEFINED

The FNPRM proposes to codify a definition of "UAS critical components" that includes categories such as data transmission devices, communications systems, flight controllers, ground control stations, navigation systems, sensors and cameras, batteries and battery management systems, and motors when designed and intended primarily for advanced UAS use.

AMA agrees that components specifically designed and intended primarily for sophisticated UAS applications may warrant additional scrutiny. However, the Commission should not interpret the proposed definition to capture generic components simply because they can be used in a UAS. The phrase "designed and intended primarily for UAS use" should be given meaningful effect.

AMA recommends that the Commission make clear that a component is not a UAS critical component solely because:

1. It can be installed in a UAS;
2. It can perform a function that could also be used by a UAS;
3. It is marketed to both model aircraft and UAS users;
4. It is physically similar to a component used in an advanced UAS; or
5. It is capable of being incorporated into an aircraft.

Instead, the Commission should consider whether the component was actually designed and intended primarily for advanced UAS applications and whether the component presents the type of national security risk that the Covered List is intended to address.

V. GENERIC MODEL AVIATION COMPONENTS SHOULD NOT BECOME RESTRICTED SOLELY BECAUSE THEY CAN BE USED ON AN AIRCRAFT

The traditional model aviation supply chain relies upon a wide variety of components, including:

1. Electric motors;
2. Batteries;
3. Battery management equipment;
4. Electronic speed controllers;
5. Servos;
6. Radio transmitters;
7. Radio receivers;
8. Radio frequency modules;
9. Flight control equipment;
10. Navigation equipment;
11. Sensors;
12. Processors and electronic components;
13. Wiring and connectors; and
14. Replacement parts.

Many of these products have broad commercial and consumer applications. A motor can power a model aircraft, boat, automobile, robot, educational project, or industrial device. A battery can power a model aircraft, consumer electronic device, robotics project, or countless other products. A servo can be used in a model aircraft, robotics system, educational project, or industrial application. An electronic speed controller can be used in model aircraft and many other electrically powered systems.

The Commission should not regulate such generic products based upon the most sensitive application in which they could theoretically be used. A component should not become a UAS critical component simply because someone could install it on a UAS.

VI. BATTERIES, BATTERY MANAGEMENT SYSTEMS, MOTORS, SERVOS, AND ESCS

AMA is particularly concerned about the potential impact of the proposed UAS critical component definition on batteries, battery management systems, motors, servos, and electronic speed controllers. These products are foundational components of traditional model aircraft and are widely used throughout the broader economy.

The Commission should distinguish between a generic component and a component specifically designed and intended primarily for advanced UAS applications. For example, a generic electric motor should not become a regulated UAS critical component merely because it can provide propulsion to an aircraft. Likewise, a commercially available lithium battery should not become a UAS critical component merely because it can power an aircraft. The same principle should apply to battery management systems, servos, and electronic speed controllers.

AMA therefore requests that the Commission expressly clarify that generic batteries, battery management systems, motors, servos, ESCs, and similar components are outside UAS specific restrictions unless they are specifically designed and intended primarily for advanced UAS use.

VII. MODEL AIRCRAFT RADIO EQUIPMENT SHOULD BE DISTINGUISHED FROM ADVANCED UAS COMMUNICATIONS SYSTEMS

AMA recognizes that radio equipment used to control model aircraft is subject to FCC requirements and supports continued compliance with applicable communications regulations. However, traditional model aircraft radio control systems are fundamentally different from advanced networked UAS communications systems.

A traditional model aircraft control system generally provides a direct communications link between a human operator and an aircraft. The operator is physically present at the flying site and maintains visual observation of the aircraft.

An advanced UAS may instead use cellular networks, satellite communications, internet connectivity, cloud infrastructure, long range data transmission, or autonomous communications systems.

These systems present different security considerations.

The FCC should therefore not treat all radio-controlled aircraft equipment as presenting the same national security risk merely because both systems use radio frequency communications.

VIII. THE COMMISSION SHOULD CAREFULLY ADDRESS THE PROPOSED COMPONENT PROHIBITIONS

The FNPRM seeks comment on prohibiting, or creating a presumption against, authorization of equipment containing hardware components, software, or firmware produced by entities on the Covered List. AMA understands the Commission's objective. However, the Commission should avoid a framework in which a generic component automatically renders an otherwise lawful finished product prohibited.

Modern electronic devices can contain hundreds or thousands of components obtained through complex global supply chains. A single component should not automatically "taint" an entire finished product without consideration of:

1. The function of the component;
2. Whether the component performs a communications or security critical function;
3. The significance of the component to the operation of the device;
4. Whether the component creates an actual national security risk;
5. Whether the component can be replaced;
6. Whether a commercially reasonable alternative exists; and
7. Whether the finished device itself presents the risk the Covered List is intended to address.

AMA recommends that any component-based presumption be rebuttable and that manufacturers be given an opportunity to demonstrate that a particular product does not present the identified national security risk.

IX. THE FCC SHOULD CLARIFY THE DEFINITION OF "CRITICAL COMPONENT"

The Commission should clearly define what constitutes a "critical component" for purposes of any proposed HBOM or SBOM requirement. Manufacturers and certification bodies should not be required to guess which components the Commission considers critical.

An undefined or open-ended term could result in inconsistent interpretations, excessive documentation, and unnecessary compliance costs. The Commission should identify objective criteria for determining whether a component is critical and should provide manufacturers with clear guidance before enforcement begins.

X. HBOM AND SBOM REQUIREMENTS SHOULD BE NARROWLY TAILORED

The proposed hardware and software bill of materials requirements raise substantial concerns for small manufacturers and specialty retailers.

The model aviation industry includes many small businesses that do not maintain the compliance departments or supply chain personnel available to major telecommunications manufacturers.

A requirement to identify every hardware, software, firmware, producer, production location, and component value contribution could impose substantial costs.

AMA therefore recommends that HBOM and SBOM requirements:

1. Apply only to equipment presenting a demonstrated national security risk;
2. Not apply merely because equipment can be used on an aircraft;
3. Include reasonable de minimis thresholds;
4. Avoid requiring information about insignificant components;
5. Permit reliance on reasonable supplier certifications;
6. Provide simplified procedures for small businesses;
7. Permit reasonable estimates where precise information is not commercially available;
8. Protect confidential and proprietary information;
9. Provide adequate compliance periods; and
10. Include a clear process for correcting inadvertent reporting errors.

XI. THE COMMISSION SHOULD NOT REQUIRE SMALL BUSINESSES TO TRACE COMPONENTS THROUGH MULTIPLE TIERS OF THE GLOBAL SUPPLY CHAIN

A model aviation manufacturer may purchase a finished electronic component from a distributor without having access to the identity or manufacturing location of every upstream supplier. A semiconductor may be designed in one country, fabricated in another, packaged in another, incorporated into a component elsewhere, and finally installed into a finished product in another

country. It would be unreasonable to require a small hobby manufacturer to independently verify every level of such a supply chain.

The Commission should permit manufacturers to satisfy supply chain obligations through commercially reasonable due diligence and supplier certifications. The FCC should not create a system where an otherwise lawful model aviation product cannot be marketed simply because a small manufacturer cannot obtain information several levels removed from the finished product.

XII. THE "PRODUCED IN A FOREIGN COUNTRY" DEFINITION REQUIRES CAREFUL LIMITATION

The FNPRM proposes to codify the definition of equipment "produced in a foreign country" and seeks comment on alternative approaches.

This issue is particularly important to the model aviation industry because international manufacturing is common.

A model aircraft product may be:

- Designed in the United States;
- Developed in another country;
- Contain components manufactured in several countries;
- Assembled in another country;
- Imported by a U.S. distributor; and
- Sold by a U.S. retailer.

The FCC should establish an objective, administrable standard that does not automatically classify a low-risk hobby product as covered simply because one stage of its production occurred outside the United States.

The Commission should also distinguish between determining whether a complete UAS is produced in a foreign country and determining whether a generic component used in traditional model aviation has foreign origin.

Those are separate questions and should not automatically produce the same regulatory result.

XIII. THE COVERED LIST SHOULD BE BIFURCATED WITHOUT CREATING UNINTENDED CONSEQUENCES FOR LOW-RISK PRODUCTS

The Commission proposes to bifurcate the Covered List into producer or provider-based categories and production location-based categories.

AMA supports clarity in the Covered List and recognizes the value of distinguishing between different types of national security determinations. However, the Commission should ensure that production location-based restrictions do not inadvertently become a blanket restriction on otherwise low risk products merely because they are manufactured outside the United States.

The fact that a product is manufactured abroad is not, by itself, sufficient evidence that the product presents the same risk as equipment produced by a specifically identified Covered List entity. AMA therefore encourages the Commission to maintain a meaningful distinction between:

1. Equipment produced by an identified Covered List entity; and
2. Equipment that is merely produced in a foreign country.

The regulatory treatment of those categories should reflect the basis for the underlying national security determination.

XIV. WHITE LABELING AND LEGITIMATE PRIVATE LABEL MANUFACTURING

AMA supports the Commission's efforts to prevent companies from circumventing Covered List restrictions through deceptive relabeling or white labeling. However, the Commission should distinguish between genuine circumvention and legitimate private label or contract manufacturing.

Many legitimate U.S. hobby companies use overseas manufacturers to produce products under the U.S. company's brand. That practice is common throughout the consumer electronics and hobby industries and does not, by itself, indicate an attempt to conceal the identity of a Covered List entity. The Commission should therefore avoid creating a presumption that every private label product is an attempt to circumvent the Covered List. A manufacturer or importer should have an opportunity to demonstrate legitimate ownership, contractual relationships, supply chain information, and compliance.

XV. ONLINE MARKETPLACES AND RETAILERS SHOULD NOT BECOME FCC SUPPLY CHAIN INVESTIGATORS

The Commission's expanded marketing requirements and online marketplace provisions could have significant consequences for hobby retailers. A small hobby shop should not be required to independently investigate the global supply chain of every product it sells.

Retailers generally rely upon manufacturers and distributors to provide accurate FCC compliance information. The Commission should therefore place primary responsibility for equipment authorization and supply chain compliance on the manufacturer, responsible party, importer, or other entity best positioned to possess the required information.

Retailers should not face enforcement simply because a manufacturer or upstream supplier failed to disclose information that the retailer could not reasonably obtain. The Commission should also provide clear procedures for retailers to verify authorization status without requiring them to conduct independent legal or technical investigations.

XVI. EXISTING INVENTORY SHOULD BE GRANDFATHERED

AMA strongly urges the Commission to protect lawfully imported and marketed inventory. A retailer may lawfully purchase hundreds of products and maintain them in inventory for months or years. If the FCC subsequently changes the Covered List or adopts new supply chain requirements, the retailer should not suddenly possess prohibited inventory through no fault of its own.

AMA recommends that products lawfully imported and marketed before the effective date of any new restrictions remain eligible for sale unless the Commission makes a specific determination that continued sale presents an unacceptable national security risk.

XVII. REPLACEMENT PARTS AND REPAIR SHOULD BE PROTECTED

Model aircraft are often owned and maintained for many years.

Consumers routinely replace:

1. Batteries;
2. Motors;
3. Servos;
4. ESCs;
5. Receivers;
6. Transmitters;
7. Radio modules; and
8. Other electronic and mechanical components.

The FCC should ensure that new supply chain restrictions do not effectively prevent consumers from maintaining equipment that was lawfully authorized and purchased.

AMA requests explicit protection for replacement parts and repair activities involving lawfully authorized traditional model aircraft equipment.

XVIII. TERM LIMITS ON EQUIPMENT AUTHORIZATIONS SHOULD NOT APPLY WITHOUT A DEMONSTRATED SECURITY BASIS

The Commission seeks comments on term limits for equipment authorizations.

AMA is concerned that recurring authorization requirements could impose substantial costs on manufacturers without producing a corresponding national security benefit for low-risk recreational equipment.

If the Commission adopts term limits, it should consider exemptions or extended terms for low-risk equipment that has not materially changed and does not present a demonstrated national security concern. A product that has been lawfully authorized for years should not require repeated authorization merely because it is still being sold.

XIX. THE COMMISSION SHOULD CONSIDER THE CONSEQUENCES OF A U.S. BASED LIABLE PARTY REQUIREMENT

The FNPRM proposes a U.S. based liable party requirement for FCC certified equipment.

AMA recognizes the Commission's interest in ensuring that it has an accountable party within the United States. However, the Commission should ensure that this requirement does not unintentionally shift manufacturer responsibilities to small distributors or retailers.

A hobby retailer should not automatically become the legally responsible party for a foreign manufacturer's product merely because the retailer sells that product in the United States. The Commission should clearly identify which entity is responsible and should provide reasonable mechanisms for manufacturers and importers to designate the appropriate U.S. responsible party.

XX. REGISTRATION OF SUPPLIER'S DECLARATION OF CONFORMITY DEVICES

The Commission is considering registration requirements for equipment authorized through the Supplier's Declaration of Conformity process. AMA recommends that any registration system be simple, inexpensive, and administratively manageable. If registration becomes mandatory for large numbers of products, small manufacturers and specialty businesses could face substantial administrative burdens. The Commission should consider exemptions or simplified procedures for low-risk equipment and small entities.

XXI. PREAUTHORIZATION OPERATION OF RF DEVICES

The Commission is considering changes concerning operation of RF devices prior to equipment authorization.

AMA recognizes the need to prevent unauthorized equipment from being broadly marketed or operated in ways that create interference or security risks. However, the Commission should preserve reasonable opportunities for legitimate testing, research, development, repair, education, and competition.

Model aviation manufacturers, educators, and hobbyists routinely test equipment during development and competition. The Commission should ensure that reasonable testing activities do not become unnecessarily burdensome or require extensive regulatory procedures for low risk equipment.

XXII. FCC LOGO RESTRICTIONS SHOULD NOT CREATE UNINTENDED RETAIL CONSEQUENCES

The Commission is considering restrictions concerning the use of the FCC logo.

AMA supports preventing misleading representations of FCC authorization. However, the Commission should provide clear transition periods and guidance for existing packaging, labels,

advertisements, and inventory. Manufacturers and retailers should not be required to discard otherwise lawful inventory solely because packaging or labeling requirements change.

XXIII. REVOCATION PROCEDURES SHOULD INCLUDE DUE PROCESS AND PROPORTIONALITY

The Commission is considering streamlined procedures for revoking equipment authorizations.

AMA recognizes that the FCC must have the ability to act quickly when equipment presents a genuine national security threat. However, revocation can have substantial consequences for manufacturers, retailers, distributors, and consumers.

The Commission should provide:

1. Clear grounds for revocation;
2. Notice to affected parties;
3. An opportunity to respond;
4. Appropriate transition periods where national security permits;
5. Protection for existing consumers and replacement parts where possible; and
6. A mechanism for correcting factual or administrative errors.

XXIV. THE COMMISSION SHOULD PROVIDE A REBUTTABLE PRESUMPTION AND WAIVER PROCESS

Where the FCC adopts a presumption against authorization based on a component, producer, or production location, the affected manufacturer should have an opportunity to rebut that presumption.

AMA recommends an expedited waiver or review process for products that:

1. Do not present the identified national security risk;
2. Contain a generic component with broad commercial applications;
3. Have a substitute component available;
4. Were lawfully authorized before a relevant Covered List change;
5. Are necessary for repair or replacement; or
6. Are used primarily for traditional recreational model aviation.

XXV. THE COMMISSION SHOULD PROTECT SMALL BUSINESSES

The model aviation ecosystem contains numerous small businesses. These businesses may lack dedicated regulatory, legal, engineering, and supply chain compliance departments.

The Commission should therefore consider the cumulative burden created by:

1. HBOM requirements;
2. SBOM requirements;

3. Component origin reporting;
4. U.S. responsible party requirements;
5. Authorization term limits;
6. SDoC registration;
7. Importation requirements;
8. Online marketplace requirements; and
9. Post market enforcement.

Each requirement may appear manageable individually, but the cumulative effect could be significant. AMA encourages the Commission to provide small entity exemptions, simplified compliance pathways, reasonable thresholds, and adequate implementation periods.

XXVI. THE FCC SHOULD PROTECT EDUCATIONAL MODEL AVIATION

Traditional model aviation has substantial educational value.

Model aircraft are used to teach students about:

1. Aerodynamics;
2. Aircraft design;
3. Electronics;
4. Radio communications;
5. Programming;
6. Engineering;
7. Manufacturing;
8. Physics;
9. Mathematics; and
10. Aviation.

Schools, youth organizations, community programs, clubs, and educational institutions frequently rely upon affordable, commercially available model aircraft equipment. If supply chain rules significantly increase the cost or reduce the availability of this equipment, educational programs will be disproportionately affected. The Commission should therefore consider educational and recreational model aviation when evaluating the costs of its proposed rules.

XXVII. THE COMMISSION SHOULD MODERNIZE ITS DATABASE WITHOUT CREATING ADDITIONAL RETAILER BURDENS

The Commission proposes modernization of its Equipment Authorization System and expanded data analytics capabilities.

AMA supports improving the FCC's ability to identify unauthorized or problematic equipment. However, the FCC should make the resulting database accessible and useful to manufacturers, distributors, retailers, and consumers.

The system should provide a simple method for determining:

1. Whether a product is authorized;
2. Whether an FCC ID remains valid;
3. Whether equipment is subject to a Covered List restriction;
4. Whether a product has been grandfathered;
5. Whether replacement parts may continue to be marketed; and
6. Whether a waiver or exemption applies.

A clear database would reduce compliance uncertainty and help retailers and consumers comply with the FCC's rules.

XXVIII. THE COMMISSION SHOULD NOT APPLY UNRELATED COVERED LIST REQUIREMENTS TO TRADITIONAL MODEL AVIATION

The FNPRM addresses a number of Covered List categories and technologies beyond UAS.

AMA does not seek to interfere with the Commission's regulation of equipment that presents legitimate risks in other sectors. However, the Commission should ensure that rules adopted in connection with one Covered List sector are not inadvertently applied to unrelated low risk recreational equipment. In particular, a provision designed to address routers, submarine cables, sophisticated network equipment, or other critical infrastructure should not be interpreted in a manner that unintentionally encompasses traditional model aviation equipment.

XXIX. THE COMMISSION SHOULD ESTABLISH A TRADITIONAL MODEL AVIATION SAFE HARBOR

AMA respectfully requests that the Commission establish an explicit safe harbor for traditional recreational model aircraft and associated equipment.

A traditional model aircraft safe harbor could apply to aircraft and equipment that:

1. Are intended primarily for recreational, educational, or competitive model aviation;
2. Are operated within visual line of sight;
3. Are manually controlled by a human operator;
4. Are not designed for autonomous flight;
5. Are not designed for persistent network connectivity;
6. Are not designed for cellular, satellite, or internet-based command and control;
7. Are not designed primarily for surveillance, intelligence collection, or remote sensing;
8. Are not designed primarily for long range operations beyond the pilot's visual control; and
9. Are not otherwise identified by the Commission as presenting a specific national security risk.

The safe harbor should also extend to generic replacement components used with traditional model aircraft where those components are not themselves designed and intended primarily for advanced UAS use.

XXX. THE COMMISSION SHOULD NOT REGULATE GENERIC COMPONENTS BASED ON THEIR MOST SENSITIVE POSSIBLE USE

The Commission should reject an approach under which generic commercial components become regulated simply because they could be used in a more sensitive application. Otherwise, the potential regulatory universe becomes extremely broad.

A motor does not know whether it is powering a model airplane, a boat, a robot, or an advanced UAS. A battery does not know what device it will power. A servo does not know what system it will control. An electronic speed controller does not know what motor it will operate. Regulation should therefore be based upon the component's actual design, intended use, functionality, and risk rather than hypothetical future use.

XXXI. THE FCC SHOULD PROVIDE CLEAR GUIDANCE BEFORE ENFORCEMENT

Manufacturers, distributors, retailers, and consumers must be able to determine whether a product is subject to the FCC's requirements.

The Commission should publish detailed guidance explaining:

1. What constitutes a UAS critical component;
2. What constitutes a product designed and intended primarily for UAS use;
3. What constitutes production in a foreign country;
4. What constitutes a Covered List component;
5. What HBOM and SBOM information is required;
6. What information may be obtained through supplier certification;
7. How existing inventory will be treated;
8. How replacement parts will be treated;
9. How private label manufacturing will be treated;
10. How small businesses can comply; and
11. How manufacturers may seek waivers or exemptions.

The FCC should provide this guidance before commencing enforcement of any new requirements.

XXXII. AMA'S SPECIFIC REQUESTS

For the reasons described above, AMA respectfully requests that the Commission:

1. Establish an explicit distinction between traditional recreational model aircraft and advanced UAS based on capabilities, intended use, operation, and national security risk.

2. Clarify that traditional model aircraft are not subject to UAS specific Covered List restrictions merely because they are aircraft capable of flight.
3. Clarify that a component is not a UAS critical component merely because it can be used on a UAS.
4. Apply the phrase "designed and intended primarily for UAS use" based on actual design, intended use, functionality, and marketing.
5. Exclude generic batteries, battery management systems, motors, servos, ESCs, and similar components from UAS specific restrictions unless specifically designed and intended only for advanced UAS use.
6. Distinguish traditional model aircraft radio control systems from advanced network connected UAS communications systems.
7. Avoid treating generic foreign manufactured components as inherently presenting a national security risk.
8. Ensure that a component does not automatically render an otherwise lawful finished product prohibited without a risk-based analysis.
9. Clearly define "critical component" before imposing HBOM or SBOM requirements.
10. Limit HBOM and SBOM requirements to equipment presenting a demonstrated national security risk.
11. Establish reasonable de minimis thresholds for component reporting.
12. Permit reliance on reasonable supplier certifications.
13. Protect confidential and proprietary supply chain information.
14. Avoid requiring small manufacturers to trace components through multiple levels of the global supply chain when information is not reasonably available.
15. Adopt an objective and administrable definition of "produced in a foreign country."
16. Maintain a meaningful distinction between producer based and production location based Covered List determinations.
17. Ensure legitimate private label and contract manufacturing are not presumed to be circumvention.
18. Place primary supply chain compliance responsibility on manufacturers and responsible parties rather than small retailers.
19. Protect lawfully imported and marketed existing inventory.
20. Protect replacement parts and repair of lawfully authorized equipment.
21. Avoid term limited authorizations for low-risk recreational equipment unless supported by a demonstrated national security need.
22. Ensure that a U.S. based liable party requirement does not automatically shift manufacturer responsibilities to retailers.
23. Establish simplified SDoC registration requirements for low-risk equipment and small businesses.
24. Preserve reasonable testing and development of RF equipment prior to authorization.
25. Provide transition periods for changes to FCC logo and labeling requirements.
26. Provide due process and appropriate transition protections for equipment authorization revocations.
27. Establish a rebuttable presumption and expedited waiver process for products that do not present the identified national security risk.
28. Provide small business exemptions, safe harbors, simplified compliance procedures, and reasonable implementation periods.

29. Modernize the FCC's equipment authorization database in a manner that makes authorization and Covered List status readily accessible to manufacturers, retailers, and consumers.
30. Establish an explicit safe harbor for traditional recreational model aircraft and associated generic equipment.
31. Ensure that rules directed at advanced UAS, routers, critical infrastructure, submarine cables, or other Covered List sectors do not inadvertently encompass traditional recreational model aviation.

XXXIII. CONCLUSION

AMA respectfully supports the Commission's efforts to protect the United States from legitimate national security threats to the communications supply chain. However, those efforts should be narrowly tailored to the risks they are intended to address. Traditional model aircraft should not be treated as equivalent to advanced unmanned aircraft systems merely because both are capable of flight.

A traditional model aircraft is generally a manually controlled recreational aircraft operated within visual line of sight by a human operator who is physically present at the flying site. It does not inherently possess autonomous operation, internet connectivity, cellular connectivity, cloud-based command and control, long range network communications, persistent surveillance, advanced data collection, or other capabilities associated with sophisticated UAS. The distinction is not merely one of size. It is a distinction in capability, purpose, technology, operation, and risk.

The same principle must apply to the components used by the traditional model aviation community. A generic motor should not become a UAS critical component simply because it can propel an aircraft. A generic battery should not become a UAS critical component simply because it can power an aircraft. A servo should not become a UAS critical component simply because it can move a flight control surface. An ESC should not become a UAS critical component simply because it can control an electric motor. A traditional radio control system should not be treated as equivalent to an advanced network connected UAS communications system merely because both use radio frequencies.

The Commission can protect national security without unnecessarily disrupting traditional model aviation. AMA therefore respectfully requests that the Commission establish a clear, functional, risk based distinction between traditional recreational model aircraft and advanced UAS; narrowly define UAS critical components; avoid unnecessary restrictions on generic hobby components; carefully limit HBOM and SBOM requirements; protect existing equipment, inventory, repair, and replacement parts; provide reasonable protections for small businesses and retailers; and establish a clear safe harbor for traditional model aviation.

Traditional model aviation has provided Americans with safe recreational, educational, competitive, and technological opportunities for generations. The Commission should ensure that rules designed to address sophisticated national security threats do not unintentionally undermine this longstanding American activity.

AMA appreciates the Commission's consideration of these comments and looks forward to working with the Commission, federal agencies, manufacturers, retailers, educators, and other stakeholders to protect national security while preserving safe, accessible, and innovative recreational model aviation in the United States.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Tyler Dobbs". The signature is fluid and cursive, with the first name "Tyler" and last name "Dobbs" clearly distinguishable.

Tyler Dobbs
Executive Director
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