LrrK Letters

Vol. 1 · Issue 16 · July 2026

Military-Grade by Feature

Infrared, Swarming, Categorical Controls, and the Industrial Gap a Definition Cannot Close

Dateline: July 31, 2026

Abstract

The FCC's July proposal uses observable capabilities to identify foreign-produced drones and components for possible restrictions on continued importation and marketing. Thermal imaging, LiDAR, docking, agricultural dispensing, coordinated formations, weight, and defense-article integration become legal discriminators within an existing Covered List framework. This essay examines what that classification can accomplish and what it cannot. It distinguishes the proposal from a final prohibition, reads the simultaneous exemption extension as part of the policy, and places both alongside reports of American production constraints and Ukrainian participation. The argument is that feature-based controls require a defense of their fit: a capability's military usefulness does not erase its civilian value. A credible transition must connect restrictions to usable substitutes, sustained supply, and technical governance without treating a category definition as evidence that those capacities already exist.

A consequential adjective

Military-grade sounds like a property a machine either has or lacks. In the FCC's July 21 notice, it is doing more specific work: identifying classes of previously authorized foreign-produced drones and critical components for a proposed restriction on their continued importation and marketing. That is a legal boundary with consequences for suppliers and future purchasers. It is not a claim that every aircraft within the definition was designed for war, nor a declaration that every machine outside it is harmless.[1]

The proposal concerns equipment that is both covered by the Covered List and within the specified capability categories. That conjunction matters. A feature alone does not supply the entire legal test. The notice proposes exclusions for domestic production, equipment exempted from the Covered List, federal-government use, and commercial testing and product development. It would preserve continued use and operation of already-purchased equipment. A reader who drops these qualifications can turn a prospective, bounded supply restriction into an imaginary order to ground every thermal or coordinated drone in the country.[1]

As of July 31, the proposed prohibition is not a completed ban. The notice seeks comments and states that the comment period runs thirty days after Federal Register publication. It also proposes a transition period for any adopted restriction. The dateline does not permit importing a later procedural calendar or outcome into the account. The FCC has tentatively argued for action and invited a record on national-security, economic, and supply-chain questions. That is a substantial policy development whose practical terms remain subject to the proceeding.[1]

Its significance lies in the treatment of established equipment authorizations. The December addition of foreign-produced drones and components to the Covered List generally blocked new authorizations while leaving

previously authorized models on a different footing. July's proceeding proposes to limit the continued importation and marketing of a defined part of that older authorized population. The FCC describes a procedure for placing limitations on existing authorizations without necessarily revoking the underlying authorization. The proposed intervention therefore reaches an ongoing supply channel, rather than merely repeating the barrier faced by a new model.[1]

It follows that avoiding a listed feature would not automatically reopen the route to a new equipment authorization for an otherwise covered foreign-produced model. The proposed military-grade boundary is a further test applied to specified previously authorized equipment, not a replacement for the existing Covered List framework. A vendor considering a redesign would need to understand both questions. A purchaser reading a product description should likewise avoid inferring that an aircraft without thermal imaging or coordinated-flight capability has acquired a general legal clearance. The practical challenge is to make several overlapping rules intelligible enough that ordinary commercial decisions can be made without mistaking one exclusion for a complete permission.

For an operator, the distinction is felt across an equipment program. Permission to continue flying an aircraft does not answer whether a replacement can be acquired, whether a familiar sensor combination will remain available, or whether a new site can adopt the same setup. None of those difficulties is automatically established by the proposal. They are the kinds of economic and operational questions the proceeding should examine. Reassurance about continued use answers one important concern while leaving the supply question open.

The strongest case for the feature approach is that it directs attention toward capabilities with especially consequential uses. A regulator needs administrable distinctions and cannot conduct an unlimited forensic study of every future operation. Observable features can provide a workable starting point. The strongest challenge is that those same features span civilian missions with very different exposure and value. The policy must explain why the selected boundary is a proportionate response and how its exceptions correct the boundary's bluntness. The adjective cannot do that argumentative work by itself.

The sensor sees heat, whatever the mission

Thermal imaging makes the dual-use problem immediately recognizable. The proposal includes aircraft containing or integrating sensors capable of translating temperature differences and heat signatures into usable information. The notice emphasizes advantages for low-visibility operation, surveillance, and targeting. Those are the agency's reasons for treating the capability as sensitive. The sensing principle also explains why an operator might want it for search, inspection, or emergency response. The physics does not change when the institution purchasing the aircraft changes.[1]

This is not an obscure exception to an otherwise purely military technology. A sensor that reveals something difficult to see with an ordinary camera can be valuable in several settings. Its usefulness and sensitivity arise from the same information advantage. A serious policy argument should begin there, rather than imply that civilian users have misunderstood the true nature of their equipment. Acknowledging the legitimate mission does not settle whether a restriction is justified. It identifies a cost and a beneficiary that must be included in the judgment.

LiDAR creates a related problem through a different measurement. The proposal includes systems with sensors that measure distance using laser illumination and reflected light. Its rationale discusses mapping, navigation, and reconnaissance advantages. Those capabilities can also support civilian measurement and infrastructure work. The relevant question is not whether a technology has military utility; many useful technologies do. It is whether the particular restriction materially reduces the risks identified, at an acceptable cost to the uses that will also be affected.[1]

The agricultural category makes the language especially charged. The notice refers to aircraft capable of dispensing economic poison under the FAA definition. That term covers familiar pest-control and plant-treatment substances, including pesticides, defoliants, and drying agents. The proposal's security rationale considers the potential delivery of dangerous substances. The regulatory vocabulary should not lead readers to imagine that the entire category consists of specially built chemical weapons. It captures a capability associated with routine agricultural work as well as the possibility of deliberate misuse.[1]

The weight threshold is also a proxy rather than a complete account of risk. The notice includes aircraft weighing fifty-five pounds or more at takeoff and links greater size to payload, endurance, and military utility. A threshold offers clarity for administration. It does not imply a discontinuity in real-world consequences between two otherwise similar aircraft on opposite sides of the number. The regulator should defend the threshold as a useful rule, with an understanding of its edge cases, rather than ask it to masquerade as a natural law.[1]

Feature presence also compresses differences in performance. Thermal sensors can vary in what they allow an operator to resolve, at what distance, and under which conditions. A binary category is easier to administer than a detailed performance assessment, but its breadth needs an explanation. The question is whether finer distinctions would meaningfully improve the risk judgment or merely add complexity that can be exploited or misunderstood. There is no reason to assume the more complicated rule would always be better. There is a reason to require the agency to show why the simpler proxy fits the risk well enough, particularly when it reaches users whose work is not the source of the feared harm.

This is where evidence about replacement matters. It would be inadequate to answer a rescue organization, surveyor, or agricultural operator only by observing that a domestic aircraft exists somewhere in the market. A usable substitute has to fit the relevant payload, operating procedure, support arrangement, and budget. The public record examined here does not establish a universal shortage or universal equivalence. It establishes a proposal that should invite precisely this kind of mission-level information. The existence of legitimate uses makes the replacement question a central part of the security analysis.

The platform is also a schedule

Docking stations extend the policy from the aircraft to the infrastructure that makes repeated operation practical. The notice describes systems supporting landing, takeoff, charging or battery replacement, and transfer of data and payload. Their significance is persistence: a service can perform successive missions with less direct handling of the aircraft. The FCC's rationale connects this to continuous surveillance and coordinated operations. The same reduction in handling can make a civilian installation more useful and less labor-intensive.[1]

This is an important expansion of the ordinary image of a drone restriction. The object of policy is not always a flying vehicle. A station on the ground can determine how often a vehicle operates, where information goes, and how much human involvement is required. Treating it as infrastructure makes the security rationale more intelligible. It also makes the operational cost more extensive than replacing a single aircraft. A customer may have invested in power, connectivity, procedures, and integration around the station. Those relationships should be examined when evaluating a transition.

The swarm definition reaches a similarly broad range of coordination. One part concerns specially designed systems managing autonomous coordination, formation maintenance, collision avoidance, and responses to changing conditions. Another expressly includes aircraft purpose-built for synchronized formations such as illuminated multi-drone shows. The entertainment example matters because it demonstrates that the proposal does not depend on a buyer's military purpose. A capability can fall within the proposed class because of how several aircraft are organized to act together.[1]

Coordinated aircraft can create genuinely difficult defense problems. The notice argues that their number and organization can strain detection, tracking, and response. It is reasonable to assess the capability at the group level rather than treat each aircraft as if it operated alone. But the presence of coordination does not determine hostile intention. A light-show fleet and a malicious formation may share relevant organizational features while differing profoundly in authorization, design, oversight, and use. The rule's rationale must address the risk of the capability without allowing the word swarm to settle every case emotionally.

The proposal also includes aircraft specially designed to incorporate defense articles, drawing on an existing export-control category. This is a more direct connection to military design than the presence of a general-purpose sensor. Its inclusion beside thermal imaging and entertainment formations shows how varied the classification is. The categories should be evaluated individually as well as together. Evidence strong for one does not automatically establish that the same degree of restriction is necessary for every other feature in the list.[1]

Software complicates all these distinctions. A product's available functions can depend on configuration, services, or later changes. A label on an enclosure may not reveal whether a capability is enabled, available through an update, or impossible without different hardware. Clear rules need a defensible treatment of these states, including how a material change is recognized. That is an implementation problem requiring technical detail, not proof that feature-based regulation is futile. Ambiguity becomes costly when ordinary purchasers cannot determine whether a system they are considering falls within the proposed boundary.

The exception belongs in the main argument

On the same day, a separate FCC notice changed the time horizon of important exemptions. Following a War Department determination, DA 26-761 extended the Blue UAS and qualifying domestic-end-product exceptions to January 1, 2028. It also removed the original fixed end date for individual drone conditional approvals, subject to continuing adherence to the applicant's onshoring plan and updated product vetting. This is a current action at the dateline, distinct from the prospective import-and-marketing prohibition.[2]

The distinction resolves a potential trap in the documents. The proposal's background and footnote still recount an earlier January 2027 exemption horizon. That historical text should not be used to describe the controlling position on July 31. The separate July 21 extension supersedes the earlier determination for the specified categories. An account that relies on the older date could manufacture an imminent deadline that the government had just moved. Reading the instruments together is necessary to understand what suppliers and purchasers actually face.[1][2]

Conditionality also has substance. The determination says an approval can terminate and the equipment return to the Covered List if an applicant fails to follow its onshoring plan or makes a false statement or misrepresentation. Continuing admission is therefore tied partly to future conduct and review. That does not by itself mean an earlier equipment authorization is automatically revoked or an owned aircraft must stop operating. The policy has several stages, and a change in Covered List status must not be casually narrated as every possible downstream legal consequence at once.[2]

The exceptions are not an embarrassing detail to be hidden behind a simple ban narrative. They are a major part of the strategy. Government is preserving selected channels while proposing to close others. It is using production commitments and security determinations to shape which suppliers can continue seeking market access. The practical quality of the strategy depends on whether those channels are workable and whether the commitments are monitored. A restrictive default with credible routes through it can differ materially from either unrestricted imports or indiscriminate exclusion.

Monitoring needs to follow the commitments that made the exception persuasive. A new address or an announced partnership is easier to display than a functioning supplier network, trained production staff, or a qualified

component substitution. An onshoring plan should be assessed against the milestones actually agreed, with material changes visible to the institution responsible for the determination. Legitimate confidentiality may limit public detail, but it should not leave the public unable to distinguish progress from a repeated promise. The relevant accountability is for fulfilling the bargain that preserved access, rather than for producing a reassuring appearance of domestic activity.

The emerging Ukrainian export plan demonstrates why foreign production cannot be treated as one undifferentiated political condition. Reuters reported on July 22, citing an unnamed source, that six Ukrainian companies had received permission to export roughly one hundred drones each to participate in the Pentagon's Drone Dominance program. The report noted no immediate official comment from Kyiv or Washington. This is an attributed account of limited export permission for participation, not evidence of mass deliveries or a blanket American authorization for every Ukrainian product.[3]

Its strategic interest is nevertheless clear. The United States is seeking access to knowledge generated under wartime pressure while pursuing a more domestic supply chain. Those objectives can be combined through testing, partnerships, and localization, but not simply by changing the nationality of a brand. The useful question is which knowledge, components, production processes, and support relationships will transfer. An exception can create an opportunity for that transfer. It cannot establish that the transfer has already occurred or that every dependence has disappeared.

The arithmetic of an industrial gap

The gap between classification and capacity became particularly visible in Reuters' July 27 interview with Defense Innovation Unit deputy director Travis Metz. He described the American effort as being in an early, difficult phase and discussed stricter component requirements. His comparison put Ukraine's expected annual production of small FPV attack drones at six to seven million, while the Pentagon program expected to have ordered just under two hundred thousand cumulatively by February. These figures are an official's forecast and program expectation reported in an interview.[4]

They are not a directly comparable production ratio. One concerns a forecast of national annual output; the other concerns cumulative orders through a future date in a particular American program. The interview is informative about the acknowledged scale of the challenge, but the denominators do not permit a precise calculation of American industrial inferiority. A careful account should preserve the comparison's meaning without presenting it as a common audited measure of factories, delivery, quality, or military effect.[4]

The harder sourcing requirements show why the early phase can be difficult. Reuters described a July 23 framework aimed at an ultimately wholly domestic small-UAS supply chain and reported Metz's account of restrictions on Chinese motors and battery packs for the next competition. It also reported his acknowledgment that harder-to-source components, including semiconductors, create wider problems. A policy that tightens admission can increase the importance of suppliers that do not yet exist at sufficient scale. National purpose does not remove the work of qualifying and producing the missing parts.[4]

Metz described Ukrainian entrants entering or moving toward joint ventures with American manufacturers, with localization a condition of future orders. This gives the proposed industrial bargain a concrete form: foreign experience is sought while future production is expected to move into the United States. The distinction between participating in a competition and earning a later order remains important. So does the distinction between announcing a partnership and achieving repeatable output. Both are necessary stages, and neither should be erased by a celebratory account of the intended destination.[4]

The FCC's July 21 fact sheet offers its own positive account, asserting that more than $4 billion had flowed to American-based drone and related production companies since December, with expanded factory space and jobs. That is an agency claim about investment and related activity. It is relevant evidence of the administration's industrial narrative, rather than an independent causal demonstration that the restrictions produced all of it. Capital raised, space opened, parts qualified, aircraft accepted, and missions sustained are related achievements that need separate measures.[5]

The appropriate industrial standard is therefore more demanding than a count of excluded imports or announced dollars. It should ask whether suppliers can deliver the required configurations, sustain component quality, repair systems, and revise designs as needs change. It should also ask how much of that competence remains under domestic control. A factory can perform useful assembly while depending on a small number of external sources for critical elements. The objective may justify a staged transition, but the stages should be visible so that progress can be judged without either exaggeration or despair.

A seizure and an interception answer different questions

Security developments elsewhere in July make the pressure for action understandable. On July 22, the FAA reported that FBI and DHS teams had seized more than seven hundred unauthorized drones across all eleven United States host cities during the World Cup. The agency described nearly 250 temporary flight restrictions and an extensive coordinated effort. It also said each unauthorized drone was treated as a potential threat. That is a precautionary operational posture and an agency success account, not a finding that each recovered aircraft had a hostile mission.[6]

The tally can inform debate about domestic protection without validating every proposed product category. The public announcement does not establish which seized aircraft had thermal sensors, belonged to coordinated formations, or fell within the July proposal's other classes. Nor does it provide a complete account of intent and legal disposition. It would be an error to use the number as though it were a feature-specific study demonstrating that the proposed import boundary fits the observed threat. The link would require additional evidence.

Romania's July 24 interception presents a different security problem. Reuters reported authorities' account that a Romanian F-16 shot down a drone after an airspace incursion. The army's chief of staff said its origin and purpose had not yet been established, while pilots' visual observations suggested a Shahed-type aircraft. The report also described an investigation. The aircraft's destruction was a concrete sovereign-defense action; the public account still retained uncertainty about attribution and purpose.[7]

This is a useful discipline for domestic policy, rather than a reason to equate the incidents. A military aircraft responding to a border incursion, a ground team enforcing a stadium restriction, and a regulator assessing a product category are making different decisions under different authority. Their evidence should not be borrowed freely across those boundaries. A dramatic overseas incident can explain a sense of urgency. It does not identify the risk of every civilian sensor or determine the proportionality of an American import restriction.

The emotional pressure is real. People can reasonably fear that inexpensive aircraft will expose vulnerabilities faster than institutions can adapt. Policymakers can reasonably seek rules that act before every possible harmful use occurs. The question is how that precaution remains disciplined. It should state the risk pathway, acknowledge the legitimate activities affected, and explain why narrower or differently structured alternatives would be insufficient. Such an argument can support decisive action. It is stronger than asking a disturbing image to settle a complicated category judgment.

The mission on the other side of the definition

The July proceeding should be judged by what it makes possible as well as what it proposes to prohibit. If a feature identifies a particularly sensitive class, the record should explain how the relevant risk relates to origin, control, software, and likely use. If an exemption supplies a safer route, the process should be predictable enough for a capable supplier to pursue it. If civilian missions face transition costs, those costs should be assessed where they occur, including the resources needed to adopt and maintain an alternative.

This does not require the government to subsidize every preference for an existing product. It requires the security case to remain connected to the work the equipment performs. A small organization may depend on a particular payload, familiar training, and an affordable support arrangement. A proposed restriction can be justified while still imposing a meaningful burden on that organization. Making the burden visible permits an honest decision about sequencing, assistance, or exception criteria. Hiding it behind a category label leaves the transition to be managed by the institution least able to influence the rule.

Technical governance should continue after admission. A product that lacks a listed feature can still have consequential update authority or data relationships. A product admitted through an exception can change. Feature definitions therefore need a complementary account of configuration, supplier obligations, and material change. A connected machine's capabilities and dependencies can change after review, and its supplier should be answerable for those changes.

As of July 31, the proposal and the extension together show a state attempting to differentiate a market it has already disrupted. The differentiation can be useful. Its credibility will depend on precise scope, workable exceptions, and a transition that yields real capacity rather than merely a more protected opportunity. Military-grade is the beginning of that policy argument, not its conclusion. The public should expect the definition to explain what risk is being governed and the industrial strategy to demonstrate what dependable capability will remain available on the other side.

Notes and sources

1. FCC, DA 26-758, July 21, 2026, PS Docket 26-189. Proposal covers specified previously authorized equipment both on the Covered List and within defined military-grade categories; includes stated exclusions, continued-use protection, and prospective timing. Its earlier exemption-date references are superseded by the separate July 21 extension. Complete proposal.
2. FCC, DA 26-761, July 21, 2026. Extends Blue UAS and qualifying domestic-end-product exceptions to January 1, 2028 and removes original fixed sunsets for individual conditional approvals under ongoing onshoring compliance and updated vetting, with termination conditions. It does not by itself establish automatic revocation of underlying equipment authorizations. Controlling extension and determination.
3. Max Hunder, Reuters, July 22, 2026, “Ukraine agrees to export drones to US for Pentagon plan, source says.” Six companies and roughly one hundred units each are attributed to an unnamed source; no immediate official confirmation or final American contract inferred. Original report.
4. Mike Stone, Reuters, July 27, 2026, “Pentagon says US industry still years from matching Ukraine's wartime drone output.” Preserves Metz's forecast, program-order horizon, sourcing account, and localization condition. National annual output and future cumulative program orders are not treated as directly comparable measured production. Original interview report.
5. FCC, July 21, 2026, “FCC Takes Action to Secure the Drone Supply Chain,” fact sheet. Investment, factory-space, and job statements are agency claims, not independent causal estimates or product-delivery counts. Original fact sheet.
6. FAA, July 22, 2026, World Cup counter-drone announcement. Reports more than seven hundred unauthorized drones seized, eleven host cities, nearly 250 restrictions, and potential-threat treatment. No feature-level threat distribution or hostile-attack count inferred. Official after-action announcement.
7. Luiza Ilie, Reuters, July 24, 2026, Romanian interception report. Authorities describe the shootdown, visual suggestion of Shahed type, and unresolved origin and purpose at reporting time. Original report.