

Production and testing of weapon samples in Ukraine

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The process of building and testing weapons in Ukraine has a rather complex legal structure.

State testing of domestic and foreign samples is regulated by separate resolutions of the government of Ukraine. For domestic samples of weapons and military equipment samples, there is a procedure that defines the general mechanism for organising and conducting tests. This procedure formalises roles, documents and decisions, determines who initiates the tests, who signs the protocols and what exactly is considered a successful test result.

For foreign-made samples, a separate resolution of the government of Ukraine applies, which establishes the mechanism for testing and adopting or supplying foreign samples. In particular, this resolution regulates the procedure for functional and operational tests and the resulting decision.

Organisational details and document flow in testing procedures are regulated by the relevant order of the Ministry of Defence (MoD) of Ukraine. This order approves the Instruction, which defines the general procedure for organising measures for the preparation and conduct of tests of experimental (experimental repair) samples (complexes, systems) of weapons, military and special equipment, their parts and special accessories for their repair and operation. The Instruction synchronises design and engineering steps with legal requirements and determines which documents need to be prepared before testing begins.

At the same time, there is a special period mechanism that creates a legal framework for rapid admission to operation when the situation requires immediate decisions. Its application does not cancel the registry of protocols and assessments, but allows for a faster pace in critical conditions.

1. Logic of the process

The process begins with the formulation of a technical or tactical-technical task ('TTT'). The task is agreed upon by the state procuring entity. It must contain measurable indicators, conditions of use, and safety limits. Regulatory acts of the

MoD of Ukraine require that test programmes be aligned with the TTT and the state contract.

Next, research and development work is carried out. The developer creates prototypes, develops methodologies and selects measuring tools that have valid metrological certification. This is important for the future documentation of the process. Regulatory control applies not only to new samples. It also covers modernisation and experimental repairs, when separate methodologies and programmes are required.

Once the programme is ready, testing is initiated. For domestic inventions, the legislation defines the general mechanism for organising and conducting tests, the composition of commissions and the form of documents. For imported samples, tests are divided into functional and, if necessary, operational ones. Functional tests are carried out by a commission of the state procuring entity to establish performance indicators.

The test results form the commission's conclusion. The conclusion either clears the way for adoption into service or supply, or sets tasks for further improvement. During martial law or other emergency regimes, the decision on the need for accelerated completion of research and development work on the development of samples of defence products that are manufactured and are at the stage of preliminary testing is made by the state procuring entity in case of urgent need.

It should be noted that internal tests by the developer are necessary but do not replace state or departmental tests.

2. What is tested

For unmanned aerial vehicles, the main tests concern channel stability, range, navigational survivability, payload and operational safety. In areas of active electronic warfare, critical attention is paid to resistance to interference and operation in reproducible communication scenarios. Tests for imported and domestic platforms are regulated by separate regulations.

For electronic warfare equipment, the key issues are electromagnetic compatibility, spectral parameters, emission levels, personnel safety, and compatibility with communication and control systems.

For firearms, firing tests are mandatory. The reliability of the machine control system, shooter safety, dispersion, barrel wear and resistance to contamination are tested. For ammunition, ballistic parameters, sensitivity, batch stability and compatibility with standard systems are tested. The format of protocols and conclusions is determined by the relevant regulations.

For ground platforms, the running part, transmission, power supply, integration of communication channels, interaction with on-board systems and compatibility modules are checked. If the platform has undergone repair or modernisation, the algorithm of 'experimental repair' with separate programmes and methodologies is applied. Such programmes make it possible to document the product's ability to operate under specified cycles and loads.

3. Commission decision, approval and consequences for supply

Based on the test results, the state procuring entity's commission forms a conclusion. It may recommend acceptance for service or delivery, or determine that further improvements are needed with subsequent tests.

In special circumstances, approval for operation may be granted under a separate procedure – rapid deployment of the product where units need to be reinforced urgently. However, even in such an arrangement, documents confirming the fact of use and the characteristics obtained remain mandatory. The formal part remains, only the pace is accelerated.

4. Field validation without a full cycle of formal testing

During the full-scale war, the practice of 'field validation' emerged. It was publicly presented as the 'Test in Ukraine' initiative under the auspices of the state platform BRAVE1.

Under this arrangement, companies send products, carry out training, and military units provide feedback based on actual combat use.

The legal status of field validation is based on general norms. There is no formal separate law on field validation. However, a decision on rapid supply and admission in wartime is possible. In this case, combat reports, telemetry, and supporting materials become the source of decision-making data.

This process is justified by the need for immediate response during a special period. However, this does not negate the requirement for further formalisation of protocols. After validation, the sample must still go through a documentation cycle for inclusion in regular circulation and codification.

The risks of field validation are obvious:

- incompleteness of metrology: in combat conditions, it is difficult to guarantee that all measuring instruments are calibrated;
- incomplete commissions, lack of fixed methodologies;
- responsibility for failure or loss of the sample;
- customs regimes and sanctions restrictions for components.

5. Codification

Codification of supply items according to NATO standards is a legal and technical framework that makes defence supplies predictable, transparent and interoperable.

Related article: Codification of unmanned systems and EW equipment according to NATO standards in Ukraine

Ukraine is integrated into the NATO Codification System at Tier 2 level and has been carrying out its own codification, transferring data to the international catalogue since 2019.

An act on joint departmental tests confirming compliance with technical conditions, tactical and technical characteristics and configuration may serve as the basis for codification.

6. Practical implications for contracts and planning

Contract terms should be linked to process steps. These include the test programme, the commission's final conclusion, codification, and delivery. Such a link reduces the risk of disputes over payment and deadlines.

The Defence Procurement law provides a framework for this approach, and special government decisions in wartime allow for simplified procedures without compromising quality and protocol requirements. In practice, this means that documents should be prepared in parallel with the technical stages.