

# TACs and Technology Readiness Levels (TRLs)



**Level 1**   **Level 2**   **Level 3**   **Level 4**   **Level 5**   **Level 6**   **Level 7**   **Level 8**   **Level 9**

**Observe/ Report Concept.**

Begin scientific research, translate into applied research and development, ie: paper studies of a technology's basic properties.

**Formulate technology concept/ application.**

Launch invention, observe basic principles, invent practical applications, activities are limited to analytical studies.

**Critical function analysis/proof of concept.**

Research and development is initiated. May include components that are not yet integrated or represented.

**Laboratory environment validation.**

Establish that basic technological components will work together, ie: integration of "ad hoc" hardware in the laboratory.

**Simulated environment validation.**

Basic technological components tested in a simulated environment by laboratory integration of components.

**Prototype demonstration in a simulated environment.**

Model or prototype is developed to a near desired configuration by testing in a simulated operational environment or laboratory.

**Operational environment prototype demonstration.**

Prototype should be at planned operational level and ready for demonstration including prototype field testing.

**Technology completed; qualified through tests and demonstrations.**

It works in its final form and under expected conditions, including testing and evaluation of whether it will meet operational requirements.

**Operational setting deployment.**

Actual application of the technology in its final form and under real-life conditions, mirroring the operational test and evaluations.