

Night Operations (107.29) Waiver Trend Analysis

Waiver Application Elements	Maintain VLOS and sUAS Visual Conspicuity	See-and-Avoid Methods	Continuous Knowledge of sUAS's Location and Movement	Participants' Knowledge Requirement
<p style="text-align: center;">Sufficient Information</p> <p style="text-align: center;">--</p> <p style="text-align: center;">Characteristics of the Night Operations applications approved after requests for additional information</p>	<p>The waiver application documented a lighting method such that the small unmanned aircraft system (sUAS) would be visible for at least 3 statute miles.</p> <p>The waiver application included the use of at least one Visual Observer (VO).</p> <p>The waiver application contained documentation for the communication methods between the remote pilot in control (RPIC) and VO(s) (such as direct contact, 2-way radio, cell phone, etc.).</p> <p>The waiver application contained documentation describing the procedure RPIC and VO(s) would follow in the event they lose sight of the sUAS during operations at night.</p>	<p>Waiver application provided methods to detect other aircraft:</p> <ul style="list-style-type: none"> - Included prescriptive training for the RPIC and VO(s) to visually scan airspace. - Provided the topics and training material provided to the RPIC and VO(s). - Included specific training on topics related night vision and night visual illusions. <p>Waiver application included methods to avoid other aircraft:</p> <ul style="list-style-type: none"> - Descriptive procedures the RPIC will follow to yield the right-of-way to other aircraft and remain well clear of other aircraft. <p>Waiver application included methods to locate and avoid causing a hazard to non-participants.</p> <p>Waiver application provided methods to avoid operations over non-participants.</p> <p>Waiver application provided procedures for the RPIC and VO to follow when a non-participant(s) is located in the ground operations area.</p> <p>Waiver application included methods and procedures to locate, see and avoid ground-based structures in flight.</p>	<p>The waiver application documented how the RPIC would receive and monitor telemetry data sent from the sUAS including the type of data that would be monitored and how it would be used.</p> <p>The waiver application described how onboard or additional lighting added to the sUA would be used to make the determinations required in 107.31.</p> <p>The waiver application described how the VO(s) would communicate the location of the sUA to the RPIC.</p>	<p>The waiver application described the training that all participants of sUAS operation would undergo to show proficiency in managing risk for night operations, overcoming visual illusions, limitations of night vision, etc. The waiver application:</p> <ul style="list-style-type: none"> - Provided detail; listed the specific subject areas that would be covered. (Example: Included a curriculum or lesson plan) - Indicated sources of knowledge from FAA documentation and advisory material. - Provided a method for how the participants receive this training. - Provided a method to ensure the training transferred the minimum required knowledge for the operation to remain acceptably safe. - Defined a method for retaining and retention of knowledge, training records, and knowledge verification records.
<p style="text-align: center;">Insufficient Information</p> <p style="text-align: center;">--</p> <p style="text-align: center;">Characteristics of the Night Operations applications sent requests for additional information</p>	<p>The waiver application did not provide a method to increase conspicuity of the sUAS to be seen at a distance of at least 3 statute miles.</p>	<p>The waiver application did not provide documentation:</p> <ul style="list-style-type: none"> - Describing methods for seeing other aircraft, people, or obstacles. - Describing methods for avoiding other aircraft, people, or obstacles. <p>The waiver application mentioned that the RPIC would use a VO to avoid aircraft, people, and structures, but did not adequately describe the methods of how the VO would be used.</p>	<p>The waiver application did not document a method for continuously knowing accurate flight data.</p> <p>The waiver application did not specify how RPICs and VOs will communicate the location of the sUA with one another.</p>	<p>The waiver application did not:</p> <ul style="list-style-type: none"> - Address all participants - Document a list of subjects the training would cover - Document a resource for training material - Document a method for how participants receive this training - Document a method of assuring knowledge has been retained after completion of training

Note: As stated in FAA 14 CFR 1.1: "Night means the time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the Air Almanac, converted to local time."