the launch vehicle, any jettisoned components, and its payload do not pass closer than 200 kilometers to a manned or mannable orbiting object during ascent to initial orbital insertion through at least one complete orbit.

(c) *Suborbital launch.* For a suborbital launch, the analysis must establish any launch waits needed to ensure that the launch vehicle, any jettisoned components, and any payload do not pass closer than 200 kilometers to a manned or mannable orbital object throughout the flight.

(d) *Analysis not required.* A collision avoidance analysis is not required if the maximum altitude attainable by a launch operator's unguided suborbital launch vehicle is less than the altitude of the lowest manned or mannable orbiting object. The maximum altitude attainable must be obtained using an optimized trajectory, assuming 3-sigma maximum performance.

§417.233 Analysis for an unguided suborbital launch vehicle flown with a wind weighting safety system.

For each launch of an unguided suborbital launch vehicle flown with a wind weighting safety system, in addition to the other requirements in this subpart outlined in §417.201(c), the flight safety analysis must:

(a) Establish flight commit criteria and other launch safety rules that a launch operator must implement to control the risk to the public from potential adverse effects resulting from normal and malfunctioning flight;

(b) Establish any wind constraints under which launch may occur; and

(c) Include a wind weighting analysis that establishes the launcher azimuth and elevation settings that correct for the windcocking and wind-drift effects on the unguided suborbital launch vehicle.

Subpart D—Flight Safety System

§417.301 General.

(a) *Applicability.* This subpart applies to any flight safety system that a launch operator uses. The requirements of §417.107(a) define when a launch operator must use a flight safety system. A launch operator must ensure that its flight safety system satisfies all the requirements of this subpart, including the referenced appendices. Paragraph (b) of this section provides an exception to this.

(b) *Alternate flight safety system.* A flight safety system need not satisfy one or more of the requirements of this subpart for a launch if a launch operator demonstrates, in accordance with §406.3(b), that the launch achieves an equivalent level of safety as a launch that satisfies all the requirements of this part. The flight safety system must undergo analysis and testing that is comparable to that required by this part to demonstrate that the system's reliability to perform each intended function is comparable to that required by this subpart.

(c) *Functions, subsystems, and components.* When initiated in the event of a launch vehicle failure, a flight safety system must prevent any launch vehicle hazard, including any payload hazard, from reaching a populated or other protected area. A flight safety system must consist of all of the following:

(1) A flight termination system that satisfies appendices D, E, and F of this part;

(2) A command control system that satisfies §§417.303 and 417.305;

(3) Each support system required by §417.307; and

(4) The functions of any personnel who operate flight safety system hardware or software including a flight safety crew that satisfies §417.311.

(d) *Compliance*—(1)*Non-Federal launch site.* For launch from a non-Federal launch site, any flight safety system, including all components, must:

(1) *Non-Federal launch site.* For launch from a non-Federal launch site, any flight safety system, including all components, must:

(i) Comply with a launch operator's flight safety system compliance matrix of §415.127(g) that accounts for all the design, installation, and monitoring requirements of this subpart, including the referenced appendices; and

(ii) Comply with a launch operator's testing compliance matrix of §415.129(b) that accounts for all the test requirements of this subpart, including the referenced appendices.