

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

N 8900.736

National Policy

Effective Date: 5/22/25

Cancellation Date: 5/22/26

SUBJ: OpSpec/14 CFR Part 125 LOA C078 and OpSpec C079, IFR Lower-Than-Standard Takeoff Minima

1. Purpose of This Notice. This notice announces a mandatory revision to operations specification (OpSpec)/Title 14 of the Code of Federal Regulations (14 CFR) part 125 Letter of Authorization (LOA) C078 under 14 CFR parts 121, 121/135 combined certificate holders (CH), and 125 (including part 125 Letter of Deviation Authority (LODA) holders); and OpSpec C079 for 14 CFR part 121/135 and 135 CHs, as applicable. This notice also announces an update to the guidance in Federal Aviation Administration (FAA) Order 8900.1, Volume 3, Chapter 18, Section 5, Part C Operations Specifications—Airplane Terminal Instrument Procedures and Airport Authorizations and Limitations.

Note: This is a guidance document. Its content is not legally binding in its own right and will not be relied upon by the Department as a separate basis for affirmative enforcement action or other administrative penalty. Conformity with the guidance document is voluntary only. Nonconformity will not affect rights and obligations under existing statutes and regulations.

2. Audience. The primary audience for this notice is responsible Flight Standards offices, Principal Operations Inspectors (POI), and aviation safety inspectors (ASI) with oversight of 14 CFR parts 121, 125, 121/135, and 135 CHs and 14 CFR part 125 LODA holders. The secondary audience includes the Safety Standards and Foundational Business offices.

3. Where You Can Find This Notice. You can find this notice on the MyFAA employee website at https://employees.faa.gov/tools_resources/orders_notices and the Dynamic Regulatory System (DRS) at https://drs.faa.gov. Operators and the public can find this notice on the FAA's website at https://www.faa.gov/regulations_policies/orders_notices and DRS.

4. Background. The Flight Technologies and Procedures Division (AFS-400) has revised OpSpec/14 CFR part 125 LOA C078 and OpSpec C079 to introduce new authorizations for operations using a Head-Up Display (HUD) or enhanced flight vision system (EFVS). The FAA conducted a series of tests and evaluations on HUD and EFVS takeoffs which has led to the associated takeoff standards for operators who use this equipment.

5. Explanation of Policy Changes. AFS-400 has revised OpSpec/14 CFR part 125 LOA C078 and OpSpec C079 as follows:

- Added additional authorizations for HUD takeoff,
- Added authorizations for EFVS takeoff, and
- Added authorizations for Category (CAT) IE localized guided takeoff.

6. Guidance.

a. Appendices. Appendices to this notice show the revised templates. This notice contains the following:

Appendix	Authorizing Document	Paragraph	Applicable to 14 CFR Part
А	OpSpec	C078	121
В	OpSpec	C078	121/135
С	OpSpec	C078	125
D	LOA	C078	125 LODA holder
Е	OpSpec	C079	135
F	OpSpec	C079	121/135

b. Order 8900.1. Order 8900.1, Volume 3, Chapter 18, Section 5 has been updated to reflect the changes outlined in this notice.

7. Action. This is a mandatory revision to the OpSpec/14 CFR part 125 LOA C078 and OpSpec C079 templates. POIs with oversight of 14 CFR part 121, 121/135, 125, or 135 CHs or 14 CFR part 125 LODA holders, currently issued OpSpec/14 CFR part 125 LOA C078 or OpSpec C079, must review the revised C078 and C079 templates and updated Order 8900.1 guidance, and issue the revised OpSpec/14 CFR part 125 LOA C078 or OpSpec C079, as applicable, within 1 year of the "HQ Control" date of the revised templates.

8. Disposition. We will incorporate the information in this notice into Order 8900.1 before this notice expires. Direct questions or comments concerning the information in this notice to the Flight Operations Group (AFS-410) at 202-267-8790.

Robert Reckert for Lawrence Fields Executive Director, Flight Standards Service

Appendix A. Sample OpSpec C078, IFR Lower-Than-Standard Takeoff Minima: 14 CFR Part 121

a. The certificate holder is authorized to use instrument flight rules (IFR) lower-than-standard takeoff minima in accordance with the limitations and provisions of this operations specification and Operations Specification C056, IFR Takeoff Minimums, Part 121 Airplane Operations.

b. <u>Runway Visual Range (RVR) Requirements for Unaided Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all unaided takeoff operations on that runway. All unaided takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

(1) For operations at or above RVR 1600 (500 meters (m)):

- (a) The touchdown zone (TDZ) RVR report, if available, is controlling.
- (b) The mid-RVR report may be substituted for an unavailable TDZ report.

(2) For operations below RVR 1600 (500 m):

(a) A minimum of two operative RVR reporting systems are required.

(b) All available RVR reports are controlling.

Note: Extremely long runways (e.g., DEN 16R) utilize four RVR sensors: TDZ, mid, rollout, and far-end. When a fourth far-end RVR value is reported, it is not controlling and is not to be used as one of the two required operative RVR systems.

c. When unaided takeoff minima are equal to or less than the applicable standard takeoff minima, the certificate holder is authorized to use the lower-than-standard takeoff minima described in this operations specification.

(1) TDZ RVR 1600 (beginning of takeoff run) or visibility/Runway Visibility Value (RVV) $\frac{1}{4}$ statute mile (sm) is authorized, provided at least one of the following visual aids listed in subparagraphs c(1)(a)–(d) is available.

(a) Operative High Intensity Runway Lights (HIRL).

(b) Operative runway centerline (CL) lights.

(c) Serviceable runway centerline marking (RCLM).

(d) In circumstances when none of the above visual aids are available, visibility or RVV ¹/₄ sm may still be used, provided other runway markings or runway lighting provide pilots with adequate visual reference to continuously identify the takeoff surface and maintain directional control throughout the takeoff run.

d. The certificate holder is authorized to conduct unaided takeoff operations using the lowest RVR authorized in Table 1 below based on the applicable criteria in this operations specification.

Lowest Authorized Takeoff Minima	Minimum Runway Requirements and Conditions	Additional Limitations and Provisions
[Dropdown List Options:	 [Dropdown List Options: RVV ¹/₄ sm RCLM (day only) or HIRL or CL Lights RCLM and HIRL, or CL Lights HIRL and CL Lights HIRL and CL Lights] 	

Table 1 – Lowest Authorized Unaided Takeoff RVR

Note: For operations below RVR 1600 (500 m), a minimum of two operative RVR reporting systems are required. All available RVR reports are controlling, except a far-end RVR report, which is advisory only.

e. The certificate holder's authorizations listed in Table 1 above are dependent upon the following criteria:

(1) TDZ RVR 1200 (350 m) (beginning of takeoff roll), mid-RVR 1200 (350 m) (if installed), and rollout RVR 1000 (300 m), if authorized, may be used provided RVR equipment and one of the following visual aids combinations are available:

(a) Daylight Hours. Serviceable RCLM or HIRL or operative CL lights.

(b) Nighttime Hours. HIRL or operative runway CL lights.

(2) TDZ RVR 1000 (300 m) (beginning of takeoff roll), mid-RVR 1000 (300 m) (if installed), and rollout RVR 1000 (300 m), if authorized, may be used provided RVR equipment and one of the following visual aids combinations are available:

(a) Operative runway CL lights, or

(b) HIRL and serviceable RCLM.

(3) TDZ RVR 600 (175 m) (beginning of takeoff roll), mid-RVR 600 (175 m) (if installed), and rollout RVR 600 (175 m), or TDZ RVR 500 (150 m) (beginning of takeoff roll), mid-RVR 500 (150 m) (if installed), and rollout RVR 500 (150 m), if authorized, may be used provided RVR equipment and all of the following visual aids are available.

(a) HIRL.

(b) Operative runway CL lights.

f. <u>RVR Requirements for Aided (Head-Up Display (HUD), HUD-Localizer (HUD-LOC), or</u> <u>Enhanced Flight Vision System (EFVS)) Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all aided takeoff operations on that runway. All aided takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

(1) For operations at or above RVR 1000 (300 m):

- (a) The TDZ RVR report, if available, is controlling.
- (b) The mid-RVR report may be substituted for an unavailable TDZ report.

(2) For operations below RVR 1000 (300 m):

- (a) A minimum of two operative RVR reporting systems are required.
- (b) All available RVR reports are controlling.

g. <u>Approved HUD Takeoff Guidance Systems Minima</u>. The certificate holder is authorized to use takeoff minima (RVR) utilizing the HUD system installed in the airplane(s) as listed in Table 2 below, provided all of the requirements in subparagraph h below are met. The certificate holder must not conduct takeoffs using these takeoff minima unless using the HUD system authorized in Table 2. RVR 300 (75 m) is the lowest RVR minima that can be authorized using a HUD.

Airplane	HUD	Lowest RVR Authorized	Additional Limitations
M/M/S	System		and Provisions
		 [Dropdown List Options: RVR 1600 (500 m) RVR 1000 – TDZ / 1000 or Mid / 1000 or RO (300 m) RVR 1200 – TDZ/(350 m)/1200 – Mid (350 m)/1000 – RO (300 m) RVR 600 – TDZ / 600 – Mid / 600 – RO (175 m) RVR 500 – TDZ (150 m) / 500 – Mid (150 m)/ 500 – RO (150 m) RVR 300 – TDZ / 300 – Mid (75 m)/300 – RO (75 m)] 	

 Table 2 – Approved RVR Takeoff Minima Using HUD

h. <u>HUD Special Provisions and Limitations</u>. Special provisions and limitations for the authorization to use the HUD system installed in the airplane(s) in Table 2 above for takeoff are as follows:

(1) Operative HIRL.

(2) Operative runway CL lights for RVR 300.

(3) For RVR 300, front course guidance must be displayed from an LOC that provides Category (CAT) III rollout guidance as indicated by a III/E/4 facility classification and landing minima of RVR 300. If the CAT III landing minima is greater than RVR 300 due to an LOC downgrade, these takeoffs are not authorized.

(4) For RVR 500, front course guidance must be displayed from an LOC that provides CAT IE guidance. RVR 500 with CAT IE guidance does not require CL lights.

(5) The crosswind component on the takeoff runway is less than the Airplane Flight Manual's (AFM) crosswind limitation, or 15 knots, whichever is more restrictive.

(6) Operations using RVR 300 (75 m) minima must be conducted to runways that are accessible by taxi routings which have operative taxiway CL lights that meet U.S. or International Civil Aviation Organization (ICAO) criteria for CAT III operations; or other taxiway guidance systems approved for these operations.

i. <u>Approved EFVS Takeoff Minima</u>. The certificate holder is authorized to use takeoff minima using the EFVS installed in the airplane(s) as listed in Table 3 below. RVR 300 with an EFVS-derived RVR of 1600 is the lowest takeoff minima that can be authorized using an EFVS. EFVS-derived RVR is visibility seen directly through the installed EFVS and requires trained flightcrew.

Airplane M/M/S	EFVS System	Lowest RVR Authorized	Minimum Runway Requirements and Conditions	Additional Limitations and Provisions
		 [Dropdown List Options: EFVS-derived RVR 1600 / RVR 500 - TDZ (150 m) / 500 - Mid (150 m) / 500 - RO (150 m) EFVS-derived RVR 1600 / RVR 300 - TDZ (75 m) / 300 - Mid (75 m) / 300 - RO (75 m)] 	[Dropdown List Options: RCLM HIRL and CL Lights Required]	

Table 3 – Approved EFVS Takeoff Minima

j. <u>Training Program Requirement</u>. The pilot in command (PIC) and the second in command (SIC) must have completed the certificate holder's approved training program for the operations authorized in this operations specification.

[Select the following subparagraphs, if applicable.]

k. <u>Pilot Assessment of Takeoff Visibility</u>. The certificate holder is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima in lieu of an inoperative, unreported, or erroneous TDZ RVR sensor report. The following requirements all apply:

(1) The certificate holder has an FAA-approved procedure to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed from the flight deck in the takeoff position.

(2) All flightcrew members will have completed approved training and checking in the specific procedures used to determine visibilities as described in subparagraph k(1) above.

1. <u>EFVS-Derived Visibility</u>. The certificate holder is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima using EFVS-derived RVR. The following requirements all apply:

(1) The certificate holder has an FAA-approved procedure to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed through the EFVS from the flight deck in the takeoff position.

(2) All flightcrew members will have completed approved training and checking in the specific procedures used to determine visibilities as described in subparagraph l(1) above.

Appendix B. Sample OpSpec C078, IFR Lower-Than-Standard Takeoff Minima: 14 CFR Part 121/135

a. The certificate holder, conducting operations under 14 CFR Part 121, is authorized to use instrument flight rules (IFR) lower-than-standard takeoff minima in accordance with the limitations and provisions of this operations specification and Operations Specification C056, IFR Takeoff Minimums, Part 121 Airplane Operations.

b. <u>Runway Visual Range (RVR) Requirements for Unaided Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all unaided takeoff operations on that runway. All unaided takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

(1) For operations at or above RVR 1600 (500 meters (m)):

- (a) The touchdown zone (TDZ) RVR report, if available, is controlling.
- (b) The mid-RVR report may be substituted for an unavailable TDZ report.
- (2) For operations below RVR 1600 (500 m):
 - (a) A minimum of two operative RVR reporting systems are required.
 - (b) All available RVR reports are controlling.

Note: Extremely long runways (e.g., DEN 16R) utilize four RVR sensors: TDZ, mid, rollout, and far-end. When a fourth far-end RVR value is reported, it is not controlling and is not to be used as one of the two required operative RVR systems.

c. When unaided takeoff minima are equal to or less than the applicable standard takeoff minima, the certificate holder is authorized to use the lower-than-standard takeoff minima described in this operations specification.

(1) TDZ RVR 1600 (beginning of takeoff run) or visibility/Runway Visibility Value (RVV) $\frac{1}{4}$ statute mile (sm) is authorized, provided at least one of the following visual aids listed in subparagraphs c(1)(a)–(d) is available.

- (a) Operative High Intensity Runway Lights (HIRL).
- (b) Operative runway centerline (CL) lights.
- (c) Serviceable runway centerline marking (RCLM).

(d) In circumstances when none of the above visual aids are available, visibility or RVV ¹/₄ sm may still be used, provided other runway markings or runway lighting provide pilots with adequate visual reference to continuously identify the takeoff surface and maintain directional control throughout the takeoff run.

d. The certificate holder is authorized to conduct unaided takeoff operations using the lowest RVR authorized in Table 1 below based on the applicable criteria in this operations specification.

Lowest Authorized Takeoff	Minimum Runway	Additional Limitations and
Minima	Requirements and Conditions	Provisions
[Dropdown List Options:	 [Dropdown List Options: RVV ¼ sm RCLM (day only) or HIRL or CL Lights RCLM and HIRL, or CL Lights HIRL and CL Lights HIRL and CL Lights] 	

Table 1 – Lowest Authorized Unaided Takeoff RVR

Note: For operations below RVR 1600 (500 m), a minimum of two operative RVR reporting systems are required. All available RVR reports are controlling, except a far-end RVR report, which is advisory only.

e. The certificate holder's authorizations listed in Table 1 above are dependent upon the following criteria:

(1) TDZ RVR 1200 (350 m) (beginning of takeoff roll), mid-RVR 1200 (350 m) (if installed), and rollout RVR 1000 (300 m), if authorized, may be used provided RVR equipment and one of the following visual aids combinations are available:

(a) Daylight Hours. Serviceable RCLM or HIRL or operative CL lights.

(b) Nighttime Hours. HIRL or operative runway CL lights.

(2) TDZ RVR 1000 (300 m) (beginning of takeoff roll), mid-RVR 1000 (300 m) (if installed), and rollout RVR 1000 (300 m), if authorized, may be used provided RVR equipment and one of the following visual aids combinations are available:

(a) Operative runway CL lights, or

(b) HIRL and serviceable RCLM.

(3) TDZ RVR 600 (175 m) (beginning of takeoff roll), mid-RVR 600 (175 m) (if installed), and rollout RVR 600 (175 m), or TDZ RVR 500 (150 m) (beginning of takeoff roll), mid-RVR 500 (150 m) (if installed), and rollout RVR 500 (150 m), if authorized, may be used provided RVR equipment and all of the following visual aids are available.

(a) HIRL.

(b) Operative runway CL lights.

f. <u>RVR Requirements for Aided (Head-Up Display (HUD), HUD-Localizer (HUD-LOC), or</u> <u>Enhanced Flight Vision System (EFVS)) Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all aided takeoff operations on that runway. All aided takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

(1) For operations at or above RVR 1000 (300 m):

- (a) The TDZ RVR report, if available, is controlling.
- (b) The mid-RVR report may be substituted for an unavailable TDZ report.

(2) For operations below RVR 1000 (300 m):

- (a) A minimum of two operative RVR reporting systems are required.
- (b) All available RVR reports are controlling.

g. <u>Approved HUD Takeoff Guidance Systems Minima</u>. The certificate holder is authorized to use takeoff minima (RVR) utilizing the HUD system installed in the airplane(s) as listed in Table 2 below, provided all of the requirements in subparagraph h below are met. The certificate holder must not conduct takeoffs using these takeoff minima unless using the HUD system authorized in Table 2. RVR 300 (75 m) is the lowest RVR minima that can be authorized using a HUD.

Airplane	HUD	Lowest RVR Authorized	Additional Limitations
M/M/S	System		and Provisions
		 [Dropdown List Options: RVR 1600 (500 m) RVR 1000 – TDZ / 1000 or Mid / 1000 or RO (300 m) RVR 1200 – TDZ/(350 m)/1200 – Mid (350 m)/1000 – RO (300 m) RVR 600 – TDZ / 600 – Mid / 600 – RO (175 m) RVR 500 – TDZ (150 m) / 500 – Mid (150 m)/ 500 – RO (150 m) RVR 300 – TDZ / 300 – Mid (75 m) / 300 – RO (75 m)] 	

 Table 2 – Approved RVR Takeoff Minima Using HUD

h. <u>HUD Special Provisions and Limitations</u>. Special provisions and limitations for the authorization to use the HUD system installed in the airplane(s) in Table 2 above for takeoff are as follows:

(1) Operative HIRL.

(2) Operative runway CL lights for RVR 300.

(3) For RVR 300, front course guidance must be displayed from an LOC that provides Category (CAT) III rollout guidance as indicated by a III/E/4 facility classification and landing minima of RVR 300. If the CAT III landing minima is greater than RVR 300 due to an LOC downgrade, these takeoffs are not authorized.

(4) For RVR 500, front course guidance must be displayed from an LOC that provides CAT IE guidance. RVR 500 with CAT IE guidance does not require CL lights.

(5) The crosswind component on the takeoff runway is less than the Airplane Flight Manual's (AFM) crosswind limitation, or 15 knots, whichever is more restrictive.

(6) Operations using RVR 300 (75 m) minima must be conducted to runways that are accessible by taxi routings which have operative taxiway CL lights that meet U.S. or International Civil Aviation Organization (ICAO) criteria for CAT III operations; or other taxiway guidance systems approved for these operations.

i. <u>Approved EFVS Takeoff Minima</u>. The certificate holder is authorized to use takeoff minima using the EFVS installed in the airplane(s) as listed in Table 3 below. RVR 300 with an EFVS-derived RVR of 1600 is the lowest takeoff minima that can be authorized using an EFVS. EFVS-derived RVR is visibility seen directly through the installed EFVS and requires trained flightcrew.

Airplane M/M/S	EFVS System	Lowest RVR Authorized	Minimum Runway Requirements and Conditions	Additional Limitations and Provisions
		 [Dropdown List Options: EFVS-derived RVR 1600 / RVR 500 – TDZ (150 m) / 500 – Mid (150 m) / 500 – RO (150 m) EFVS-derived RVR 1600 / RVR 300 – TDZ (75 m) / 300 – Mid (75 m) / 300 – RO (75 m)] 	 [Dropdown List Options: RCLM HIRL and CL Lights Required] 	

Table 3 – Approved EFVS Takeoff Minima

j. <u>Training Program Requirement</u>. The pilot in command (PIC) and the second in command (SIC) must have completed the certificate holder's approved training program for the operations authorized in this operations specification.

[Select the following subparagraphs, if applicable.]

k. <u>Pilot Assessment of Takeoff Visibility</u>. The certificate holder is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima in lieu of an inoperative, unreported, or erroneous TDZ RVR sensor report. The following requirements all apply:

(1) The certificate holder has an FAA-approved procedure to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed from the flight deck in the takeoff position.

(2) All flightcrew members will have completed approved training and checking in the specific procedures used to determine visibilities as described in subparagraph k(1) above.

1. <u>EFVS-Derived Visibility</u>. The certificate holder is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima using EFVS-derived RVR. The following requirements all apply:

(1) The certificate holder has an FAA-approved procedure to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed through the EFVS from the flight deck in the takeoff position.

(2) All flightcrew members will have completed approved training and checking in the specific procedures used to determine visibilities as described in subparagraph l(1) above.

Appendix C. Sample OpSpec C078, IFR Lower-Than-Standard Takeoff Minima: 14 CFR Part 125

a. The certificate holder is authorized to use instrument flight rules (IFR) lower-than-standard takeoff minima in accordance with the limitations and provisions of this operations specification and Operations Specification C056, IFR Takeoff Minimums, Part 125 Airplane Operations.

b. <u>Runway Visual Range (RVR) Requirements for Unaided Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all unaided takeoff operations on that runway. All unaided takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

(1) For operations at or above RVR 1600 (500 meters (m)):

- (a) The touchdown zone (TDZ) RVR report, if available, is controlling.
- (b) The mid-RVR report may be substituted for an unavailable TDZ report.

(2) For operations below RVR 1600 (500 m):

(a) A minimum of two operative RVR reporting systems are required.

(b) All available RVR reports are controlling.

Note: Extremely long runways (e.g., DEN 16R) utilize four RVR sensors: TDZ, mid, rollout, and far-end. When a fourth far-end RVR value is reported, it is not controlling and is not to be used as one of the two required operative RVR systems.

c. When unaided takeoff minima are equal to or less than the applicable standard takeoff minima, the certificate holder is authorized to use the lower-than-standard takeoff minima described in this operations specification.

(1) TDZ RVR 1600 (beginning of takeoff run) or visibility/Runway Visibility Value (RVV) $\frac{1}{4}$ statute mile (sm) is authorized, provided at least one of the following visual aids listed in subparagraphs c(1)(a)–(d) is available.

(a) Operative High Intensity Runway Lights (HIRL).

(b) Operative runway centerline (CL) lights.

(c) Serviceable runway centerline marking (RCLM).

(d) In circumstances when none of the above visual aids are available, visibility or RVV ¹/₄ sm may still be used, provided other runway markings or runway lighting provide pilots with adequate visual reference to continuously identify the takeoff surface and maintain directional control throughout the takeoff run.

d. The certificate holder is authorized to conduct unaided takeoff operations using the lowest RVR authorized in Table 1 below based on the applicable criteria in this operations specification.

Lowest Authorized Takeoff	Minimum Runway Requirements	Additional Limitations
Minima	and Conditions	and Provisions
[Dropdown List Options:	 [Dropdown List Options: RVV ¼ sm RCLM (day only) or HIRL or CL Lights RCLM and HIRL, or CL Lights HIRL and CL Lights HIRL and CL Lights] 	

Table 1 – Lowest Authorized Unaided Takeoff RVR

Note: For operations below RVR 1600 (500 m), a minimum of two operative RVR reporting systems are required. All available RVR reports are controlling, except a far-end RVR report, which is advisory only.

e. The certificate holder's authorizations listed in Table 1 above are dependent upon the following criteria:

(1) TDZ RVR 1200 (350 m) (beginning of takeoff roll), mid-RVR 1200 (350 m) (if installed), and rollout RVR 1000 (300 m), if authorized, may be used provided RVR equipment and one of the following visual aids combinations are available:

(a) Daylight Hours. Serviceable RCLM or HIRL or operative CL lights.

(b) Nighttime Hours. HIRL or operative runway CL lights.

(2) TDZ RVR 1000 (300 m) (beginning of takeoff roll), mid-RVR 1000 (300 m) (if installed), and rollout RVR 1000 (300 m), if authorized, may be used provided RVR equipment and one of the following visual aids combinations are available:

(a) Operative runway CL lights, or

(b) HIRL and serviceable RCLM.

(3) TDZ RVR 600 (175 m) (beginning of takeoff roll), mid-RVR 600 (175 m) (if installed), and rollout RVR 600 (175 m), or TDZ RVR 500 (150m) (beginning of takeoff roll), mid-RVR 500 (150 m) (if installed), and rollout RVR 500 (150 m), if authorized, may be used provided RVR equipment and all of the following visual aids are available.

(a) HIRL.

(b) Operative runway CL lights.

f. <u>RVR Requirements for Aided (Head-Up Display (HUD), HUD-Localizer (HUD-LOC), or</u> <u>Enhanced Flight Vision System (EFVS)) Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all aided takeoff operations on that runway. All aided takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

(1) For operations at or above RVR 1000 (300 m):

- (a) The TDZ RVR report, if available, is controlling.
- (b) The mid-RVR report may be substituted for an unavailable TDZ report.

(2) For operations below RVR 1000 (300 m):

- (a) A minimum of two operative RVR reporting systems are required.
- (b) All available RVR reports are controlling.

g. <u>Approved HUD Takeoff Guidance Systems Minima</u>. The certificate holder is authorized to use takeoff minima (RVR) utilizing the HUD system installed in the airplane(s) as listed in Table 2 below, provided all of the requirements in subparagraph h below are met. The certificate holder must not conduct takeoffs using these takeoff minima unless using the HUD system authorized in Table 2. RVR 300 (75 m) is the lowest RVR minima that can be authorized using a HUD.

Airplane	HUD	Lowest RVR Authorized	Additional Limitations
M/M/S	System		and Provisions
		 [Dropdown List Options: RVR 1600 (500 m) RVR 1000 – TDZ / 1000 or Mid / 1000 or RO (300 m) RVR 1200 – TDZ/(350 m)/1200 – Mid (350 m)/1000 – RO (300 m) RVR 600 – TDZ / 600 – Mid / 600 – RO (175 m) RVR 500 – TDZ (150 m) / 500 – Mid (150 m)/ 500 – RO (150 m) RVR 300 – TDZ / 300 – Mid (75 m)/ 300 – RO (75 m)] 	

 Table 2 – Approved RVR Takeoff Minima Using HUD

h. <u>HUD Special Provisions and Limitations</u>. Special provisions and limitations for the authorization to use the HUD system installed in the airplane(s) in Table 2 above for takeoff are as follows:

(1) Operative HIRL.

(2) Operative runway CL lights for RVR 300.

(3) For RVR 300, front course guidance must be displayed from an LOC that provides Category (CAT) III rollout guidance as indicated by a III/E/4 facility classification and landing minima of RVR 300. If the CAT III landing minima is greater than RVR 300 due to an LOC downgrade, these takeoffs are not authorized.

(4) For RVR 500, front course guidance must be displayed from an LOC that provides CAT IE guidance. RVR 500 with CAT IE guidance does not require CL lights.

(5) The crosswind component on the takeoff runway is less than the Airplane Flight Manual's (AFM) crosswind limitation, or 15 knots, whichever is more restrictive.

(6) Operations using RVR 300 (75 m) minima must be conducted to runways that are accessible by taxi routings which have operative taxiway CL lights that meet U.S. or International Civil Aviation Organization (ICAO) criteria for CAT III operations; or other taxiway guidance systems approved for these operations.

i. <u>Approved EFVS Takeoff Minima</u>. The certificate holder is authorized to use takeoff minima using the EFVS installed in the airplane(s) as listed in Table 3 below. RVR 300 with an EFVS-derived RVR of 1600 is the lowest takeoff minima that can be authorized using an EFVS. EFVS-derived RVR is visibility seen directly through the installed EFVS and requires trained flightcrew.

Airplane M/M/S	EFVS System	Lowest RVR Authorized	Minimum Runway Requirements and Conditions	Additional Limitations and Provisions
		 [Dropdown List Options: EFVS-derived RVR 1600 / RVR 500 - TDZ (150 m) / 500 - Mid (150 m) / 500 - RO (150 m) EFVS-derived RVR 1600 / RVR 300 - TDZ (75 m) / 300 - Mid (75 m) / 300 - RO (75 m)] 	[Dropdown List Options: RCLM HIRL and CL Lights Required]	

Table 3 – Approved EFVS Takeoff Minima

j. <u>Training Program Requirement</u>. The pilot in command (PIC) and the second in command (SIC) must have completed the certificate holder's approved training program for the operations authorized in this operations specification.

[Select the following subparagraphs, if applicable.]

k. <u>Pilot Assessment of Takeoff Visibility</u>. The certificate holder is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima in lieu of an inoperative, unreported, or erroneous TDZ RVR sensor report. The following requirements all apply:

(1) The certificate holder has an FAA-approved procedure to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed from the flight deck in the takeoff position.

(2) All flightcrew members will have completed approved training and checking in the specific procedures used to determine visibilities as described in subparagraph k(1) above.

1. <u>EFVS Derived Visibility</u>. The certificate holder is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima using EFVS-derived RVR. The following requirements all apply:

(1) The certificate holder has an FAA-approved procedure to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed through the EFVS from the flight deck in the takeoff position.

(2) All flightcrew members will have completed approved training and checking in the specific procedures used to determine visibilities as described in subparagraph l(1) above.

Appendix D. Sample LOA C078, IFR Lower-Than-Standard Takeoff Minima: 14 CFR Part 125 (A125 LODA Holder)

1. The operator/company, authorized to conduct operations in accordance with the Letter of Deviation Authority (LODA A125), is authorized to use instrument flight rules (IFR) lower-than-standard takeoff minima in accordance with the limitations and provisions of this Letter of Authorization (LOA) and LOA C056, IFR Takeoff Minimums, Part 125 Airplane Operations.

2. <u>Runway Visual Range (RVR) Requirements for Unaided Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all unaided takeoff operations on that runway. All unaided takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

a. For operations at or above RVR 1600 (500 meters (m)):

- (1) The touchdown zone (TDZ) RVR report, if available, is controlling.
- (2) The mid-RVR report may be substituted for an unavailable TDZ report.
- b. For operations below RVR 1600 (500 m):

(1) A minimum of two operative RVR reporting systems are required.

(2) All available RVR reports are controlling.

Note: Extremely long runways (e.g., DEN 16R) utilize four RVR sensors: TDZ, mid, rollout, and far-end. When a fourth far-end RVR value is reported, it is not controlling and is not to be used as one of the two required operative RVR systems.

3. When unaided takeoff minima are equal to or less than the applicable standard takeoff minima, the operator/company is authorized to use the lower-than-standard takeoff minima described in this LOA.

a. TDZ RVR 1600 (beginning of takeoff run) or visibility/Runway Visibility Value (RVV) $\frac{1}{4}$ statute mile (sm) is authorized, provided at least one of the following visual aids listed in subparagraphs 3a(1)-(4) is available.

(1) Operative High Intensity Runway Lights (HIRL).

(2) Operative runway centerline (CL) lights.

(3) Serviceable runway centerline marking (RCLM).

(4) In circumstances when none of the above visual aids are available, visibility or RVV ¹/₄ sm may still be used, provided other runway markings or runway lighting provide pilots with

adequate visual reference to continuously identify the takeoff surface and maintain directional control throughout the takeoff run.

4. The operator/company is authorized to conduct unaided takeoff operations using the lowest RVR authorized in Table 1 below based on the applicable criteria in this LOA.

Lowest Authorized Takeoff	Minimum Runway Requirements and	Additional Limitations
Minima	Conditions	and Provisions
[Dropdown List Options:	 [Dropdown List Options: RVV ¼ sm RCLM (day only) or HIRL or CL Lights RCLM and HIRL, or CL Lights HIRL and CL Lights HIRL and CL Lights] 	

Table 1 – Lowest Authorized Unaided Takeoff RVR

Note: For operations below RVR 1600 (500 m), a minimum of two operative RVR reporting systems are required. All available RVR reports are controlling, except a far-end RVR report, which is advisory only.

5. The operator/company's authorizations listed in Table 1 above are dependent upon the following criteria:

a. TDZ RVR 1200 (350 m) (beginning of takeoff roll), mid-RVR 1200 (350 m) (if installed), and rollout RVR 1000 (300 m), if authorized, may be used provided RVR equipment and one of the following visual aids combinations are available:

(1) Daylight Hours. Serviceable RCLM or HIRL or operative CL lights.

(2) Nighttime Hours. HIRL or operative runway CL lights.

b. TDZ RVR 1000 (300 m) (beginning of takeoff roll), mid-RVR 1000 (300 m) (if installed), and rollout RVR 1000 (300 m), if authorized, may be used provided RVR equipment and one of the following visual aids combinations are available:

- (1) Operative runway CL lights, or
- (2) HIRL and serviceable RCLM.

c. TDZ RVR 600 (175 m) (beginning of takeoff roll), mid-RVR 600 (175 m) (if installed), and rollout RVR 600 (175 m), or TDZ RVR 500 (150 m) (beginning of takeoff roll), mid-RVR 500 (150 m) (if installed), and rollout RVR 500 (150 m), if authorized, may be used provided RVR equipment and all of the following visual aids are available.

- (1) HIRL.
- (2) Operative runway CL lights.

6. <u>RVR Requirements for Aided (Head-Up Display (HUD), HUD-Localizer (HUD-LOC), or</u> <u>Enhanced Flight Vision System (EFVS)) Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all aided takeoff operations on that runway. All aided takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

- a. For operations at or above RVR 1000 (300 m):
 - (1) The TDZ RVR report, if available, is controlling.
 - (2) The mid-RVR report may be substituted for an unavailable TDZ report.
- b. For operations below RVR 1000 (300 m):
 - (1) A minimum of two operative RVR reporting systems are required.
 - (2) All available RVR reports are controlling.

7. <u>Approved HUD Takeoff Guidance Systems Minima</u>. The operator/company is authorized to use takeoff minima (RVR) utilizing the HUD system installed in the airplane(s) as listed in Table 2 below, provided all of the requirements in subparagraph 8 below are met. The operator/company must not conduct takeoffs using these takeoff minima unless using the HUD system authorized in Table 2. RVR 300 (75 m) is the lowest RVR minima that can be authorized using a HUD.

Airplane	HUD	Lowest RVR Authorized	Additional Limitations
M/M/S	System		and Provisions
		 [Dropdown List Options: RVR 1600 (500 m) RVR 1000 – TDZ / 1000 or Mid / 1000 or RO (300 m) RVR 1200 – TDZ (350 m)/1200 – Mid (350 m)/1000 – RO (300 m) RVR 600 – TDZ / 600 – Mid / 600 – RO (175 m) RVR 500 – TDZ (150 m) / 500 – Mid (150 m)/ 500 – RO (150 m) RVR 300 – TDZ / 300 – Mid (75 m) / 300 – RO (75 m)] 	

 Table 2 – Approved RVR Takeoff Minima Using HUD

8. <u>HUD Special Provisions and Limitations</u>. Special provisions and limitations for the authorization to use the HUD system installed in the airplane(s) in Table 2 above for takeoff are as follows:

a. Operative HIRL.

b. Operative runway CL lights for RVR 300.

c. For RVR 300, front course guidance must be displayed from an LOC that provides Category (CAT) III rollout guidance as indicated by a III/E/4 facility classification and landing minima of RVR 300. If the CAT III landing minima is greater than RVR 300 due to an LOC downgrade, these takeoffs are not authorized.

d. For RVR 500, front course guidance must be displayed from an LOC that provides CAT IE guidance. RVR 500 with CAT IE guidance does not require CL lights.

e. The crosswind component on the takeoff runway is less than the Airplane Flight Manual's (AFM) crosswind limitation, or 15 knots, whichever is more restrictive.

f. Operations using RVR 300 (75 m) minima must be conducted to runways that are accessible by taxi routings which have operative taxiway CL lights that meet U.S. or International Civil Aviation Organization (ICAO) criteria for CAT III operations; or other taxiway guidance systems approved for these operations.

9. <u>Approved EFVS Takeoff Minima</u>. The operator/company is authorized to use takeoff minima using the EFVS installed in the airplane(s) as listed in Table 3 below. RVR 300 with an EFVS-derived RVR of 1600 is the lowest takeoff minima that can be authorized using an EFVS. EFVS-derived RVR is visibility seen directly through the installed EFVS and requires trained flightcrew.

Airplane M/M/S	EFVS System	Lowest RVR Authorized	Minimum Runway Requirements and Conditions	Additional Limitations and Provisions
		 [Dropdown List Options: EFVS-derived RVR 1600 / RVR 500 - TDZ (150 m) / 500 - Mid (150 m) / 500 - RO (150 m) EFVS-derived RVR 1600 / RVR 300 - TDZ (75 m) / 300 - Mid (75 m) / 300 - RO (75 m)] 	 [Dropdown List Options: RCLM HIRL and CL Lights Required] 	

Table 3 – Approved EFVS Takeoff Minima

10. <u>Training Program Requirement</u>. The pilot in command (PIC) and the second in command (SIC) must have completed the operator/company's approved training program for the operations authorized in this LOA.

[Select the following subparagraphs, if applicable,]

11. <u>Pilot Assessment of Takeoff Visibility</u>. The operator/company is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima in lieu of an inoperative, unreported, or erroneous TDZ RVR sensor report. The following requirements all apply:

a. The operator/company has FAA-approved procedures to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed from the flight deck in the takeoff position.

b. All flightcrew members will have completed checking in the specific procedures used to determine visibilities as described in subparagraph 11a above.

12. <u>EFVS-Derived Visibility</u>. The operator/company is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima using EFVS-derived RVR. The following requirements all apply:

a. The operator/company has FAA-approved procedures to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed through the EFVS from the flight deck in the takeoff position.

b. All flightcrew members will have completed checking in the specific procedures used to determine visibilities as described in subparagraph 12a above.

Appendix E. Sample OpSpec C079, IFR Takeoff Lower-Than-Standard Minima: 14 CFR Part 135

a. The certificate holder is authorized to use instrument flight rules (IFR) lower-than-standard takeoff minima in accordance with the limitations and provisions of this operations specification. Lower-than-standard takeoff minima are not authorized for single-engine instrument flight rules (SEIFR) passenger-carrying operations.

b. When takeoff minima are equal to or less than the applicable standard takeoff minima, the certificate holder is authorized to use takeoff minima equal to the lowest authorized straight-in Category (CAT) I IFR landing minima applicable to the certificate holder for that particular airport, in accordance with the provisions of 14 CFR Part 135, § 135.225(i).

c. The certificate holder is authorized to conduct operations using the lowest Runway Visual Range (RVR) authorized in Table 1 below based on the applicable criteria in this operations specification. Lower-than-standard takeoff minima authorized in Table 1 do not apply to any SEIFR passenger-carrying operations.

Lowest Authorized Takeoff	Minima Runway Requirements and	Additional Limitations
Minima	Conditions	and Provisions
[Dropdown List Options:	 [Dropdown List Options: RVV 1/4 sm RCLM (day only) or HIRL or CL Lights RCLM and HIRL, or CL Lights HIRL and CL Lights HIRL and CL Lights] 	

Table 1 – Lowest Authorized Unaided Takeoff RVR

d. <u>RVR Requirements for Unaided Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all takeoff operations on that runway. All takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

- (1) For operations at or above RVR 1600 (500 meters (m)):
 - (a) The touchdown zone (TDZ) RVR report, if available, is controlling.

(b) The mid-RVR report may be substituted for an unavailable TDZ report.

(2) For operations below RVR 1600 (500 m):

(a) A minimum of two operative RVR reporting systems are required.

(b) All available RVR reports are controlling.

Note: Extremely long runways (e.g., DEN 16R) utilize four RVR sensors: TDZ, mid, rollout, and far-end. When a fourth far-end RVR value is reported, it is not controlling and is not to be used as one of the two required operative RVR systems.

e. <u>RVR Requirements for Aided (Head-Up Display (HUD), HUD-Localizer (HUD-LOC), or</u> <u>Enhanced Flight Vision System (EFVS)) Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all takeoff operations on that runway. All aided takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

(1) For operations at or above RVR 1000 (300 m):

(a) The TDZ RVR report, if available, is controlling.

(b) The mid-RVR report may be substituted for an unavailable TDZ report.

(2) For operations below RVR 1000 (300 m) a minimum of two operative RVR reporting systems are required.

f. <u>Other Requirements</u>. The certificate holder must conduct all operations using the lower-than-standard takeoff minima described in this operations specification in compliance with the following limitations:

(1) With the exception of operations conducted in accordance with the provisions of subparagraph b above, each aircraft must be operated with a flightcrew consisting of at least two pilots. Use of an autopilot in lieu of a required second in command (SIC) is not authorized.

(2) Each pilot station must have operational equipment that displays a reliable indication of the following:

(a) Aircraft pitch and bank information, from a gyroscopic source.

(b) Aircraft heading, from a gyroscopic source.

(c) Vertical speed.

- (d) Airspeed.
- (e) Altitude.

(3) Each pilot station must have an independent source of power for the equipment required by subparagraphs f(2)(a) and f(2)(b) above.

(4) Each pilot in command (PIC) must have at least 100 hours flight time as PIC in the specific make and model (M/M) airplane used under this authorization and must have satisfactorily completed the certificate holder's approved training program for the minima authorized by this operations specification.

(5) Any SIC authorized by the certificate holder to manipulate the flight controls during takeoff (using the minima authorized by this operations specification) must have at least 100 hours flight time as a pilot in the specific M/M airplane and must have satisfactorily completed the certificate holder's approved training program for those minima.

[Select the following subparagraph, if applicable.]

 \Box (6) The certificate holder is authorized lower-than-standard takeoff minima for its 14 CFR Part 135 single-engine all-cargo operations in turbine-powered airplanes. The requirements of subparagraphs f(1) and f(5) above are not applicable to single-engine, all-cargo operations in turbine-powered airplanes that are certificated for single-pilot operation. The certificate holder must meet the takeoff performance requirements specified in 14 CFR Part 135 Subpart I for the category of airplane utilized.

g. <u>Approved HUD Takeoff Guidance Systems Minima</u>. The certificate holder is authorized to use takeoff minima (RVR) using the HUD system installed in the airplane(s) as listed in Table 2 below, provided all of the requirements in subparagraph h below are met. The certificate holder must not conduct takeoffs using these takeoff minima unless using the HUD system authorized in Table 2. RVR 300 (75 m) is the lowest RVR minima that can be authorized using a HUD.

Airplane	HUD	Lowest RVR Authorized	Additional Limitations
M/M/S	System		and Provisions
		 [Dropdown List Options: RVR 1600 (500 m) RVR 1000 - TDZ / 1000 or Mid / 1000 or RO (300 m) RVR 1200 - TDZ / (350 m) / 1200 - Mid (350 m) / 1000 - RO (300 m) RVR 600 - TDZ / 600 - Mid / 600 - RO (175 m) RVR 500 - TDZ / 500 - Mid / 500 - RO (150 m) RVR 300 - TDZ / 300 - Mid / 300 - RO (75 m)] 	

 Table 2 – Approved RVR Takeoff Minima Using HUD

h. <u>HUD Special Provisions and Limitations</u>. Special provisions and limitations for the authorization to use the HUD system installed in the airplane(s) in Table 2 for takeoff are as follows:

(1) Operative HIRL.

(2) Operative runway CL lights for RVR 300.

(3) For RVR 300, front course guidance must be displayed from an LOC that provides CAT III rollout guidance as indicated by a III/E/4 facility classification and landing minima of RVR 300. If the CAT III landing minima is greater than RVR 300 due to an LOC downgrade, these takeoffs are not authorized.

(4) For RVR 500, front course guidance must be displayed from an LOC that provides CAT IE guidance. RVR 500 with CAT IE guidance does not require CL lights.

(5) The crosswind component on the takeoff runway is less than the Airplane Flight Manual's (AFM) crosswind limitation, or 15 knots, whichever is more restrictive.

(6) Operations using RVR 300 (75 m) minima must be conducted to runways that are accessible by taxi routings which have operative taxiway CL lights that meet U.S. or International Civil Aviation Organization (ICAO) criteria for CAT III operations; or other taxiway guidance systems approved for these operations.

i. <u>Approved EFVS Takeoff Minima</u>. The certificate holder is authorized to use takeoff minima using the EFVS installed in the airplane(s) as listed in Table 3 below. RVR 300 with an EFVS-derived RVR of 1600 is the lowest takeoff minima that can be authorized using an EFVS. EFVS-derived RVR is visibility seen directly through the installed EFVS and requires trained flightcrew.

Airplane M/M/S	EFVS System	Lowest RVR Authorized	Minimum Runway Requirements and Conditions	Additional Limitations and Provisions
		 [Dropdown List Options: EFVS-derived RVR 1600 / RVR 500 - TDZ (150 m) / 500 - Mid (150 m) / 500 - RO (150 m) EFVS-derived RVR 1600 / RVR 300 - TDZ (75 m) / 300 - Mid (75 m) / 300 - RO (75 m)] 	 [Dropdown List Options: RCLM HIRL and CL Lights Required] 	

Table 3 – Approved EFVS, Airplanes, and RVR Takeoff Minima

j. <u>Training Program Requirement</u>. The PIC and the SIC must have completed the certificate holder's approved training program for the operations authorized in this operations specification.

[Select the following subparagraphs, if applicable.]

k. <u>Pilot Assessment of Takeoff Visibility</u>. The certificate holder is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima in lieu of an inoperative, unreported, or erroneous TDZ RVR sensor report. The following requirements all apply:

(1) The certificate holder has an FAA-approved procedure to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed from the flight deck in the takeoff position.

(2) All flightcrew members will have completed approved training and checking in the specific procedures used to determine visibilities as described above in subparagraph k(1) above.

1. <u>EFVS-Derived Visibility</u>. The certificate holder is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima using EFVS-derived RVR. The following requirements all apply:

(1) The certificate holder has an FAA-approved procedure to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed through the EFVS from the flight deck in the takeoff position.

(2) All flightcrew members will have completed approved training and checking in the specific procedures used to determine visibilities as described in subparagraph l(1) above.

Appendix F. Sample OpSpec C079, IFR Lower-Than-Standard Takeoff Minima: 14 CFR Part 121/135

a. The certificate holder is authorized to use instrument flight rules (IFR) lower-than-standard takeoff minima for operations conducted under 14 CFR Part 135 in accordance with the limitations and provisions of this operations specification. Lower-than-standard takeoff minima are not authorized for single-engine instrument flight rules (SEIFR) passenger-carrying operations.

b. When takeoff minima are equal to or less than the applicable standard takeoff minima, the certificate holder is authorized to use takeoff minima equal to the lowest authorized straight-in Category (CAT) I IFR landing minima applicable to the certificate holder for that particular airport, in accordance with the provisions of 14 CFR § 135.225(i).

c. The certificate holder is authorized to conduct operations using the lowest Runway Visual Range (RVR) authorized in Table 1 below based on the applicable criteria in this operations specification. Lower-than-standard takeoff minima authorized in Table 1 do not apply to any SEIFR passenger-carrying operations.

Lowest Authorized Takeoff	Minima Runway Requirements and	Additional Limitations
Minima	Conditions	and Provisions
[Dropdown List Options:	 [Dropdown List Options: RVV ¼ sm RCLM (day only) or HIRL or CL Lights RCLM and HIRL, or CL Lights HIRL and CL Lights HIRL and CL Lights] 	

Table 1 – Lowest Authorized Unaided Takeoff RVR

d. <u>RVR Requirements for Unaided Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all takeoff operations on that runway. All takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

(1) For operations at or above RVR 1600 (500 meters (m)):

(a) The touchdown zone (TDZ) RVR report, if available, is controlling.

(b) The mid-RVR report may be substituted for an unavailable TDZ report.

(2) For operations below RVR 1600 (500 m):

(a) A minimum of two operative RVR reporting systems are required.

(b) All available RVR reports are controlling.

Note: Extremely long runways (e.g., DEN 16R) utilize four RVR sensors: TDZ, mid, rollout, and far-end. When a fourth far-end RVR value is reported, it is not controlling and is not to be used as one of the two required operative RVR systems.

e. <u>RVR Requirements for Aided (Head-Up Display (HUD), HUD-Localizer (HUD-LOC), or</u> <u>Enhanced Flight Vision System (EFVS)) Takeoff Operations</u>. RVR reports, when available for a particular runway, must be used for all takeoff operations on that runway. All aided takeoff operations, based on RVR, must use RVR reports from the locations along the runway as follows:

(1) For operations at or above RVR 1000 (300 m):

(a) The TDZ RVR report, if available, is controlling.

(b) The mid-RVR report may be substituted for an unavailable TDZ report.

(2) For operations below RVR 1000 (300 m) a minimum of two operative RVR reporting systems are required.

f. <u>Other Requirements</u>. The certificate holder must conduct all operations using the lower-than-standard takeoff minima described in this operations specification in compliance with the following limitations:

(1) With the exception of operations conducted in accordance with the provisions of subparagraph b above, each aircraft must be operated with a flightcrew consisting of at least two pilots. Use of an autopilot in lieu of a required second in command (SIC) is not authorized.

(2) Each pilot station must have operational equipment that displays a reliable indication of the following:

(a) Aircraft pitch and bank information, from a gyroscopic source.

(b) Aircraft heading, from a gyroscopic source.

(c) Vertical speed.

- (d) Airspeed.
- (e) Altitude.

(3) Each pilot station must have an independent source of power for the equipment required by subparagraphs f(2)(a) and f(2)(b) above.

(4) Each pilot in command (PIC) must have at least 100 hours flight time as PIC in the specific make and model (M/M) airplane used under this authorization and must have satisfactorily completed the certificate holder's approved training program for the minima authorized by this operations specification.

(5) Any SIC authorized by the certificate holder to manipulate the flight controls during takeoff (using the minima authorized by this operations specification) must have at least 100 hours flight time as a pilot in the specific M/M airplane and must have satisfactorily completed the certificate holder's approved training program for those minima.

[Select the following subparagraph, if applicable.]

 \Box (6) The certificate holder is authorized lower than standard takeoff minima for its 14 CFR Part 135 single-engine all-cargo operations in turbine-powered airplanes. The requirements of subparagraphs f(1) and f(5) above are not applicable to single-engine, all-cargo operations in turbine-powered airplanes that are certificated for single-pilot operation. The certificate holder must meet the takeoff performance requirements specified in 14 CFR Part 135 Subpart I for the category of airplane utilized.

g. <u>Approved HUD Takeoff Guidance Systems Minima</u>. The certificate holder is authorized to use takeoff minima (RVR) using the HUD system installed in the airplane(s) as listed in Table 2 below, provided all of the requirements in subparagraph h below are met. The certificate holder must not conduct takeoffs using these takeoff minima unless using the HUD system authorized in Table 2. RVR 300 (75 m) is the lowest RVR minima that can be authorized using a HUD.

Airplane	HUD	Lowest RVR Authorized	Additional Limitations
M/M/S	System		and Provisions
		 [Dropdown List Options: RVR 1600 (500 m) RVR 1000 – TDZ / 1000 or Mid / 1000 or RO (300 m) RVR 1200 – TDZ/(350 m)/1200 – Mid (350 m)/1000 – RO (300 m) RVR 600 – TDZ / 600 – Mid / 600 – RO (175 m) RVR 500 – TDZ / 500 – Mid / 500 – RO (150 m) RVR 300 – TDZ / 300 – Mid / 300 – RO (75 m)] 	

 Table 2 – Approved RVR Takeoff Minima Using HUD

h. <u>HUD Special Provisions and Limitations</u>. Special provisions and limitations for the authorization to use the HUD system installed in the airplane(s) in Table 2 for takeoff:

(1) Operative HIRL.

(2) Operative runway CL lights for RVR 300.

(3) For RVR 300, front course guidance must be displayed from an LOC that provides CAT III rollout guidance as indicated by a III/E/4 facility classification and landing minima of RVR 300. If the CAT III landing minima is greater than RVR 300 due to an LOC downgrade, these takeoffs are not authorized.

(4) For RVR 500, front course guidance must be displayed from an LOC that provides CAT IE guidance. RVR 500 with CAT IE guidance does not require CL lights.

(5) The crosswind component on the takeoff runway is less than the Airplane Flight Manual's (AFM) crosswind limitation, or 15 knots, whichever is more restrictive.

(6) Operations using RVR 300 (75 m) minima must be conducted to runways that are accessible by taxi routings which have operative taxiway CL lights that meet U.S. or International Civil Aviation Organization (ICAO) criteria for CAT III operations; or other taxiway guidance systems approved for these operations.

i. <u>Approved EFVS Takeoff Minima</u>. The certificate holder is authorized to use takeoff minima using the EFVS installed in the airplane(s) as listed in Table 3 below. RVR 300 with an EFVS-derived RVR of 1600 is the lowest takeoff minima that can be authorized using an EFVS. EFVS-derived RVR is visibility seen directly through the installed EFVS and requires a trained flightcrew.

Airplane M/M/S	EFVS System	Lowest RVR Authorized	Minimum Runway Requirements and Conditions	Additional Limitations and Provisions
		 [Dropdown List Options: EFVS-derived RVR 1600 / RVR 500 - TDZ (150 m) / 500 - Mid (150 m) / 500 - RO (150 m) EFVS-derived RVR 1600 / RVR 300 - TDZ (75 m) / 300 - Mid (75 m) / 300 - RO (75 m)] 	[Dropdown List Options: RCLM HIRL and CL Lights Required]	

Table 3 – Approved EFVS, Airplanes, and RVR Takeoff Minima

j. <u>Training Program Requirement</u>. The PIC and the SIC must have completed the certificate holder's approved training program for the operations authorized in this operations specification.

[Select the following subparagraphs, if applicable.]

k. <u>Pilot Assessment of Takeoff Visibility</u>. The certificate holder is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima in lieu of an inoperative, unreported, or erroneous TDZ RVR sensor report. The following requirements all apply:

(1) The certificate holder has an FAA-approved procedure to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed from the flight deck in the takeoff position.

(2) All flightcrew members will have completed approved training and checking in the specific procedures used to determine visibilities as described above in subparagraph k(1) above.

1. <u>EFVS-Derived Visibility</u>. The certificate holder is authorized to conduct pilot assessments of IFR lower-than-standard takeoff minima using EFVS-derived RVR. The following requirements all apply:

(1) The certificate holder has an FAA-approved procedure to determine actual visibility measured in number and type of runway lights that are seen, or markings of known spacing that are visible to the pilot when viewed through the EFVS from the flight deck in the takeoff position.

(2) All flightcrew members will have completed approved training and checking in the specific procedures used to determine visibilities as described in subparagraph l(1) above.