

STANDARD PROCEDURE

Aviation Authority

Number: S350.05Effective: 05/01/02Revised: 09/02/20Page: 1 of 7SUBJECT: AIRFIELD VISUAL AID
REQUIREMENTS

PURPOSE: To establish procedures and responsibilities to ensure applicable airfield visual aid standards are maintained at Tampa International Airport (TPA) during Visual Flight Rules (VFR), Instrument Flight Rules (IFR), and when the Authority's Surface Movement Guidance and Control System (SMGCS) Plan is in effect.

For additional guidance, refer to the most current additions of Code of Federal Regulations 14 (CFR), Part 139, FAA Order 6750.24, Advisory Circular (AC) 120-57 and AC 150/5340-26.

DEFINITIONS:

Visual Flight Rules (VFR)(14 CFR 91.155): Rules that govern the procedures for conducting flight under visual conditions. VFR weather minimums include the following information:

Altitude	Type of Airspace	Flight Visibility	Cloud Clearance
10,000 MSL	E	5 statute miles	111 → 1,000 below, → 1,000 above, → 1 sm horizontal
Below 10,000 MSL	C	3 statute miles	152 → 500 below → 1,000 above → 2,000 horizontal
	D		
	E		
	B	3 statute miles	Clear of clouds
1,200 AGL or higher	G (night)	3 statute miles	152 → 500 below → 1,000 above → 2,000 horizontal
	G (day)	1 statute mile	152 → 500 below → 1,000 above → 2,000 horizontal
Below 1,200 AGL	G (night)	3 statute miles	152 → 500 below → 1,000 above → 2,000 horizontal
	G (day)	1 statute mile	Clear of clouds

Instrument Flight Rules (IFR): Rules that govern the procedures for conducting instrument flight.

Visual Meteorological Conditions (VMC): When VFR flight is permitted due to meteorological conditions being equal to or better than 3 statute miles visibility and clear clouds.

Instrument Meteorological Conditions (IMC): When IFR flight is required due to meteorological conditions being less than the minimum specified for VMC.

Instrument Landing System (ILS): A precision instrument approach system which normally consists of electronic components and visual aids.

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Category I (CAT I) ILS Conditions: Less than 2,400 feet Runway Visual Range (RVR) down to and including 1,800 feet RVR.

Category II (CAT II) ILS Conditions: Less than 1,800 feet RVR down to and including 1,200 feet RVR.

Category III (CAT III) ILS Conditions: Less than 1,200 feet RVR down to and including 600 feet RVR.

Low Visibility Operations: The movement of aircraft or vehicles on airport paved surfaces when visibility conditions are reported to be less than 1,200 feet RVR.

Surface Movement Guidance and Control System Plan (SMGCS): A system of procedures, markings, signage, and lighting implemented during low visibility operations to provide guidance and control of aircraft between aprons and the runway in a safe and efficient manner.

Runway Visual Range (RVR): The horizontal distance a pilot will see down the runway from the approach end. A runway's RVR value is referenced during IFR conditions.

Serviceable Equipment: Equipment that is operating correctly and is not obscured or degraded.

Unserviceable Equipment: Inoperative, obscured, degraded equipment that is not operating normally or is not performing its intended function.

Notice to Airmen (NOTAM): A notice containing information concerning the establishment, condition, or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

PROCEDURES:

- A. Operations personnel shall conduct an inspection of all airfield visual aids every night. The results of each inspection are recorded on the Nightly and Special Airfield Inspection Reports. Current versions of these reports are located in the TPA Airport Certification Manual. Airfield visual aids are maintained to the following tolerances:
1. Runways 1L-19R and 1R-19L maintained to CAT II or CAT III standards (Appendix 1 – Table 1 and Table 2).
 2. Taxiways along the low visibility taxi routes maintained to SMGCS standards

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(Appendix 1 – Table 2).

3. Runway 10-28 maintained to night VFR standards (Appendix 1 – Table 3).
- B. Operations personnel will coordinate among Air Traffic Control (ATCT) and Maintenance when airfield visual aids under Authority control are out of compliance. Operations will coordinate with ATCT to ensure aircraft operations are appropriately restricted until the airfield visual aid is back in compliance. In the event an airfield visual aid exceeds tolerances, Operations will ensure the following:
1. ATCT is notified of required operational restrictions until the airfield visual aid can be brought back within tolerances.
 2. An electrician is dispatched to make repairs to bring the airfield visual aid to compliance.
 3. A NOTAM is issued restricting operations as appropriate.
- C. ATCT will notify the Airport Operations Center (AOC) of any known malfunction of the Authority's maintained airfield visual aids.
- D. Maintenance will be responsible for the maintenance and/or repair of all airfield lighting aids and related equipment under its control.

RESPONSIBILITIES DURING CAT II AND CAT III OPERATIONS:

- A. The ATCT will notify Operations, via the AOC, when:
1. CAT II operations commence;
 2. CAT III operations commence;
 3. CAT II operations cease; and
 4. CAT III operations cease.
- B. The ATCT will operate all airfield visual aids in accordance with applicable FAA directives. All runway guard lights must remain illuminated at the commencement of CAT III operations.
- C. Runway 1L-19R and 1R-19L during CAT II and CAT III Operations and SMGCS Routes during Low Visibility Operations:

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1. Visual inspections of the associated airfield visual aids must be conducted every four hours at a minimum.
2. An immediate inspection of airfield visual aids will begin once notified by ATCT that CAT II operations have commenced, unless a nightly inspection has been completed within the previous four hours. In such case, an immediate inspection is not required and instead subsequent inspections will be conducted within four hours of completion of the last nightly inspection.
3. Inspections must occur every four hours whether the airfield is in CAT II or CAT III conditions. The clock is not reset until visibilities improve enough to cease both CAT II and CAT III operations.

RESULT OF AIRFIELD VISUAL AID ABNORMALITIES:

If inspections of the airfield visual aids reveal that a specific aid exceeds the tolerances described herein, the following procedures shall be followed:

A. Runway 1L and 19R:

1. For any airfield visual aid that exceeds CAT II/CAT III tolerances listed in Appendix 1 – Table 1, CAT II and CAT III operations will be denied on Runway 1L.
2. For Runway Centerline Lights or Touchdown Zone Lights that exceed the CAT I tolerances listed in Table 1, CAT I landing operations will be denied on Runways 1L and 19R.
3. For Runway Edge Lights that exceed the CAT I/Non-Precision ILS tolerances listed in Appendix 1 – Table 1, ILS operations and Night VFR operations will be denied.
4. For Threshold Lights that exceed the Non-Precision/Night VFR tolerance listed in Table 1, Non-Precision ILS and Night VFR operations will be denied on Runway 1L and 19R unless the approach lighting system is in service and operating.
5. Non-Precision ILS and Night VFR operations are permitted on Runway 1L and 19R regardless of the amount of inoperative Runway Centerline and Touchdown Zone

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Lights.

6. When Runway 1L or 19R PAPI is unserviceable, operations need not be restricted and instead the FAA should issue a NOTAM to advise of the outage.

B. Runway 1R and 19L:

1. For any airfield visual aid that exceeds CAT II tolerances listed in Appendix 1 – Table 2, CAT II operations will be denied on Runway 19L.
2. For Runway Centerline Lights or Touchdown Zone Lights that exceed the CAT I tolerances listed in Table 1, CAT I landing operations will be denied on Runway 19L.
3. For Runway Edge Lights that exceed the CAT I/Non-Precision ILS tolerances listed in Appendix 1 – Table 2, ILS operations and Night VFR operations will also be denied.
4. Non-Precision ILS and Night VFR operations are permitted on Runway 19L and 1R regardless of the amount of inoperative Runway Centerline and Touchdown Zone Lights.
5. For Threshold Lights that exceed the Non-Precision/Night VFR tolerance listed in Table 1, Non-Precision ILS and Night VFR operations will be denied for Runway 19L and 1R. Operations may be permitted on 19L if the approach lighting system is in service and operating.
6. When Runway 1R and 19L PAPI is unserviceable, operations need not be restricted and instead FAA should issue a NOTAM advising of the outage.
7. When Runway 1R REIL is unserviceable, operations need not be restricted and instead Operations should issue a NOTAM and maintenance work order advising of the outage.

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C. Runway 10 and 28:

1. For Runway Edge Lights that exceed the tolerances listed in Appendix 1 – Table 3, all Night VFR operations will be denied.
2. For Threshold Lights that exceed the Non-Precision/Night VFR tolerance listed in Table 3, Night VFR operations will be denied for Runway 10 and 28.
3. When Runway 10 or 28 PAPI is unserviceable, operations need not be restricted and instead FAA should issue a NOTAM advising of the outage.

D. Taxiway SMGCS Routes During Low Visibility Operations:

1. For any airfield visual aid on the SMGCS route that exceeds the tolerances listed in Appendix 1 – Table 4, the affected area should be closed and traffic shall be rerouted to areas of the SMGCS route where airfield visual aids are operational.
2. If traffic cannot be rerouted, low visibility operations should be terminated until relevant airfield visual aids are returned to service.

E. Taxiway During Normal Operations:

1. If airfield visual aids exceed tolerances listed in Table 4, operations need not be restricted and instead the FAA should issue a NOTAM advising of the outage.

F. Airfield Emergency Generators:

1. If the emergency generator serving Runway 1L-19R becomes inoperative during CAT II operations, CAT II and CAT III operations should be denied unless lights can be monitored continuously and aircraft can be immediately informed if a failure occurs; a NOTAM should be issued. Operations personnel or an electrician will be positioned at Taxiway W-3, just clear of the Runway, to visually observe runway lighting and immediately report to ATCT if total failure of runway lighting occurs.
2. If the emergency generator serving Runway 1R-19L becomes inoperative, CAT II operations should be denied unless lights can be monitored continuously and aircraft can be immediately informed if a failure occurs. Operations personnel or an electrician will be positioned at Taxiway C4, just clear of the Runway, to visually

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observe the Runway lighting and immediately report to ATCT if total failure of Runway lighting occurs.

APPROVED: Joe Lopano

DATE: 9/2/20

APPENDIX 1: AIRFIELD VISUAL AID TOLERANCES

Airfield Visual Aids shall not exceed the tolerances listed below in Tables 1 – 4.

Table 1: 1L-19R Visual Aid Tolerances

Runway	Visual Aid	CAT II or III		CAT I		Non-Precision ILS Approach		Night VFR	
		Percent Limit	Number Limit	Percent Limit	Number Limit	Percent Limit	Number Limit	Percent Limit	Number Limit
1L	Runway Edge Lights	5%	7*	15%	19*	15%	19*	15%	19*
	Runway Centerline Lights	5%	11*	5%	11*	-	-	-	-
	Touchdown Zone Lights	10%	18**	10%	18**	-	-	-	-
	Threshold Lights	-	-	-	-	25%	2	25%	2
19R	Runway Edge Lights	-	-	15%	19*	15%	19*	15%	19*
	Runway Centerline Lights	-	-	5%	11*	-	-	-	-
	Threshold Lights	-	-	-	-	25%	2	25%	2

Table 2: 1R-19L Visual Aid Tolerances

Runway	Visual Aid	CAT II		CAT I		Non-Precision ILS Approach		Night VFR	
		Percent Limit	Number Limit	Percent Limit	Number Limit	Percent Limit	Number Limit	Percent Limit	Number Limit
19L	Runway Edge Lights	5%	5*	15%	15*	15%	15*	15%	15*
	Runway Centerline Lights	5%	8*	5%	8*	-	-	-	-
	Touchdown Zone Lights	10%	18**	10%	18**	-	-	-	-
	Threshold Lights	-	-	-	-	25%	2	25%	2
1R	Runway Edge Lights	-	-	-	-	15%	15*	15%	15*
	Runway Centerline Lights	-	-	-	-	-	-	-	-
	Threshold Lights	-	-	-	-	25%	2	25%	2

* Assume there are no occurrences where 2 adjacent lights are inoperative. Adjacent refers to edge lights next to each other on the same side of the runway or directly across the runway from each other.

** Assure there are no occurrences where 3 adjacent lights are inoperative laterally in the same barrette or longitudinally in the same row of lights.

Table 3: 10-28 Visual Aid Tolerances

Runway	Visual Aid	Night VFR	
		Percent Limit	Number Limit
10	Runway Edge Lights	15%	13*
	Threshold Lights	25%	2
28	Runway Edge Lights	15%	13*
	Threshold Lights	25%	2

* Assure there are no occurrences where 2 adjacent lights are inoperative. Adjacent refers to edge lights next to each other on the same side of the runway or directly across the runway from each other.

Table 4: Taxiway Visual Aid Tolerances

Visual Aid	Percent Limit	Number Limit / Notes Regarding Tolerances
In-pavement Runway Guard Lights	-	3 per location and no 2 adjacent lights are inoperative.
Elevated Runway Guard Lights	-	2 per location and no more than 1 light in each fixture inoperative.
Taxiway Edge Lights	15%	No occurrences where 2 adjacent lights are inoperative along the SMGCS route, or adjacent lights along any other portion of the airfield.*
Taxiway Centerline Lights	10%	No occurrences where 2 adjacent lights are unserviceable.
Taxiway Centerline Lead-Off Lights	10%	No occurrences where 2 adjacent lights are unserviceable.
Mandatory Signs	-	No mandatory holding position signs at entrances to active runways and ILS critical areas are unserviceable.
Other Lighted Signs	-	No unserviceable Location, Direction, or Destination signs along SMGCS routes where aircraft will be required to hold or turn.

* Adjacent refers to lights next to each other on the same side of a taxiway or directly across from each other