

Federal Aviation Administration AFS-205 404.832.4700	National Simulator Program Flight Simulation Training Device Qualification Guidance	Guidance Bulletin Number: 12-01	Revision 0
Title: Enhanced Taxiway Markings & Low Visibility Operations/Surface Movement Guidance and Control System Operations (SMGCS)		Effective Date: February 7, 2012	Page 1 of 8

FSTD Guidance Bulletin 12-01

Enhanced Taxiway Markings and Low Visibility Operations / Surface Movement Guidance and Control System Operations (SMGCS)

Purpose: This bulletin provides sponsor guidance in meeting the representative visual scene content requirements concerning airport taxiway markings as outlined in 14 CFR Part 60 and earlier Flight Simulator Training Device (FSTD) qualification standards (AC 120-40B, AC 120-40C, etc.).

Scope: All FAA qualified FSTDs requiring visual scene content for taxi route surface markings, lighting, low-visibility operations and Surface Movement Guidance and Control System (SMGCS) operations at U.S. airports.

This Guidance Bulletin provides an acceptable means, but not the only means of compliance with Title 14 Code of Federal Regulations (CFR) Part 60 pertaining to the Evaluation and Qualification of Flight Simulation Training Devices (FSTD) for use in FAA Approved Flight Training Programs. If an applicant chooses to utilize the approach described within this Guidance Bulletin, that applicant must adhere to all methods, procedures, and standards herein. Should an applicant desire to use another means, a proposal must be submitted to the National Simulator Program Manager (NSPM) for review and approval prior to implementation. This Guidance Bulletin does not change regulatory requirements or create additional ones, and does not authorize changes in, or deviations from, regulatory requirements.

Approval: Harlan Gray Sparrow III
National Simulator Program Manager

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REVISION HISTORY		
Rev	Description of Change	Effective Date
0	This guidance bulletin supersedes NSP GB 09-02. Update document to include Low-Visibility Taxi Route and Low Visibility Surface Movement Guidance and Control System (SMGCS) requirements.	02/07/2012

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Background: Reducing the risk of runway incursions has been ranked as a high priority safety objective in the FAA’s strategic plan. In an effort to reduce the potential for runway incursions, airport runway and taxiway marking requirements have been updated to include new taxiway centerline markings at all 14 CFR 139 certificated airports¹. The FAA-NSP recognizes that replicating these markings may not be possible without compromising other essential scene elements, particularly in older systems that are grandfathered under previous FSTD qualification standards. A legitimate training need exists, however, to provide an accurate representation of these markings for use in low-visibility operations/ Surface Movement Guidance and Control Systems (SMGCS)² training tasks as well as other training tasks that require the recognition and use of enhanced taxiway markings such as runway incursion training. This guidance bulletin supersedes NSP Guidance Bulletin 09-02.

FSTD Evaluation Criteria and Considerations: The NSP will evaluate the FSTD for the required functions and subjective testing pertaining to taxi training and the ability to display correct enhanced taxiway markings for at least one correctly modeled taxiway route within one of the three required qualification models (Class I models for Part 60 qualified FSTDs). If a sponsor elects to conduct any training task requiring the recognition of enhanced taxiway markings, such as low visibility taxi training, line oriented flight training (LOFT), or runway incursion training at some taxi route other than the NSP evaluated taxi route, then this visual scene model will be approved by the Training Program approval Authority (TPAA) and must meet the standards for a Class II or Class III visual scene model as defined in 14 CFR 60².

The NSP will evaluate a visual taxi route for enhanced taxiway markings from a parking area or gate to an “in-use” runway in accordance with [AC 150/5340-1K](#) (as amended).

The NSP will evaluate and qualify a SMGCS route as requested by the sponsor (see Attachment 3). This route can be at a Class I, Class II, or Class III model.

The qualified SMGCS route consists of a sponsor designated route that meets the required markings/signage/lighting for a low-visibility taxiway route as defined in the applicable FAA Order and Advisory Circular (AC). In cases where the "real world" markings/signage/lighting are known to be incomplete and the FSTD is modeled with SMGCS defined markings, the route will be qualified and noted as such on the NSP T002 form and/or the NSP T001A form as appropriate.

¹ FAA, *Standards for Airport Markings*, Advisory Circular [150/5340-1k](#) (as amended)

² FAA, *Surface Movement Guidance and Control System (SMGCS)*, Advisory Circular [120-57A](#)

³ 14 CFR Part 60, Appendix A, Attachment 6, [FSTD Directive #1](#)

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- In cases where the visual system cannot display certain elements of the SMGCS route (such as painted surface markings, signage and/or lighting), the NSP will evaluate the SMGCS route with the features as presented, and indicate the features that are not present and place a non-qualified task as described below on the NSP T002 form and/or the NSP T001A form as appropriate.
- Enhanced taxiway centerline markings must be correctly depicted where present in the real world airport (see Attachment 1).
- The NSP will note the exact airport model, the evaluated route and the RVR category either "1200-600 RVR" or "Less than 600 RVR" on the NSP T002 form and/or the NSP T001A form as appropriate; i.e. "KMEM Gate to In-Use Runway 18L, Less than 600 RVR".
- If reduced visibility is required to properly "mask" other model features for the designated SMGCS route to display correctly, NSP will indicate the evaluated route and the RVR category observed, either "1200-600 RVR" or "Less than 600 RVR", on the T002 form and/or the NSP T001A form as appropriate.
- Automated or IOS controlled taxi route specific lighting, Clearance Bar lights (three yellow lights) with adjacent Geographic Position Marking (GPM-painted position spots), and ILS/MLS Holding Position Markings must be correctly depicted where present in the real world airport (see Attachments).
- Surface Painted Holding Position Signs (SPHPS) must be correctly depicted where present in the real world airport (see Attachment 2).
- SMGCS Operations Less Than 600 RVR requires Instructor Operating Station (IOS) control of Stop Bars and Taxiway Lead On runway centerline lights, Ref. [AC 150/5340-1K](#).

In the event that a visual system is not capable of displaying required lighting or markings at one of the models, a non-qualified task will be placed on the FSTD by the evaluating NSP Inspector:

"FSTD is not qualified for taxi training tasks or other tasks requiring the recognition of enhanced taxiway markings."

or

"FSTD is not qualified for low visibility / SMGCS taxi training tasks or other tasks requiring the recognition of low visibility/ SMGCS markings."

This non-qualified task does not prevent the completion of such training tasks through alternate means, such as supplemental classroom training or training at a special use (Class II or Class III) model as approved by the TPAA.

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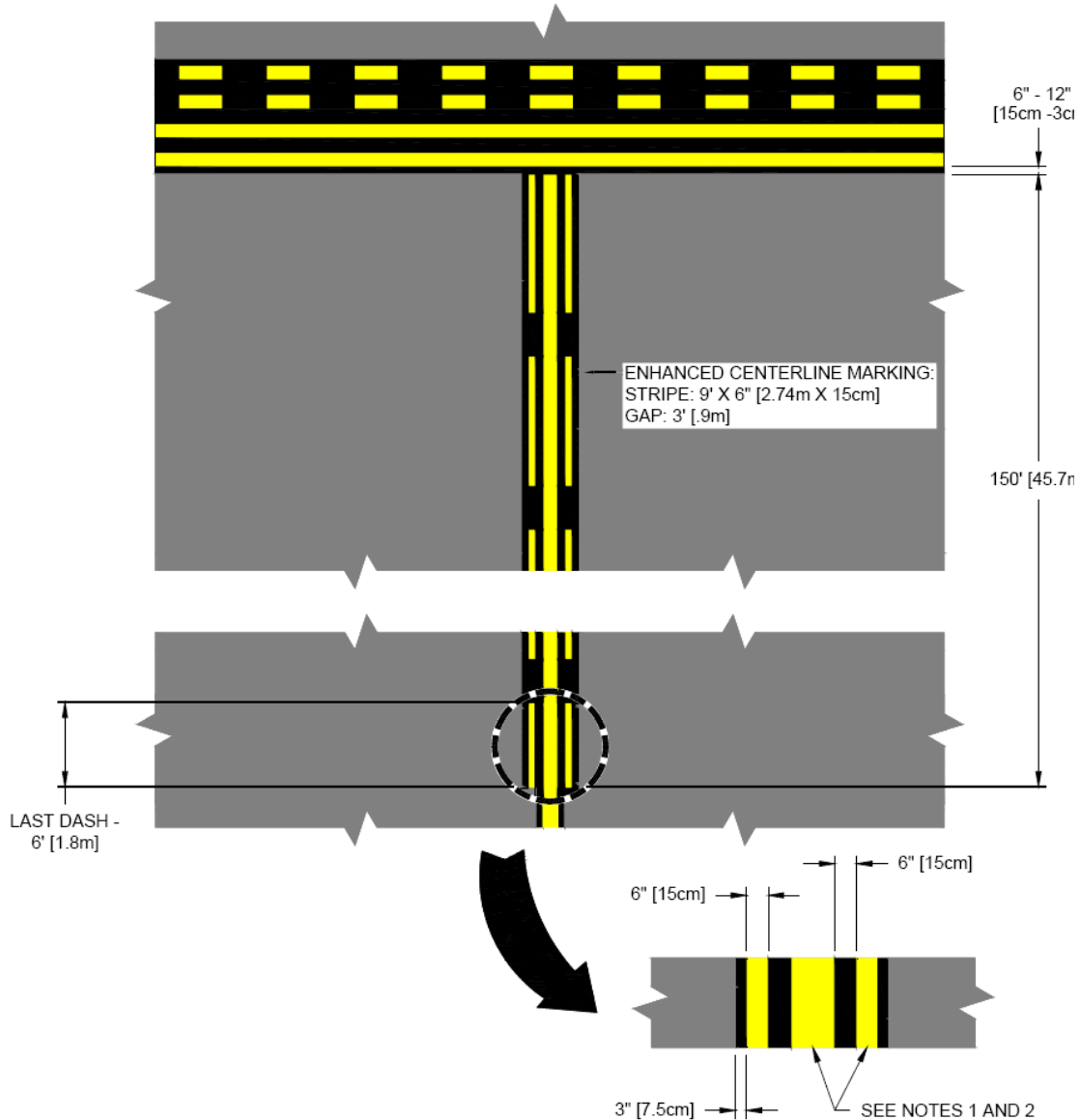
Process Flow Chart:

None

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Attachment 1:

Enhanced Taxiway Centerline Markings



NOTES:

1. DASHED LINES FOR THE ENHANCED TAXIWAY CENTERLINE MARKING ARE 6" [15cm] IN WIDTH AND SEPARATED 6" [15cm] FROM THE TAXIWAY CENTERLINE. THIS APPLIES TO BOTH 6" [15 cm] AND 12" [30 cm] TAXIWAY CENTERLINE MARKINGS.
2. THE TAXIWAY CENTERLINE MARKINGS MAY BE SHIFTED LEFT OR RIGHT TO AVOID INTERFERENCE WITH THE TAXIWAY CENTERLINE LIGHTS.

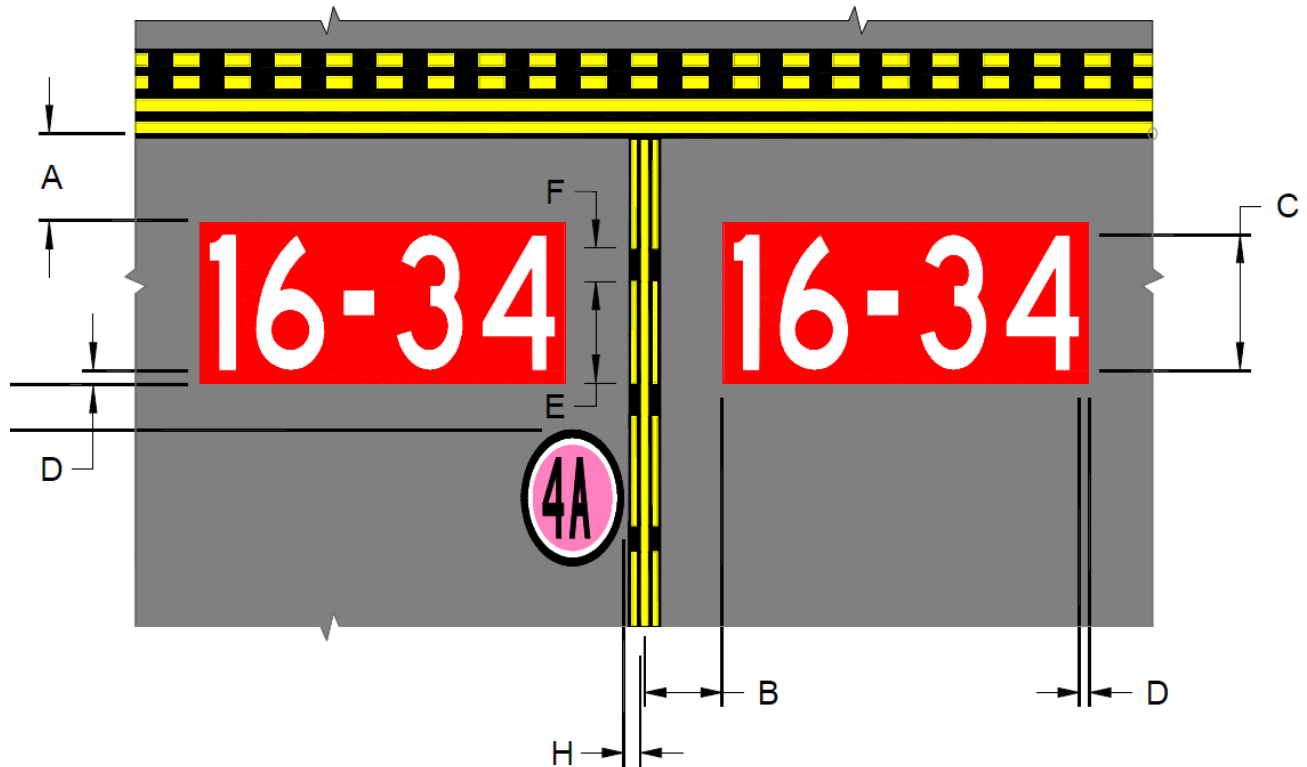
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Attachment 2:

Surface Painted Holding Position Signs



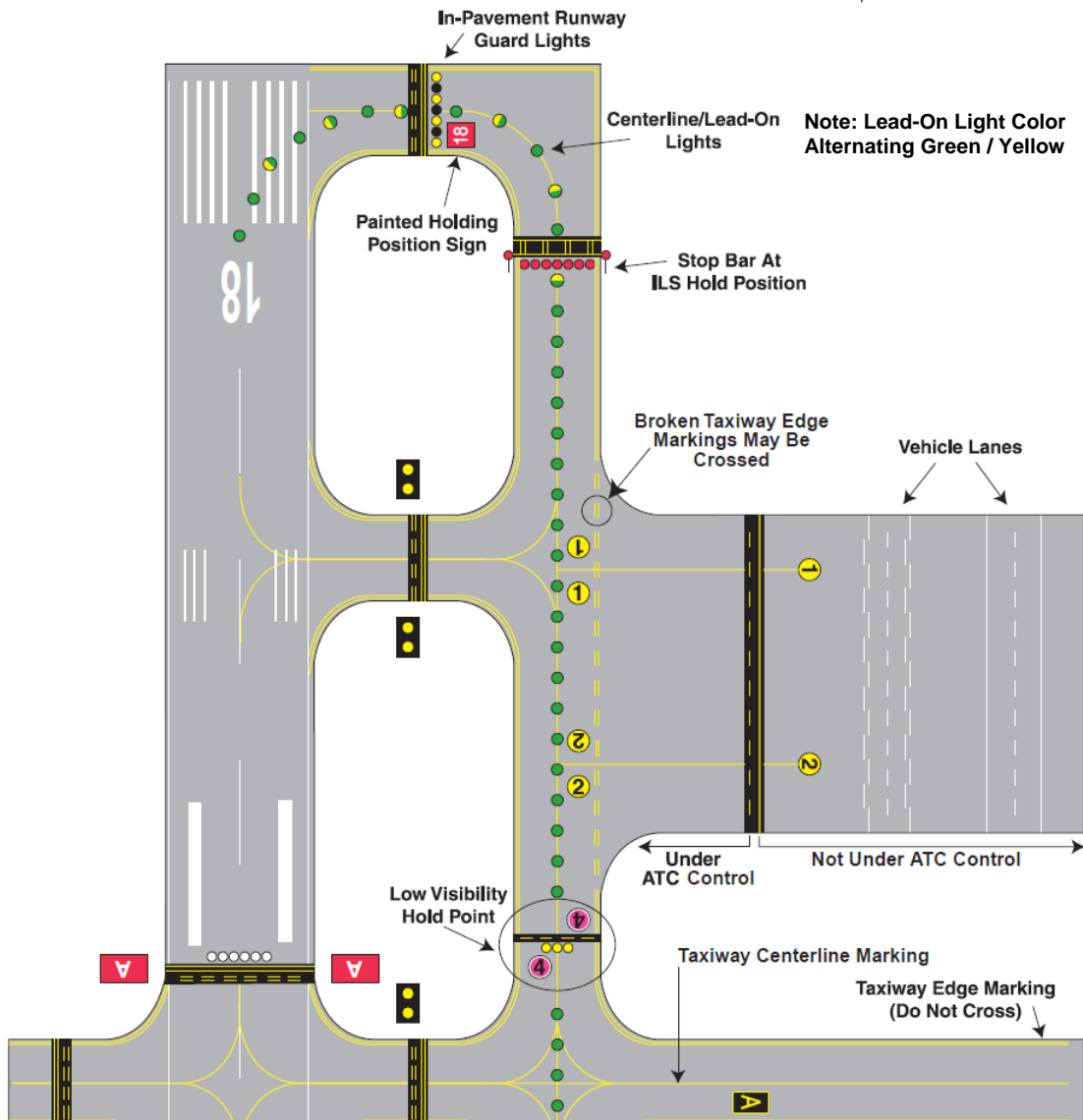
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Attachment 3:

SMGCS Lighting and Selected Signage



Note: The **SMGCS Master List** published by the FAA contains information concerning the approved airports runway status regarding implementation of SMGCS operations. The list will be updated on a semiannual basis or whenever major modifications are made; Ref. http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afs/afs400/afs410/smgcs/

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