DOCUMENT CHANGE PROPOSAL/BRIEFING SHEET

FINAL DISPOSITION

ORDER/PUBLICATION: 7210.3V
CHANGE: 1
EFFECTIVE DATE: July 31, 2008 **TRACKING #: 31- 3-10-1**
SPECIALIST/ROUTING: Gary Norek AJT-22 x5-8510

1. PARAGRAPH NUMBER AND TITLE:

3-10-1, GUIDELINES FOR USE OF COLOR ON ATC DISPLAYS

2. BACKGROUND: The new color displays that are being deployed have many color capabilities to distinguish certain items to controllers. The development of a national color standard has been provided by the Human Factors team through the published document "Guidelines for the Use of Color on ATC displays", authored by Kim Cardosi, Ph.D. and Dan Hannon, Ph.D., June 1999. Some color selections are mandatory since intuitive meaning exists for the color coding (i.e. red denotes danger). Color coding (the use of color to have a specific meaning) shall conform to the following reserved meanings consistent with conventional associations for particular colors: Red shall indicate conditions such as no-go, error, failure, or malfunction. Flashing red shall be used only to indicate emergency conditions requiring immediate user action to avert personnel injury or equipment damage. Yellow shall indicate marginal conditions, alert users to situations where caution or rechecking is necessary, or notify users of an unexpected delay. The use of colors to indicate conventional meanings is also dependent on the color appearing against an appropriately contrasting background. For instance, white or light gray background is appropriate for black text. There is a difference between radar displays in the TRACON and CTRDs. Color selections for the CTRDs deserve special consideration due to the ambient light differences. Sunglasses and certain types of contact lenses can change color appearance on the CTRD. These guidelines provide limited flexibility since display capabilities and ambient lighting in each facility differs. Degradation of color over time must be addressed locally through regular scheduled maintenance procedures which ensure anticipated performance of the monitor and the efficacy of the colors selected. The appearance of color(s) on monitors will change over time. Also, light blue can appear as white. Local consideration must account for loss of color at each or all displays. The standardization of color will provide many facilities with added flexibility in using color to distinguish different items on the display.

3. EXPLANATION OF CHANGE: This change establishes a national color standard for certain color usage by providing a standard guideline for terminal facilities that provide standard colors to specific data elements on CTRDs and TRACON displays at facilities where color capability exists. Any change to this color standard requires a waiver from the Director of Terminal Safety and Operations Support. This change cancels and incorporates N7210.673, Color Use on ATC Displays, effective January 21, 2008.

4. CHANGE:

OLD	**NEW**
3-10-1. GUIDELINES FOR USE OF COLOR ON ATC DISPLAYS	3-10-1. COLOR **USE** ON ATC DISPLAYS
Add	**Color use on terminal systems was developed jointly with the Terminal Safety and Operations and Human Factors. This section provides guidelines on the use of color on ATC displays**

Add	**via a national standard for terminal air traffic displays. These guidelines are intended to standardize the use of colors across the terminal systems. Any use outside these guidelines must be developed jointly with the Office of Terminal Safety and Operations Support, the appropriate Service Area Director, and Human Factors. All use of color on ATC displays must fall within these guidelines, except for MEARTS:**
Add	a. **Whenever color capabilities exist, the following National Color Standard for Terminal Systems shall be installed:**
Add	**1. Background shall be black.**
Add	**2. Point out identifier blinking or steady shall be yellow.**
Add	**3. Compass Rose, range rings, maps A and B shall be dim gray.**
Add	**4. Coordination rundown list as follows:**
Add	**(a) Unsent shall be green.**
Add	**(b) Unacknowledged shall be blinking green.**
Add	**(c) Acknowledged shall be steady green.**
Add	**5. Geographic restriction border, fill, and text shall be yellow.**
Add	**6. Data blocks owned shall be white.**
Add	**7. Limited or partial data blocks unowned shall be green.**
Add	**8. Search target symbol shall be blue.**
Add	**9. Beacon target extent shall be green.**
Add	**10. History trails shall be blue.**
Add	**11. Predicted track line shall be white,**
Add	**12. Minimum separation line shall be white.**
a. Whenever color is used to code critical information it must be used along with another method of coding.	**b.** Whenever color is used to **identify** critical information it must be used with another method of **notification such as blinking**.
b. Cultural color conventions (such as red for danger and yellow for warning) should not be violated.	**c.** Cultural color conventions **which can not be violated include** red for danger and yellow for warning.
c. The color pure blue should not be used for text, small symbols, other fine details, or as a	**d.** The color pure blue should not be used for text, small symbols, other fine details, or as a

background color.		background color.
	Add	**e. Ensure all colors that are used including text and symbols are presented in sufficient contrast.**
	Add	**f. Ensure no more than two colors are assigned to a single data block.**
	Add	**g. Use of color in general should be kept to a minimum. When color is used to denote a specific meaning, e.g. yellow means caution, the number of colors used on a single display shall be no more than six and should be constrained to the primary colors of red, yellow, green, blue, orange, and cyan. The optimum number of colors used for coding should be limited to four.**
	Add	**h. The specific colors that are selected for a display must take into account the ambient environment and the capabilities of the specific monitor.**
	Add	**i. Any implementation of color is to be tested in the context and environment to which it was designed.**
d. Color use needs to be consistent across all of the displays that a single controller will use.		**j.** Color use needs to be consistent across all of the displays that a single controller will use.
e. Facility air traffic managers shall make all requests for any color changes to color baseline through the Air Traffic Planning and Procedures Program Director, ATP-1.		**k.** Facility air traffic managers shall make all requests for any color changes to color baseline through the **Director of Terminal Safety and Operations Support**.

No further changes to paragraph.

5. INDEX CHANGES: None

6. GRAPHICS: None

7. GENOT/NOTICE: N7210.xxx, Color Use on ATC Displays, effective August xx, 2007.

8. SAFETY RISK MANAGEMENT: (Check appropriate box).

☐ Proposed change meets full SMS requirements for safety risk assessment.

☐ (For organizations that have not fully implemented SMS), the proposed change is in accordance with FAAO 1100.161, Air Traffic Safety Oversight, Chapter 5, Paragraph 2 requirements.

☒ Proposed change is not safety related.

Comments: These guidelines are in accordance with Human Factors Guidelines as provided in "Guidelines for the Use of Color on ATC displays", authored by Kim Cardosi, Ph.D. and Dan Hannon, Ph.D., June 1999.

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Manager, Terminal Operations

8/30/07
Date: