

DEPARTMENT OF THE AIR FORCE  
AIR FORCE FLIGHT STANDARDS AGENCY  
1535 COMMAND DRIVE, SUITE D-306  
ANDREWS AFB, MD 20762-7002

**AT-E-17**

## **AIR TRAFFIC CONTROL TRAINING SERIES**



### **EQUIPMENT**

**ENHANCED TERMINAL VOICE SYSTEM (ETVS) REQUEST AND  
ACKNOWLEDGE UNIT  
(RAU)  
OPERATIONAL PROCEDURES**

**1 MARCH 2006**

## **FOREWORD**

**PURPOSE:** This publication is used to train USAF air traffic controllers and is not intended to replace, substitute, or supersede official regulations, procedures, or directives. FAA TI 6650.53, ETVS Operating Manual and AFI13-203 are the source documentation for this training series.

### **DOCUMENTATION GUIDANCE.**

Completion of this training series is required IAW AFI 13-203, paragraph 13.4.

1. Complete this training series (new/or revised portions of series) that apply to facilities in which controllers hold position certifications, qualifications or facility ratings within 90 days of receipt.
2. Document training on AF Form 1098.

ROCKY A. SWEARENGIN, Col, USAF  
Director of Airfield Operations

## **CORRECTIONS TO “AT” TRAINING SERIES**

If you encounter an item that is not correct or needs clarification, write to us about it. Use this page and reference the series number, the page, and paragraph number. Briefly state what is wrong and then write your correction or suggestion to correct or improve it. Copy or print this page from the booklet and return it to:

HQ AFFSA/XAOT  
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You can also e-mail the above information to us at [AFFSA.XAO@andrews.af.mil](mailto:AFFSA.XAO@andrews.af.mil). Also remember to browse the HQ AFFSA/XA Homepage for information on current training news and products. The Internet address is <https://wwwmil.andrews.af.mil/pages/AFFSA/affsa.htm>.

### **SUMMARY OF CHANGES**

## INTRODUCTION

This publication will be used in conjunction with hands on training to familiarize air traffic controllers with the operation of RAU equipment.

## REQUEST AND ACKNOWLEDGE (RAU) OPERATION

RAU communications consists of voice and visual signal coordination. Voice communications are provided on an on-demand basis that instantaneously connects selected users without interfering with other ongoing operations. Visual signals are provided to allow selected users in the RADAR and Tower to coordinate aircraft approach and landing with minimal use of voice and without interfering with other ongoing operations. The RAU functions are enabled or disabled through the Supervisor Configuration Terminal (SCT) or Maintenance Configuration Terminal (MCT) computer.

The RAU feature provides for two types of Touch Entry Display (TED) screen layouts:

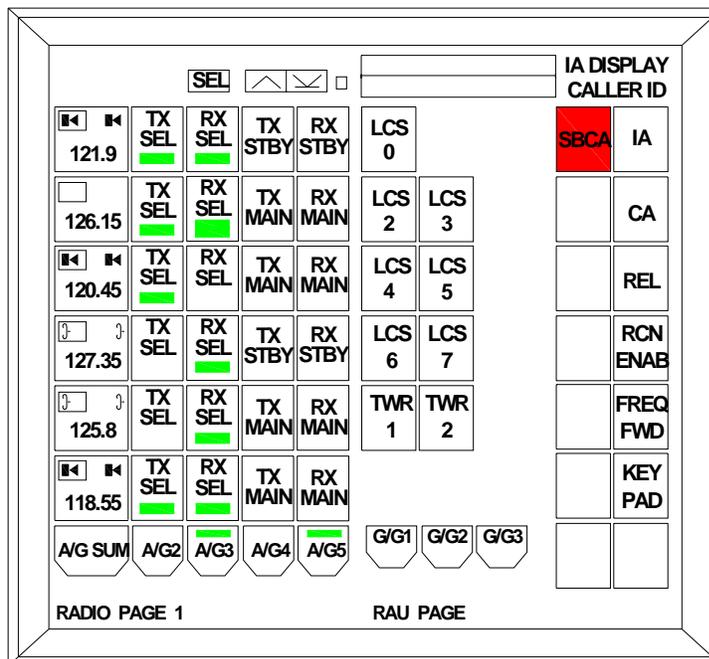
- **RADAR TED Display**

The RADAR position TED display will employ the key layout shown in figure 1. This display provides seven light coordination buttons and up to two Push-To-Talk (PTT) buttons used to activate the shout line to selected Tower RAU positions.

- **Mini TED Display**

The Tower position display will employ the key layout shown in Figure 2. This display provides seven light coordination buttons as shown and up to eight PTT buttons used to activate the shout line to selected RADAR positions.

**TED (A&G & RAU PAGES)**



**Figure 1. RAU Page and Single Button Crash Alarm (SBCA) Button on TED Screen (RADAR)**

### Mini TED (ALWAYS RAU PAGE)

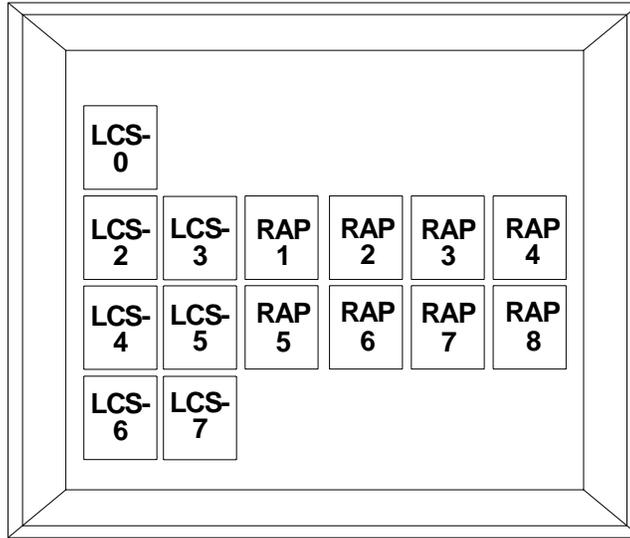


Figure 2. RAU Mini TED Screen (Tower)

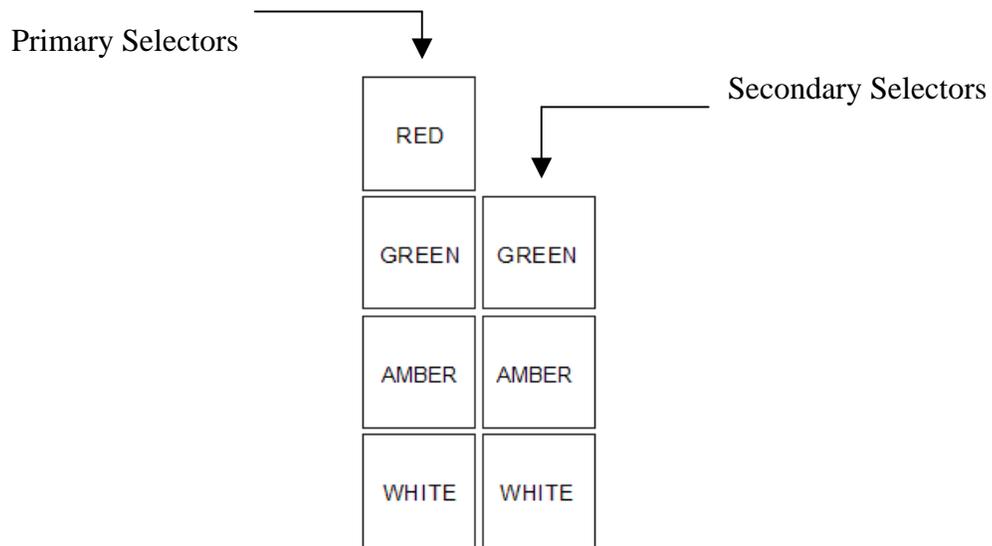


Figure 3. Light Coordination System (LCD) Button Color Codes

## **1. Light Coordination System Buttons.**

The Light Coordination System (LCS) buttons shown in Figure 3 are color coded, and generally not labeled. The RAU light coordination function provides a means for a RADAR RAU and Tower RAU operator to communicate the status of an incoming flight through the use of visual indicators without requiring landline coordination.

The RADAR RAU page displays seven light coordination buttons for visual signal communications between RAU RADAR and RAU Tower positions. Each light coordination button is color coded in white, amber, green or red. An active white button indicates the arriving aircraft has reached a specified point from the runway (normally 15 flying miles). A flashing amber button indicates the aircraft is (a minimum) of seven miles from touchdown or the end of the runway and the radar controller is requesting tower approval for the aircraft to continue. A flashing green button indicates the aircraft is (a minimum) of four miles from the end of the runway on final approach. A flashing red button cancels the clearance for aircraft on radar final approach.

The light coordination system shall consist of two columns of colored selectors. The column in the left, represents the primary aircraft, shall contain, from bottom to top, primary white, amber, and green range lights, along with a red indicator light. The column in the right, represents the secondary aircraft, shall contain, from bottom to top, secondary white, amber, and green range lights.

Note: Steady lights indicate acknowledgement and/or approval.

Note: Unless otherwise stated, the red light applies only to the first aircraft on radar final approach.

## **2. PTT Buttons**

The RAU employs PTT buttons to activate the shout line between the Tower and RADAR positions. These selectors are programmable from the SCT.

The Tower position has up to eight shout selectors that individually address one of the eight RADAR RAU positions. The RADAR positions each have (up to) two shout selectors that individually address one of the two Tower RAU positions. The RAU PTT buttons are non-locking in behavior and must be held in the activated mode to maintain the audio connection between Tower and RADAR positions. Release of the PTT button will release the audio connection automatically. This PTT selector is separate and distinct from the radio PTT buttons and bears no relation to them. When only one selector is pressed in either the Tower or RADAR, a one-way audio connection is established to the destination. If the called operator wishes to establish a two-way audio connection, both operators must depress the respective shout line PTT buttons to communicate.

When an incoming call is received at a position, the PTT button at the called position will provide an indication; a green bar located below the position name of the PTT button of the called position, and remains illuminated until the call is released by the distant end. The button will bear the name of the calling position as assigned by the local ETVS SCT.

When a PTT button is pressed at a position to establish a one-way audio connection to the other facility, the pressed button will provide an indication, a green bar located below the position name of the PTT button of the called position, and remain indicating until the

call is released by the calling party. If the call is made from a RADAR position, the corresponding Tower button in all other RADAR positions will provide an indication, a red bar located below the position name of the RAU RADAR PTT button, to show that the audio shout line is in use by the indicated position. If the call is made from a Tower position, the corresponding RADAR button in the other Tower position will provide an indication, a red bar located below the position name of the RAU PTT button, to show that the audio shout line is in use by the other Tower position. When a circuit is in use, all other users will be locked out from selecting the shout line selectors. Any user can operate the light coordination features at any time.

The green bar of the PTT selector will illuminate when a call is received and provide a visual indication of the calling position. The green bar of the PTT selector will also flutter green when pushed and provide a visual busy-in use indication (illuminated red bars of the PTT buttons of the indicated calling positions) to other units in the same facility (RADAR or Tower).

An RAU PTT call to an RAU RADAR position that has its RAU feature disabled will produce a busy signal from the RAU Tower speaker.

### **3. RAU Chime Alert**

An LCS state change from extinguished to flashing will cause a chime alert at a Tower RAU position(s). A series of one-beep tones with a two-second delay between one-beep tones is for the WHITE LCS; a series of two-beep tones with two seconds delay between two-beep tones is for the AMBER LCS, a series of three-beep tones with two seconds delay between three-beep tones is for the GREEN LCS, and a series of loud, penetrating whistles is for the RED LCS. The chime alert can be recorded.

There is no chime to sound at any RAU RADAR during any LCS changing states.

### **4. RAU and Other Audio Interaction**

The RAU shout line connection is handled as a telephone (IP or interphone) connection.

- a. **Intercom Call:** Depressing and holding a flashing RAU PTT button that associated with an RAU PTT call will terminate any intercom call that is in progress at that position unless the in-progress call is placed on hold first. As a result, whenever the RAU shout line is used, no IC or IP calls should be in progress at the calling position – they should either be disconnected or placed on hold before the RAU shout selector (PTT button) is pressed.
- b. **Call Forwarding:** RAU PTT call cannot be forwarded.
- c. **Call Monitor:** Call monitor will be on hold until the RAU PTT call is terminated.
- d. **Call Override:** Depressing and holding a flashing RAU PTT button that associated with an RAU PTT call will not terminate the call override that is in progress at that position. At the RAU position that receives the RAU PTT call,

the audio generated from the call override and the RAU PTT audio can be heard at the same time.

e. **Conference Call:**

(1) RAU PTT call cannot be conferred.

(2) Depressing and holding a flashing RAU PTT button that associated with an RAU PTT call will terminate any Conference call that is in progress at that position.

f. **Call on Hold:** Depressing and holding a flashing RAU PTT button that is associated with an RAU PTT call will not interrupt any call that is on hold at that position. Call on hold won't be terminated after a PTT call.

g. **Radio Call:** Radio transmissions will not be affected by the RAU operation because separate PTT controls are used to transmit over radio interfaces.

(1) Depressing and holding a flashing RAU PTT button that is associated with an RAU PTT call will not terminate the radio call that is in progress at that position. At the RAU position that receives the RAU PTT call, the radio audio and the RAU PTT audio can be heard at the same time.

(2) Radio earpiece audio in the RADAR is transferred to the position speaker upon answer of an IP or IC call if the global ETVS setting (HSLs) is enabled. IP and IC audio in the earpiece is transferred to the position speaker when a radio PTT is activated. If an IP or IC call is in progress when the RAU shout line PTT selector is depressed, the IP or IC call will be released. RAU audio routing will follow the ground-to-ground (G/G) audio routing rules since the RAU shout line is considered a G/G call.

h. **Telephone Call:** At an RAU position, depressing and holding a flashing RAU PTT button that is associated with an RAU PTT call will terminate any phone call that is in progress at that position.

## 5. Light Coordination Operation Requirements

The following are the requirements for the light coordination functions of the RAU.

a. **Selector Activation and Use Sequence.** Any selector will follow the sequence described below:

(1) Only RAU RADAR positions can activate the range lights (White, Amber and Green) of both primary and secondary columns from an extinguished state to a flashing state.

(2) A first activation of any selector from an extinguished state to a flashing state at any RAU RADAR position shall cause that selector to flash at all RAU RADAR and RAU Tower positions.

- (3) Only RAU Tower positions can activate the range lights in both primary and secondary columns from a flashing state to a steady-on state.
- (4) An activation of any selector from a flashing state to a steady-on state at any RAU RADAR position shall cause that selector to become steady-on at all RAU RADAR and RAU Tower positions.
- (5) An activation of any selector from a steady-on state to an extinguished state at any RAU RADAR or RAU Tower position shall cause that selector to be extinguished at **ALL** RAU RADAR and RAU Tower positions.

**b. Selector Sequence Interaction**

In addition to the standard behavior described above in *Selector Activation and Use Sequence*, the light coordination selectors will follow a predefined operation when the following inputs are provided.

- (1) The secondary selector (right column) **CANNOT** be selected until the primary selector (left column) of the same row has been activated.
- (2) Extinguishing a primary selector (left column) causes the light indication of the secondary (right column) in that row to move, in the same state it had previously been, to its primary selector, when the light of primary selector is in steady-on state and secondary selector is in any combination of being in a flashing or steady-on state.
- (3) The first activation of an amber or green primary selector (left column) from an extinguished state to a flashing state shall cause any steady-on primary selector immediately below it to be extinguished.
- (4) If both primary (left column) and secondary (right column) selectors of the same row are illuminated, only the secondary will extinguish upon activation of the next higher primary selector.
- (5) Activation of the secondary selector (right column) will cause the primary selector (left column) immediately below it to be extinguished when the primary selector in the same row is steady-on.
- (6) Any RAU RADAR or RAU Tower position can cancel a RED indication activated by an RAU Tower position and acknowledged by an RAU RADAR position.
- (7) A RED indication activated by the RAU RADAR position and acknowledged by an RAU Tower position can only be cancelled by the RAU Tower position or the RAU RADAR position that activated the Red button.

## 6. Light Coordination and Interaction

a. The light symbols are displayed below (Green, Amber, and White). Blue indicates that the light is extinguished.

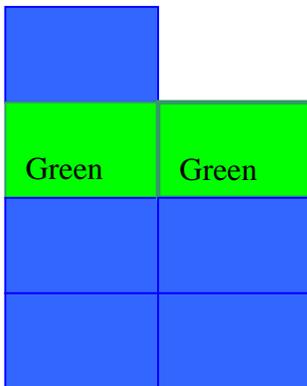


To generate a flashing state for a range light (Green, Amber and White), select an RAU range light button at extinguished state. This will cause the light indications of this button and the other selectors corresponding with this button, to flash at the RAU RADAR and RAU Tower positions.

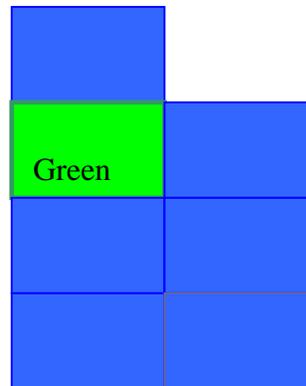
To generate a steady-on state for a range light (Green, Amber and White), select an RAU range light button at extinguished state. This will cause the light indications of this button and the other selectors corresponding with this button, to flash at the RAU RADAR and RAU Tower positions. From an RAU Tower position, activate the flashing button. The light indication at the RAU RADAR and RAU Tower positions will become steady-on.

b. After LCS activation at RAU RADAR or RAU Tower positions, the lights are displayed as follows:

### VIEW 1:

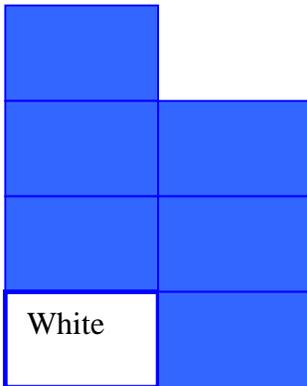


Before the primary green is extinguished

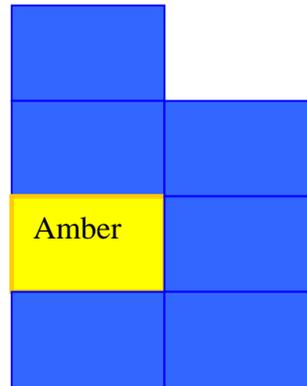


After the primary green is extinguished

VIEW 2:

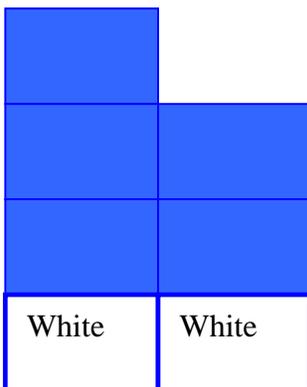


Before the primary Amber is activated



After the primary Amber is activated

VIEW 3:

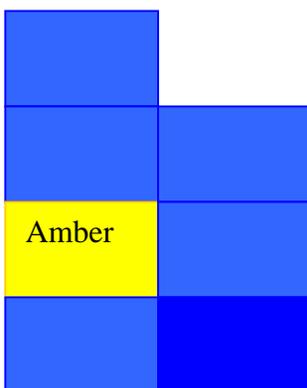


Before the primary Amber is activated

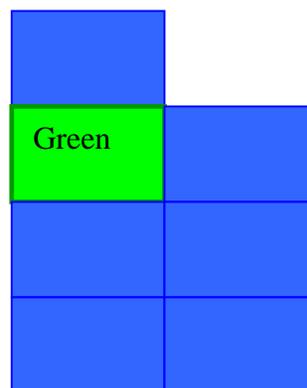


After the primary Amber is activated

VIEW 4:

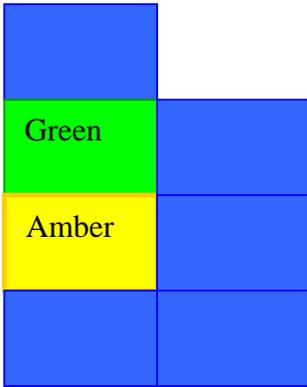


Before the primary green is activated

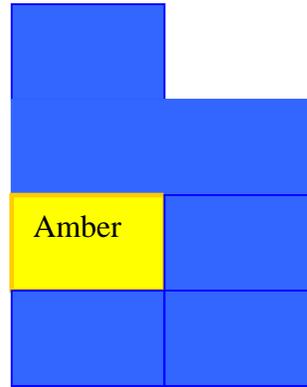


After the primary green is activated

VIEW 5:



Before the primary green is extinguished

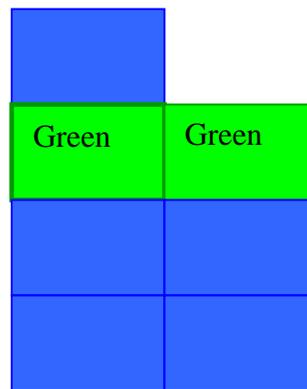


After the primary green is extinguished

VIEW 6:



Before the secondary green is activated

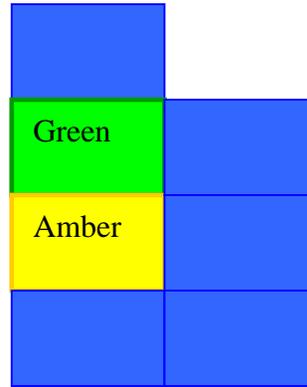


After the secondary green is activated

VIEW 7:

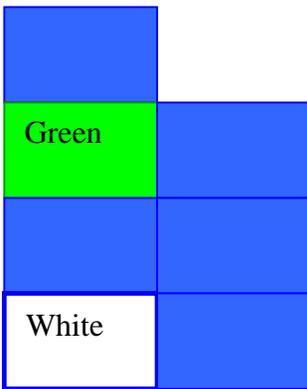


Before the primary green is extinguished

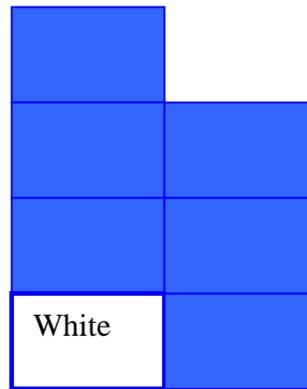


After the primary green is extinguished

VIEW 8:

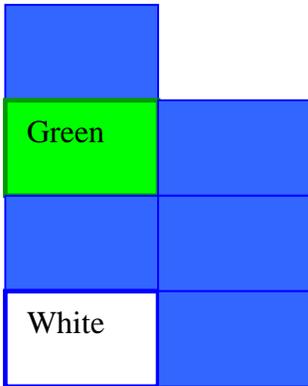


Before the primary green is extinguished

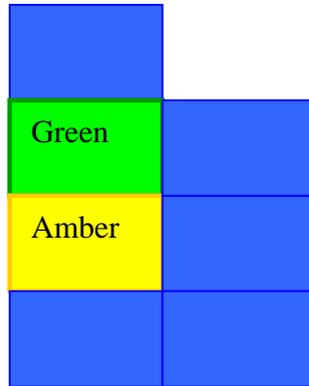


After the primary green is extinguished

VIEW 9:

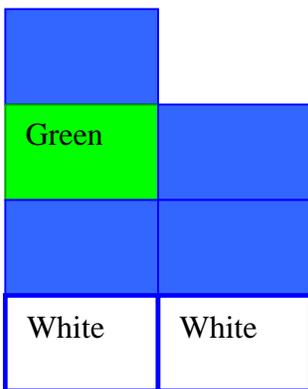


Before the primary Amber is activated

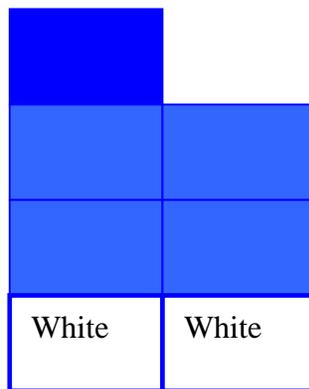


After the primary Amber is activated

VIEW 10:

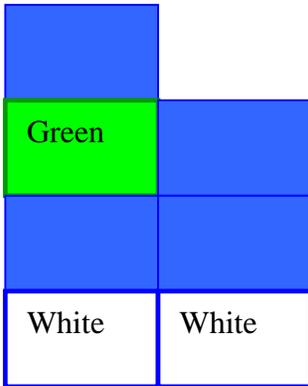


Before the primary green is extinguished



After the primary green is extinguished

VIEW 11:

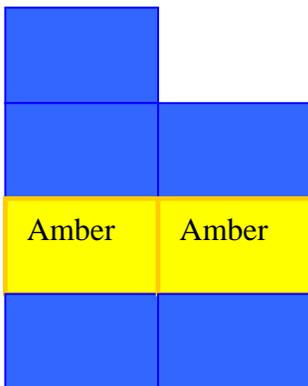


Before the primary Amber is activated

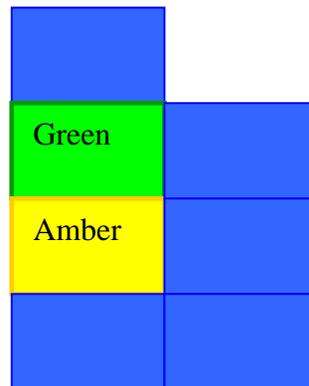


After the primary Amber is activated

VIEW 12:

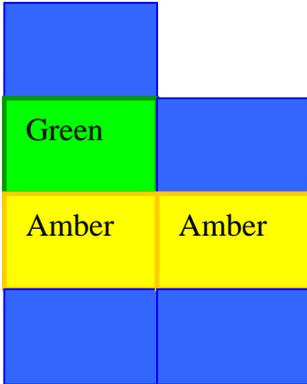


Before the primary green is activated

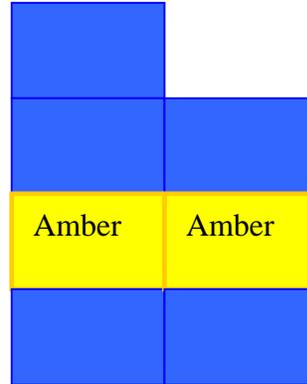


After the primary green is activated

VIEW 13:

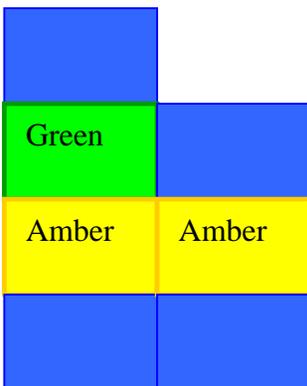


Before the primary green is extinguished

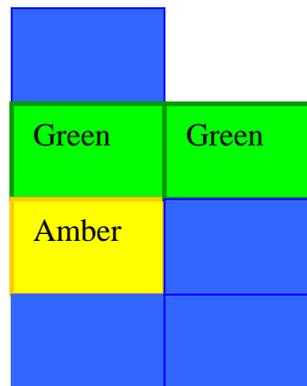


After the primary green is extinguished

VIEW 14:

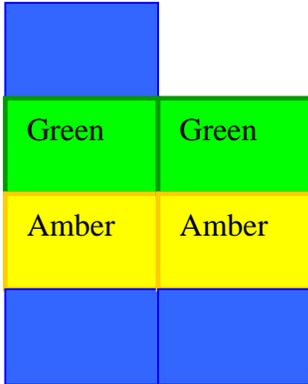


Before the secondary green is activated

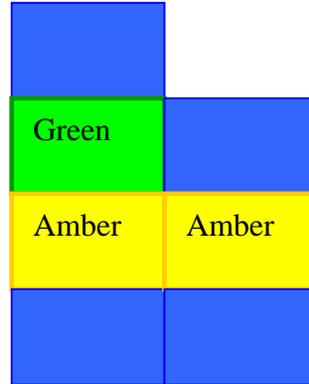


After the secondary green is activated

VIEW 15:

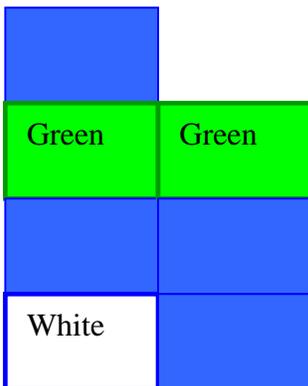


Before the primary green is extinguished

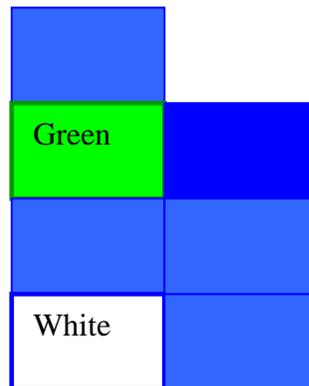


After the primary green is extinguished

VIEW 16:

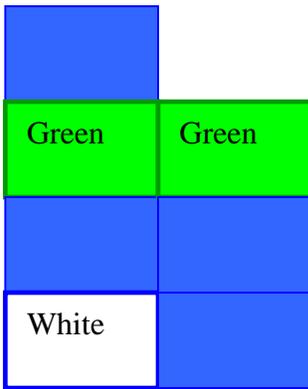


Before the primary green is extinguished

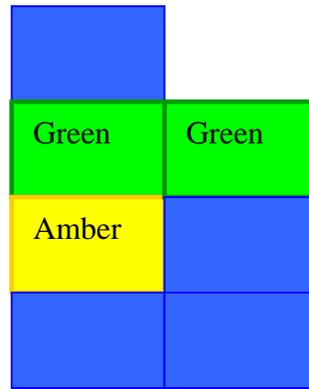


After the primary green is extinguished

VIEW 17:

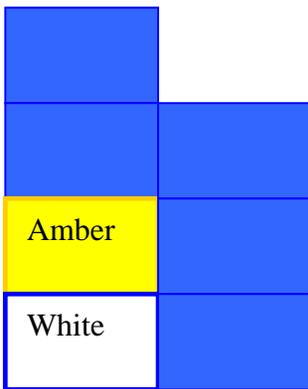


Before the primary Amber is activated

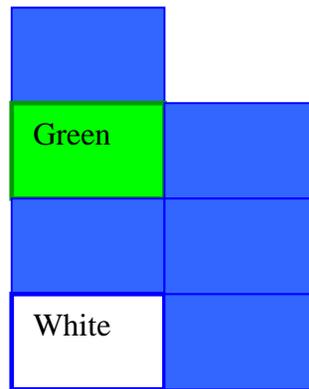


After the primary Amber is activated

VIEW 18:



Before the primary green is activated

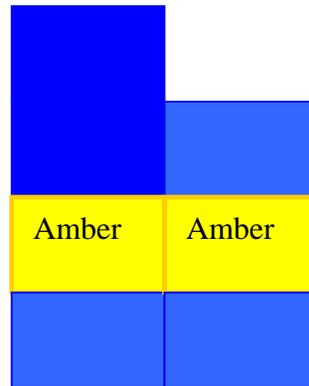


After the primary green is activated

VIEW 19:

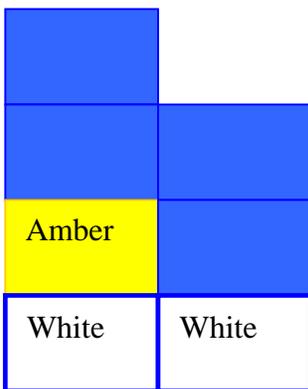


Before the secondary Amber is activated

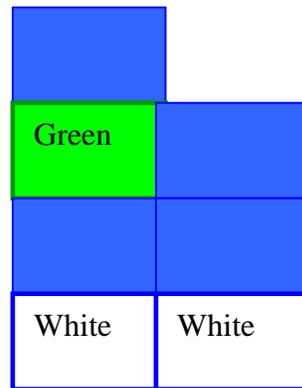


After the secondary Amber is activated

VIEW 20:

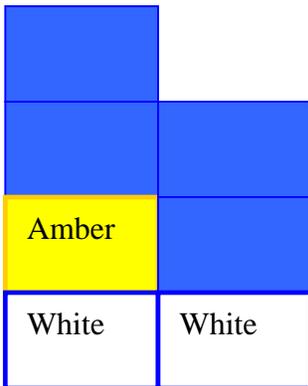


Before the primary green is activated

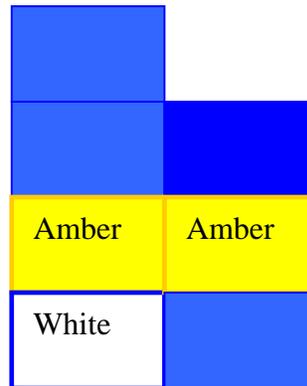


After the primary green is activated

VIEW 21:



Before the secondary Amber is activated



After the secondary Amber is activated

VIEW 22:



Before the primary green is extinguished

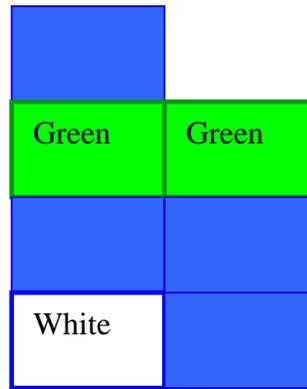


After the primary green is extinguished

VIEW 23:



Before the secondary green is activated

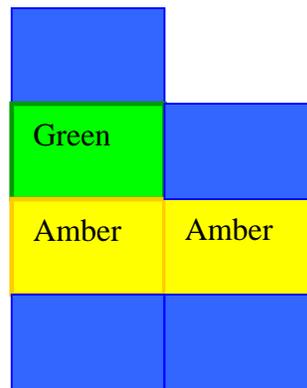


After the secondary green is activated

VIEW 24:

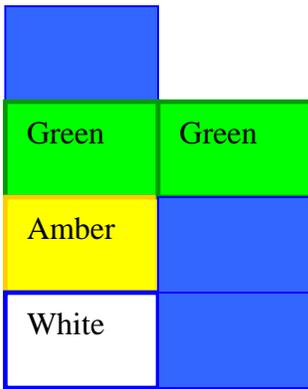


Before the secondary Amber is activated



After the secondary Amber is activated

VIEW 25:

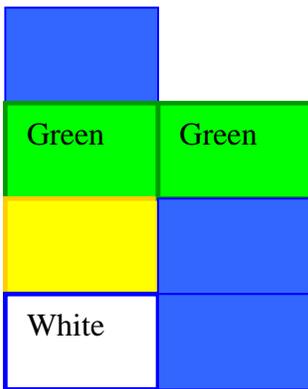


Before the primary green is extinguished

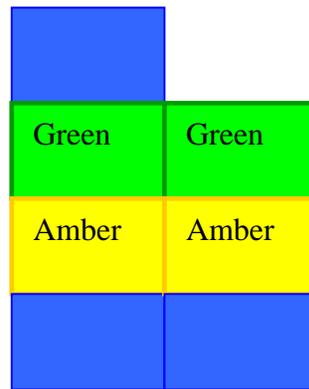


After the primary green is extinguished

VIEW 26:



Before the secondary Amber is activated

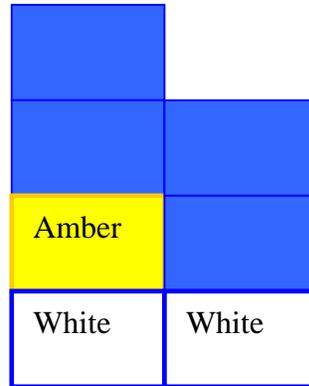


After the secondary Amber is activated

VIEW 27:

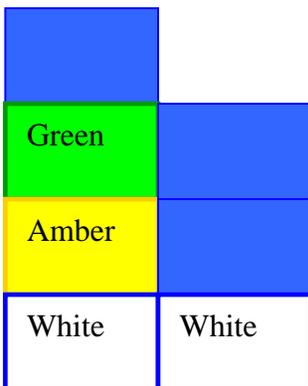


Before the primary green is extinguished

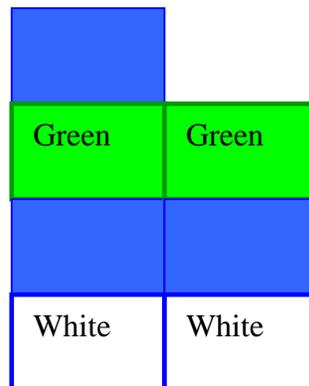


After the primary green is extinguished

VIEW 28:

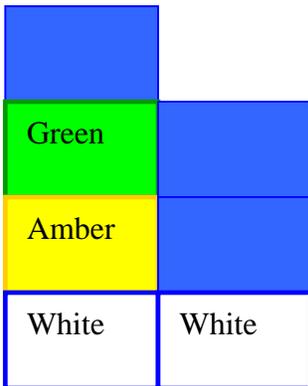


Before the secondary green is activated

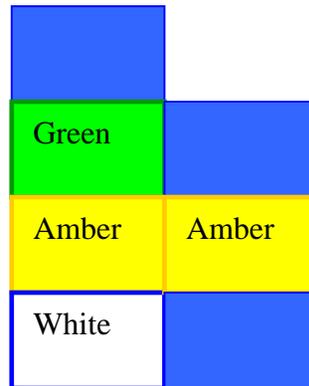


After the secondary green is activated

VIEW 29:

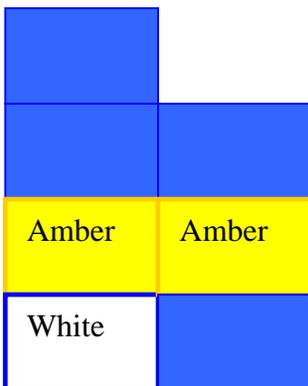


Before the secondary Amber is activated



After the secondary Amber is activated

VIEW 30:

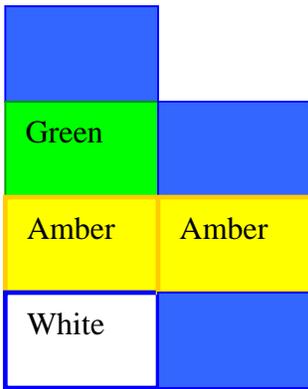


Before the primary green is activated

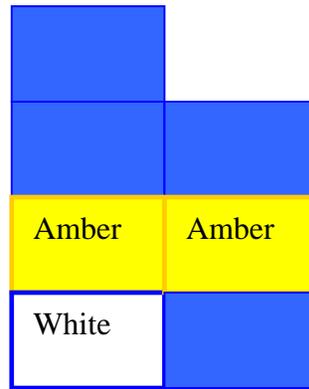


After the primary green is activated

VIEW 31:

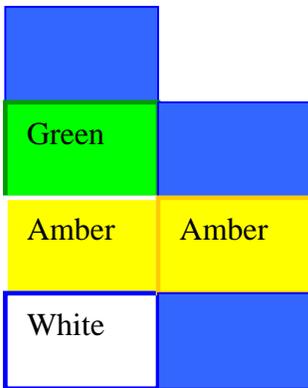


Before the primary green is extinguished

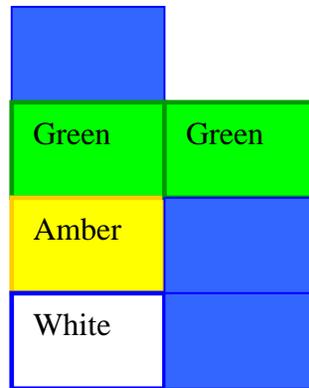


After the primary green is extinguished

VIEW 32:

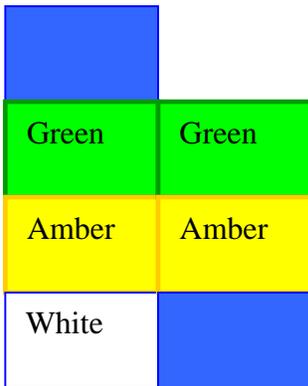


Before the secondary green is activated

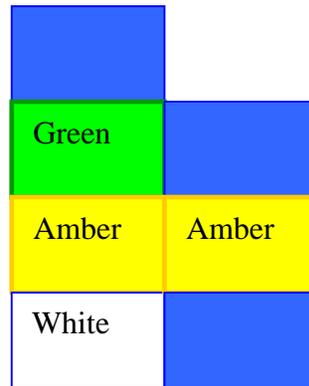


After the secondary green is activated

VIEW 33:

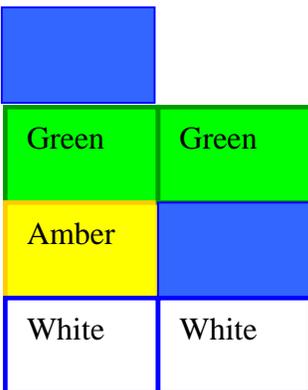


Before the primary green is extinguished

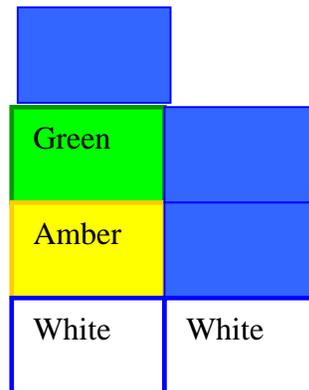


After the primary green is extinguished

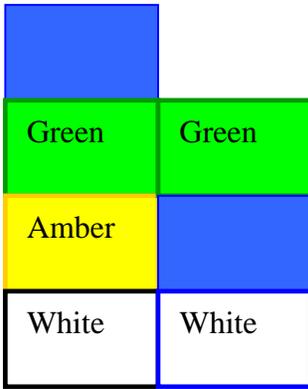
VIEW 34:



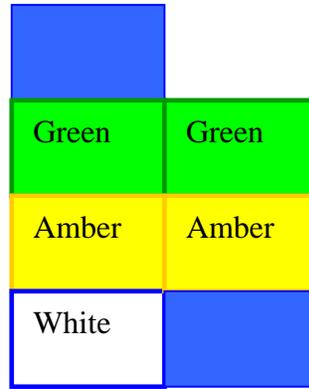
Before the primary green is extinguished



After the primary green is extinguished

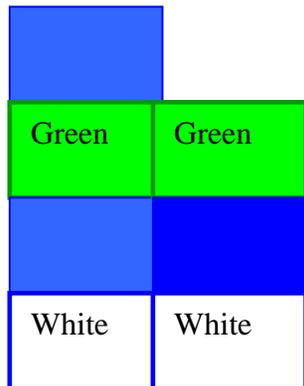


Before the secondary Amber is activated

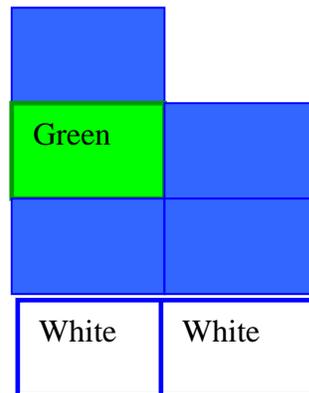


After the secondary Amber is activated

VIEW 36:

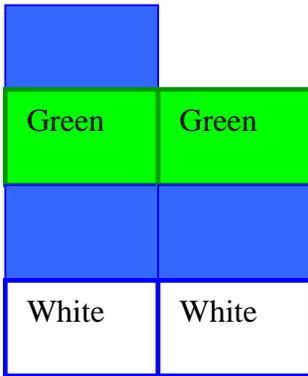


Before the primary green is extinguished



After the primary green is extinguished

VIEW 37:

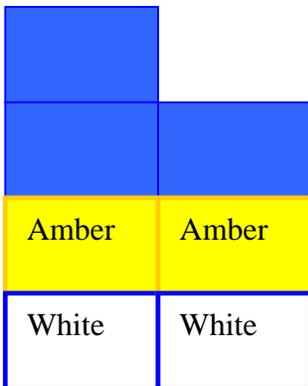


Before the primary Amber is activated

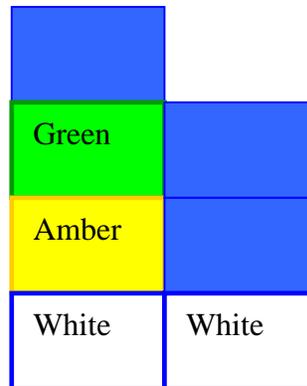


After the primary Amber is activated

VIEW 38:

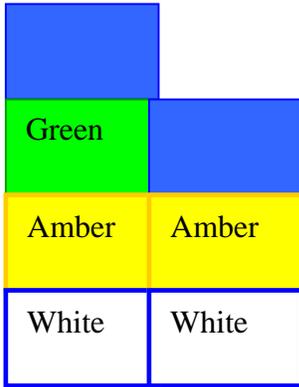


Before the primary green is activated

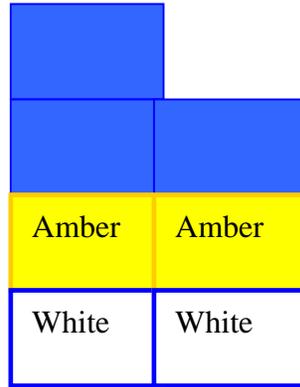


After the primary green is activated

VIEW 39:

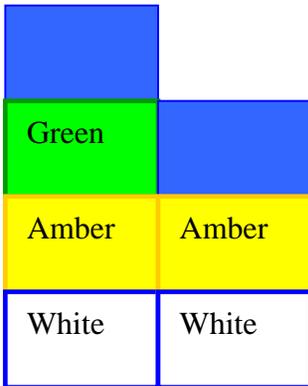


Before the primary green is extinguished

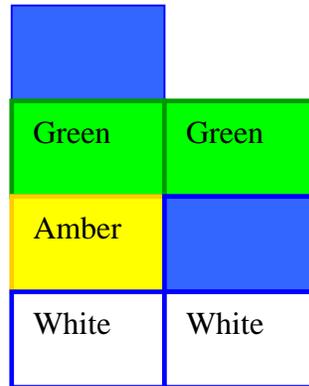


After the primary green is extinguished

VIEW 40:

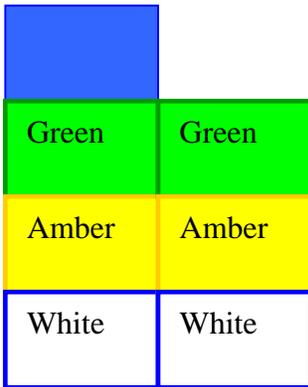


Before the secondary green is activated

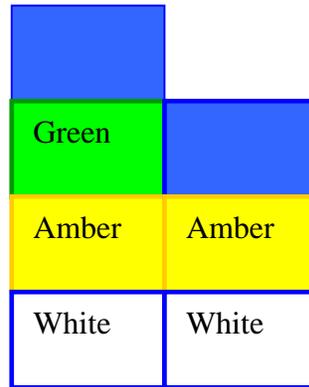


After the secondary green is activated

VIEW 41:



Before the primary green is extinguished



After the primary green is extinguished