

# ILS

[FAA INSTRUMENT LANDING SYSTEM]

## STANDARD CHARACTERISTICS AND TERMINOLOGY

ILS approach charts should be consulted to obtain variations of individual systems.

### VHF LOCALIZER

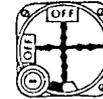
Provides Horizontal Guidance.

108.10 to 111.95 MHz. Radiates about 100 watts. Horizontal polarization. Modulation frequencies 90 and 150 Hz. Modulation depth on course 20% for each frequency. Code identification (1020 Hz, 5%) and voice communication (modulated 50%) provided on same channel.

1000 ft typical. Localizer transmitter building is offset 250 ft minimum from center of antenna array and within  $90^\circ \pm 30^\circ$  from approach end. Antenna is on centerline and normally is under 50/1 clearance plane.

### MIDDLE MARKER

Indicates Approximate Decision Height Point. Modulation 1300 Hz, 95% Keying: 95 Alternate Dot & Dash Combinations/Minute  
Amber Light



Flag indicates if facility not on the air or receiver malfunctioning

### OUTER MARKER

Provides Final Approach Fix For Non-Precision Approach

Modulation 400 Hz, 95% Keying: Two dashes/second  
Blue light



Runway length 7000 ft (typical)

250 to 600 ft from centerline of runway

Sited to provide 55 ft ( $\pm 5$  ft) runway threshold crossing height

### UHF GLIDE SLOPE TRANSMITTER

Provides Vertical Guidance

329.1 to 335.0 MHz. Radiates about 5 watts. Horizontal polarization, modulation on path 40% for 90 Hz and 150 Hz. The standard glide slope angle is 3.0 degrees. It may be higher depending on local terrain.

Point of intersection, runway and glide slope extended

3000' to 6000' from threshold

200'

Localizer modulation frequency 90 Hz 150 Hz

90 Hz 150 Hz. Glide slope modulation frequency

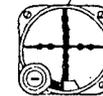
Approximately 1.4" width (full scale limits)

0.7" (approx.)

3" above horizontal (optimum)

All marker transmitters approximately 2 watts of 75 MHz modulated about 95%

Course width varies: between 3"-6" tailored to provide 700 ft at threshold (full scale limits)



RATE OF DESCENT CHART  
(feet per minute)

Speed (Knots)	Angle		
	2 1/2°	2 3/4°	3°
90	400	440	475*
110*	485	535	585
130	575	630	690
150	665	730	795
160	707	778	849

### NOTE:

Compass locators, rated at 25 watts output 190 to 535 KHz, are installed at many outer and some middle markers. A 400 Hz or a 1020 Hz tone, modulating the carrier about 95%, is keyed with the first two letters of the ILS identification on the outer locator and the last two letters on the middle locator. At some locators, simultaneous voice transmissions from the control tower are provided, with appropriate reduction in identification percentage.

\* Figures marked with asterisk are typical. Actual figures vary with deviations in distances to markers, glide angles and localizer widths.

Outer marker located 4 to 7 miles from end of runway, where glide slope intersects the procedure turn (minimum holding) altitude,  $\pm 50$  ft vertically.