

**UNNECESSARY RISK: GAMBLING SAFETY FOR CAPACITY WITH AN
“OPERATIONALLY ANTIQUATED INSTRUMENT LANDING SYSTEM (ILS)”.
SOLUTIONS EXIST.**



A simple internet search yields many cases of pilots that prefer not to fly an autopilot coupled ILS approach on a Visual Flight Rule (VFR) day. Airlines encourage pilots to “practice” coupled approaches, but many pilots will only fly a coupled approach on Instrument Flight Rule (IFR) days with low visibility and poor weather conditions. Why is that? It comes from experience(s), some of them bad.

Likewise, pilots can experience “rough” coupled approaches and landings on clear nights or picturesque clear days with no clouds in sight. Must be an inexperienced pilot or maybe clear air turbulence,

right? Perhaps, but most likely the ILS approach is temporarily out-of-tolerance because someone made a conscious decision (for the sake of increasing capacity), to subject you to that risk by allowing something, generally one or more aircraft, into the ILS critical area. This **WILL or LIKELY WILL** result in substantial degradation of the signal quality used by the autopilot during a coupled approach or by the pilot when flying the ILS approach manually. This means the ILS is “operationally antiquated”.

An “operationally antiquated ILS” is defined here as any ILS that necessitates the

intentional violation of the ILS critical area during VFR conditions in order to force capacity increases. Unfortunately, this violation of the critical area is becoming increasingly common in the U.S. and abroad which undermines the pilot's confidence in the ILS approach and the public's confidence in the airlines, through no fault of their own. These random but frequent occurrences and the severity of the guidance errors are not detected by flight inspections of the facility because the ILS critical area is kept clear during evaluations. Government entities attempt to protect themselves from any potential liability by issuing directives stating that the pilot is responsible for maintaining a visual connection to the runway and ensuring safe flight during VFR periods.

If a pilot requests an ILS approach during VFR conditions and there are known critical area violations during VFR periods, then does the controller clear the pilot for the ILS or a visual approach to the runway? Likely for the ILS. Does this mean the ILS is guaranteed to be within established tolerances? Not necessarily. The ILS critical area by definition is an area that is critical to remain clear during IFR conditions in order to safeguard the accuracy of the guidance signals. During VFR conditions however, the ILS critical area is not protected. Anytime a pilot is cleared for an ILS approach they should respond with "Is the ILS critical area clear?". If the answer is "Negative" then pilots should expect an approach that is out-of-tolerance and a potential rough ride for a coupled approach. Course errors of the ILS caused by critical area violations could result in substantial lateral deviations of the localizer and "ballooning" upward or downward projections of the glide path or perhaps a simultaneous combination, with the

possibility of inadvertent autopilot decoupling.

Frequently, the critical area is intentionally violated during VFR conditions to increase capacity. Conversely, the critical area is required to be protected during IFR conditions which reduces capacity. These two conditions that routinely occur in the United States and abroad, are responsible for gridlock under IFR conditions and a reduction in safety under VFR conditions. This is a result of a willingness to trade safety for capacity and a reluctance to invest in advanced ILS antennas.

The solution to this problem is to upgrade the ILS with wider aperture (narrower beam) antennas that essentially eliminate the operational impact when transitioning from VFR to IFR operations. By substantially reducing the ILS critical area as small as possible, often confining it to an area within the Obstacle Free Zone (OFZ) of the runway, safety hazards are minimized during all conditions. Airport operations during VFR and IFR conditions would be as similar as possible with a substantial increase in operational capacity and safety using wide aperture antennas. For more information contact Watts Antenna Company at <https://www.wattsantenna.com>.

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