Sierra Nevada Corporation’s (SNC) Automatic Carrier Landing System (ACLS) Beacon is the primary airborne component of the AN/SPN-46(V) precision approach landing system (PALS) – the only fully automated, all-weather approach landing aid for carrier aircraft.

The AN/APN–245 is a form/fit/function replacement for the AN/APN–202, with improved performance. The ACLS Radar Beacon enables long-range acquisition and precision guidance of equipped aircraft to the carrier deck in all-weather conditions by providing a high-power, fixed, “point-source” radar return that eliminates radar scintillation noise.
AN/APN-245
ACLS Radar Beacon

Features

• Form/fit/functional replacement for the APN-202 beacon set
• In production
• ID/IQ contract in place
• Proven to increase boarding rate
• Currently operational on F/A-18 E/F/G platforms
• Capable of adaptation to other airborne platforms
• Mission essential item for carrier landing operations
• Logistics support in place
• Capable of adding GPS landing algorithms
• Capable of adding civil ILS landing operations

Description

ACLS Beacon Airborne Component

• Closed-loop architecture
• Range: 10+ nmi
• Final approach to landing
• Receive frequency beacon: Ka-Band
• Transmit frequency beacon: X-Band
• Meets all requirements in NAWCAD Code 4.5.8.1 performance specifications 43603-00404 and interface design specification 43603-00408

AN/APN–245 System offers significant performance improvements

• Improved detection and tracking in rain
• Point source improves tracking accuracy versus skin tracking
• AGC supports dual channel tracking of SPN–46
• Delay stability ± 10ns from −40° to +85° ambient temp.
• 1dB ± 0.1dB modulation replication accuracy from −40° to +85°

Beacon system operates in a cross-band mode, receiving interrogations at Ka–band and replying at X–band

• Beacon system imposes modulation present on Ka interrogations on the X–band replies
• The AN/SPN–46 system uses the modulation proportional to the boresite error, to close the angle tracking loop
• Beacon system maintains a fixed delay between the Ka interrogation and the X–band reply
• Supports A/C lateral landing dispersion of less than five feet