

SNC[®]

AN/APN-245



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.

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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



ACLS Receiver & Transmitter



ACLS Radar Beacon

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 $\pm 10\text{ns}$ from -40° to $+85^\circ$ ambient temp.
- $1\text{dB} \pm 0.1\text{dB}$ modulation replication accuracy from -40° to $+85^\circ$

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