

April 14, 2022

AN/SPN-46(V)6 Precision Approach Landing System

The AN/SPN-46(V) Automatic Carrier Landing System (ACLS), also referred to as the Precision Approach and Landing System (PALS), provides the capability to simultaneously and automatically control two individual naval aircraft during the final approach and landing phase of aircraft carrier recovery operations. This automatic control capability enables Navy aircraft pilots to make "hands-off" landings during instrument flight conditions. Although the AN/SPN-46(V) ACLS is designed primarily as an automatic landing system, it also provides manual control capabilities.

Sierra Nevada Corporation is doing lifecycle extension development work on the SPN-46 system for the Department of the Navy. The SPN-46 system installed at Sierra Nevada Corporation is a half system, only able to simulate tracking of a single naval aircraft.

Contract Office:

Air Traffic Control Systems Branch
Naval Air Warfare Center Aircraft Division
Patuxent River, Code 4.5.8.1
Villa Road, St. Inigoes MD, 20684-0010

Program Manager:

Ms. Megan Lyon
Phone: 301-757-0718
Contract Number: N00421-19-F-0685

Test Location:

Sierra Nevada Corporation
444 Salomon Circle
Sparks, Nevada 89434
Latitude 39.53399 N, Longitude -119.70108 W, Elevation 4377 Feet
Nominal radar azimuth at the test facility: 250 degrees true north.

Expired License Info. – Please see page 4.

Expired File Number: 0640-EX-PL-2015

Callsign: WF2XHY

RADAR ANTENNA: AS-3648/SPN-46(V)

Antenna Type: Parabolic reflector with front offset nutating Ka-band feed and 2-axis monopulse X-band feed

Ka- Band

- a. Frequency: 33.2 GHz
- b. Gain: 48.7 dB
- c. Beamwidth (3 dB) 0.57 ° degrees maximum
- d. Beamwidth (20 dB) 1.59 °degrees maximum
- e. Side Lobes: 17.5 dB down
- f. Polarization Linear or Circular
- g. Conical Scan rate (100 Hz)

X- Band (receive)

- a. Frequency: 9.31 GHz
- b. Beamwidth: 2 °
- c. Gain: 33 dB
- d. Polarization: Circular

Limits of Travel

- a. Initial positioning: Manual or Automatic
- b. Azimuth: Left 30 ° to Right 60 ° from normal heading
- c. Elevation: +30 ° to −15 ° from horizontal axis

RADAR TRANSMITTER: T-1477/SPN-46(V)

SFD-332 Magnetron Transmitter

CPI Beverly Microwave Division

Beverly Mass.

- a. Actual Tuning Range and/or operating frequencies: 33.0 to 33.4 GHz
- b. Type Emission: Pulse
- c. Pulse Repetition Rate: 1750 to 2080 CPS
- d. Pulse Width: 0.2 microseconds
- e. Modulation and coding: Uncoded pulse
- f. Peak Power Output: 50 KW
- g. Average Power Output: 20 watts
- h. Frequency Control: Manual or Automatic
- i. Tuning Accuracy: ± 10 MHz maximum

RECEIVER: R-2259/SPN-46(V)

Ka Band

- a. Receiver Type: Superheterodyne
- b. Fixed Frequency: 33.2 GHz
- c. Frequency Control: Manual or Automatic
- d. I. F. Frequency: 60 MHz
- e. Bandwidth(3 dB): 14 MHz maximum
- f. Noise Factor: 9 dB
- g. Sensitivity: -93 dBm
- h. Local Oscillator Frequency:
(1) The normal operation of the local oscillator is 60 MHz below the transmitter frequency.

X-Band

- a. Receiver Type: 3 Channel monopulse, Superheterodyne
- b. Fixed Frequency: 9.31 GHz
- c. I. F. Frequency: 160 MHz
- d. Bandwidth(3 dB): 60 MHz maximum
- e. Noise Factor: 13 dB
- f. Sensitivity: -92 dBm

**United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
RADIO STATION CONSTRUCTION PERMIT
AND LICENSE**

EXPERIMENTAL

(Nature of Service)

WF2XHY

(Call Sign)

XT FX MO

(Class of Station)

0640-EX-PL-2015

(File Number)

NAME Sierra Nevada Corporation

Subject to the provisions of the Communications Act of 1934, subsequent acts, and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions and requirements set forth in this license, the licensee hereof is hereby authorized to use and operate the radio transmitting facilities hereinafter described for radio communications in accordance with the program of experimentation described by the licensee in its application for license.

Operation: In accordance with Sec. 5.3(j) of the Commission's Rules

Station Locations

- (1) Sparks (WASHOE), NV - NL 39-32-02; WL 119-42-03; MOBILE: Sparks, NV, within 18.5 km

Frequency Information

Sparks (WASHOE), NV - NL 39-32-02; WL 119-42-03; MOBILE: Sparks, NV, within 18.5 km

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
9.3-9.32 GHz	MO	4M00P0N	400 W (ERP)	
33-33.4 GHz	FX	6M00P0N	1.5 MW (ERP)	

Special Conditions:

- (1) The station identification requirements of Section 5.115 of the Commission's Rules are waived.
- (2) In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.

This authorization effective November 06, 2015 and
will expire 3:00 A.M. EST November 01, 2020

**FEDERAL
COMMUNICATIONS
COMMISSION**

