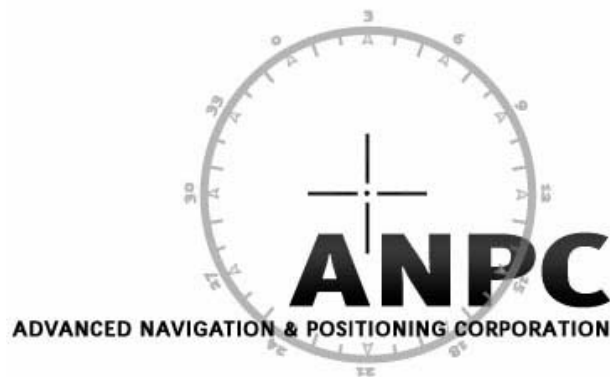


**RESPONSE TO
REQUEST FOR INFORMATION
FCC FILE NO. 0237-EX-PL-2006
REFERENCE NO. 4711**



February 7, 2007

Originator:	John Church
Approver:	
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SECTION 1: INTRODUCTION

1.1 Purpose

This paper was prepared to address a request for more information in support of application for a FCC transmit license for the Transponder Landing System (TLS) installed at the Columbia Gorge Regional Airport in Dallesport, WA. The purpose of this license application is to facilitate the development and demonstration of the Transponder Landing System technology.

FCC File Number: 0237-EX-PL-2006

Confirmation Number: EL805454

Reference Number: 4711

1.2 Background

Advanced Navigation & Positioning Corporation (ANPC) uses its TLS installation at the Columbia Gorge Regional Airport for engineering and testing, as well as demonstration. For this purpose, ANPC has been renewing FCC STA's for the site since 1998. Last fall, Don Nellis, FAA Spectrum Management, recommended that ANPC apply for a license to eliminate the need to renew the STA every 6 months.

1.3 Operational Description

The TLS uses ground based equipment to produce a high accuracy track of aircraft equipped with Mode A transponders. The TLS can then broadcast ILS-like guidance to provide a Category I instrument approach for that aircraft.

The system is only interrogating (1030 MHz) and broadcasting VHF and UHF signals once an approach operation has been initiated. After the approach operation has completed the system transitions to Standby mode and is idle.

SECTION 2: REQUESTED PARAMETERS

2.1 NGT Numbers

108.35 NG T070155
333.95 NG T070156
1030 NG T050070
1090 NG T050071

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2.2 Peak Envelope Power (PEP)

- VHF input 2 W P.E.P.
- UHF input 5 W P.E.P.

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2.3 Type of Antenna

- VHF is Poynting Innovations Localizer Antenna with Monitor
- UHF is Poynting Innovations Glide Slope Antenna with Monitor
- Interrogator (1030 MHz) is DBs Systems 610 DME.
- Cal/BIT (1090 MHz) is DBs Systems 610 DME.

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2.4 Transmit Antenna Gain

- VHF: 4 dBi. Antenna is highly directional with beamwidths $\pm 35^\circ$ azimuth, 1° to 7° vertical.
- UHF: 7 dBi. Antenna is highly directional with beamwidths $\pm 8^\circ$ azimuth, 1° to 7° vertical.
- Interrogator (1030 MHz): 6.3 dBi. Antenna is highly directional with beamwidths $\pm 35^\circ$ azimuth, 1° to 20° vertical.
- Cal/BIT (1090 MHz) : 6.3 dBi. Antenna is highly directional with beamwidths $\pm 35^\circ$ azimuth, 1° to 20° vertical.

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2.5 Site Elevation

The site is at 240 feet MSL

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2.6 Antenna Height Above Ground

- VHF: 27'
- UHF: 10' 5"
- Interrogator: 4'
- Cal/BIT: 4'

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2.7 Antenna Polarization

- VHF: Horizontal
- UHF: Horizontal
- Interrogator: Vertical

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- Cal/ BIT: Vertical

2.8 Antenna Orientation

The interrogator and UHF, VHF directional antennas are oriented towards 88°T.
The directional cal/BIT antenna is ~500 feet in front of the system and oriented toward 268°T.

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2.9 Pulse Repetition Rate (PRR)

The PRR does not exceed 10 Hz. The system is not interrogating at all when it is not providing guidance to an aircraft.

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2.10 Pulse Characteristics

- The interrogator transmits P1, P3 and an optional P2 pulses with a pulse width of 0.8 μ s.
- The cal/BIT transmits a single pulse with a pulse width of 0.45 μ s.

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2.11 Sector Blanking

This product is directional and does not incorporate sector blanking.

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2.12 Radius of Operations

The system is fixed based.

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2.13 Technical Operation Description

2.14 Use of 1090 MHz Transmissions

During a cycle, the cal/BIT transmits a single pulse on 1090 MHz. The cal/BIT antenna is located about 150 meters in front of the receive arrays. This pulse is used as a reference signal.

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2.15 SSR 1030 MHZ Modes Utilization

This equipment currently utilizes an interlacing of Modes 3A and 3C. Utilization of Mode S is in the future development path.