



Special Temporary Authority to Test Radar Instrumentation

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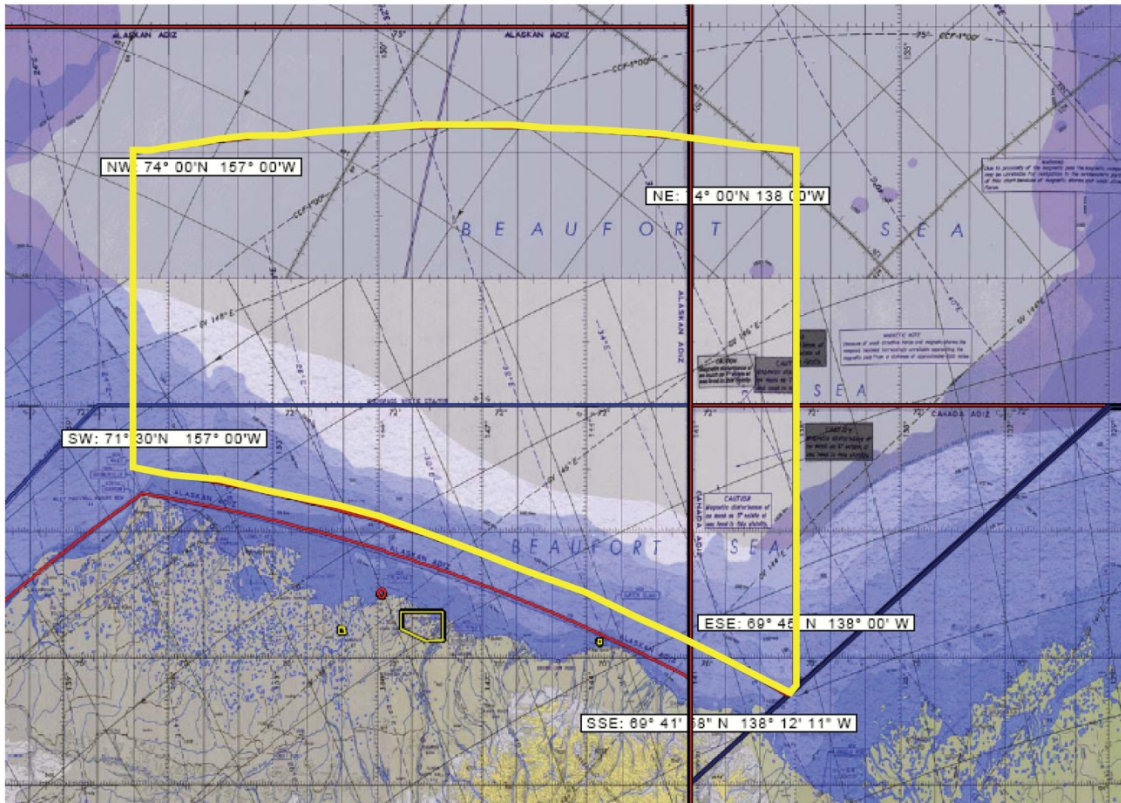
A. Purpose of Operation and Need for License

The purpose of this operation is to collect snow thickness data as part of the Marginal Ice Zone Ocean and Ice Observations and Processes Experiment (MIZOPEX), NASA grant number: NNX11AN57G.

B. Locations of Proposed Operation

The radar transmitter will be operated in the area shown in Figure 1.

The Arctic Ocean domain for MIZOPEX is contained within the yellow boundary below:



Domain corners as defined above are: (NW) 74 deg. 00' N / 157 deg. 00' W; (NE) 74 deg. 00' N / 138 deg. 00' W; (SW) 71 deg. 30' N / 157 deg. 00' W and (SE) 69 deg. 40' N / 138 deg. 00' W.

Figure 1: Area of Operation

C. Technical Specifications

1. Frequency of Operation

CRISIS requests authorization to operate from 2 - 8 GHz.

2. Effective Radiated Power (ERP)

The effective radiated power (ERP) will not exceed 1 W mean for 2 – 8 GHz.

3. Modulation Signal Description and Emissions

The primary emission designator is 6G00FXX 2 – 8 GHz. The signal is a FMCW radar signal with a pulse width of 250 μ s, duty cycle of 100% and a pulse repetition frequency of 4 kHz.

4. Antenna Information

The antenna used is a Q-Par Angus antenna. The antenna will be nominally pointed toward the earth, 270 degrees in the horizontal plane, and will be installed on an aircraft operating at 1500 feet AGL nominally and up to 2500 feet AGL maximum. The maximum roll angle for the aircraft will be 45 degrees, so the antenna can vary between 225 and 315 degrees during turns. The gain and antenna patterns are shown in the datasheet, Figure 2.

**2 - 18 GHz
Wideband Horn Antenna**



Model Number WBH2-18#

- Robust, proven design
- Gain 7 - 13 dBi across the band
- Compact, high performance, ridged waveguide
- Ideal for use as a feed
- A full antenna test report including gain against frequency is provided with each horn

This compact high performance ridged waveguide horn, available with N-type or SMA connector, is ideal for EMI/RFI testing, EMC measurements, wideband surveillance, materials evaluation etc. The high gain and low VSWR over a wide frequency band make the antenna ideal for receiving low level signals or for transmitting moderate power levels.

Techniques have been incorporated to prevent higher order waveguide modes. The horn may be mounted in a parabolic reflector to increase directional resolution and gain.

Accessories

QTP-A - Economy Antenna Tripod Unit
QTP-B - Standard Antenna Tripod Unit

Other models available

WBH1-18# - 1 to 18 GHz version
WBH2-18#HG - High Gain version
WBH2-24# - Extended frequency version
WBHDP2-18SHG - Dual polar, high gain

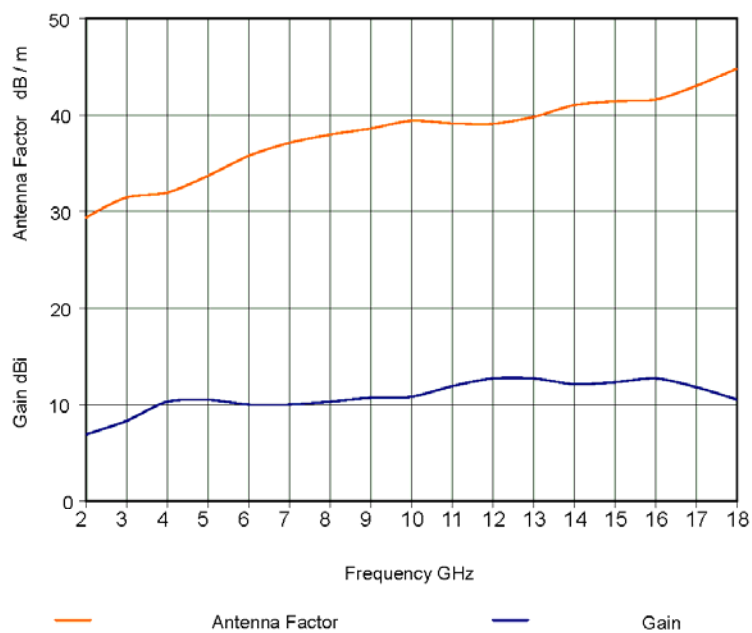
Barons Cross Laboratories, Leominster, Herefordshire, HR6 8RS, UK
Tel +44 (0) 1568 612138 Fax +44 (0) 1568 616373
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Typical Specification

Frequency	2 - 18 GHz
Gain	7 - 13 dBi
Beamwidth	86° - 19°
VSWR	< 2.5 : 1
Construction	Metal / Glass-Resin composite
Power Handling	50 Watts, c.w. N, 20 Watts c.w. SMA
Dimensions	119 x 86 mm ext. aperture, 119 mm long
Connector Type	SMA or N type available
Weight	420g N, 370g SMA, inc. mounting plate
Mounting	Mounting plate 50 mm x 50 mm, 4 holes, diameter 4.1, 38 mm centres

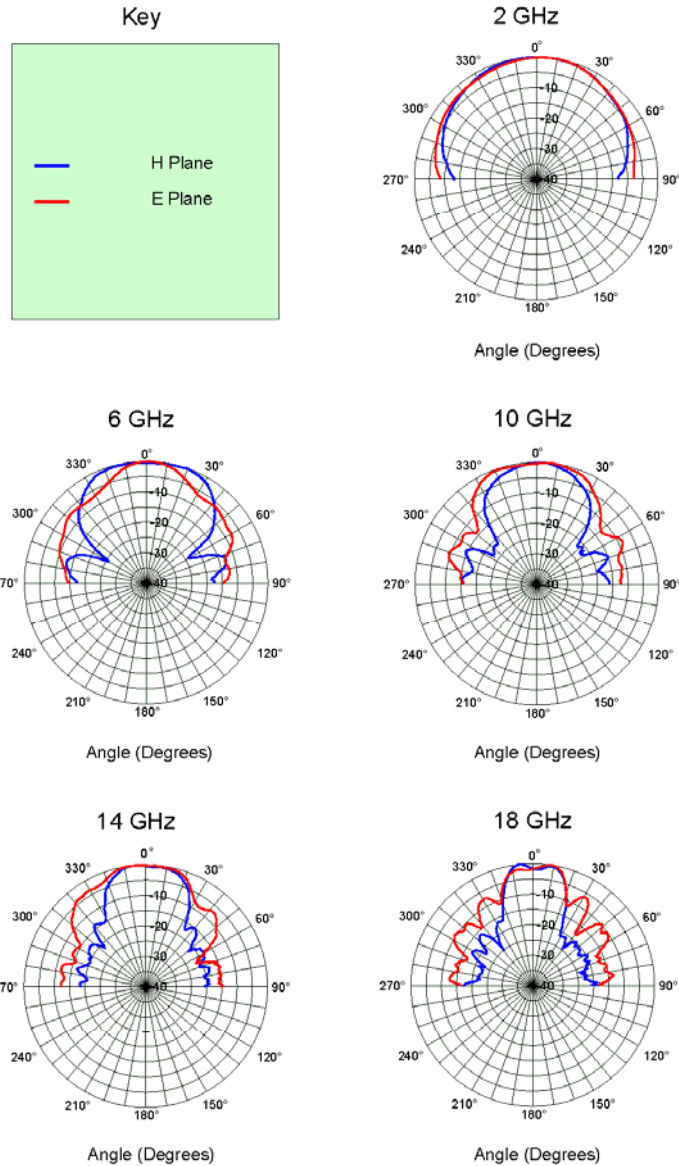
Typical Gain / Antenna Factor



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Antenna Patterns



Designed and Manufactured in England to the Highest Standards

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Data Sheet

Figure 2: Antenna Data Sheet

5. Equipment Utilized

Equipment used for this system is custom built at CReSIS.

6. Station Class

This station will be Aeronautical Mobile in the areas described in section B, with a nominal altitude of 1500 feet AGL.

D. Contact Information

For questions about this application or in the unlikely event interference concerns should arise, please contact:

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