



Special Temporary Authority to Test Radar Instrumentation

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Table of Contents

A. Purpose of Operation and Need for License.....	3
B. Locations of Proposed Operation	3
C. Technical Specifications	4
1. Frequency of Operation	4
2. Effective Radiated Power (ERP)	4
3. Modulation Signal Description and Emissions.....	4
4. Antenna Information	4
5. Equipment Utilized.....	4
6. Station Class	4
D. Contact Information.....	4

A. Purpose of Operation and Need for License

The primary objectives of the project are to perform radar test measurements preparation for NASA's OIB (Operation ICE Bridge) program over the Antarctic ice sheets and Antarctic sea ice. NASA contract number NNX10AT68G. The radar data are to be used to determine ice thickness and map both near-surface and deep internal layers of ice sheets, as well as map the snow-air and snow-ice interfaces for estimating the thickness of snow over sea ice.

Predeployment flight tests within the United States necessary, requiring authorization from the FCC.

B. Locations of Proposed Operation

A 1-Month STA is requested to allow the testing of ice penetrating radar using an aircraft mounted system. The height of the transmitter will be at 1500 feet AGL and will radiate directly downward from the aircraft, except for very brief periods off the coast of Virginia.

The Virginia operation will be limited to warning area W-386, shown in Figure 1.

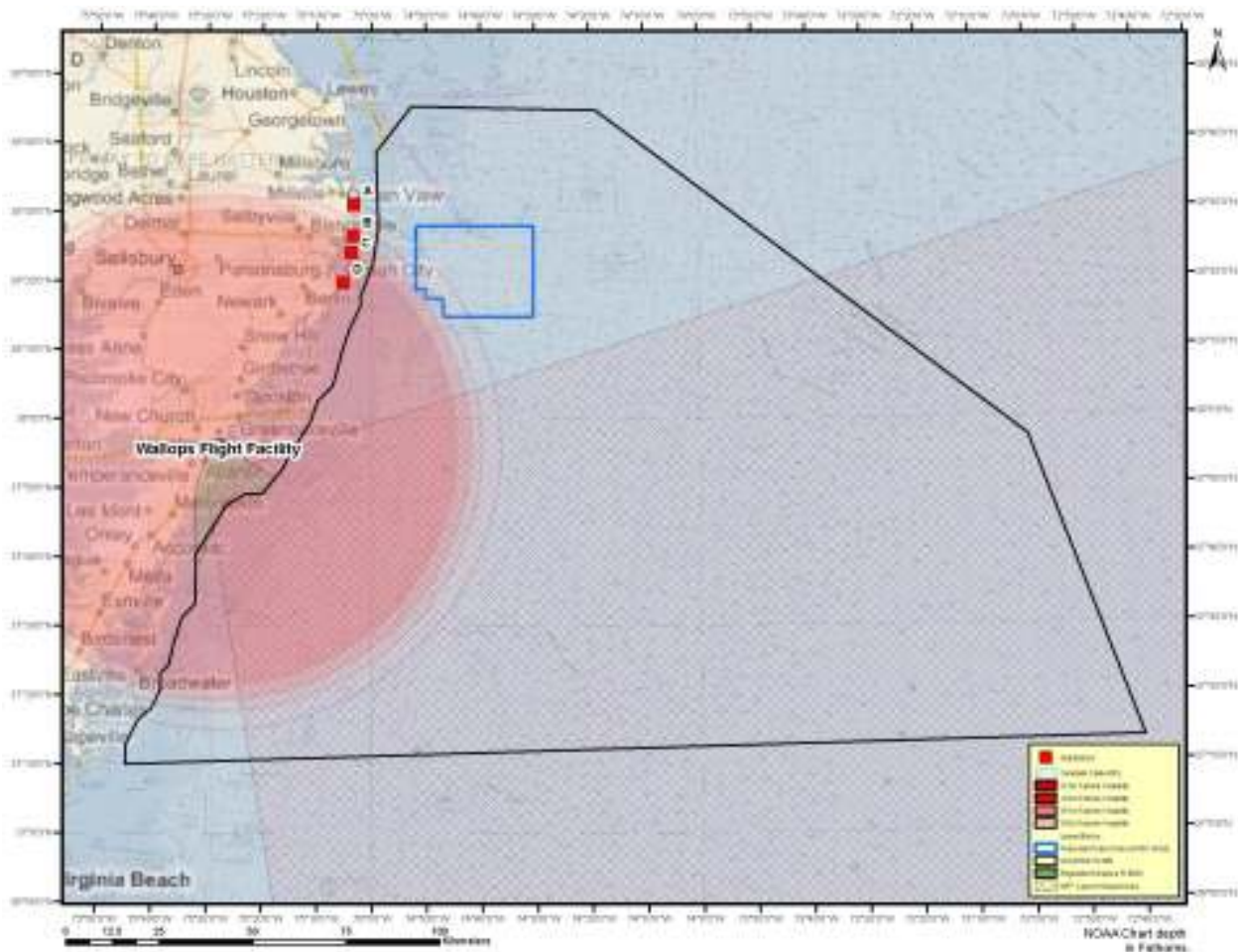


Figure 1: W-386 Outlined in black

The warning area W-386 is shown in black. Other objects on the map, such as the blue box and markers A,B,C and D should be ignored as they do not apply to this application. The coordinates for the warning area are given in the Appendix section 2.

Alaska operation will be limited to the Arctic Management area, off the northern coast of Alaska. The coordinates for this area are given in the Appendix section 1.

C. Technical Specifications

1. Frequency of Operation

CRISIS requests authorization to operate a VHF pulsed chirp radar from 180 MHz to 210 MHz.

2. Effective Radiated Power (ERP)

The effective radiated power (ERP) will not exceed 9048 W average. This power is needed to overcome clutter and losses.

3. Modulation Signal Description and Emissions

The signal is a linear FM pulse. Each pulse will be 10 μ s with a pulse repetition frequency of 12kHz. The emission designator for this signal is 30M0Q3N.

4. Antenna Information

The antenna is a 7 element linear dipole array. This configuration produces 15.5dBi of gain. The beam width is 17 degrees in the cross track direction and 20 degrees in the along track. The antenna is pointed directly downward from the aircraft except during brief periods during 90 degree aircraft rolls.

5. Equipment Utilized

Equipment used for this system is custom built at CRISIS.

6. Station Class

This station will be Aeronautical Mobile in the areas described in section B, with an 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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E. Appendix

1. Arctic Management Area Coordinates

-137.5808672734118,72.9492636931742
-139.0926016477092,73.19418693952268
-140.822225985256,73.36703196251334
-142.0036084364698,73.44172926345183
-143.2222477521815,73.46131022782181
-144.5932100852399,73.6520514841568
-145.9065073004052,73.74574798893471
-147.2288038101016,73.80005168453411
-147.3128096022309,73.81323665268127
-148.2812668449654,73.94422352416504
-149.3214686404397,74.05810522414001
-149.9393267520698,74.11194018583632
-150.8715016844048,74.28039050186955
-152.0968301462025,74.46438844364728
-153.1641433364894,74.56556350595449
-154.4409233403997,74.66826258852598
-155.0292534119208,74.68156918828356
-156.5049699975107,74.71287759295548
-158.1111409942582,74.67165926988859
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-166.3485754066885,73.3971377433279
-166.7691870076303,73.29736548748488
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-162.8541521325603,67.03430594905672
-163.7136986101122,67.12087512197607
-163.8040141547359,67.40472910393345
-164.0508976628211,67.61071277126914
-164.3158819611332,67.89432323932877
-164.9547975178188,68.14168813870649
-165.773088589294,68.32633129926865
-165.5314684898354,68.64465288302604
-164.4152409776406,68.70125837028061
-163.5436319505113,68.82604901223739
-162.5674286896237,69.24280248842062
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-161.5125989849009,70.07584599255272
-160.7521884692439,70.12344971206979
-159.4827778343889,70.47059728788869
-158.7143839978319,70.59493172783357
-157.514551573938,70.69843929237065
-156.4781129136271,70.66842581059404
-149.7368923331474,69.879671162178
-144.9071367238414,69.69506456745394
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-141.0230961254275,69.65738412351396

-140.2706948294565,70.18577365209386
-140.1754812884753,70.47815285494092
-139.8380093246756,70.81839722175495
-139.8150957400703,70.96138008339545
-139.7976615385272,70.96085328398615
-138.4280347332044,72.20988599501361
-137.4863254362799,72.77068073908809
-137.5808672734118,72.9492636931742

2. Warning Area W-386

Beginning at lat. 38°36'50"N., long. 74°59'49"W.; to lat. 38°45'00"N., long. 74°52'59"W.; to lat. 38°45'00"N., long. 74°20'00"W.; to lat. 37°57'00"N., long. 73°00'30"W.; to lat. 37°13'39"N., long. 72°40'00"W.; to lat. 37°00'00"N., long. 75°30'00"W.; to lat. 37°08'01"N., long. 75°30'00"W.; to lat. 37°08'01"N., long. 75°46'59"W.; thence 3 NM from and parallel to the shoreline to the point of beginning.