Exhibit 1: Description of Emission, Modulating Signal and Necessary Bandwidth

The emitter is an X-band Airborne Maritime Surveillance Radar employing various complex waveforms and PRF's. A description of the waveforms is as follows:

Very Short Range operation: A pulse modulated CW carrier with a pulse width of 0.1 usec and a nominal PRF of 2490 Hz. In this mode the necessary bandwidth is calculated as 1.5/ 0.1 usec.

Short Range Operation. A Linear Frequency Modulated (Chirp) with a frequency deviation of 14 MHz and a duration of 10 usec. A nominal PRF of either 2491 Hz or 1513 Hz is used. In this mode the bandwidth is calculated as the peak to peak deviation + 1.5/ 10 usec.

Long Range Operation. A Linear Frequency Modulated (Chirp) with a frequency deviation of 14 MHz and a duration of 40 usec. A nominal PRF of either 750 Hz or 395 Hz is used. In this mode the bandwidth is calculated as the peak to peak deviation + 1.5/ 10 usec.

The radar employs frequency agility. The radar transmits on one of 46 frequencies in the range of 9.25 to 9.7 GHz on a PRI to PRI basis.

PRF Stagger: The radar varies the nominal PRF by about 12% for ECCM and MTI blind speed ambiguity resolution.

The radar employs a scanning radar antennas with rates from 6 Hz to 120 Hz. The antenna may also stare at a target. The antenna beamwidths vary from 1 to 3.5 degrees in azimuth 3 dB width and from 6 to 14 degree elevation beamwidth with a gain of 30 – 36 dB above isotropic level.

Exhibit 2: Description of Emission, Modulating Signal and Necessary Bandwidth

High Resolution mode:
The emitter is an X-band Airborne Maritime Surveillance Radar employing a complex waveform and variable PRF. A description of the waveform is as follows:

The waveform is a Linear Frequency modulated pulsed CW signal with a deviation of 200 MHz and a duration of 23.4 usec. The PRF is variable from 200 Hz to 1300 Hz.

In this mode the transmitter operates as a fixed center frequency of 9470 MHz.

The radar employs a scanning radar antennas with rates from 6 Hz to 120 Hz. The antenna may also stare at a target. The antenna beamwidths vary from 1 to 3.5 degrees in azimuth 3 dB width and from 6 to 14 degree elevation beamwidth with a gain of 30 – 36 dB above isotropic level.

Exhibit 3: Description of Emission, Modulating Signal and Necessary Bandwidth
The emitter is an X-band Airborne Maritime Surveillance Radar employing a pulse CW waveforms and selectable PRFs. A description of the waveform is as follows:

Short Range Mode: Pulse Width 0.5 usec. PRF either 2491 or 1513 Hz.

Long Range Mode. Pulse Width 2.4 usec. PRF either 751 or 395 Hz.

The radar uses Pulse to Pulse frequency agility with a peak to peak deviation of 75 MHz.

The necessary Bandwidth is calculated as 1.5/0.5usec