

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 $1.5/0.5\text{usec}$