

Exhibit 1 Particulars of Operation Required in Item 4.

(1) The 193.1 MW (Effective Radiated Power) is calculated as follows. The AUT consists of 2720 elements each with its own amplifier. The maximum output of the amplifier is 6.0 watts peak. Losses associated with RF circuitry reduce the RF power to each element to 4.832W which when using an array gain of 41.67 dB (max) results in an ERP of 193.1 MW. In addition to the AUT, a prototype line array consisting of 256 modules of identical construction as the AUT will also be tested using the same characteristics listed for the AUT. The line array will radiate approximately 10% of the power of the main AUT.

(2) Power of Source Antenna (AUT Receiving)

The 1.6 KW is calculated as follows. The source antenna is a 4 foot parabolic reflector. The signal source RF output will be amplified resulting in a maximum of 1 watt at the antenna terminals. Using 32 dB gain for the reflector, the resulting ERP is 1.6 KW.

(3) Necessary Bandwidth.

The necessary bandwidth was calculated using the following equation:

$$B_n = \frac{6.36}{t} \text{ where } t = .1\mu s,$$

resulting in a maximum necessary bandwidth of 63.6 MHz. Annex J, "Guidance for Determination of Necessary Bandwidth" of the NTIA was used as a reference for the equation used in the above calculation.

Exhibit 2 Project Information Required in Item 8.

Project Description:

To develop a C-band solid state phased array for mobile ground based radar system.

Foreign Governments:

Republic of Germany  
Republic of France  
Republic of United Kingdom

Contract Number:

—E/F31F/K0148/85420 (EA/102/24DLB)

# COBRA FARFIELD ANTENNA PATTERN RANGE CONFIGURATION

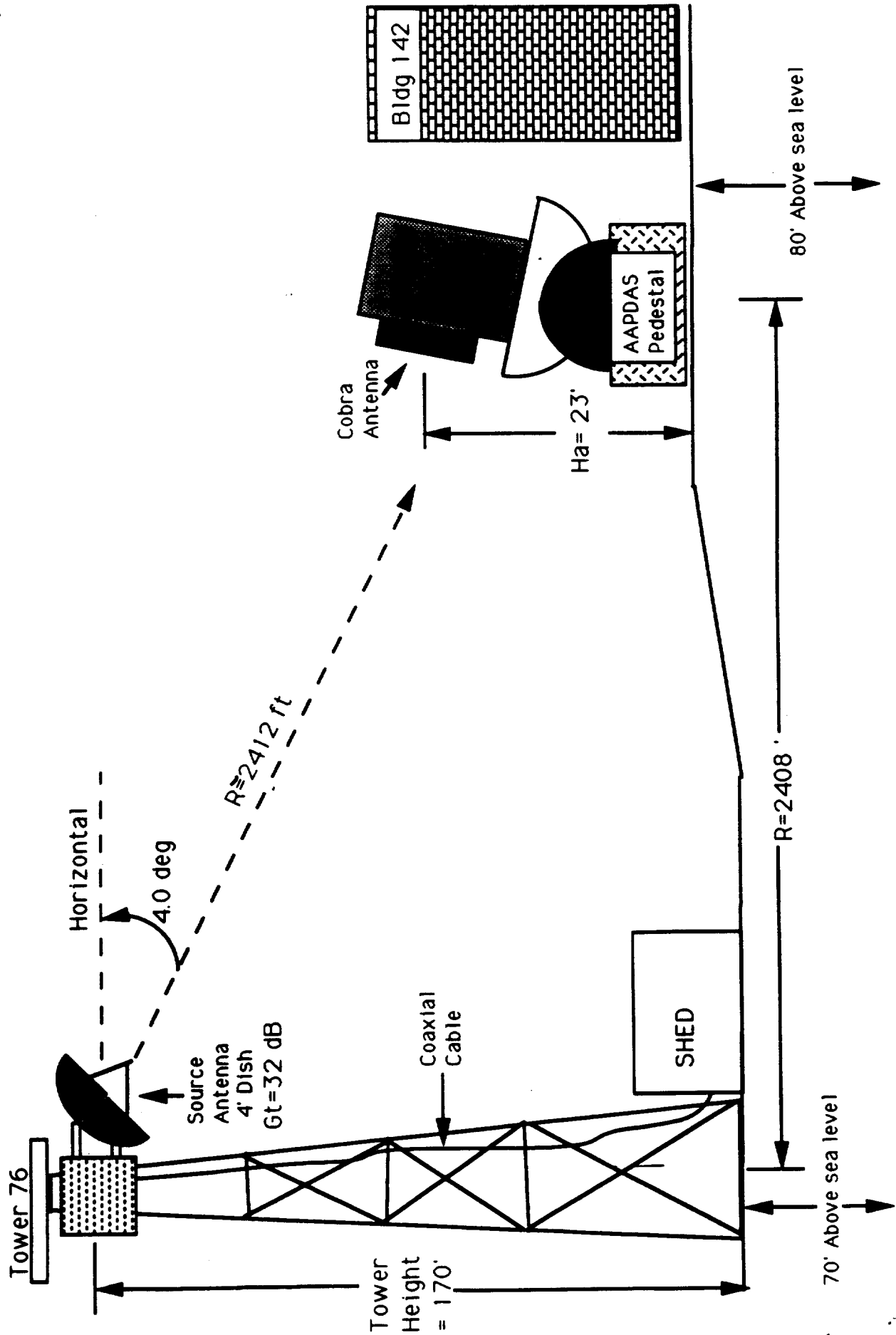


Exhibit 3 Beam Information for Item 15.

For receive testing of the AUT, a Scientific Atlanta (Series 22) 4 foot parabolic reflector will be used as the transmitting antenna. The transmitter will be housed in the shed at the base of the tower. The surrounding and intervening area between the transmitting antenna and AUT is rural farmland. The maximum expected power density in the vicinity of the AUT during receive tests is  $2.3 \times 10^{-5} \text{ mW/cm}^2$  and as such does not represent a potential radiation hazard.

For transmit testing of the AUT, an exciter (stability calibration test set) will be mounted on the pedestal along with the AUT. The 4 foot parabolic dish will be used to receive the transmitted signal. The maximum expected power density in the vicinity of the 4 foot dish mounted on the 170' tower is  $0.285 \text{ mW/cm}^2$  and as such does not represent a potential radiation hazard. Additional protection is provided because the AUT main beam will not be pointed below the line of site with the 4 foot parabolic dish and the maximum sidelobe will be a minimum of 13 dB down from the beam peak during transmit.