

EXHIBIT 1

Item Number 4(A) Frequency

The general frequency band of interest is S-Band; however, the actual selected frequencies of operation for this application are:

$$f_1 = 2775 \text{ MHz}$$

$$f_2 = 2795 \text{ MHz}$$

During scans of the surveillance volume, the transmit frequency will be hopping between these two frequencies.

Item Number 4(B) RF Output Power at the Transmitter Terminals

$$\begin{aligned} \text{Output Power} &= 58 \text{ dBm} \\ &= 631 \text{ Watts} \end{aligned}$$

Item Number 4(C) Maximum Effective Radiated Power (ERP)

$$\begin{aligned} \text{System Radiated Power} &= 11,000 \text{ Watts} \\ &\quad (550 \text{ Elements} \times 20 \text{ Watts/Element}) \\ &= 40.41 \text{ dB} \\ \text{Antenna Gain} &= 33.6 \text{ dB} \\ \text{Effective Radiated Power} &= 74.01 \text{ dB} \\ &= 25,200 \text{ kW} \end{aligned}$$

EXHIBIT 1 (continued)

Item Number 4(G) Necessary Bandwidth

The maximum allowable radar emission bandwidth is calculated using NTIA Radar Spectrum Engineering Criteria D for new fixed radars operating in the 2700-2900 MHz band. The emission bandwidth B(-40 dB) is shown in Table 1 for each of the four radar waveforms. Waveform 1 uses a frequency-hopping non-FM pulse and the emission bandwidth is evaluated using Equation (1) below. Waveforms 2 through 4 use frequency-hopping non-linear FM pulses and the emission bandwidth is evaluated using Equation (2) below. These equations are:

NTIA Criteria D, item d -

$$B(-40 \text{ dB}) = \frac{6.2}{\sqrt{t_r t}} + B_s \quad (1)$$

NTIA Criteria D, item c -

$$B(-40 \text{ dB}) = \frac{6.2}{\sqrt{t_r t}} + 2 \times (B_c + \frac{0.105}{t_r}) + B_s \quad (2)$$

where,

- t_r = pulse rise time (10% to 90% amplitude points) in μsec
- t = pulse duration (50% amplitude points) in μsec
- B_s = maximum range over which the carrier is shifted for a frequency-hopping radar in MHz
- B_c = total frequency shift during pulse duration in MHz

Table 1 - Radar Emission Bandwidth

Waveform Number	t (μsec)	t_r (μsec)	B_c (MHz)	B_s (MHz)	B (-40 dB) (MHz)
1	1	0.045	NA	20	49.2
2	12.8	0.045	1.56	20	36.0
3	52	0.045	1.56	20	31.8
4	100	0.045	1.56	20	30.7

EXHIBIT 2

Item Number 7 Description of Government Project

With the financial support of the Federal Aviation Administration, Lockheed Martin Ocean, Radar & Sensor Systems in Syracuse, NY is under contract with the United States Marine Corps (Contract No. M67854-92-C-1069 CLIN 0014, Task Order 13, Interagency Agreement Number DTFA01-96-Z-02031) to develop a multifunctional radar system having the capability to detect and track both aircraft and hazardous weather phenomena within the terminal control area. A demonstration of this radar system, known as the Multi-Purpose Airport Radar (MPAR), will show the versatility and rapid scanning capability of phased arrays in accomplishing the specified multifunctional mission; such a system holds the promise of replacing multiple special purpose radars in use today at major airports thereby saving the logistical costs required to support multiple systems. In addition, the spectral moment estimation algorithms developed on this program have specific application to the SET-16 mode of the United States Marine Corps TPS-59 tactical radar system with the intent of providing a significant performance enhancement.

EXHIBIT 3 Vertical Profile Sketch

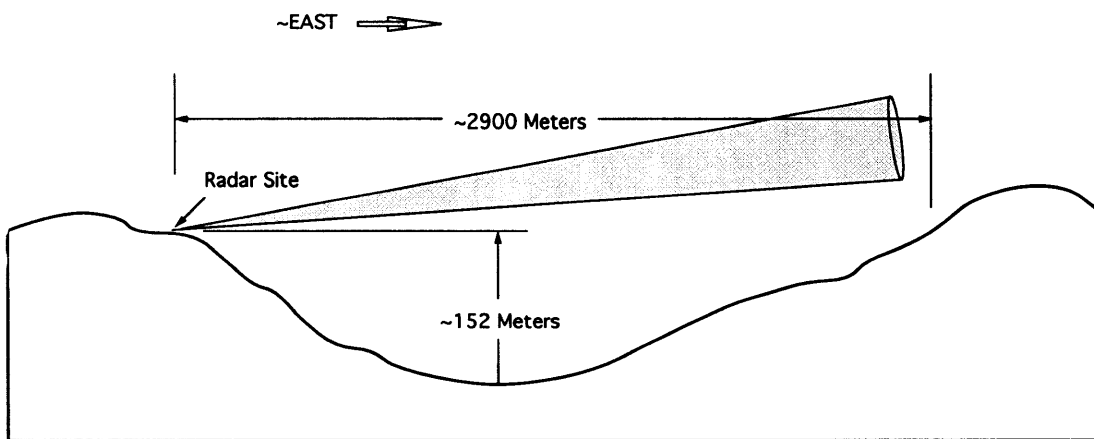
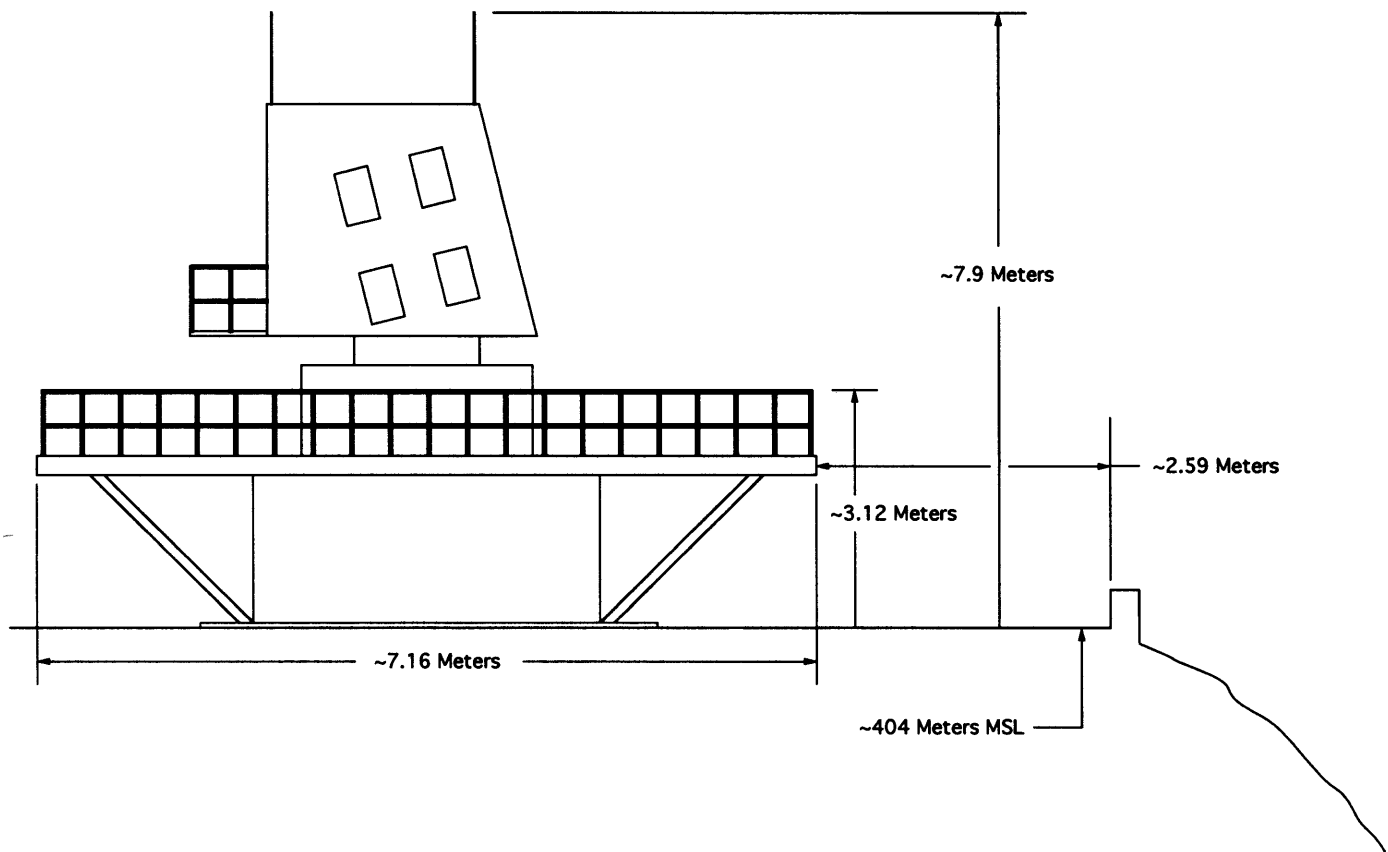


EXHIBIT 3 (continued) Plan Sketch

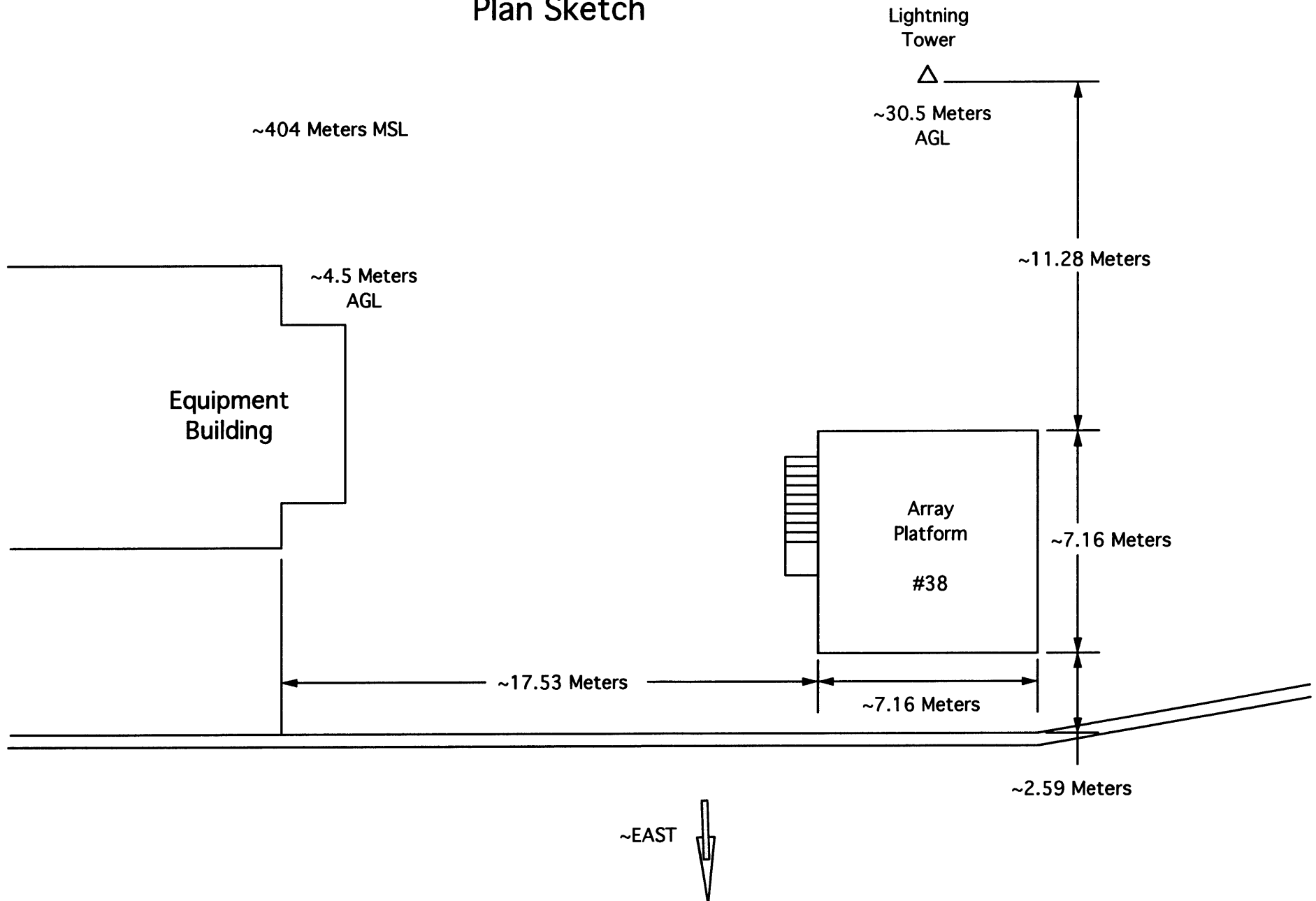


EXHIBIT 3 (continued)
Plan Sketch
(Wide Angle View)

