

**DECISION****THE COMPTROLLER GENERAL  
OF THE UNITED STATES  
WASHINGTON, D.C. 20548**

FILE: B-183101

DATE: November 14, 1975

MATTER OF: RCA Corporation

60167  
97731**DIGEST:**

Whether proposal for aircraft tracking system consisting only of laser tracker, without radar, is adequate to meet all weather performance requirements of solicitation is matter of technical judgment. Therefore, award to low bidder under two-step procurement based on agency's considered judgment that bidder's proposed system consisting only of laser system is technically acceptable will not be disturbed. However, the program will be monitored as part of GAO audit activities.

On August 2, 1974, the Federal Aviation Administration (FAA) issued request for proposals (RFP) No. NA00-5-2 as the first step of a two-step procurement. The RFP solicited proposals for a mobile aircraft tracking system and three firms, including RCA and GTE Sylvania, submitted technical proposals. RCA submitted two proposals, one being an alternate which admittedly did not meet all requirements. The FAA technical evaluation team determined acceptability of the proposals on the basis of the following criteria included in the RFP:

1. Performance characteristics of the system.
2. Design characteristics of the system: Mechanical, electronic and software; Items of equipment specified; Vibration isolation; etc.
3. Safety: Eye-safe restrictions, if applicable.
4. Operational convenience: Number of people needed to operate system; Qualifications required of operators.
5. Ease of field calibration of the system: External equipment required: Time required; etc.
6. Ease of maintenance and repair.

The record indicates that the FAA evaluation team determined a proposal submitted by Wood-Ivy was unacceptable and, after discussions with both RCA and Sylvania, that RCA's basic proposal, as supplemented, and Sylvania's proposal, as supplemented, were acceptable. RCA's alternate proposal was determined unacceptable. RCA's basic proposal called for a combination radar and laser tracking system, while Sylvania's proposal was based upon the use of a laser tracker only. Step-two, invitation for bids (IFB) No. NAOO-5-19, was issued to RCA and Sylvania on December 20, 1974. The invitation requested prices for the proposals, including the modifications added during evaluation. The bids were opened on January 20, 1975. RCA bid \$2,109,124 and Sylvania bid \$727,272. Based upon the results of the technical evaluation and the bid prices the FAA awarded a contract to Sylvania.

RCA has timely protested award of the contract to Sylvania, contending that the "laser-only" type equipment offered by Sylvania could not meet the FAA's performance requirements because a "laser-plus-radar system", as it proposed, is needed. The gravamen of RCA's complaint is that the Sylvania laser will only provide precise data intermittently in heavy rain, contrary to the "All Weather Performance" requirement of the RFP. It is RCA's position that FAA's acceptance of Sylvania's nonconforming approach has resulted in Sylvania obtaining a significant price advantage. Therefore, RCA has asked that our Office perform an independent technical evaluation to resolve the dispute and, in this connection, has submitted technical analyses, including an analysis of the data supplied by Sylvania.

We have conducted an independent review of the materials submitted by the parties regarding the technical questions raised by the protest. In this connection a conference was held on June 24, 1975, at GAO during which all parties were permitted to express their views. The technical dispute is centered on the following tracking range requirements set forth in the RFP:

<u>Weather</u>	<u>Minimum Tracking Range</u>
Rainfall rate of 2mm/hr.	15 Nautical Miles
Rainfall rate of 10mm/hr.	8 Nautical Miles
Rainfall rate of 25mm/hr.	5 Nautical Miles

RCA maintains that a "laser only" system such as that offered by Sylvania cannot generate the power required to achieve the specified tracking ranges. RCA argues that power loss, due to absorption and scattering of the laser beam caused by rainfall at a rate of 25 mm/hr results in an attenuation loss factor of as much as 8 dB/km and that it is not feasible for a laser system to put out the power necessary to attain the required range in a 25 mm/hr rainfall. Likewise, based on similar calculations, RCA argues that the necessary range under rainfall rates of 10 mm/hr and 2mm/hr cannot be achieved by the Sylvania equipment. Further, RCA insists that when the retroreflector used in a laser only system becomes wet it does not reflect the laser well (which adds to range decrease), and that a tendency to track other wet surfaces develops (which detracts from accuracy).

Sylvania disagrees with RCA's position regarding the power level required and argues that its laser has higher output laser power, a narrower transmitter divergence, a larger receiver telescope, more efficient retroreflectors and a more sensitive receiver than the RCA laser unit which served as the basis for RCA's calculations. Sylvania has supplied its own calculations. According to Sylvania's figures its laser has sufficient power to meet all the specified range standards. In addition, Sylvania argues that it has experimental data collected in tests conducted at Yuma Proving Grounds which can be mathematically extrapolated to yield proof that Sylvania's system will meet the specifications.

It is FAA's view that the Sylvania approach is technically acceptable because the Sylvania technical proposal was well documented, its analysis of rainfall versus tracking range was clearly presented, and showed that the Sylvania unit was capable of achieving the tracking range requirements. In short, FAA agrees with Sylvania's position.

The crux of the dispute is which attenuation factor should be used in calculating laser tracking range under rainfall conditions. The assumed attenuation factor is crucial because there is a wide variance reported by various experimental sources. In fact, there exists considerable uncertainty within a particular source as to the proper factor and at least three different sources (Ekberg, Shipley, and Chu and Hogg) have been cited by the parties. It is therefore not possible to determine a single exact factor. Further, if too low an attenuation factor is assumed in the design of a system there will be insufficient power to meet the range requirements.

The FAA concluded that the attenuation factors used by Sylvania fall within recognized experimental parameters as set forth in the Ekberg study and illustrated in the table below:

<u>RAIN RATE</u> mm/hr	<u>RANGE</u> nm	<u>EKBERG</u> dB/km	<u>VALUE PROPOSED BY SYLVANIA</u> dB/km
2	15	0.5 to 1.0	0.939
10	8	1.55 to 3.25	2.1
25	5	3.5 to 7.5	3.8

Sylvania's choice of attenuation factors may prove in practice to have been based on optimistic assumptions. Therefore, the power generated by the proposed design might not meet the RFP requirements.

Nevertheless, the overall determination of the relative desirability and technical adequacy of proposals is primarily a function of the procuring agency, and we have recognized that the agency enjoys a reasonable range of discretion in the evaluation of proposals and in the determination of which proposal is technically acceptable. 54 Comp. Gen. 612 (1975). Since determinations as to the needs of the Government are the responsibility of the procuring activity concerned, the judgment of such activity's specialists and technicians as to the technical adequacy of proposals submitted in response to the agency's statement of its needs will not be questioned by our Office unless there is a clear showing of unreasonableness. See 54 Comp. Gen. 612, supra.

Here there is credible evidence to support the FAA's determination (using acceptable theoretical coefficients) that the Sylvania unit would indeed prove capable of achieving the specified minimum standards. Since the calculations used to determine acceptability are clearly open to wide interpretation, we do not find that the FAA's judgment in accepting the Sylvania proposal was unreasonable. We will, however, monitor this program as part of our audit activities.

  
Deputy Comptroller General  
of the United States