



The Comptroller General
of the United States

Washington, D.C. 20548

Decision

Matter of: Aydin Vector Division of Aydin Corporation

File: B-229569

Date: March 11, 1988

DIGEST

1. Where solicitation for new model of high power amplifier for aircraft radio system provided that price would be less significant than technical factors and listed maintainability as one of the primary technical evaluation criteria, contracting agency did not act unreasonably in selecting for award higher-priced proposals offering a superior built-in fault detection capability.
2. Where the perceived weakness in protester's design for high power amplifier for aircraft radio system was inherent in the design itself rather than in any failure to explain the design, and a significant improvement in the amplifier would require a redesign for which adequate time was lacking, then it does not appear that any lack of detail in the notice of the deficiency provided during discussions deprived the protester of an opportunity to significantly improve its proposal.
3. Agency may provide for a cost realism analysis of fixed-price proposals for the purpose of measuring an offeror's understanding of the solicitation requirements.

DECISION

Aydin Vector Division of Aydin Corporation protests the Department of the Air Force's award of contracts to Rockwell International, Motorola, Inc., and M/A Com Microwave Power Devices, Inc., under request for proposals (RFP) No. F19628-87-R-0004, for the development of the Have Quick high power amplifier (HPA). Aydin disputes the Air Force's evaluation of proposals and alleges that the agency failed to conduct meaningful discussions.

We deny the protest.

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The solicitation requested proposals to design, fabricate, test and deliver three high power amplifiers, to be used for amplifying radio signals from the Have Quick radio systems installed in the F-15 and A-10 aircraft. The RFP indicated that the agency contemplated awarding as many as three fixed-price contracts on the basis of an evaluation of technical and cost/price considerations. In addition to providing for consideration of total price, the solicitation specified that the realism of proposed costs and the cost risk inherent in each proposal would be evaluated; these cost/price factors, although considered significant, were described as less important than technical factors. The solicitation provided for technical proposals to be evaluated on the basis of four factors of equal importance--reliability, maintainability, readiness for production, and system design and performance--and two factors of lesser importance--technical support and management.

Seven proposals were received in response to the solicitation; all were included in the competitive range. After conducting written and oral discussions with offerors, the Air Force requested the submission of best and final offers (BAFOs). Based upon its evaluation of BAFOs, the agency concluded that the HPA designs proposed by the first (Motorola--\$1,564,523), third (M/A Com--\$2,022,264), and fourth (Rockwell--\$2,150,217) low offerors offered the best performance with the least risk. Although Aydin offered the second lowest price (\$1,628,190), the Air Force determined that there was a significant risk that its proposed HPA would be unable to satisfy all of the performance requirements of the specifications and that necessary modifications to the design would result in Aydin failing to meet the solicitation delivery schedule. Upon learning of the ensuing awards to Motorola, M/A Com, and Rockwell, Aydin filed this protest with our Office.

Technical Evaluation

The Air Force found the technical approach proposed by the awardees to be superior to that proposed by Aydin in two areas: providing a built-in-test (BIT) capability and preventing excessive heat build-up in the HPA by means of other than a reduction in transmission power. Aydin disputes the agency's evaluation in both respects.

1. Built-In Test Capability

The solicitation required that the HPA include a BIT circuit that detects no less than 98 percent of all HPA faults. The BIT design set forth in Aydin's initial proposal did not include the capability for the HPA independently to generate a radio frequency signal for use in testing the status of

HPA components; the proposed BIT circuit relied on passive monitoring of HPA components when a radio signal transmitted from the Have Quick radio was not available. Agency evaluators concluded that passive monitoring would not detect failures in certain HPA components and that, therefore, the proposed BIT circuit could not meet the requirement to detect 98 percent of HPA faults when the HPA was set to receive (and the radio thus was not transmitting its own signal). Accordingly, the agency issued a deficiency notice informing Aydin that its proposal was "deficient because it does not clearly show how the requirements [for 98 percent fault detection] . . . will be met in the absence of keydown" (i.e., in the absence of a transmission from the Have Quick radio). Aydin responded that its approach provided "accurate fault diagnosis with minimal overhead," and maintained that the alternative approach of providing the capability to generate a separate internal radio signal would require the use of complex circuits that would need additional power and space and that, in any case, would decrease overall HPA reliability.

According to agency records, the deficiency report concerning Aydin's proposed BIT approach was discussed during subsequent oral negotiations. Although a purportedly contemporaneous memorandum prepared by Aydin personnel indicated that it was "hard to tell if [Air Force representatives were] . . . convinced that we do not need to include in the design a BIT Self Test [Signal] Generator," the agency indicated in the ensuing request for BAFOs that the BIT deficiency report remained valid. In its BAFO response, Aydin again defended its decision not to provide the capability for independently generating a BIT test signal. Although Aydin recognized that its reliance on passive monitoring of certain components in the absence of a transmitted signal from the Have Quick radio would preclude the detection of some failures, Aydin claimed its approach nevertheless would detect at least 98.6 percent of all failures, achieve higher reliability, and result in savings in cost, weight and size.

While the Air Force recognized that Aydin predicted a failure detection rate exceeding the solicitation requirement, and the agency did not find the proposal to be technically unacceptable in this regard, contracting officials nevertheless concluded that the inability to detect some failures could result in the proposed BIT circuit in fact not achieving the required 98 percent failure detection rate. The agency determined that Aydin's BIT design represented a moderate risk for the agency in the area of maintainability, one of the four primary technical evaluation criteria. The agency concluded that the approach of the awardees, on the other hand, would provide superior

fault detection with the least risk to the government; all of the awardees proposed internal radio frequency sources for generating test signals, as preferred by the Air Force.

The evaluation of technical proposals is primarily the responsibility of the contracting agency; the agency is responsible for defining its needs and the best method of accommodating them, and must bear the burden of any difficulties resulting from a defective evaluation. Accordingly, our Office will not make an independent determination of the merits of technical proposals; rather, we will examine the agency's evaluation to ensure that it was reasonable and consistent with stated evaluation criteria and applicable statutes and regulations. The protester bears the burden of showing that the evaluation is unreasonable, and the fact that it disagrees with the agency does not render the evaluation unreasonable. A clear showing of unreasonableness is particularly necessary where the procurement concerns sophisticated technical hardware. See GTE Government Systems Corp., B-222587, Sept. 9, 1986, 86-2 CPD ¶ 276.

We find nothing unreasonable in the Air Force's conclusions here. It was the agency's technical judgment, simply, that a passive BIT approach would not be of the highest reliability in fault detection when the radio is receiving instead of sending a signal. The Air Force did not reject this approach out of hand but, rather, ultimately determined that a BIT approach based on a separate, constant internal BIT signal would better permit constant fault monitoring, and that this would afford a more reliable means of keeping the radios maintained. Aydin takes the position that the components that would not be checked by passive monitoring (*i.e.*, when the HPA is receiving rather than sending a signal) are subjected to no stress during the receive mode and therefore have no established failure rates. According to the Air Force, however, components are in fact being stressed in the receive mode, and there are failure rates associated with all components while in the receive mode. Aydin itself acknowledged in its BAFO that its proposed passive monitoring BIT circuit would not detect some HPA faults, and that it would be necessary for the Have Quick radio to transmit a signal in order "to get a fully updated BIT status" check of all components. Again, we do not believe it was unreasonable under the evaluation criteria for the agency to rate this approach less desirable than one providing constant, automatic fault detection.

Aydin further argues that the Air Force failed to adequately advise the firm of the basis for this weakness. While, however, the relevant deficiency report did not specifically mention Aydin's failure to propose an internal, independent

radio test signal source, it clearly led Aydin into the area of the deficiency sufficiently to permit Aydin to respond. See Varian Associates, Inc., B-228545, Feb. 16, 1988, 88-1 CPD ¶ _____. In this regard, it is clear from Aydin's repeated explanations of its failure to offer this capability, as found in its initial response to the deficiency report and in its BAFO, and from its account of oral discussions, that Aydin in fact was aware that the agency was questioning the lack of an internal test signal source. As discussed above, Aydin made it clear in its response to the deficiency notice that it considered its proposed passive monitoring approach preferable to the independent signal approach. Accordingly, we find no merit to the allegation of inadequate discussions in this regard.

2. Thermal Requirements

The specifications required both that the HPA provide a minimum radio transmission power of 100 watts and that the maximum temperature of the HPA circuits not exceed 150°C. In its initial proposal, Aydin stated that while the rise in the temperature of the circuits when the HPA is transmitting will generally be offset by a drop in temperature when it is set to receive, this would not hold true at 70,000 feet; according to Aydin, as a result of the reduced efficiency at that altitude of its proposed approach to cooling, the temperature of the circuits "will not be maintained below an acceptable level without a reduction in . . . transmitted power."

The Air Force informed Aydin that the agency viewed as a deficiency Aydin's inability to guarantee that circuit temperatures within the proposed HPA would not exceed the solicitation ceiling of 150°C without a reduction in the specified transmission power of 100 watts; it also questioned Aydin's assumption that continued operation of the HPA would not result in a climb to a higher steady state temperature. In response, Aydin explained that its initial temperature analysis had been based on what it now viewed as a mistaken assumption as to the ambient air temperature at 70,000 feet; Aydin now claimed that no reduction in transmission power would be required when the correct temperature was taken into consideration, and that the maximum circuit temperatures at any altitude would not exceed 139.3°C.

The Air Force maintains, and Aydin denies, that it advised the firm during oral discussions that the agency still considered Aydin's thermal design to represent a risk. Aydin's calculations notwithstanding, the Air Force determined that the maximum circuit temperatures in Aydin's proposed HPA would reach at least 167°C. The agency found

that Aydin's revised thermal analysis failed sufficiently to take into account increases in peak temperature caused by fluctuations in the power dissipated by HPA components; such fluctuations could lead to peak power dissipation twice as high as average power dissipation. In addition, the agency believed that Aydin had assumed the wrong temperature for purposes of calculating the dissipation of heat by radiation.^{1/} Since, however, agency evaluators also concluded that relatively simple modifications of the design might reduce maximum circuit temperatures from 167°C to the 150°C limit, the agency did not include the deficiency report concerning Aydin's thermal analysis with the request for BAFOs. Nevertheless, the agency continued to believe that there existed a significant risk that circuit temperatures in Aydin's HPA would in fact either exceed 150°C, thereby increasing the stress on the circuits and reducing reliability, or force a significant reduction in transmission power below the required minimum of 100 watts in order to avoid excess temperatures. Moreover, the Air Force concluded that it was unlikely that additional reductions in maximum circuit temperatures sufficient to eliminate this risk could be achieved within the contract schedule since such corrective action would require rearranging the distribution of the high-power components within the HPA.

Aydin continues to maintain in its protest that maximum circuit temperatures in its proposed HPA would not exceed approximately 140°C under the operating conditions specified in the solicitation.

This issue essentially turns on an underlying disagreement on the proper thermal analysis approach. We note in this regard that Aydin has acknowledged in a technical analysis submitted with its comments on the agency report that Aydin's thermal analysis uses average power output rather than "the more complex case described [by the agency] of using peak power." Although Aydin considers its approach to be "equivalent" to the agency's, there is nothing in the record that would lead us to conclude that Aydin's approach, and not the agency's, is the correct one. See generally American Development Corp., B-224842, Jan. 7, 1987, 87-1 CPD ¶ 26.

^{1/} Since Aydin denies that the thermal analysis in its proposal relied upon radiation for the dissipation of heat, and maintains that, in any case, dissipation by radiation would be insignificant with its design, we need not consider the agency's position as to the correct temperature for calculating the effects of cooling by radiation.

In the absence of evidence that the Air Force's thermal analysis was otherwise significantly flawed to the prejudice of Aydin, we find that Aydin has failed to demonstrate that the agency lacked a reasonable basis for considering Aydin's thermal design to be no more than marginal at best and to represent a relative weakness. At any rate, there has been no showing of technical superiority in this area that would enable Aydin to offset the awardees' superiority in the area of BIT capability.

Aydin further contends that the Air Force failed to advise it of the perceived weaknesses in its thermal design and of the fact that the design was viewed as representing a risk. As indicated above, the Air Force states, although Aydin denies, that the firm was advised during oral discussions of the agency's evaluation. In any case, the issuance of a deficiency report concerning Aydin's thermal design clearly should have placed the firm on notice that the agency considered its approach to pose a risk. The fact that the agency did not again raise any problems it had with Aydin's thermal design when requesting BAFOs does not demonstrate that discussions were inadequate. The adequacy of discussions is judged by whether the offeror is informed of the deficiency and had an opportunity to revise its proposal; an agency is not required to help an offeror through a series of negotiations so as to improve its technical rating until it equals that of the other offerors. See Stewart and Stevenson Services, Inc., B-213949, Sept. 10, 1984, 84-2 CPD ¶ 268. Moreover, since it appears that the perceived weakness was in the design rather than in any failure to explain the design, and in view of the agency's conclusion that a significant reduction in maximum temperature below 150°C would require a substantial redesign, it does not appear that any lack of detail in the deficiency notice deprived the protester of an opportunity to significantly improve its proposal in this area.

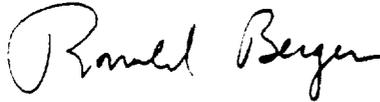
Cost Realism

Aydin alleges that the Air Force improperly considered cost realism in evaluating proposals, penalizing Aydin for submitting a low offer. The solicitation, however, specifically advised offerors that the agency would consider the "probable cost" of an offeror's technical approach and the realism of its "proposed costs." We have previously recognized that an agency may provide for a cost realism analysis in a solicitation for firm fixed-price proposals for the purpose of measuring an offeror's understanding of the solicitation requirements. See Sperry Corp., B-225492, et al., Mar. 25, 1987, 87-1 CPD ¶ 341.

The agency reports that it used the cost realism analysis in its examination of proposals for potential mistakes and to determine whether offerors understood the scope of the required work; it denies that Aydin's proposal price was affected by the analysis. We find nothing in the record that demonstrates that the agency conducted a cost realism analysis differing from that specified in the solicitation and used the results of the analysis for an improper purpose.

Given the reasonably perceived relative weakness of Aydin's proposal and the primary importance of technical considerations under the evaluation criteria, we see no basis to object to the contract awards.

The protest is denied.



James F. Hinchman
General Counsel