FREEDOM OF INFORMATION ACT *(FOIA)* RESPONSE AND INVOICE

REQUEST DATE	REQUEST NUMBER
20020916	02-535AB

TO	FROM
[redacted] ite 225	88 CG/SCCMF (FOIA Office) Building 676 Rm 150 2435 5th Street Area B Wright-Patterson AFB OH 45433

1. REQUESTED RECORDS

	COMPLETELY RELEASED	X	PARTIALLY RELEASABLE
X	DOCUMENTS ARE ATTACHED		
	DOCUMENTS WILL BE FORWARDED ON RECEIPT OF PAYMENT		
	DOCUMENTS MAY BE VIEWED AT THIS LOCATION *(Please call for an appointment)*		
	TIME EXTENSION IS REQUIRED BECAUSE		
	ALL OR PART OF THE REQUESTED RECORDS ARE NOT AT THIS LOCATION		
	VOLUMINOUS RECORDS MUST BE COLLECTED AND REVIEWED		
	RECORDS ARE BEING REVIEWED BY ANOTHER AGENCY FOR POSSIBLE RELEASE		
	WE HOPE TO PROVIDE A FINAL DECISION BY _____		

2. THE COSTS OF PROVIDING THESE DOCUMENTS ARE INDICATED BELOW

REQUEST ACTIONS	RATE	MATERIAL	TIME	COST
SEARCH *(Hourly)*				
REVIEW *(Hourly)*	$44.00		5.00	$220.00
COPY *(Page)*	$0.15	226		$33.90
COMPUTER MACHINE TIME *(Hourly)*				
COMPUTER OPERATOR TIME *(Hourly)*				
COMPUTER TAPES				
OTHER				
			TOTAL AMOUNT DUE	$253.90

3.Send your check or money order payable to "US DEPARTMENT OF TREASURY " with a copy of this invoice within 30 days. *(Future requests will not be processed until payment is received.)*	3A. MAIL TO 88 CG/SCCMF (FOIA) 2435 5th Street WPAFB OH 45433

4. THIS ACKNOWLEDGES RECEIPT OF YOUR CHECK OR MONEY ORDER FOR PAYMENT OF REQUESTED DOCUMENTS

NUMBER	DATE	AMOUNT

5. ALL OR PART OF THE INFORMATION YOU REQUESTED IS NOT AVAILABLE AT THIS INSTALLATION. WE HAVE FORWARDED YOUR REQUEST TO THE FOLLOWING LOCATION FOR ACTION WITH DIRECT RESPONSE TO YOU.

6. COMMENTS

Attachments
1. Denial letter
2. Request
3. Released Records

Point of Contact is Abby Boggs (937) 904-8203

7. FREEDOM OF INFORMATION ACT MANAGER

NAME AND PHONE	SIGNATURE	DATE
SHEREE M. COON (937) 904-8207	Sheree M. Coon	18 Nov 02

AFMC FORM 556, 19950201 *(EF-V4)* REPLACES AFMC 556, JUL 92 WHICH IS OBSOLETE

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 88TH AIR BASE WING (AFMC)
WRIGHT-PATTERSON AIR FORCE BASE OHIO

14 NOV 2002

88 ABW/JA
5135 Pearson Road RM 129
Wright-Patterson AFB OH 45433-5321

INPUT
Kim Neblett
14900 Conference Center Drive
Suite 225
Chantilly VA 20151

Dear Ms Neblett

This is in response to your 16 September 2002 Freedom of Information Act (FOIA) request for a copy of contract F33657-01-C-0025. The FOIA control number assigned to your initial request is 02-535AB.

The records you have requested are partially exempt from disclosure. Specifically, some sections you requested contain commercial and financial information that the Government received with the understanding that the information will be retained on a privileged or confidential basis in accordance with the customary handling of such records. Release of this information would likely cause substantial harm to the competitive position of the source providing the information; impair the Government's ability to obtain the necessary information in the future; or impair some other legitimate Government interest. **The authority for this exemption can be found in the United States Code, Title 5, Section 552 (b)(4).**

If you decide to appeal this decision, write to the Secretary of the Air Force within 60 calendar days from the date of this letter. Include in the appeal your reasons for reconsideration and attach a copy of this letter. Address your letter as follows:

Secretary of the Air Force
THRU: 88 CG/SCCMF
Bldg 676, Area B
2435 5th Street Rm 150
Wright-Patterson AFB OH 45433-7802

Sincerely

MICHAEL L. COLOPY, Colonel, USAF
Staff Judge Advocate

2 Atchs
1. Initial Request
2. Released Documents

SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS

OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, & 30

1. REQUISITION NUMBER

2. CONTRACT NO. F33657-01-C-0025

3. AWARD/EFFECTIVE DATE 02 APR 2002

4. ORDER NUMBER

5. SOLICITATION NUMBER

6. SOLICITATION ISSUE DATE

7. FOR SOLICITATION INFORMATION CALL:

a. NAME

b. TELEPHONE NUMBER (No collect calls)

8. OFFER DUE DATE/ LOCAL TIME

9. ISSUED BY ASC/YWM CODE FA8621

USAF/AFMC
HQ AERONAUTICAL SYSTEMS CENTER
2300 D STREET
WRIGHT-PATTERSON AFB OH 45433-7249
JACK K. MYLAN (937) 255-7288 X3464
Jack.Mylan@wpafb.af.mil

10. THIS ACQUISITION IS
- [ ] UNRESTRICTED
- [ ] SET ASIDE: % FOR
  - [ ] SMALL BUSINESS
  - [ ] HUBZONE SMALL BUSINESS
- [ ] 8(A)

NAICS:
SIZE STANDARD:

11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED
- [x] SEE SCHEDULE

12. DISCOUNT TERMS N

- [x] 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)

13b. RATING DO-C9

14. METHOD OF SOLICITATION
- [ ] RFQ
- [ ] IFB
- [ ] RFP

15. DELIVER TO CODE

SEE SF1449 Continuation

16. ADMINISTERED BY CODE S3605A

DCMA DAYTON
AREA C BUILDING 30
1725 VAN PATTON DRIVE
WRIGHT-PATTERSON AFB OH 45433-5302

SCD: C PAS: (NONE)

17a. CONTRACTOR/ OFFEROR CODE 2AA91 FACILITY CODE

ADACEL SYSTEMS, INC.
860 GREENVIEW DRIVE
GRAND PRAIRIE TX 75050

TELEPHONE NO. (972) 522-9100

18a. PAYMENT WILL BE MADE BY CODE HQ0337

DFAS-CO/NORTH ENTITLEMENT OPER
P O BOX 182266
COLUMBUS OH 43218-2266

- [ ] 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER

18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a. UNLESS BLOCK BELOW IS CHECKED
- [ ] SEE ADDENDUM

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
	See SF1449 Continuation *(Attach Additional Sheets as Necessary)*				

25. ACCOUNTING AND APPROPRIATION DATA

26. TOTAL AWARD AMOUNT *(For Govt. Use Only)* $3,057,586.00

- [ ] 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA [ ] ARE [ ] ARE NOT ATTACHED.
- [x] 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA [x] ARE [ ] ARE NOT ATTACHED.

28. [x] CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 1 COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED HEREIN.

29. [ ] AWARD OF CONTRACT: REF. ____ OFFER DATED ____. YOUR OFFER ON SOLICITATION (BLOCK 5) ____ INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS: SEE CONTINUATION.

30a. SIGNATURE OF OFFEROR/CONTRACTOR

31a. UNITED STATES OF AMERICA *(SIGNATURE OF CONTRACTING OFFICER)*

30b. NAME AND TITLE OF SIGNER (Type or print)

30c. DATE SIGNED

31b. NAME OF CONTRACTING OFFICER (Type or print) DAN PENNINGTON

31c. DATE SIGNED

32a. QUANTITY IN COLUMN 21 HAS BEEN
- [ ] RECEIVED
- [ ] INSPECTED
- [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED ____

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER
- [ ] PARTIAL
- [ ] FINAL

34. VOUCHER NUMBER

35. AMT VERIFIED CORRECT FOR

36. PAYMENT
- [ ] COMPLETE
- [ ] PARTIAL
- [ ] FINAL

37. CHECK NUMBER

38. S/R ACCT NUMBER

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY (Print)

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MMM/DD)*

42d. TOTAL CONTAINERS

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount
0001			
	Noun: TOWER SIMULATION SYSTEM (TSS) *NSN:* N - Not Applicable		
0001AA		4 Each	[redacted]
	Noun: TOWER SIMULATION SYSTEM (CY02) *ACRN:* AA *NSN:* N - Not Applicable *Contract type:* J - FIRM FIXED PRICE *Inspection:* DESTINATION *Acceptance:* DESTINATION *FOB:* DESTINATION *Descriptive Data:*		

The contractor shall provide all necessary management, resources, and effort to provide Tower Simulation Systems (TSS) in accordance with the Statement of Work and Product Specification attached at Section J. The TSS shall consist of hardware, software, firmware, databases, and documentation required to support the simulation of the air traffic control tower environment. As part of this effort, the contractor shall provide system assembly, installation, checkout and host base interface at the delivery site. The contractor shall also provide training and training materials to include class II+ Computer Based Training (CBT) in the use and operation of the system and scenario generation, to include on site training (train the trainer) of selected personnel in accordance with the Statement of Work and Product Specification attached at Section J as part of this effort. This line item price was derived using the prices as set forth in Attachment 5, Variable Pricing Matrix. The price includes the software license fees for the life of the TSS as delivered. Schedule for delivery locations and required delivery dates are identified in Section F, Delivery Schedule.

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount
0001AB	OPTION CLIN		

Noun: TOWER SIMULATION SYSTEM (CY03)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to provide Tower Simulation Systems (TSS) in accordance with the Statement of Work and Product Specification attached at Section J. The TSS shall consist of hardware, software, firmware, databases, and documentation required to support the simulation of the air traffic control tower environment. As part of this effort, the contractor shall provide system assembly, installation, checkout and host base interface at the delivery site. The contractor shall also provide training and training materials to include class II+ Computer Based Training (CBT) in the use and operation of the system and scenario generation, to include on site training (train the trainer) of selected personnel in accordance with the Statement of Work and Product Specification attached at Section J as part of this effort. This option may be exercised in accordance with Special Provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived). The number of units to be purchased and delivery schedule are dependent upon the variable pricing matrix, Attachment 5. The price includes the software license fees for the life of the TSS as delivered. Delivery locations will be identified upon exercise of this option.

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount
0001AC	OPTION CLIN		

Noun: TOWER SIMULATION SYSTEM (CY04)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to provide Tower Simulation Systems (TSS) in accordance with the Statement of Work and Product Specification attached at Section J. The TSS shall consist of hardware, software, firmware, databases, and documentation required to support the simulation of the air traffic control tower environment. As part of this effort, the contractor shall provide system assembly, installation, checkout and host base interface at the delivery site. The contractor shall also provide training and training materials to include class II+ Computer Based Training (CBT) in the use and operation of the system and scenario generation, to include on site training (train the trainer) of selected personnel in accordance with the Statement of Work and Product Specification attached at Section J as part of this effort. This option may be exercised in accordance with Special Provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived). The number of units to be purchased and delivery schedule are dependent upon the variable pricing matrix, Attachment 5. The price includes the software license fees for the life of the TSS as delivered. Delivery locations will be identified upon exercise of this option.

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount
0001AD	OPTION CLIN		

Noun: TOWER SIMULATION SYSTEM (CY05)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to provide Tower Simulation Systems (TSS) in accordance with the Statement of Work and Product Specification attached at Section J. The TSS shall consist of hardware, software, firmware, databases, and documentation required to support the simulation of the air traffic control tower environment. As part of this effort, the contractor shall provide system assembly, installation, checkout and host base interface at the delivery site. The contractor shall also provide training and training materials to include class II+ Computer Based Training (CBT) in the use and operation of the system and scenario generation, to include on site training (train the trainer) of selected personnel in accordance with the Statement of Work and Product Specification attached at Section J as part of this effort. This option may be exercised in accordance with Special Provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived). The number of units to be purchased and delivery schedule are dependent upon the variable pricing matrix, Attachment 5. The price includes the software license fees for the life of the TSS as delivered. Delivery locations will be identified upon exercise of this option.

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount
0001AE	OPTION CLIN		

Noun: TOWER SIMULATION SYSTEM (CY06)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to provide Tower Simulation Systems (TSS) in accordance with the Statement of Work and Product Specification attached at Section J. The TSS shall consist of hardware, software, firmware, databases, and documentation required to support the simulation of the air traffic control tower environment. As part of this effort, the contractor shall provide system assembly, installation, checkout and host base interface at the delivery site. The contractor shall also provide training and training materials to include class II+ Computer Based Training (CBT) in the use and operation of the system and scenario generation, to include on site training (train the trainer) of selected personnel in accordance with the Statement of Work and Product Specification attached at Section J as part of this effort. This option may be exercised in accordance with Special Provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived). The number of units to be purchased and delivery schedule are dependent upon the variable pricing matrix, Attachment 5. The price includes the software license fees for the life of the TSS as delivered. Delivery locations will be identified upon exercise of this option.

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0001AF OPTION CLIN

Noun: TOWER SIMULATION SYSTEM (CY07)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to provide Tower Simulation Systems (TSS) in accordance with the Statement of Work and Product Specification attached at Section J. The TSS shall consist of hardware, software, firmware, databases, and documentation required to support the simulation of the air traffic control tower environment. As part of this effort, the contractor shall provide system assembly, installation, checkout and host base interface at the delivery site. The contractor shall also provide training and training materials to include class II+ Computer Based Training (CBT) in the use and operation of the system and scenario generation, to include on site training (train the trainer) of selected personnel in accordance with the Statement of Work and Product Specification attached at Section J as part of this effort. This option may be exercised in accordance with Special Provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived). The number of units to be purchased and delivery schedule are dependent upon the variable pricing matrix, Attachment 5. The price includes the software license fees for the life of the TSS as delivered. Delivery locations will be identified upon exercise of this option.

0002

Noun: TRAINING SYSTEM SUPPORT CENTER (TSSC)
NSN: N - Not Applicable

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0002AA OPTION CLIN

Noun: TSSC (CY 03)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

0002AB OPTION CLIN

Noun: TSSC (CY 04)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0002AC OPTION CLIN

Noun: TSSC (CY 05)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

0002AD OPTION CLIN

Noun: TSSC (CY 06)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0002AE OPTION CLIN

Noun: TSSC (CY 07)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

0002AF OPTION CLIN

Noun: TSSC (CY 08)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0002AG OPTION CLIN

Noun: TSSC (CY 09)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

0002AH OPTION CLIN

Noun: TSSC (CY 10)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0002AJ OPTION CLIN

Noun: TSSC (CY 11)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

0003 OPTION CLIN

Noun: TECHNICAL REFURBISHMENT STUDY
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall conduct a study to determine cost savings, feasibility, performance enhancements and price of exercising a technology refurbishment on TSS in accordance with the Statement of Work and Product Specification. This option may be exercised in accordance with special provision SP-002. The price of this option is [redacted].

0004

Noun: CONTRACTOR LOGISTIC SUPPORT (CLS)
NSN: N - Not Applicable

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0004AA OPTION CLIN

Noun: CLS (CY 03)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide CLS for the TSS in accordance with the Product Specification and Statement of Work in Section J. This support shall include the on-call support for all TSS simulators, as well as all supply and depot support. This option may be exercised in accordance with special provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived).

0004AB OPTION CLIN

Noun: CLS (CY 04)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide CLS for the TSS in accordance with the Product Specification and Statement of Work in Section J. This support shall include the on-call support for all TSS simulators, as well as all supply and depot support. This option may be exercised in accordance with special provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived).

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0004AC OPTION CLIN

Noun: CLS (CY 05)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide CLS for the TSS in accordance with the Product Specification and Statement of Work in Section J. This support shall include the on-call support for all TSS simulators, as well as all supply and depot support. This option may be exercised in accordance with special provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived).

0004AD OPTION CLIN

Noun: CLS (CY 06)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide CLS for the TSS in accordance with the Product Specification and Statement of Work in Section J. This support shall include the on-call support for all TSS simulators, as well as all supply and depot support. This option may be exercised in accordance with special provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived).

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0004AE OPTION CLIN

Noun: CLS (CY 07)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide CLS for the TSS in accordance with the Product Specification and Statement of Work in Section J. This support shall include the on-call support for all TSS simulators, as well as all supply and depot support. This option may be exercised in accordance with special provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived).

0004AF OPTION CLIN

Noun: CLS (CY 08)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide CLS for the TSS in accordance with the Product Specification and Statement of Work in Section J. This support shall include the on-call support for all TSS simulators, as well as all supply and depot support. This option may be exercised in accordance with special provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived).

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0004AG OPTION CLIN

Noun: CLS (CY 09)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide CLS for the TSS in accordance with the Product Specification and Statement of Work in Section J. This support shall include the on-call support for all TSS simulators, as well as all supply and depot support. This option may be exercised in accordance with special provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived).

0004AH OPTION CLIN

Noun: CLS (CY 10)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide CLS for the TSS in accordance with the Product Specification and Statement of Work in Section J. This support shall include the on-call support for all TSS simulators, as well as all supply and depot support. This option may be exercised in accordance with special provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived).

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount
0004AJ	OPTION CLIN		

Noun: CLS (CY 11)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall provide CLS for the TSS in accordance with the Product Specification and Statement of Work in Section J. This support shall include the on-call support for all TSS simulators, as well as all supply and depot support. This option may be exercised in accordance with special provision SP-002. The prices for this line item will be derived using the prices as set forth in Attachment 5, Variable Pricing Matrix (see example in Attachment 5 for how the prices will be derived).

0005

Noun: DATA PACKAGE -- EXHIBIT A
NSN: N - Not Applicable

0005AA		1 Lot	NSP NSP

Noun: DATA PACKAGE -- EXHIBIT A (CY 02)
ACRN: U
NSN: N - Not Applicable
DD1423 is Exhibit: A
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit A, Attachment 4, attached at Section J.

0005AB OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT A (CY 03)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit A, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0005AC OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT A (CY 04)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit A, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0005AD OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT A (CY 05)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit A, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0005AE OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT A (CY 06)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit A, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0005AF OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT A (CY 07)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit A, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0005AG OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT A (CY 08)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit A, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0005AH OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT A (CY 09)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit A, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0005AJ OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT A (CY 10)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit A, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0005AK OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT A (CY 11)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit A, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0006 1 Each [redacted]

Noun: TRAINING AND TRAINING MEDIA
ACRN: AA
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION

0007

Noun: DATA PACKAGE -- EXHIBIT B
NSN: N - Not Applicable

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0007AA OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT B (CY 03)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit B, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0007AB OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT B (CY 04)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit B, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0007AC OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT B (CY 05)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit B, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0007AD OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT B (CY 06)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit B, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0007AE OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT B (CY 07)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit B, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0007AF OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT B (CY 08)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit B, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0007AG OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT B (CY 09)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit B, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0007AH OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT B (CY 10)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit B, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

0007AJ OPTION CLIN

Noun: DATA PACKAGE -- EXHIBIT B (CY 11)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:
The contractor shall submit data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit B, Attachment 4, attached at Section J. This option may be exercised in accordance with special provision SP-002. The price of this option is Not Seperately Priced.

ITEM	SUPPLIES SCHEDULE DATA	QTY	SHIP TO	MARK FOR	TRANS PRI	DATE
0001AA		1	U			30 Sep 2002
		1	U			15 Nov 2002
		1	U			18 Dec 2002
		1	U			14 Feb 2003

Noun: TOWER SIMULATION SYSTEM (CY02)
ACRN: AA
Descriptive Data:
The delivery locations and schedule for the 4 systems procurred in FY 02 is:

1st System -- Delivered to Eglin Air Force Base, FL -- 30 Sep 02
2nd System -- Delivered to Barksdale Air Force Base, LA -- 15 Nov 02
3rd System -- Delivered to Little Rock Air Force Base, AR -- 18 Dec 02
4th System -- Delivered to Grand Forks Air Force Base, ND -- 14 Feb 03

0005AA		1	U			31 Dec 2002

Noun: DATA PACKAGE -- EXHIBIT A (CY 02)
ACRN: U
Descriptive Data:
Deliver data in accordance with the DD Forms 1423, Contract Data Requirements List, Exhibit A, Attachment 4, attached at Section J.

0006		1	U			30 Sep 2002

Noun: TRAINING AND TRAINING MEDIA
ACRN: AA

ACRN	Appropriation/Lmt Subhead/Supplemental Accounting Data	Obligation Amount
AA		$3,057,586.00

57 23080 172 3650 833016 000000 00000 35114F 503000 F78100
PR/MIPR: NGAXMX02682078 $3,057,586.00

1. FAR 52.212-04 ADDENDUM TO CONTRACT TERMS AND CONDITIONS--COMMERCIAL ITEMS (May 2001)

52.212-4, Contract Terms and Conditions -- Commercial Items is hereby tailored as follows:

(a) The place of inspection, acceptance, and FOB is destination as shown in Section F. See SP-008 for additional inspection and acceptance requirements.

(i) See Special Provision 005 for additional payment requirements.

(o) See Special Provision 004 for additional warranty requirements.

(t) Special Provisions:

SP-001 REDIRECTION OF EFFORT

Notwithstanding any other provisions of this contract, the assigned Contracting Officer shall be the only individual authorized to redirect the effort or in any way amend any of the terms or conditions of this contract.

SP-002 OPTIONS

The Government is hereby granted the unilateral right to acquire any or all of the supplies and services identified in Section B as option CLINs and/or SubCLINs by 31 Dec of the preceding calendar year as identified in Attachment 5 (e.g., the Government would have until 31 Dec 03 to exercise SubCLIN 0002AB (CY04)).

Upon exercise of the option, the appropriate information in Sections B, F, and G of this contract shall be revised accordingly.

The options for SubCLINs 0001AB through 0001AF do not have to be exercised consecutively (e.g., the Government may not exercise SubCLIN 0001AE in 2006 but shall still have the right to exercise SubCLIN 0001AF in 2007). In the event the government does not exercise CLIN 0001 consecutively, the government will provide a letter of the intent to exercise the next SubCLIN option 90 days prior to exercise.

The period of performance for CLINs 0002, 0004, 0005 and 0007 ends on 31 Dec of the option year exercised (e.g., if the Government exercises the option for SubCLIN 0002AB (CY04) in Nov 03, the period of performance would end on 31 Dec 04). CLINs 0002 and 0004 must be exercised consecutively.

The period of performance for CLIN 0003 shall be from Award of Option (AO) in CY04 to delivery no later than 1 September 2004.

The amount of CLS dollars to be exercised for CLIN 0004 is dependent upon the number of systems coming out of warranty during the calendar year exercised. The assumption is that the items will be delivered at the first of the month. For example, based upon the CY 02 buy (SubCLIN 0001AA), the CLS support for CY 03 (SubCLIN 0004AA) is derived as follows:
The items procured in CY 02 will be coming out of warranty in
Eglin TSS 30 Sep 03
Barksdale TSS 15 Nov 03
Little Rock TSS 18 Dec 03
Thus in CY 03 Eglin will require 4 months of CLS (Sept, Oct, Nov, Dec) Barksdale will require 2 months (Nov, Dec) and Little Rock will require one month (Dec).

Next take the yearly CLS price for CY 03 (SubCLIN 0004AA) in attachment 5, [redacted] and divide it by 12 to get [redacted]. As a result Eglin's CLS price would be (4 months X [redacted]) [redacted]; Barksdale CLS price would be (2 months X [redacted]) [redacted]; and Little Rock CLS price would be (1 month X [redacted]) [redacted]; for a total CLS SubCLIN 0004AA value of [redacted] + [redacted] + [redacted]) [redacted].

SP-003 ACKNOWLEDGEMENT OF SPONSORSHIP

(a) The contractor agrees that in the release of information relating to this contract such release shall include a statement to the effect that the project or effort depicted was or is sponsored by the agency set forth below:

Aeronautical Systems Center
Wright-Patterson AFB, OH

Prior to public release, this information will be processed through the ASC Office of Public Affairs, according to the administrative guidelines of that office.

(b) For the purpose of this clause, "information" includes but is not limited to, news releases, articles, manuscripts, brochures, advertisements, still and motion pictures, speeches, trade association meetings, symposia, etc.

(c) Nothing in the foregoing shall affect compliance with the requirements of the clause of this contract entitled "Privacy and Security Safeguards" or other security requirements of this contract.

(d) The contractor further agrees to include this clause in any subcontract awarded as a result of this contract.

SP-004 WARRANTY

(o) WARRANTY. Contractor warrants that upon acceptance the parts and components of the TSS devices as specified in the contract will be free from defects in workmanship and material. The contractor under this warranty shall cover all maintenance and repairs of the TSS, unless the cause of repair is a direct result of government misuse of the system. The Contractor shall repair a failed training device within 3 days of notification for CONUS locations and 7 days for overseas locations with the exception of Ascension, Soto Cano, and Thule AB, which are subject to transportation availability or severe weather problems. For those sites, the repair shall be made 7 days after the first available flight to the site.

Government and contractor hereby agree that contractor's obligation and Government's exclusive remedy under the aforesaid warranty are limited to the maintenance and correction or replacement of repair items. Contractor's obligation hereunder shall remain in effect for a period of one (1) year from the date of acceptance of the supplies specified in this contract. This warranty is a "bumper-to-bumper" warranty and the contractor shall pay all costs associated with maintaining the system during the warranty period including as a minimum, any incurred costs for removal, transportation or reinstallation of such supplies.

The aforesaid warranties and Government's remedies thereunder are solely for the benefit of Government and shall not, without the written consent of contractor, be extended or construed to extend to any other person whatsoever.

SP-005 CONTRACT PAYMENT PROVISIONS

(i) CONTRACT PAYMENT PROVISIONS. This provision applies to the following Contract Line Item Numbers (CLIN): 0001, 0002, 0003, 0004, 0005, 0006 and 0007.

The contractor shall receive financing payments in accordance with the provisions of FAR 52.232-29, Terms for Financing of Purchases of Commercial Items, and this provision. Advance and/or interim payments shall not be subject to the provisions of the Prompt Payment Act. Final delivery payments shall be made only for completed supplies and services accepted by the Government in accordance with the terms of the contract. The Government shall have access, for the purpose of verifying the contractor's entitlement to payment of contract financing, to any TSS items, facilities, or data of the contractor or its subcontractor, deemed necessary by the Contracting Officer.

The Contracting Officer may unilaterally withhold a percentage or totally suspend the financing payments when the contractor fails to perform to the contract requirements.

The contractor's financial condition has been accepted as adequate security for commercial financing payments. The Government reserves the right to require other security under paragraph (c), Security for Government Financing, of the clause at 52.232-29, Terms for Financing of Purchases of Commercial Items, in the event the contractor's financial condition changes and is found not to be adequate security.

The Administrative Contracting Officer will administer the financing payments on this contract.

1) TOWER SIMULATION SYSTEM (SubCLINs 0001AA through 0001AF) The below payment events apply to each TSS procurred.

EVENT	% of Per Unit Price	CUM %
Initial Payment	10%	10%
Receipt of Hardware in Plant	50%	60%
Site Survey	15%	75%
Installation of TSS	15%	90%
Liquidation at Final delivery	10%	100%

EXIT CRITERIA

Initial Payment:
Upon contract award and exercise of option(s).

Receipt of Hardware In Plant:
The contractor shall receive as a minimum the following hardware items in plant: 7 Image Generators, Display System (6 channel IG screens with projectors), Computer Systems (10 PCs and 1 voice communication system server), and Consoles/table (3 student, 1 coordinator and 1 instructor workstations). Verification by designated government personnel is required. If the offeror drop ships the hardware directly from the vendor to the sites, this event is nullified and the 50% amount will be added to the installation event.

Site Survey:
Completion of the site survey and upon receipt of the survey report to the program office.

Installation of TSS:
Successful completion of the acceptance test by the Government.
All discrepancies/deficiencies are corrected by the contractor and verified as closed by the government.
(The use of this payment event is predicated on the use of a two-phase database development approach; if a single database is to be delivered then the installation event is nullified and the 15% amount will be added to the liquidation at final delivery amount.)

Liquidation amount at final delivery:
Delivery of all site specific data (i.e. local visual database) and all other Tower Simulation System effort is complete.

2) TRAINING SYSTEM SUPPORT CENTER (TSSC) (SubCLINs 0002AA through 0002AJ)
Monthly payments in the amount of 1/12 of the annual TSSC payment shall be made upon submission of properly prepared invoices to the cognizant ACO. Each invoice for monthly payment shall cite the contract number and line item.

3) TECHNICAL REFURBISHMENT STUDY (CLIN 0003)

EVENT	% of CLIN Price	CUM %
Initial Payment	10%	10%
Liquidation amount at final delivery (DD 250)	90%	100%

EXIT CRITERIA

Initial Payment:
Upon issuance of contract modification exercising option.

Liquidation amount at final delivery (DD 250):
All other associated CLIN effort is completed.

4) CONTRACTOR LOGISTICS SUPPORT (SubCLINs 0004AA through 0004AJ)
Monthly payments in the amount of 1/12 of the annual CLS payment shall be made upon submission of properly prepared invoices to the cognizant ACO. Each invoice for monthly payment shall cite the contract number and line item.

5) TRAINING AND TRAINING MEDIA (CLIN 0006)

EVENT	% of CLIN	CUM %
Initial Payment	10%	10%
Liquidation amount at final delivery	90%	100%

EXIT CRITERIA
Initial Payment:
Upon Contract Award.

Liquidation amount at final delivery:
Government acceptance of the on-site training program.

SP-006 QUALITY

In addition to the terms set forth elsewhere in the contract, the Contractor shall meet the following requirements as addressed below. Also the Government reserves the right to verify any of these areas during any period where services/supplies are being performed/produced. The Government may perform reviews and audits as necessary for verification of contract requirements. If any deficiencies are noted the Government reserves the right to request from the Contractor a written or verbal reply as to what Corrective Action the Contractor plans to take.

a. The Contractor shall allow for, and encourage Government participation in any Working Groups (WGs). All WG documentation shall be made available for use by the Government to determine conformance with contract requirements.

b. The Contractor shall provide and maintain an inspection system that will assure that all supplies and services submitted to the Government for acceptance conform to contract requirements. The Contractor's inspection system shall be documented and be available for review by the Government. This inspection system shall cover Inspection and Testing, Corrective Action, Change Control, Calibration, Control of nonconforming Material, and Process Control.

SP-007 COMPONENT SUBSTITUTION/TECHNICAL REFRESHMENT

The Contractor may substitute TSS component parts or subassemblies when the original product is no longer available or economically supportable in the commercial marketplace as long as the TSS meets the Product Specification. The Contractor may substitute current TSS component parts or subassemblies when the original product is still available, provided the TSS meets the Product Specification. The Contractor shall maintain configuration control of the TSS baselines at the Training System Support Center. For informational purposes, the Contractor shall notify the Contracting Officer in writing whenever there is a substitution of a component or subassembly and the reason for the substitution.

SP-008 INSPECTION/ACCEPTANCE

CLIN 0001 and all subsequent SubCLINs:
The contractor shall provide a completed DD Form 250 with the TSS at the time of delivery to each site. The Government point of contact for the site will sign Block 22 of the DD Form 250 when the TSS has successfully completed on-site acceptance testing. The contractor shall forward by mail the signed DD Form 250 along with any attachments to the Procuring Contracting Officer (PCO) for final acceptance.

CLINs 0002, 0004, 0005, 0007 and all subsequent SubCLINs:
A DD Form 250 is not required for these line items. The contractor may submit an invoice directly to the ACO for final payment with a courtesy copy to the PCO.

CLIN 0003
The contractor shall provide a completed DD Form 250 with the study to the PCO for final acceptance.

CLIN 0006
The contractor shall provide a completed DD Form 250 at the time of delivery of the first TSS unit for final acceptance.

SP-009 Escrow Agreement

The contractor shall deposit the MaxSim 3.2 software and all revisions received by the Government into an escrow account. The required Escrow Agreement shall be mutually agreed to by the parties and satisfactorily executed within 30 days of completion of first TSS Site Acceptance Test. The Escrow Agreement, once executed by the parties, shall become Attachment 2 to the contract.

2. FAR 52.212-05 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS--COMMERCIAL ITEMS (May 2001)

(a) The Contractor shall comply with the following FAR clauses, which are incorporated in this contract by reference, to implement provisions of law or executive orders applicable to acquisitions of commercial items:

(1) 52.222-3, Convict Labor (E.O. 11755);

(2) 52.233-3, Protest after Award (31 U.S.C 3553).

(b) The Contractor shall comply with the FAR clauses in this paragraph (b) which the contracting officer has indicated as being incorporated in this contract by reference to implement provisions of law or executive orders applicable to acquisitions of commercial items or components:

☒ (1) 52.203-06, Restrictions on Subcontractor Sales to the Government (Jul 1995), with Alternate I (Oct 1995) (41 U.S.C. 253g and 10 U.S.C. 2402).

☒ (3) 52.219-04, Notice of Price Evaluation Preference for HUBZone Small Business Concerns (Jan 1999). (If the offeror elects to waive the preference, it shall so indicate in its offer.)

☒ (5) 52.219-08, Utilization of Small Business Concerns (Oct 1999) (15 U.S.C. 637 (d)(2) and (3)).

☒ (11) 52.222-21, Prohibition of Segregated Facilities (Feb 1999).

☒ (12) 52.222-26, Equal Opportunity (FEB 1999)(E.O. 11246).

☒ (13) 52.222-35, Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era (Apr 1998) (38 U.S.C. 4212).

☒ (14) 52.222-36, Affirmative Action for Workers with Disabilities (Jun 1998) (29 U.S.C. 793).

☒ (15) 52.222-37, Employment Reports on Disabled Veterans and Veterans of the Vietnam Era (Jan 1999) (38 U.S.C. 4212).

☒ (16) 52.222-19, Child Labor--Cooperation with Authorities and Remedies (Dec 2001) (E.O. 13126).

☒ (18) 52.225-01, Buy American Act - Balance of Payments -- Supplies (Feb 2000) (41 U.S.C. 10a - 10d).

☒ (24) 52.232-33, Payment by Electronic Funds Transfer-Central Contractor Registration (May 1999) (31 U.S.C. 3332).

☒ (26) 52.232-36, Payment by Third Party (May 1999)(31 U.S.C. 3332).

(c) The Contractor shall comply with the FAR clauses in this paragraph (c), applicable to commercial services, which the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or executive orders applicable to acquisitions of commercial items or components:

(d) Comptroller General Examination of Record. The Contractor agrees to comply with the provisions of this paragraph (d) if this contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, and does not contain the clause at 52.215-2, Audit and Records -- Negotiation.

(1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to and right to examine any of the Contractor's directly pertinent records involving transactions related to this contract.

(2) The Contractor shall make available at its offices at all reasonable times the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR Subpart 4.7, Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.

(3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of form. This does not require the Contractor to

create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e) Notwithstanding the requirements of the clauses in paragraphs (a), (b), (c) or (d) of this clause, the Contractor is not required to include any FAR clause, other than those listed below (and as may be required by an addenda to this paragraph to establish the reasonableness of prices under Part 15), in a subcontract for commercial items or commercial components --

(1) 52.222-26, Equal Opportunity (E.O.11246);

(2) 52.222-35, Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era (38 U.S.C.4212);

(3) 52.222-36, Affirmative Action for Workers with Disabilities (29 U.S.C.793); and

(4) 52.247-64, Preference for Privately-Owned U.S.- Flagged Commercial Vessels (46 U.S.C.1241) (flowdown not required for subcontracts awarded beginning May 1, 1996).

(5) 52.222-41, Service Contract Act of 1965, As Amended (41 U.S.C. 351, et. seq.).

3. FAR 52.229-06 TAXES – FOREIGN FIXED-PRICE CONTRACTS (Jan 1991)

(a) To the extent that this contract provides for furnishing supplies or performing services outside the United States, its possessions, and Puerto Rico, this clause applies in lieu of any Federal, State, and local taxes clause of the contract.

(b) "Contract date," as used in this clause, means the date set for bid opening or, if this is a negotiated contract or a modification, the effective date of this contract or modification.

"Country concerned," as used in this clause, means any country, other than the United States, its possessions, and Puerto Rico, in which expenditures under this contract are made.

"Tax" and "taxes," as used in this clause, include fees and charges for doing business that are levied by the government of the country concerned or by its political subdivisions.

"All applicable taxes and duties," as used in this clause, means all taxes and duties, in effect on the contract date, that the taxing authority is imposing and collecting on the transactions or property covered by this contract, pursuant to written ruling or regulation in effect on the contract date.

"After-imposed tax," as used in this clause, means any new or increased tax or duty, or tax that was exempted or excluded on the contract date but whose exemption was later revoked or reduced during the contract period, other than excepted tax, on the transactions or property covered by this contract that the Contractor is required to pay or bear as the result of legislative, judicial, or administrative action taking effect after the contract date.

"After-relieved tax," as used in this clause, means any amount of tax or duty, other than an excepted tax, that would otherwise have been payable on the transactions or property covered by this contract, but which the Contractor is not required to pay or bear, or for which the Contractor obtains a refund, as the result of legislative, judicial, or administrative action taking effect after the contract date.

"Excepted tax," as used in this clause, means social security or other employment taxes, net income and franchise taxes, excess profits taxes, capital stock taxes, transportation taxes, unemployment compensation taxes, and property taxes. "Excepted tax" does not include gross income taxes levied on or measured by sales or receipts from sales, property taxes assessed on completed supplies covered by this contract, or any tax assessed on the Contractor's possession of, interest in, or use of property, title to which is in the U.S. Government.

(c) Unless otherwise provided in this contract, the contract price includes all applicable taxes and duties, except taxes and duties that the Government of the United States and the government of the country concerned have agreed shall not be applicable to expenditures in such country by or on behalf of the United States.

(d) The contract price shall be increased by the amount of any after-imposed tax or of any tax or duty specifically excluded from the contract price by a provision of this contract that the Contractor is required to pay or bear, including any interest or penalty, if the Contractor states in writing that the contract price does not include any contingency for such tax and if liability for such tax, interest, or penalty was not incurred through the Contractor's fault, negligence, or failure to follow instructions of the Contracting Officer or to comply with the provisions of paragraph (i) below.

(e) The contract price shall be decreased by the amount of any after-relieved tax, including any interest or penalty. The Government of the United States shall be entitled to interest received by the Contractor incident to a refund of taxes to the extent that such interest was earned after the Contractor was paid by the Government of the United States for such taxes. The Government of the United States shall be entitled to repayment of any penalty refunded to the Contractor to the extent that the penalty was paid by the Government.

(f) The contract price shall be decreased by the amount of any tax or duty, other than an excepted tax, that was included in the contract and that the Contractor is required to pay or bear, or does not obtain a refund of, through the Contractor's fault, negligence, or failure to follow instructions of the Contracting Officer or to comply with the provisions of paragraph (i) below.

(g) No adjustment shall be made in the contract price under this clause unless the amount of the adjustment exceeds $250.

(h) If the Contractor obtains a reduction in tax liability under the United States Internal Revenue Code (Title 26, U.S. Code) because of the payment of any tax or duty that either was included in the contract price or was the basis of an increase in the contract price, the amount of the reduction shall be paid or credited to the Government of the United States as the Contracting Officer directs.

(i) The Contractor shall take all reasonable action to obtain exemption from or refund of any taxes or duties, including interest or penalty, from which the United States Government, the Contractor, any subcontractor, or the transactions or property covered by this contract are exempt under the laws of the country concerned or its political subdivisions or which the governments of the United States and of the country concerned have agreed shall not be applicable to expenditures in such country by or on behalf of the United States.

(j) The Contractor shall promptly notify the Contracting Officer of all matters relating to taxes or duties that reasonably may be expected to result in either an increase or decrease in the contract price and shall take appropriate action as the Contracting Officer directs. The contract price shall be equitably adjusted to cover the costs of action taken by the Contractor at the direction of the Contracting Officer, including any interest, penalty, and reasonable attorneys' fees.

4. DFARS 252.212-7001 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS APPLICABLE TO DEFENSE ACQUISITIONS OF COMMERCIAL ITEMS (Dec 2000)

(a) The Contractor agrees to comply with any clause that is checked on the following list of DFARS clauses which, if checked, is included in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items or components.

☒ 252.205-7000 Provision of Information to Cooperative Agreement Holders (Dec 1991) (10 U.S.C. 2416).

☒ 252.219-7003 Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan (DOD Contracts) (Apr 1996) (15 U.S.C. 637).

☒ 252.225-7001 Buy American Act and Balance of Payments Program (Mar 1998) (41 U.S.C. 10a-10d, E.O. 10582).

☒ 252.225-7012 Preference for Certain Domestic Commodities (May 1999).

☒ 252.243-7002 Requests for Equitable Adjustment (Mar 1998) (10 U.S.C. 2410).

☒ 252.247-7023 Transportation of Supplies by Sea (Mar 2000) (10 U.S.C. 2631).

(b) In addition to the clauses listed in paragraph (e) of the Contract Terms and Conditions Required to Implement Statutes or Executive Orders--Commercial Items clause of this contract (Federal Acquisition Regulation 52.212-5), the Contractor shall include the terms of the following clauses, if applicable, in subcontracts for commercial items or commercial components, awarded at any tier under this contract:

252.225-7014 Preference for Domestic Specialty Metals, Alternate I (10 U.S.C. 2241 note).

252.247-7023 Transportation of Supplies by Sea (10 U.S.C. 2631).

252.247-7024 Notification of Transportation of Supplies by Sea (10 U.S.C. 2631).

5. DFARS 252.229-7002 CUSTOMS EXEMPTIONS (GERMANY) (Jun 1997)

Imported products required for the direct benefit of the United States Forces are authorized to be acquired duty-free by the Contractor in accordance with the provisions of the Agreement Between the United States of America and Germany Concerning Tax Relief to be Accorded by Germany to United States Expenditures in the Interest of Common Defense.

6. DFARS 252.229-7003 TAX EXEMPTIONS (ITALY) (Jun 1997)

(a) The Contractor represents that the contract prices, including the prices in subcontracts awarded hereunder, do not include taxes from which the United States Government is exempt. (b) The United States Government is exempt from payment of Imposta Valore Aggiunto (IVA) tax in accordance with Article 72 of the IVA implementing decree on all supplies and services sold to United States Military Commands in Italy.

(1) Upon receipt of the invoice, the paying office will stamp the following statement on one copy of the invoice:

"I certify that this invoice is true and correct and reflects expenditures made in Italy for the Common Defense by the United States Government pursuant to international agreements. The amount to be paid does not include the IVA tax, because this transaction is not subject to the tax in accordance with Article 72 of Decree Law 633, dated October 26, 1972."

(2) This certified copy, signed by an authorized Government official, will be returned together with payment to the Contractor. The payment will not include the amount of IVA tax. (3) The Contractor must retain this copy of the invoice with the representation to substantiate non-payment of the IVA tax.

(c) In addition to the IVA tax, purchases by the United States Forces in Italy are exempt from the following taxes:

(1) Imposta di Fabbricazione (Production Tax for Petroleum Products).

(2) Imposta di Consumo (Consumption Tax for Electrical Power).

(3) Dazi Doganali (Customs Duties).

(4) Tassa di Sbarco e d'Imbarco sulle Merci Transportate per Via Aerea e per Via Maritima (Port Fees).

(5) Tassa de Circolazione sui Veicoli (Vehicle Circulation Tax).

(6) Imposta di Registro (Registration Tax).

(7) Imposta di Bollo (Stamp Tax).

(d) The Contractor's administrative procedures for claiming and validating the exemptions are as follows:

(1) Contract offer price shall not reflect IVA or any other tax or duty.

(2) Contract number must be set forth on Contractor invoices, which should state the exemptions claimed pursuant to Article 72 of Decree Law 633, dated October 26, 1972, for IVA exemption.

(3) Fiscal code for appropriated funds payments by Aviano Air Base is: 91000190933.

(4) Questions may be addressed to the Ministry of Finance, 11th District, Rome (06) 5910982.

7. DFARS 252.229-7005 TAX EXEMPTIONS (SPAIN) (Jun 1997)

(a) The Contractor represents that the contract prices, including subcontract prices, do not include the taxes identified herein, or any other taxes from which the United States Government is exempt.

(b) In accordance with tax relief agreements between the United States Government and the Spanish Government, and because the incumbent contract arises from the activities of the United States Forces in Spain, the contract will be exempt from the following excise, luxury, and transaction taxes:

(1) Derechos de Aduana (Customs Duties).

(2) Impuesto de Compensacion a la Importacion (Compensation Tax on Imports).

(3) Transmissiones Patrionomiales (Property Transfer Tax).

(4) Impuesto Sobre el Lujo (Luxury Tax).

(5) Actos Juridocos Documentados (Legal Official Transactions).

(6) Impuesto Sobre el Trafico de Empresas (Business Trade Tax).

(7) Impuestos Especiales de Fabricacion (Special Products Tax).

(8) Impuesto Sobre el Petroleo y Derivados (Tax on Petroleum and its By-Products).

(9) Impuesto Sobre el Uso de Telefona (Telephone Tax).

(10) Impuesto General Sobre la Renta de Sociedades y demas Entidades Juridicas (General Corporation Income Tax).

(11) Impuesto Industrial (Industrial Tax).

(12) Impuesto de Rentas Sobre el Capital (Capital Gains Tax).

(13) Plus Vailia (Increase on Real Property).

(14) Contribucion Territorial Urbana (Metropolitan Real Estate Tax).

(15) Contribucion Territorial Rustica y Pecuaria (Farmland Real Estate Tax).

(16) Impuestos de la Diputacion (County Service Charges).

(17) Impuestos Municipal y Tasas Parafiscales (Municipal Tax and Charges).

8. DFARS 252.229-7006 VALUE ADDED TAX EXCLUSION (UNITED KINGDOM) (Jun 1997)

The supplies or services identified in this contract are to be delivered at a price exclusive of value added tax under arrangements between the appropriate United States authorities and Her Majesty's Customs and Excise (Reference Priv 46/7). By executing this contract, the Contracting Officer certifies that these supplies or services are being purchased for United States Government official purposes only.

9. DFARS 252.229-7007 VERIFICATION OF UNITED STATES RECEIPT OF GOODS (Jun 1997)

The Contractor shall insert the following statement on all Material Inspection and Receiving Reports (DD Form 250 series) for Contracting Officer approval: "I certify that the items listed on this invoice have been received by the United States."

10. DFARS 252.246-7000 MATERIAL INSPECTION AND RECEIVING REPORT (Dec 1991)

At the time of each delivery of supplies or services under this contract, the Contractor shall prepare and furnish to the Government a material inspection and receiving report in the manner and to the extent required by Appendix F, Material Inspection and Receiving Report, of the Defense FAR Supplement.

DOCUMENT	PGS	DATE	TITLE
ATTACHMENT 1	27	22 MAY 2002	STATEMENT OF WORK -- REV A
This attachment/exhibit was modified by: P00002 (this mod).			
ATTACHMENT 2	1	11 MAR 2002	RESEVED
ATTACHMENT 3	89	22 MAY 2002	PRODUCT SPECIFICATION -- REV A
This attachment/exhibit was modified by: P00002 (this mod).			
ATTACHMENT 4	32	22 MAY 2002	CONTRACT DATA REQUIREMENTS LIST (CDRL) GENERAL INSTRUCTIONS FOR THE TOWER SIMULATION SYSTEM (TSS)
This attachment/exhibit was modified by: P00002 (this mod).			
ATTACHMENT 5	10	11 MAR 2002	VARIABLE PRICING MATRIX TABLE
This attachment/exhibit was modified by: P00002 (this mod).			
ATTACHMENT 6	10	11 JUN 2002	SOFTWARE RIGHTS
This attachment/exhibit was modified by: P00002 (this mod).			
~~ATTACHMENT 7~~	~~1~~	~~11 MAR 2002~~	~~SMALL BUSINESS PLAN~~
~~This attachment/exhibit was modified by: P00002 (this mod).~~			
~~ATTACHMENT 8~~	~~29~~	~~11 MAR 2002~~	~~PROJECT MANAGEMENT PLAN~~
~~This attachment/exhibit was modified by: P00002 (this mod).~~			
~~ATTACHMENT 9~~	~~8~~	~~11 MAR 2002~~	~~RISK MANAGEMENT PROCEDURE~~
~~This attachment/exhibit was modified by: P00002 (this mod).~~			
~~ATTACHMENT 10~~	~~17~~	~~11 MAR 2002~~	~~INTEGRATED LOGISTIC SUPPORT PLAN~~
~~This attachment/exhibit was modified by: P00002 (this mod).~~			
~~ATTACHMENT 11~~	~~13~~	~~11 MAR 2002~~	~~CONFIGURATION MANAGEMENT PLAN~~
~~This attachment/exhibit was modified by: P00002 (this mod).~~			
~~ATTACHMENT 12~~	~~11~~	~~11 MAR 2002~~	~~TEAMING AGREEMENT~~
~~This attachment/exhibit was modified by: P00002 (this mod).~~			
ATTACHMENT 61	36	02 JUL 2002	CONFORMED CONTRACT
This attachment/exhibit was modified by: P00001, P00002 (this mod).			

Tower Simulation System (TSS)

Attachment 3
Product Specification

Prepared for:

Training Systems Product Group
Aeronautical Systems Center
Wright-Patterson Air Force Base, Ohio 45433-7111

Prepared by:

ADACEL

Document Number: 9950-00030-V3-ATT3-PS
Contract Number: F33657-01-C-0025

~~March 11~~22 May~~,~~ 2002
Original

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Table of Contents

1. Tower Simulation System (TSS) Overview 9

1.1 TSS Design Concept and Layout 9
1.1.1 Student Positions 9
1.1.2 Exercise Instructor (Supervisor) Position 10
1.1.2.1 Pseudo-Pilot Interface 10
1.2 Control Tower Environment 11
1.3 TSS Subsystems 13

2. Functional Specifications 14

2.1 General System Performance 14
2.1.1 Visual System Requirements 14
2.1.1.1 Image Generator 14
2.1.1.1.1.1 Resolution 15
2.1.1.1.1.2 Processing Capacity 15
2.1.1.1.1.3 IG Load Management 15
2.1.1.2 Projection Displays 16
2.1.1.2.1 Dead Pixels and Bright Pixels 16
2.1.1.3 Projection System Design 17
2.1.1.3.1 Maintenance 18
2.1.1.4 Visual Database 19
2.1.1.4.1 Airport Databases 19
2.1.1.4.1.1 Major Features 19
2.1.1.4.1.2 Lighting Systems 19
2.1.1.4.1.3 Controllable Objects 20
2.1.1.4.1.4 Surrounds or Cultural Features 20
2.1.1.4.1.5 Airport specification 20
2.1.1.5 Special Visual Features 21
2.1.1.6 Moving Aircraft and Vehicles 22
2.1.1.7 Visual Display Field of View 22
2.1.1.8 Ground Controller's Display 23
2.1.1.9 Aircraft Library 23
2.1.1.10 Vehicle Library 23
2.1.1.10.1 Aircraft and Vehicle Effects 23
2.1.1.11 Binocular System 24
2.1.1.11.1 Local Controller Position 26
2.1.1.11.2 Ground Controller Position 26
2.1.1.11.3 Instructor Position 26

2.1.1.12 Situational Awareness Display 26
2.1.1.12.1 [redacted] 27
2.1.1.12.2 [redacted] 27
2.1.1.12.3 [redacted] 28
2.1.1.12.4 [redacted] 29
2.1.1.13 Visual Weather 29
2.1.1.13.1 Cloud Formations 30
2.1.1.13.2 Cloud Ceilings 31
2.1.1.13.3 Visibility 31
2.1.1.13.4 Time of Day/Time of Year 33
2.1.1.13.4.1 Environmental Lighting 33
2.1.2 Aircraft Performance Characteristics and Profiles 34
2.1.2.1 Performance Characteristics 35
2.1.2.2 Aircraft Profiles 35
2.1.2.3 Aircraft Emergencies 37
2.1.2.4 Barrier Engagement 38
2.1.3 Control Tower Environment 38
2.1.3.1 Tower DBRITE Radar Display 38
2.1.3.1.1 Plan Position Indicator (PPI) Display 38
2.1.3.1.1.1 Analog Display Data 38
2.1.3.1.1.2 Digital Display Data 39
2.1.3.1.1.3 Keyboard Commands 39
2.1.3.1.1.4 Tracks 40
2.1.3.1.1.5 Track Labels 40
2.1.3.1.1.5.1 Toggling Between Label Formats 40
2.1.3.1.1.5.2 Showing or Hiding Label Information 41
2.1.3.1.1.5.3 [redacted] 41
2.1.3.1.1.6 Vectors 41
2.1.3.1.1.7 [redacted] 42
2.1.3.1.2 [redacted] 42
2.1.3.1.2.1 Radar Controls 42
2.1.3.2 Airport Environment 43
2.1.4 Digital Wind Indicators 43
2.1.5 Runway Lighting Panel 44
2.1.6 Weather Dissemination Display 45
2.2 Request-and-Acknowledge (RNA) Light Coordination System 46
2.2.1 [redacted] 47
2.3 Light Gun 48
2.3.1 [redacted] 48
2.4 Automatic Terminal Information Service (ATIS) 49
2.5 [redacted] 49
2.5.1 [redacted] 49
2.5.2 [redacted] 49

2.6 Runway Conditions 49
2.7 Voice Recognition/Synthesis 49
2.7.1 Voice Recognition 50
2.7.1.1 [redacted] 50
2.7.1.2 Performance Standards 50
2.7.2 Voice Synthesis 51
2.7.2.1 Voice Communication System 51
2.7.2.1.1 Enhanced Terminal Voice System (ETVS) Simulation 51
2.7.2.1.2 Supported A/G Functions 51
2.7.2.1.3 Supported Ground to Ground Functions 51
2.7.2.1.3.1 [redacted] 52
2.7.2.1.4 Key Color Indications 52
2.7.2.1.5 Speaker System 53
2.7.2.1.6 Position Volume Controls 53
2.7.2.2 Student Positions 53
2.8 Instructor Position 53
2.8.1 General Design Provisions 53
2.8.1.1 Exercise Configuration 54
2.8.1.2 Exercise Start-Up User Interface (ESUI) 54
2.8.1.3 Exercise Control User Interface (ECUI) 54
2.8.1.4 Viewing Exercise Information 55
2.8.1.4.1 Exercise Status Information 55
2.8.1.4.2 Exercise Time Information 55
2.8.1.5 Controlling Exercises in Different Modes 56
2.8.1.5.1 Replaying 56
2.8.1.5.2 Changing the Speed of an Exercise 56
2.8.2 Instructor Scenario Interaction 56
2.8.2.1 Changing the Traffic Situation 56
2.8.2.1.1 [redacted] 56
2.8.2.1.1.1 [redacted] 57
2.8.2.1.2 [redacted] 57
2.8.2.2 [redacted] 57
2.8.2.3 [redacted] 58
2.8.2.4 Viewing Detailed Aircraft Information 59
2.8.2.4.1 [redacted] 59
2.8.3 Simulation Control User Interface (SCUI) 60
2.8.3.1.1 Event Options 61
2.8.3.1.2 Viewing and Controlling All Events 61
2.8.4 Exercise Weather User Interface (EWUI) 62
2.9 Pseudo-Pilot Function 62
2.9.1 Navigating Within the SMD 63
2.9.1.1.1 Modifying the Range Value 64
2.9.1.1.2 [redacted] 64

2.9.2 Navigating Within the SRD 65
2.9.2.1.1 Displaying Maps 65
2.9.2.1.2 Weather System Display 65
2.9.2.1.3 Drawing Vectors 65
2.9.3 Pseudo-Pilot Display Features 66
2.9.3.1 Target Preferences (SRD) 66
2.9.3.2 SMD and SRD Preferences 66
2.9.4 Using the List of Controlled Targets 66
2.9.5 Pseudo-Pilot Command Line Interface (PPCLI) [redacted] 67
2.9.5.1 [redacted] 67
2.9.5.2 [redacted] 68
2.9.5.3 [redacted] 69
2.9.5.4 Communication function 71
2.9.5.5 TSS Consoles 71
2.9.5.5.1 [redacted] 72
2.9.5.6 Flight Strips 73
2.9.6 Scenario Recording and Playback 74
2.9.7 Scenario Generation/Modification 74
2.9.7.1 [redacted] 76
2.9.8 Security 76
2.9.8.1 Software Security 77
2.9.8.2 System Access 77
2.9.9 Scenario Transportability 77
2.10 Physical Characteristics 77
2.10.1 TSS Size 77
2.10.2 Reliability and Maintainability 77
2.10.3 Power 78
2.10.4 Electromagnetic Compatibility 78
2.10.5 Heat and Ventilation 78
2.10.6 Environmental Conditions 78
2.10.7 Noise 78
2.10.8 Packaging, Handling, Shipping and Transportation 78
2.10.9 Facilities 78
2.10.10 Interfaces 79
2.10.11 Environment, Safety and Health 79

3. Verification 80

3.1 General 80
3.2 Verification Matrix 80

2.9.2 Navigating Within the SRD 65
2.9.2.1.1 Displaying Maps 65
2.9.2.1.2 Weather System Display 65
2.9.2.1.3 Drawing Vectors 65
2.9.3 Pseudo-Pilot Display Features 66
2.9.3.1 Target Preferences (SRD) 66
2.9.3.2 SMD and SRD Preferences 66
2.9.4 Using the List of Controlled Targets 66
2.9.5 Pseudo-Pilot Command Line Interface (PPCLI) [redacted] 67
2.9.5.1 [redacted] 67
2.9.5.2 [redacted] 68
2.9.5.3 [redacted] 69
2.9.5.4 Communication function 71
2.9.5.5 TSS Consoles 71
2.9.5.5.1 [redacted] 72
2.9.5.6 Flight Strips 73
2.9.6 Scenario Recording and Playback 74
2.9.7 Scenario Generation/Modification 74
2.9.7.1 [redacted] 76
2.9.8 Security 76
2.9.8.1 Software Security 77
2.9.8.2 System Access 77
2.9.9 Scenario Transportability 77
2.10 Physical Characteristics 77
2.10.1 TSS Size 77
2.10.2 Reliability and Maintainability 77
2.10.3 Power 78
2.10.4 Electromagnetic Compatibility 78
2.10.5 Heat and Ventilation 78
2.10.6 Environmental Conditions 78
2.10.7 Noise 78
2.10.8 Packaging, Handling, Shipping and Transportation 78
2.10.9 Facilities 78
2.10.10 Interfaces 79
2.10.11 Environment, Safety and Health 79

3. Verification 80

3.1 General 80
3.2 Verification Matrix 80

4. Quality Characteristics 83

Appendix A — Aircraft and Vehicle Model Library 84

Appendix B — Glossary 88

List of Figures

List of Tables

Tower Simulation System (TSS)

Product Specification

1. Tower Simulation System (TSS) Overview

This section provides an overview of the Tower Simulation System (TSS) design concept and a description of the major subsystems that make up the simulator.

1.1 TSS Design Concept and Layout

The TSS provides an integrated ATC Tower training environment consisting of Ground, Local, Coordinator and Flight Data trainee positions placed within a visual display system surrounding the trainee console. Exercises are created using a simulated environment replicating a defined control space containing aircraft and other moving objects that respond to controller directions as he reacts to different situations and requests. The moving objects are in turn controlled by a simulated pilot that recognizes controller commands through a Voice Recognition System (VRS) and selects the appropriate aircraft action and verbal response – this function can also be performed by the Instructor or a Pseudo-pilot operating a separate station. Exercises are executed under the supervision of an instructor who has an independent station and can select from a number of predetermined scenarios designed to illustrate and teach specific training objectives. The extensive capability of the TSS and its high level of automatic behavior allow the exercise instructor to confidently concentrate on teaching and evaluation, knowing that simulated aircraft will behave in a realistic and appropriate manner. A comprehensive scenario preparation suite allows sophisticated training scenarios to be developed and deployed.

1.1.1 Student Positions

The TSS consists of four (4) training positions:

Local Controller Position – The Local controller position is equipped with a VRS and a Voice Communication System (VCS) touch panel. The local position has full control over the six channel visual scene via a scene control interface.

Ground Controller Position – The Ground controller position is equipped with voice recognition system and Voice communication touch panel. This position has a dedicated visual channel utilizing the same specification Image Generation equipment, and synchronized with the main six-channel display.

Coordinator Position – The Coordinator position is equipped with a Voice communication touch panel. The coordinator may make independent radio transmissions and landline calls.

Flight Data Position – Equipped with a voice recognition system and a voice communication touch panel.

These positions are located in purpose-built consoles that replicate those found in a Customer control tower.

[redacted]

1.1.2 Exercise Instructor (Supervisor) Position

The purpose of the exercise instructor position is to control the operation of the exercise and interact with the scenario as required. This position is equipped with voice recognition, an enhanced voice communication touch panel (the crash phone functionality and role playing landline functions are integrated into the instructor VCS) and a high quality flat screen 22 inch CRT displays.

The following tools are provided to the instructor.

Start, Stop, and Pause exercise

Create, add and remove simulation events

Create additional aircraft (hot targets) during a running scenario., Activate and deactivate targets during a running scenario.

Edit simulation weather and METAR reports

Fail and restore DBRITE

Freeze aircraft

Role play external and internal land line agencies

[redacted]

1.1.2.1 Pseudo-Pilot Interface

The pilot behavior within the TSS is fully automatic. The behavior of the aircraft is controlled using voice recognition that is decoded by the simulation into the appropriate pilot behavior. In addition, the simulation, via the Pilot Response System, controls the radio response of the simulated pilot. These sophisticated features are more than capable of flying a simulated aircraft as if they were being flown by a real pilot. In order to maintain the flow of the exercise and complete the planned training

objectives, it is sometimes necessary for the instructor to correct a bad decision and override the voice recognition system. In order to make this possible, the instructor position is equipped with a Pseudo-Pilot User Interface.

1.2 Control Tower Environment

The TSS provides the trainee positions with a number of functional displays and equipment as found in a real control tower environment:

- Binocular System
- Tower BRITE Radar
- Digital Wind Display
- Airfield Lighting
- Weather Information
- NOTAM
- Request and Acknowledge (RNA)
- Light Guns
- Crash Phone and Crash Response Indicator Lights
- Flight Strip Printing

The following diagram shows the proposed equipment layout. The instructor console is shown to the right of the student console and contains a 22-inch monitor and a Voice Communications touch panel.

[redacted]

- A – Light Guns x 2
- B – Voice communication touch screens
- C – Crash Phone
- D – Lighting Panel and RNA Touch-screen
- E – Flight Strip Bays x 4
- F – DBRITE [redacted]
- G – Weather Dissemination Displays x 2(Wind Readout, Date and Time, METAR, NOTAM, Supplementary Information)
- [redacted]H – Ground Controller Visual Display [redacted]
- J – Instructor Console
- K – Flight Strip Printer and coordinator VCS

[redacted]

1.3 TSS Subsystems

The TSS consists of a number of subsystems that combine to produce the tower simulation.

- Voice Recognition Subsystem
- Text to Speech (TTS) Subsystem
- Voice Communications Subsystem
- Visual Subsystem
- Scenario Preparation Suite

2. Functional Specifications

This section describes the implementation of the TSS functionality. ~~Where an item of functionality addresses a TSS requirement, the TSS system specification paragraph is included for reference.~~ All functional display screen captures shown in this document are ~~actual captures of the functionality as currently implemented~~examples. Details of the final screen formats shall be subject to customer agreement.

~~Annotations: All requirements of this specification apply to the TSS product. Annotations such as "Objective" and "Beyond Objective" are merely informational in content, to allow comparison of the Customer TSS System Specification with this Product Specification~~

2.1 General System Performance

The TSS shall show a 360 degree representation of an Out -the-Window (OTW) view of the airfield environment. The TSS shall show a field of view of 270 degrees without the need to slew the visual display.

The OTW view shall depict a dynamic weather environment, i.e., the visual representation of weather and seasonal environment changes.

When viewing the 3D environment, all aircraft and vehicle models shall behave in a realistic manner on the ground and in the air according to their size and performance characteristics. A library of aircraft and vehicle models that shall be provided with the TSS can be found in Appendix B — Aircraft and Vehicle Model Library.

The TSS installation shall include a fully featured, Tower DBRITE radar display and each position shall be provided with a modern touch screen Voice Communications System (VCS) that emulates a Litton Denro ETVS system as installed in many customer towers. The simulation environment shall also be designed to closely replicate a standard operational tower cab by using consoles and other ancillary equipment regularly found in Customer towers.

The TSS shall include voice recognition and synthetic voice generation technology for control and response of simulated traffic.

2.1.1 Visual System Requirements

The major components of the visual system shall be:

- Image Generator (IG) Subsystem
- Projection Displays
- Visual Database

2.1.1.1 Image Generator

The IG subsystem shall be composed of seven channels, i.e. six control tower window views and an independent ground controller view shown on a CRT monitor. All seven channels shall be synchronized and the six main channels shall provide a wide continuous field of view (FOV) of 270° x 34°. The IG shall be designed to support a single eye point for all windows located in the tower. The view from the eye point may be panned, pitched and zoomed during run time. The horizon shall initially be positioned with 24° of the FOV above the horizon and 10°below. The position of the horizon shall be subject to agreement from the Customer.

The IG shall have the peak load capacity to simultaneously display:

- [redacted] A minimum of 75 visible moving aircraft and ground vehicle models distributed evenly across the full field of view[1]. [redacted] Note: For validation purposes, one (l) large aircraft shall contain a maximum of 700 polygons, with medium and small aircraft containing a maximum of [redacted]
- The airport database model.
- Display two scenario-specific cloud layers.

In addition, the system shall support wind blown particle animations such as rain, drizzle, snow, sleet and sandstorms. The density of the animation (effectively the number of particles) shall be controlled by the user. When an animation is running the maximum number of aircraft supported per channel is slightly reduced. The following simultaneous load examples shall be supported:

- [redacted] Light precipitation with a [redacted] moving aircraft and ground vehicle models distributed evenly across the full field of view. [redacted]
- [redacted]

2.1.1.1.1.1 Resolution

The IG subsystem shall provide six images each of at least 1360 x 1024 pixels, updated at 30 Hz or greater. Note: the images shall not overlap a result of which is no wasted resolution. Each image shall consist of square pixels with the number of arc minutes of view represented by a single pixel being 1.98 or less. The IG shall use a 4-subsampling full scene anti-aliasing algorithm.

The Ground Controller display shall have a resolution of 1280 x 1024 pixels.

2.1.1.1.1.2 Processing Capacity

So long as the IG is not driven beyond the specified performance level for number of moving models, detailed above, it shall run continuously without interruption at a 30Hz update rate.

Processing capacity shall be sufficient to maintain the fidelity of each airport delivered consistent with that of the demonstrated Wright-Patterson AFB, even though the quantity of polygons, light points, and/or texture may vary according to the complexity of the real airport.

Each airport model and each aircraft or vehicle model shall be created to a common specification that limits the quantity of polygons, light points and texture used. In this way, any system delivered shall be able to support any combination of airport model and moving models up to the defined limits.

2.1.1.1.1.3 IG Load Management

The IG load management system shall be designed specifically for ATC tower simulation. The scene shall be designed to be predominantly viewed from a single static eye point location. The airport database shall incorporate an optimal load management strategy where only details that are both significant and visible from the tower shall be included. Each aircraft model shall include four range-selected levels of detail. Purpose: An aircraft close enough to the viewer to have such details as a

---

1 Note: the above specifications have been verified through extensive in-house testing using what we believe are maximal-loading parameters, as follows: When performing the validation tests, the aircraft selected were polygon-heavy (B747 & C130) and at the highest level of detail (LOD). More typically, aircraft models are distributed across the four LOD's at varying distances and with a range of polygon counts for differing aircraft types. The FOV was looking at the most polygon-heavy location of the Wright – Patterson database with two cloud layers present.

curved cockpit discernable shall be displayed in the highest level of detail, where as the same aircraft at distant recognition and identification ranges shall only require that the general profile be recognized.

2.1.1.2 Projection Displays

The projection display subsystem maintains the quality of the images received from the IG. It delivers six images to the rear surface of six projection screens without losing clarity, color, brightness, or contrast. Note: The projection system is not used for the independent ground controller display as it uses a monitor.

The projection displays consist of high fidelity, low maintenance screens, mirrors, and projectors that receive video images from the IG and provide a continuous panoramic scene representing the out-the-window view from the control tower cab. The projection subsystem shall have the following characteristics:

- Field of View — The combined projection system shall provide a FOV of 270°x34° measured from the design eye point (DEP). Each channel shall provide a FOV of 45°x34°. The Projection screens shall be flat. All distances to corners shall be equal. In plan view, the physical angle of all screen corners from the DEP shall be accurate to +/- 2°.

- Geometry Accuracy — Geometry errors shall be no more than 0.5 degrees (= 15 pixels).

- Geometry Channel Match — Each channel shall butt against its neighbor with a near zero gap between channels. There shall be no mullion between the screens.

- Color Convergence — The projection system shall be digital. It shall not employ separate red, green, and blue CRTs. The color registration error shall be less than two arc minutes, i.e., one pixel.

- Peak Luminance — The luminance level as measured from the design eye point shall not be less than 1000 Ansi lumens anywhere on the screen.

- Uniform Luminance — The luminance variation across a screen shall not exceed 20% of that at the center.

- Luminance Channel Match — The luminance on both sides and equidistant of a channel edge shall not differ by more than 10%.

- Uniform Color — Any variation in color shall not be sufficient to distract from training.

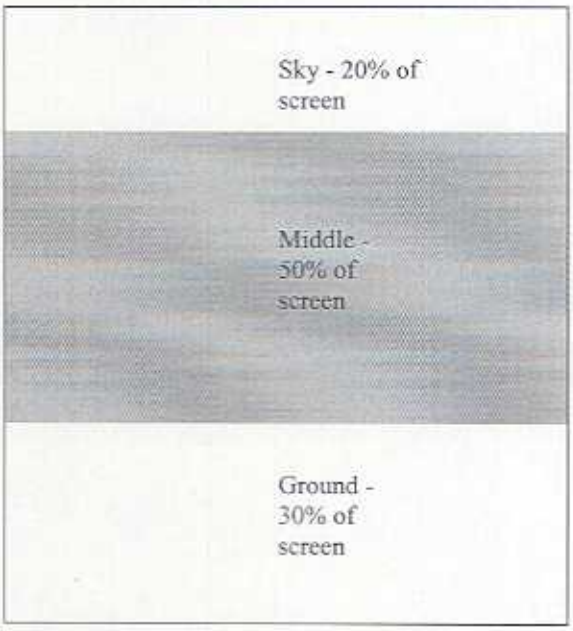
- Contrast — The Projector shall have a true contrast ratio of 600:1.

2.1.1.2.1 Dead Pixels and Bright Pixels

Note: Production methods of digital panels occasionally result in the existence of dead pixels and bright pixels. A dead pixel is one that does not function, i.e., the pixel is always displayed as black. A bright pixel is one that is always on and is brighter than neighboring pixels. Each dead or bright pixel only impacts one color. When the three colors are mixed, it is usually difficult to notice them. Most panels are 100% free of dead and bright pixels but there is a minimum acceptable level of quality appropriate for ATC simulation training. For instance, a bright red pixel just above the horizon is unacceptable as it may be mistakenly interpreted as aircraft navigation light. On the other hand, a single dead red pixel in the sky does not cause a problem.

The acceptability of the pixels shall be verifiable by displaying a flat peak raster for three times, one for each color and observing any dead or bright pixels. The screen consists of three horizontal slices,

the top 20% consisting of sky only, the bottom 30% consisting of ground and the middle 50% which depending on the height of the horizon is mainly or completely sky. The tests shall be executed with the projector in a horizontal and upright attitude.



As determined by the test method described above:

There shall be no dead and no bright pixels in the middle section as this is the significant portion of the scene.

There shall be no more than two dead and one bright pixel in the ground section.

There shall be no more than two faults in the sky section, (limited by one dead red, one dead green or two bright blue pixels).

2.1.1.3 Projection System Design

The image shall not require non-linear image mapping distortion correction. A one-time (during installation) simple projector mount adjustment shall be provided. A further one-axis image offset adjustment shall be provided by the physical lens shift control.

The display system shall be composed of six identical units. Each unit shall be easily transported and assembled.

The display system shall be free standing without attachment to walls, floor or ceiling. The same construction techniques shall apply for all facilities that meet the space envelope specification.

The projection display components shall stand on rubber mounts to isolate vibration.

[redacted]

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

[redacted]

The system shall be designed for flexible training and shall support free movement of the trainees to all areas of the tower cabin without casting shadows on the projection screens.

All components of the visual system shall be out of sight and reach and shall be located so as not to detract from training. Further, they shall be secure from accidental or intentional tampering. The environment on display shall be limited to the simulated tower equipment.

The aspect ratio of each screen's horizontal and vertical dimensions shall support the specified angular FOV. Note: this is essential; otherwise one of the axes would appear stretched with respect to the other axes and depending upon which axis is stretched, the aircraft would appear either shorter and fatter than in reality or longer and thinner. Similarly, the airfield ground surface would either appear foreshortened or stretched giving the illusion of an incorrect tower height or worse still incorrect perception of range. The system design shall ensure that the size and perspective of simulated objects when measured from the DEP are correct.

[redacted]

2.1.1.3.1 Maintenance

All projectors shall be accessible from below their associated screens.

The projectors shall be low maintenance digital projectors that do not drift, so that there will be no need to regularly correct for geometry distortions.

[redacted] The projector bulb will be replaced after the design life to avoid the risk of a catastrophic failure of the bulb. The projector mount is designed specifically to make replacing the lamp a simple and quick process. Time to replace all six lamps and recalibrate the projectors shall be less than three hours.

2.1.1.4 Visual Database

The visual system shall provide a geo-specific visual representation for each airbase. The visual scene shall encompass a 360° panoramic field of view centered at the control tower. The visual database shall reside in files on the IG and contain a number of airfield models, aircraft models, vehicle models and special effects. The IG shall automatically load the models by name as defined in the exercise scenario.

There are two major components that collectively define the visual database. They are the airport, airfield or aerodrome that defines the area in which the visual exercise takes place and the models that move within that visual field. The models component is comprised of aircraft and ground vehicles, as well as any other movable entity that is being represented like birds, dogs, clouds, etc.

The geometry of each element of the visual database, be it an airfield or aircraft, shall reside in its own file for ease of maintenance. It shall be possible to add additional elements to the database and to upgrade existing elements. The database format shall be OpenFlight, which is Simulation industry standard and exchangeable with other formats. Each Open-Flight file references multiple texture files.

2.1.1.4.1 Airport Databases

The major features included in a typical airport database shall be defined under four main subgroups: major features, lighting systems, controllable objects, and surrounds or cultural features. Each is described in the following subsections. The airport model shall be photo realistic in the near ground and 3D realistic supplemented with scanned images and generic photo texture further away from the tower. Ground surfaces such as tarmac, grass and aprons shall make use of suitable generic textures. The IG configuration file shall include data to set percentage of the screen covered by sky, i.e., the ability to set the screen height of the horizon.

2.1.1.4.1.1 Major Features

The major features of an airport shall include one or more of each of the following, and shall include multiple instances of some features when applicable to the local installation:

- Runways, accurately rendered with respect to length, width, markings, etc. (also includes helipads)
- Buildings, correct with respect to perspective, orientation, and coloration.
- Wind socks accurately positioned and built to react to wind effects.

2.1.1.4.1.2 Lighting Systems

The following features shall be included in the lighting systems where appropriate to the local installation:

- Directionality — lighting directionality as required for VASIs, and for runway end markings being modeled as appropriate.
- Standard lighting for: runway center and runway edge lighting, taxiway lighting, stop bars, sequential flashing and glide path indications

Note that light points will not illuminate the scene (except the Verey cartridge light source).

2.1.1.4.1.3 Controllable Objects

Controllable objects refer to objects in the database that are subject to control or manipulation. The control may be manual or it may be in reaction to effects in the simulation. Controllable objects shall include Barrier Cables and windsocks. [redacted]

2.1.1.4.1.4 Surrounds or Cultural Features

Airport surrounds or cultural features shall be included in the visual database to enhance its realism. Each airport's cultural features are distinct, but shall include such things as the background skyline, major roadways, mountains, trees, fields, bodies of water, etc. Cultural data shall be derived from photographic and other source data. Cultural features shall be different depending on time of day (light/dark).

[redacted]

2.1.1.4.1.5 Airport specification

[redacted]

Distance to horizon shall be correct for tower height.

[redacted]

Ground surfaces, roofs, and trees shall be represented in an appropriate texture for the ground cover currently set in the simulation scenario. For example, there will be alternative textures for snow cover and wet ground.

2.1.1.5 Special Visual Features

The TSS shall realistically depict local hazards to flying, which shall include:

- Bird activity — Modeled as flocks (~100 birds)
- [redacted]
- Gliders
- Paratroops
- Crop dusting
- Power line and pipeline operations
- Airfield working parties — represented in a stationary picture that is oriented towards the tower
- Major construction hazards — major construction includes a stationary picture indicating surface repair or replacement of runways, taxiways, or ramps.
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

2.1.1.6 Moving Aircraft and Vehicles

Aircraft and ground vehicle models shall have the correct shape, dimensions and shading. The models shall be textured with either photo-texture or, in the case of a camouflage livery, with an appropriate generic texture.

[redacted]

The models database shall provide visual representations that are used by the simulation engine to portray vehicle and other environmental/cultural objects within the simulation environment. Lights on vehicles shall be switchable on or off with the ability to select which lights are on or off (vehicle-dependent feature).

The performance envelope of each model shall be editable using the Whiteboard scenario preparation tool. Vehicles dynamics shall be modeled with movement in six degrees-of-freedom (DOF).

2.1.1.7 Visual Display Field of View

The TSS shall include a six channel main visual display. The FOV shall be 270° Horizontal x 34° Vertical. Each of the six channels shall be configured as 45° Horizontal x 34° Vertical, offset from each other by 45°. The displayed scene shall be slewable through 360° horizontally and +/- 90° vertically.

2.1.1.8 Ground Controller's Display

The ground controller position shall be equipped with a dedicated single visual channel to allow the trainee when necessary, to independently view a part of the visual scene that is not covered by the local controller's view. This dedicated channel shall have a 45° horizontal by 34° vertical visual field of view at a full screen antialiased resolution of 1280 x 1024 pixels and utilize a high quality 22" flat screen CRT monitor. The monitor shall be positioned in the consol directly in front of the ground controller's seating position so as to allow a clear and uninterrupted view. The ground controller's visual channel shall be equipped with the ability to rotate horizontally through 360° and vertically through +/- 90° and shall include a full-screen binocular capability.

2.1.1.9 Aircraft Library

The TSS visual system shall include a library of the aircraft listed in Appendix ~~B~~ A — Aircraft and Vehicle Model Library.

[redacted]

All aircraft shall include landing gear that is defined as fixed or articulated (can be raised or lowered). In addition, aircraft models shall include navigation lights, anti-collision lights, and landing lights.

[redacted]

2.1.1.10 Vehicle Library

The TSS visual system shall include a library of vehicles, as defined in Appendix ~~B~~ A — Aircraft and Vehicle Model Library.

Ground vehicles shall be modeled using the same LOD technology described for aircraft models. [redacted]

2.1.1.10.1 Aircraft and Vehicle Effects

The following Aircraft and Vehicle effects shall be provided with the TSS:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

2.1.1.11 Binocular System

The TSS shall be equipped with a fully controllable and independent binocular system for both local and ground positions. Each position shall be provided with a control system that allows the binocular feature to be selected, panned, pitched and zoomed. [redacted]

The binocular system shall emulate the performance of a 7-10X50 zoom binocular.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

~~Note: the binocular system functionality differs between Tower and Ground as described in the following paragraphs~~

2.1.1.11.1 Local Controller Position

The TSS shall be equipped with a six-channel high-fidelity visual scene. The scene controller shall, on request, activate or deactivate the binocular view in a picture-in-picture mode that shall include the capability to simulate smooth change in magnification between 7x50 and 10x50. [redacted]

2.1.1.11.2 Ground Controller Position

The ground controller binocular function when manually activated or deactivated through the independent scene controller shall use the dedicated ground controller display. The feature shall also allow the trainee to zoom smoothly between 7x50 and 10x50, but unlike the local controller's binocular view will use the entire dedicated ground controller visual channel. [redacted]

2.1.1.11.3 Instructor Position

[redacted]

2.1.1.12 Situational Awareness Display

The TSS shall provide a situational awareness or "Look Down" feature for the local controller position. Through the scene controller it shall be possible to activate and manipulate the Look Down viewpoint from close to ground [redacted]. It shall also be possible using the scene controller to move the center of the display through the X and Y horizontal axis allowing great flexibility in selecting the most beneficial viewpoint.

The Look Down view shall be displayed on a complete visual channel and the selected channel may be chosen upon installation.

[redacted]

The instructor shall be equipped with the tools to activate and control the Look Down view. [redacted]

2.1.1.12.1 [redacted]

2.1.1.12.2 [redacted]

[redacted]

[redacted]

2.1.1.12.3 [redacted]

[redacted]

[redacted]

[redacted]

2.1.1.12.4 [redacted]

[redacted]

[redacted]

2.1.1.13 **Visual Weather**

The system shall provide programmable, dynamic weather effects with appropriate visual representation.

2.1.1.13.1 Cloud Formations

The system shall accurately depict Stratoform and Cumuliform cloud formations. Single clouds and cloud formations shall have vertical profiles and give clouds depth because they present side views. A cloud layer shall have a horizontal profile and cover the whole sky. Cloud layers shall present underneath views and are available in 1/8, 2/8, 3/8, 4/8, 5/8, 6/8, 7/8, and 8/8 coverage. Cloud layer color shall be related to the percentage coverage. If no ceiling is defined the sky shall appear blue.

[redacted]

Under the cloud ceiling the user shall be able to construct a weather scenario composed of single clouds, cloud layers (maximum two) and/or cloud formations. The user shall be able to define the position and height of cloud formations and single clouds and he/she shall be able to define the height of cloud layers. All cloud types under the ceiling shall move according to exercise wind speed and direction. The following cloud models shall be supported:

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]		[redacted]	
[redacted]		[redacted]	
[redacted]		[redacted]	
[redacted]		[redacted]	

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

2.1.1.13.2 Cloud Ceilings

The visual display system shall accurately display cloud layers with a user definable cloud base above ground level. The cloud base can be defined during scenario preparation or through the instructor on-line weather interface. The system shall be capable of displaying two layers simultaneously. The system shall display the ceilings at any instructor or scenario designated altitude.

2.1.1.13.3 Visibility

The TSS shall provide the capability to define and modify visibility. The visibility range shall be modifiable as a function of:

- Fog
- Haze
- Smog
- Smoke
- Sandstorm
- Mist
- Rain
- Snow
- Drizzle
- Sleet

Each of these effects shall have an associated default visibility and a number of preset values that shall be available in five increments

- (1) ¼ statute mile
- (2) one statute mile
- (3) three statute miles
- (4) five statute miles
- (5) clear

[redacted]

[redacted]

In addition, it shall be possible to select any user-defined visibility to associate with the selected weather condition.

The system shall have localized weather phenomenon that will obscure visibility in one direction or section of the visual scene.

The localized weather phenomenon shall move through the area in a predefined straight-line path.

The following visual characteristics will be provided:

- Animated falling rain, snow, drizzle, sleet, and hail shall be displayed as 'global' weather states.
- During rain, drizzle, sleet, hail and snow, sun intensity and visibility shall decrease as the rain intensity increases.

- Raindrops shall be visible when a storm envelops the tower.
- Animated storm shall be displayed as a 'global' weather state.
- Fog and sun intensity shall be modulated by cloud coverage.
- The homogeneous visibility range shall directly affect the ability to see and identify objects in the scene.
- Surrounding modeled details such as urban areas and tree lines shall be located at representative ranges for the purpose of fog distance cues.

[redacted]

2.1.1.13.4 Time of Day/Time of Year

The system shall accurately portray a full diurnal cycle for the local environment.

2.1.1.13.4.1 Environmental Lighting

An ephemeris model shall be used for tracking sun and moon position. The sun shall illuminate the surfaces in the scene with realistic, directional light. The moon shall add up to [redacted] of ambient lighting

at nighttime. A yellow disk shall be displayed representing the sun and an emissive lunar textured disk shall be displayed representing the moon. Sun and moon models shall be correctly positioned according to the airfield latitude, longitude, season and time of day and shall be occulted if appropriate by cloud and atmospheric conditions.

A horizon glow shall be displayed during sunset and sunrise in the direction determined by the ephemeris model. The system shall display moonrise and moonset effects.

[redacted]

[redacted]

[redacted]

Aircraft and vehicle shadows shall be displayed during the day and the position on the ground shall be sensitive to the position of the sun.

2.1.2 Aircraft Performance Characteristics and Profiles

The TSS shall provide simulated aircraft that behave realistically and follow appropriate profiles. Each aircraft shall perform appropriately for the airframe being simulated.

2.1.2.1 Performance Characteristics

The TSS shall provide simulated aircraft with the appropriate performance characteristics for the aircraft type. Simulated aircraft shall exhibit appropriate acceleration, deceleration, speed, turn rate, roll rate, and attitude for all phases of air and ground operations. The following editable data shall be provided for each aircraft type:

Ground Related Data:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

2.1.2.2 Aircraft Profiles

The simulated aircraft shall follow profiles appropriate for the local runways. It shall be possible to predefine aircraft routing profiles or allow the "simulated intelligence" system to calculate and fly a realistic profile.

The following flight profiles will be possible and are based upon the performance characteristics of the aircraft type executing the maneuver:

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

- [redacted]

[redacted]

[redacted]

[redacted]

The TSS shall allow the creation of purpose built routes to be used for special procedures such as:

- Spiral Climb Departures
- VFR departure and arrival profiles with locally defined routing and reporting points
- Steep Approaches
- General Handling Simulation
- TACAN Procedures
- Tower Fly By
- Short Landings
- Long Landings

2.1.2.3 Aircraft Emergencies

The TSS aircraft shall provide the capability to simulate the following emergencies

- Engine(s) failure (air or ground) – The aircraft shall declare an engine(s) failure emergency. The content of the emergency message shall be definable at the aircraft target plan level The aircraft performance and flight profile characteristics shall be altered to simulate the effect of an Engine(s) failure. The aircraft shall follow the instructions of the controller
- Low fuel – The aircraft shall declare a low fuel emergency. The content of the emergency message shall be definable at the aircraft target plan level. The aircraft shall follow the instructions of the controller.
- Medical emergency — The aircraft shall declare a medical emergency. The content of the emergency message shall be definable at the aircraft target plan level. The aircraft shall follow the instructions of the controller.
- Hydraulic failure — The aircraft shall declare a hydraulic failure. The content of the emergency message shall be definable at the aircraft target plan level. The aircraft shall use a flapless approach speed for landing. The aircraft shall follow the instructions of the controller.
- Bird strike — The aircraft shall declare a bird strike emergency. The content of the emergency message shall be definable at the aircraft target plan level. The aircraft shall follow the instructions of the controller.
- Gear Up Landing – The aircraft shall land with the gear in the raised position and decelerate at a greatly increased rate.
- Aircraft Crash – When selected, the aircraft displays a smoke trail and begins to lose altitude at an accelerating rate. The aircraft has no engine power and is not controllable. On impact with the ground, the aircraft will explode. The visual display will show a realistic representation of an explosion.

2.1.2.4 Barrier Engagement

The TSS shall simulate military aircraft cable engagements. The system shall simulate an aircraft engaging a BAK-9/12 cable system and stopping in realistic distances. The simulated cable(s) shall be positioned at points on the runway corresponding to their real world positions; these points shall be editable through the scenario preparation tools. All cables shall be available for use and can be raised or lowered from the lighting panel where such a feature exists at a facility. At facilities where manual raising and lowering are required, the facility to change the cable state shall be available to the instructor position. An aircraft shall remain engaged in the cable until the instructor operates the cable disengage command. It shall be possible to simulate a tow vehicle response to a cable engagement and a visual representation of a cable engagement working party shall be available.

2.1.3 Control Tower Environment

The TSS shall physically and functionally represent a typical air traffic control tower environment.

2.1.3.1 Tower DBRITE Radar Display

The TSS shall include a comprehensive simulation of an operational system. The TSS DBRITE shall include the functionality described below.

2.1.3.1.1 Plan Position Indicator (PPI) Display

The Plan Position Indicator (PPI) shall be used to show combined analog and digital signals from the selected search radar(s). The PPI window contains a compass rose that is marked at 10° intervals.

The PPI display shall use varying intensities of green as found in the operational system.

The PPI display shall provides an exercise data table, located at the top of the display, to allow viewing of exercise information such as

- Exercise time (local and UTC format)
- Cursor position in latitude and longitude
- Selected radars
- Local Controller position indicator

2.1.3.1.1.1 Analog Display Data

The data shown on the Radar display shall include:

- **Blips** — Points on the PPI that indicate target positions received from the PSR
- **Weather** — Weather conditions such as clouds. Clouds are shown in a realistic manner. Depending on the type of weather condition (precipitation), the intensity/density of the weather display will vary.
- **Ground Clutter** — Ground clutter, i.e., returns caused by building, water, and/or mountains. Ground clutter, when seen close-up, is shown as various types and sizes of squares/rectangles.
- **Noise** — Another form of analogue data, referred to as Noise may indicate other forms of miscellaneous returns (birds, electromagnetic problems, etc.), and is shown as speckling.

2.1.3.1.1.2 Digital Display Data

Digital data shall include:

- **Plots** — Information providing the location of a radar return including the following types of return:
- PSR only
- SSR only
- PSR and SSR
- **Tracks and Track Data** — A radar return such as an aircraft. A track is composed of track data such as a label, leader line, symbol, and velocity leader.
- **Exercise Data Table** — A moveable, transparent text overlay that provides information such as exercise time (local and GMT format), cursor position, and selected radar numbers.
- **Maps** — A selection of maps used to provide ground references.
- **Vectors** — A line connecting two points, a point and a track, or two tracks.

2.1.3.1.1.3 Keyboard Commands

Most of the PPI actions will be performed using keyboard commands such as function or numeric keys. The following functions shall be supported:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

2.1.3.1.1.4 Tracks

The Display shall include track information. A track is composed of a track label, leader line, symbol, and velocity leader.

Most of the information found in the Alert field of a track label, shall flash in order to inform the operator of situations such as an emergency (EMERG), a communication failure (COMMS), etc.

When an aircraft is squawking identification, the entire track shall flash

[redacted]

2.1.3.1.1.5 Track Labels

All tracks shall have a label displayed beside them. A leader line is used to associate the track with its label. Each label will be made up of different information fields and the labels can be viewed in two different formats. Each label format consists of its own type of information that can be edited by specifying which part of the track label to modify.

2.1.3.1.1.5.1 Toggling Between Label Formats

There shall be three predefined label types

- [redacted]
- [redacted]
- [redacted]

Each label type shall display differing information, in a different format.

The information contained in each label type is described in the following table:

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

2.1.3.1.1.5.2 Showing or Hiding Label Information

It shall be possible to hide or show a full label.

It shall be possible to configure the label to suit local configurations, by hiding individual or multiple label lines.

2.1.3.1.1.5.3 [redacted]

[redacted]

2.1.3.1.1.6 Vectors

Vectors are digital data displayed as lines connecting to certain items on the PPI display. It shall be possible create two simultaneous vectors. Each may; connect two fixed points, a fixed point and a moving point, or two moving points (the points may be tracks). The length in nautical miles and the back and front bearings of the vector shall be displayed at each end of the vector. A function shall also be provided that will allow the operator to reverse the direction of the vector.

2.1.3.1.1.7 [redacted]

2.1.3.1.2 [redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

2.1.3.1.2.1 **Radar Controls**

Four types of radar display controls shall be provided. They are used to change the display range, the rings range, and the history plots, as well as to adjust the brightness level of the radar display.

[redacted] Display Range — The selector is used to select a range value that will determine the area visible on the radar display. The values available in the selector currently allow the operator to view the [redacted]

[redacted] Range Rings — The Rings selector controls these rings in order to select the interval at which the range rings are displayed on the radar. The values represent the interval, in nautical miles, at which the rings are displayed. The range ring values available in the selector are: [redacted]

- History Plots — With the use of the selector, the operator can toggle on or off the display of the history plots, or can select the number of history plots to be shown on the radar display. The values available in the selector are: [redacted].

- Brightness Level -The brightness level of all items on the radar display can be controlled. The selectors each contain five levels of brightness, ranging from the lowest value (1) to the highest and brightest (5). Each group of arrow buttons controls different components on the display. The components are divided into the following groups:

- [redacted]
- [redacted]
- [redacted]

2.1.3.2 Airport Environment

The TSS system shall provide the following of airport and environmental status display options. These display options shall be available continuously:

- Digital Wind Indicators
- Runway Lighting Panel
- Weather Dissemination Display / NOTAM Display
- Request and Acknowledge Light System

2.1.4 Digital Wind Indicators

The TSS shall include digital wind speed and direction indicators to display airfield prevailing winds. The wind indicators shall display the wind information according to the actual scenario wind conditions.

[redacted]

The wind indicator shall show the following information:

- Wind Direction
- Wind Speed
- Gust Direction Variability
- Gust Speed
- Gust Speed Spread
- Exercise Time — Hours: Minutes: Seconds (6 Digits)
- Exercise Date – Month/Day/Year (6 Digits)

2.1.5 Runway Lighting Panel

The TSS shall include a runway light panel that shall emulate in a schematic fashion, the lighting panel at each installation.

The lighting panel is fully integrated with the visual scene and shall include:

[redacted]

- Approach lights and varying levels of intensities
- Runway lighting and intensity levels
- Sequencing flashing lights
- Taxiway lights
- Visual approach slope indicator lighting or precision approach position indication
- Runway end identifier lights to applicable runways

- Rotating beacon
- Obstruction lighting
- Remote traffic light control switch

[redacted]

2.1.6 Weather Dissemination Display

The TSS shall provide a weather display of scenario-dependent weather conditions. The weather display shall be in METAR format. The METAR will be updated at time intervals defined in the scenario preparation suite, to allow simulation of standard METAR updates and Met Special reports. It shall also be possible via the instructor station to manually create and update METAR reports. Each update of the METAR will increase the ATIS code automatically.

[redacted]

[redacted]

2.2 Request-and-Acknowledge (RNA) Light Coordination System

The TSS shall be equipped with a simulation of the RNA system. The local controller RNA interface shall be a section of a touch screen panel.

The panel shall have two vertical rows of light push button switches and a push-to-talk switch located on the VCS interface. Two sets of signal light/buttons will permit the system to handle multiple arriving aircraft within the system. The bottom row of two lights is white, the second row amber, third row green and the top row is present as a single red light.

2.2.1 [redacted]

2.3 Light Gun

The TSS shall be equipped with two simulated light guns. A light gun shall be placed at each of the local and ground controller positions. The TSS shall use real light gun bodies for the light gun simulation. [redacted]

[redacted]

2.3.1

[redacted]

- [redacted]
- [redacted]
- [redacted]

[redacted]

- [redacted]
- [redacted]

[redacted]

2.4 Automatic Terminal Information Service (ATIS)

The TSS shall have ATIS record and playback capability. This function shall be accomplished by use of a recording device.

It shall be possible to define the ATIS behavior for all simulated aircraft. Aircraft shall report the correct ATIS code according to the actual scenario, unless specified to do otherwise. It shall be possible to specify an aircraft to execute a radio transmission with an incorrect ATIS code.

2.5 [redacted]

2.5.1 [redacted]

2.5.2 [redacted]

2.6 Runway Conditions

It shall be possible to define Runway Condition Ratings (RCR). The RCR shall be attached to a defined weather system e.g. When snow has been defined within a moving weather front, the appropriate RCR can be defined at the same time. This method will enable a more effective simulation as the RCR and braking action will change as the weather changes. The defined RCR value shall apply to all runways at the airfield. The system shall simulate RCR of 5, 10, 15, 20 and dry.

An aircraft when question shall report the braking action appropriate to the RCR at the time of the request. The braking action report shall take the form of "Good", "Fair", "Poor" or "Nil".

2.7 Voice Recognition/Synthesis

It shall be possible to run all training exercises without interaction by an instructor or pseudo-pilot, through the use of voice recognition and voice synthesis systems. The Local Controller, Ground Controller, Flight Data and Instructor positions shall each be equipped with a voice recognition system. The TSS shall accept and act appropriately when prompted by voice commands issued to all

moving vehicles The Local Controller, Ground Controller, Coordinator and Instructor positions shall each be equipped with a voice recognition system.

The TSS voice recognition and synthesis system shall be modular. [redacted] If future advances in the technology warrant upgrading the recognizer, this shall be possible with minimal customization. [redacted]

2.7.1 Voice Recognition

The VRS shall respond to an appropriate subset of the ATC phraseology specified in IAW FAA Order 7110.65. This subset will be sufficient to recognize all normally accepted communication terminology used in a tower control environment, [redacted]

Commands to multiple aircraft in a single utterance shall be possible.

The voice recognition system shall in not require the student to train the system on an individual's voice pattern.

The TSS shall be able to operate to the full extent of its other capabilities without using the Voice Recognition System.

2.7.1.1 [redacted]

[redacted]

2.7.1.2 Performance Standards

For a set of voice commands that are defined by the Contractor and agreed by the Customer, the TSS shall achieve [redacted] voice recognition accuracy when using the Customer's baseline training scenario for Wright-Patterson AFB, operated in the Contractor's test environment, and the voice utterances are made by a male and a female operator provided by the Contractor.

[redacted]

2.7.2 Voice Synthesis

The TSS shall provide synthetic voice output for all aircraft, ground vehicles and the Final Radar Controller, all of which shall be able to initiate calls and respond to students' commands realistically and appropriately. [redacted]

- [redacted]
- [redacted]
- [redacted]

2.7.2.1 Voice Communication System

The TSS shall simulate UHF, VHF, FM and land line communication. Each student station and the Instructor's Station shall have a simulated Enhanced Terminal Voice System (ETVS), including trainee and trainer headset jacks at each position. The configuration of each ETVS shall be programmable using the voice communication system editor tool.

The TSS shall be provided with a standard two piece Plantronics Starset Headset, Part #: 43674-01, Lower piece Part #91890-25 for each position. The headset jacks shall accept the provided headsets.

2.7.2.1.1 Enhanced Terminal Voice System (ETVS) Simulation

The TSS provides a realistic simulation of the Litton Denro ETVS voice communications system at each of the five Tower positions. The ETVS simulation is controlled through touch screen displays, each of which can be configured to the needs of the specific role. This configuration is done using the VCS configuration tool. The VCS positions may have access to UHF, VHF, FM and landline communications and are equipped for the connection of the standard two piece Plantronics headsets.

2.7.2.1.2 Supported A/G Functions

[redacted]

2.7.2.1.3 Supported Ground to Ground Functions

[redacted]

[redacted]

2.7.2.1.3.1 [redacted]

[redacted]

2.7.2.1.4 **Key Color Indications**

The following color indications and timings shall be used for the ETVS simulation:

Flash = 50% on 50% off 60 times minute

Flutter = 90% on 10% off 72 times minute

Wink = 10% on 90% off 60 times minute

Indication	Function Status
TX Radio Keys	
Off	TX Not selected
Solid Green	Selected but idle
Flutter Green	TX Selected and Keyed
Solid Red	TX Keyed and locked out. i.e. keyed at another position
Flutter Red	TX is selected and keyed from another position
Flash Red	TX is keyed at another position
RX Radio Keys	
Off	TX Not selected
Solid Green	Selected but idle
Flutter Green	RX selected and transmission being received
Flutter Red	RX not selected and transmission being received
Master/Standby Key	
Solid Green	Master Selected
Solid Red	Standby selected

Indication	Function Status
Telephone Keys	
Off	Not in use
Solid Green	Selected
Flash Green	Incoming Call Present
Flutter Green	Incoming call accepted
Solid Red	Line in use
Wink Red	Call on hold

2.7.2.1.5 Speaker System

The console shall contain a loudspeaker for both the ground and local position. There shall be volume control for each speaker. An on/off I shall not be required, as it is part of the ETVS panel via the HSLS button.

2.7.2.1.6 Position Volume Controls

Volume controls shall be provided for both the instructor and the student headset.

2.7.2.2 Student Positions

The TSS shall provide training for four student positions:

- Local Controller
- Ground Controller
- Flight Data
- Coordinator

Each position shall be equipped with a voice communications system and will be capable of independent training. It shall be possible for all positions to function together for crew training.

[redacted]

2.8 Instructor Position

The TSS shall provide one position to be used by the instructor. The position shall be designed for use by typical air traffic controllers and incorporate sound human factors principals. The instructor position shall include an enhanced VCS and a 22-inch flat screen monitor.

2.8.1 General Design Provisions

The Exercise Instructor position is the main simulation control interface. The interface shall provide access to all of the features required to set-up, start, monitor and interact with the training scenario. From the instructor position it shall be possible to execute the following tasks.

- Exercise Configuration

- Student Role Assignment
- Exercise Launch
- Exercise Control
- Scenario Interaction

These tasks shall be executed through a number of user interfaces

- Exercise Start-up User Interface (ESUI)
- Exercise Control User Interface (ECUI)
- Pseudo-Pilot User Interface (PPUI)
- Simulation Control User Interface
- Exercise Weather User Interface

2.8.1.1 Exercise Configuration

In order to start and control an exercise, both the Exercise Start-up (ESUI) and Exercise Control (ECUI) user interfaces are utilized.

The process involved in starting an exercise involves the following functions:

- Selecting an exercise
- Assigning roles to students
- Starting the applications involved
- Launching the exercise

2.8.1.2 Exercise Start-Up User Interface (ESUI)

The Exercise Start-Up User Interface application is responsible for loading the applications corresponding to available positions. This application shall allow selection of an exercise for play, record or playback.

Once the operator has selected an exercise file, the positions required for the exercise are chosen. The Exercise Startup window shall display a list of all available positions for the selected exercise and a list of proposed positions.

Once the exercise has been set up, the exercise is launched, along with its applications. The launching of an exercise is combined with the assignment of students to the positions.

2.8.1.3 Exercise Control User Interface (ECUI)

The Exercise Control User Interface (ECUI) application is often referred to as the master application because it allows control all of the applications required to run the current exercise. It takes control of the exercise after it has been selected and launched.

As an instructor, it shall be possible to end, replay, record, resume, or temporarily freeze a running exercise.

The Exercise Status window shall display read-only information regarding the exercise name, status, and time. Additionally, it shall be possible to modify the speed of the exercise.

2.8.1.4 Viewing Exercise Information

The Exercise Status window shall provide the following read-only information regarding the state of the current exercise and the current and elapsed time of the exercise:

- Exercise name
- Exercise status
- Exercise time
- Elapsed exercise time
- Real exercise time

2.8.1.4.1 Exercise Status Information

There are nine exercise states:

- **Ready** — Indicates that all applications have loaded properly and the exercise is ready to be started.
- **Frozen** — Indicates that the exercise is paused (temporarily frozen).
- **Running** — Indicates that the exercise is currently in progress in play, record, or replay mode.
- **Initializing** — Indicates that all applications are in the process of being loaded
- **Waiting** — Indicates that the applications are in the process of being loaded, yet one or more of the applications might not be responding.
- **Recording** — Indicates that the exercise is currently being recorded.
- **Buffering** — Indicates that the playback is being buffered.
- **Replaying** — Indicates that the recorded exercise is being played back.

2.8.1.4.2 Exercise Time Information

Information regarding the time of the exercise shall be displayed amongst three time fields found in the Exercise Status window. Each of these time fields shall be in the form of clock counters that continuously indicate the elapsed time but for different reasons. The following time fields shall be shown:

- Exercise Time- Indicates the time at which the exercise is taking place in local and Zulu formats.
- Elapsed Time (EXER) — Indicates the time spent in the exercise. If the exercise is paused the timer stops and restarts when the exercise is resumed.
- Elapsed Time (Real) — Indicates the elapsed time since all applications have loaded.

2.8.1.5 Controlling Exercises in Different Modes

The controls used to operate a simulation exercise are similar to that of a tape recorder. As seen with the Exercise Startup window, an exercise can be selected for play, record, or playback mode. These modes shall be available within the Exercise Status window, allowing control of an exercise in any of these modes:

Play — To run a normal exercise without any recording or replaying.

Replay — To playback a previously recorded exercise.

2.8.1.5.1 Replaying

The replay mode shall allow replay or review of a previously recorded exercise. Exercises that are being recorded shall always be recorded using the default speed of 1.0 (real-time); however, a replay may be viewed using an alternate speed.

[redacted]

2.8.1.5.2 Changing the Speed of an Exercise

In the Exercise Status window, a Speed drop-down list button shall be provided to allow the speed that the simulation will run, to be modified. The default setting is 1.0, indicating that the exercise will run at the real-time (normal) speed. Selecting any other choice shall accelerate/decelerate the speed by the indicated factor:

[redacted]

2.8.2 Instructor Scenario Interaction

The instructor shall be provided with the functions necessary to control and interact with the running scenario. The instructor shall also be presented with information pertinent to the exercise in a manner that will not overly distract from the tasks of instructing, teaching and assessing the trainee. The following tools and features shall be provided to the instructor:

2.8.2.1 Changing the Traffic Situation

These capabilities are provided by activating and deactivating targets and using the Hot Target feature.

2.8.2.1.1 [redacted]

2.8.2.1.1.1 [redacted]

2.8.2.1.2 [redacted]

2.8.2.2 [redacted]

2.8.2.3 [redacted]

[redacted]

[redacted]

[redacted]

2.8.2.4 Viewing Detailed Aircraft Information

It shall be possible to view current and detailed information regarding a selected vehicle (ground or air) in a Details window.

[redacted]

2.8.2.4.1 [redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]

[redacted]

2.8.3 Simulation Control User Interface (SCUI)

The Simulation Control User Interface (SCUI) is used to control many different aspects of the simulator during an exercise.

The SCUI shall allow events to be scheduled or activities to occur on a runway during the simulation, and control the runtime of these events. It shall also be possible to perform miscellaneous tasks such as creating simulation events, radar blind areas, assigning a clearance, and removing debris due to a target hit.

2.8.3.1 Events

An event is a feature that allows the instructor to schedule simulation actions throughout the exercise. A number of training objectives can be achieved with no interaction from the instructor.

A variety of simulation events shall be possible

Radar Status — Fail (partially or fully) the search radar.

[redacted]

Birds — Control the appearance of a flock of birds on a runway by specifying its speed and a route to follow.

Personnel — Control the appearance of airport personnel such as men at work on a runway.

Aircraft Emergencies – Including gear failure, hydraulic failure, low fuel, bird strike, and gear up landing.

[redacted]

Radio Beacons — Fail (off) or resume (on) beacons in an exercise.

[redacted]

[redacted]

2.8.3.1.1 Event Options

- **Duplicating an Event** — The duplicate option, found in the Events list, is used to copy and make modifications to a selected event in order to re-inject a new event. For example, if you wish to create a new radar event that is similar to an existing one, copy (duplicate) the existing one, make changes to it, and add it to the list of events as an additional and new event.

- **Suspending and Resuming an Event** – The suspend option, found in the *Events* list, is used to freeze a selected event for an unspecified amount of time.

- **Modifying an Event** – The modify option, allows you to modify the existing information.

- **Deleting an Event** – The delete option, is used to delete an existing event.

- **Postponing an Event** – The postpone option, is used to delay a selected event until a specified time. This option allows you to select a time period from a list of predefined values, or to select a time period other than what has been predefined.

- **Selecting a Predefined Delay Time** — When you select postpone, a submenu is displayed containing a list of predefined time values. You can select one of the time values as the period of time for which you want to postpone the selected event. The selected period of time is then added to the event's original start time. When the actual time reaches the new postponed time, the event will take place.

2.8.3.1.2 Viewing and Controlling All Events

A list of all past, current, and future events in the exercise shall be seen and controlled using the event/inject list option. When selected, the Events/Inject list window is displayed, allowing all events pertaining to the current exercise to be viewed. This window shall also allow events to be suspended, resumed, modified, deleted, postponed and duplicated.

2.8.4 Exercise Weather User Interface (EWUI)

The EWUI, allows the instructor to modify the weather scenario during a running exercise. It shall be possible to modify the weather scenario by adding, removing or changing the data previously defined through the scenario preparation tools. The following weather objects may be modified:

- Visibility
- Weather conditions e.g. Rain, Snow etc
- Weather conditions intensityCloud base and cloud ceiling levels
- METAR reportsIt shall be possible to associate a time that the modifications should be complete. For instance, the current visibility is ½ statute mile, in one hour the visibility should be ¼ statute mile. The deterioration of the visibility in this example would take place in a linear manner over a period of one hour.

It shall be possible to make modifications to the weather scenario that apply immediately after the instructor chooses to execute the changes. For example, it will be possible to change the cloud base from 5000 feet to 1000 feet in the time that it takes the system to process the command (typically a couple of seconds).

2.9 Pseudo-Pilot Function

The Pseudo-Pilot User Interface (PPUI) shall allow the control of all aspects of an aircraft flight as if done by the actual pilot either through keyboard control or voice recognition control. It shall be possible to accomplish tasks such as ground and air routing, aircraft take-off, piloting, flying in traffic patterns, formation control, recovery of objects, light control, gear and hook control and adding an aircraft during a simulation.

Ground vehicles and aircraft included in the exercise shall be displayed within a graphical display area.

The PPUI interface consists of a main window that is made up of multiple viewing and control areas:

- Menu bar
- Display areas (SMD and SRD)
- List of aircraft and ground vehicles
- Pseudo-Pilot Command Line Interface (PPCLI)
- Status area

[redacted]

- [redacted]
- [redacted]

[redacted]

2.9.1 Navigating Within the SMD

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]

[redacted]

[redacted]

[redacted]

2.9.1.1.1 Modifying the Range Value

It shall be possible to modify the range value of the SRD and SMD. The range value may be displayed by to the user as nautical miles (nm) or kilometers (km). Predefined range values shall be provided in the pop-up menu as well as by using the other option that a range value other than predefined values can be specified. When a range value is selected, the image is zoomed in or out accordingly.

2.9.1.1.2 [redacted]

[redacted]

2.9.2 Navigating Within the SRD

The SRD shall provide a 2D radar-like representation of the in-flight situation up to a 512 nm range showing all airborne aircraft with their reference locations. It is used to control the pseudo-pilot's airborne aircraft by selecting the appropriate set of commands. The aircraft seen on the radar display are also referred to as tracks. Each track shall consist of a symbol (aircraft) and a label containing the track information. The SRD shall allow the display of the following items to be selected:

- Weather build-up
- Radar maps

2.9.2.1.1 Displaying Maps

It shall be possible to display predefined maps on the SRD. The Map option is used to toggle on and off the display of the different display maps on the SRD. It shall be possible to select more than one map for display.

[redacted]

2.9.2.1.2 Weather System Display

The weather option shall toggle the weather system display on and off, in the SRD radar. Weather systems are defined in Whiteboard and in the weather parameters interface.

2.9.2.1.3 Drawing Vectors

It shall be possible to draw vectors on the display. Vectors can be drawn from one point to another, from one aircraft to another aircraft, or from one point to one aircraft. They are used to measure or show the distance and range in nautical miles (nm) between two selected points. A maximum of two vectors can be drawn simultaneously on the display. The endpoint can be an aircraft or any point or location on the display.

2.9.3 Pseudo-Pilot Display Features

2.9.3.1 Target Preferences (SRD)

It shall be possible to define preferences for targets (aircraft) shown on the display. The following display features shall be available.

- [redacted]
- [redacted]
- [redacted]

[redacted]

2.9.3.2 SMD and SRD Preferences

It shall be possible to define the items to be viewed on either the SRD or SMD. The following options shall be available.

- Auto tag — to activate or deactivate the automatic positioning of all target labels. When labels are automatically repositioned, the labels of all targets on the SMD and SRD are placed in a way so that they do not overlap.
- Compass Rose — to toggle on or off the display of the compass rose.
- Conflict Lines — to toggle on or off the display of the conflict lines on the SRD.

2.9.4 Using the List of Controlled Targets

The list area, located at the top right of the PPUI interface, contains two resizable lists—one list shall contain all controlled aircraft and the other shall list all controlled ground vehicles available in the current exercise. These lists provide useful information regarding the vehicles.

The aircraft list (top list) shall display the following information for each aircraft:

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

- [redacted]
- [redacted]

2.9.5 Pseudo-Pilot Command Line Interface (PPCLI) [redacted]

The TSS instructor position shall be provided with a pseudo-pilot command system. This command system shall allow the manual input of commands for all of the supported voice recognition commands IAW FAA Order 7110.65 [redacted]

2.9.5.1 [redacted]

2.9.5.2 [redacted]

[redacted]

2.9.5.3 [redacted]

- [redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

- [redacted]
- [redacted]

2.9.5.4 Communication function

The Instructor's station shall have the capability to assume the role of non-simulated radio or landline entities. It shall be possible to configure the instructor station to suit local operating procedures. The VCS editor shall include the ability to add the following functionality to instructor communications system:

- Access to all exercise frequencies
- Crash phone interface including crash response indicator lights for ambulance, fire etc
- Simulated external landlines with a clear indication of the role being played and the control position involved in the call

2.9.5.5 TSS Consoles

The TSS shall be equipped with a console for trainee positions and an instructor console sufficient for the intended position's task.

The student consol shall be designed in such a way that the ground and local controller positions are interchangeable, i.e., each task can be executed from either side of the console, with the displays being configured appropriately. For example, the local procedures may dictate controllers swap positions as part of the actions for change of runway in use. This display configuration shall be possible before and during a running scenario.

The student console shall contain the following displays and features:

- Voice Communication touch panel for each trainee
- Two (2) light guns
- Weather Dissemination, Wind Indicator, NOTAM and Supplementary Information display
- Crash phone with crash response lights
- DBRITE display
- Lighting panel and RNA interface
- Ground controller visual display
- Task Lighting at the local, ground and flight data positions
- Flight strip racks each capable of holding 10 strips. The flight data position shall be equipped with two (2) racks, the ground and local controller shall each have one (1) rack. The racks provided for local and ground control are not fixed to the console allowing added flexibility for left/right hand operations. The lower of the two racks provided for the flight data position may also be moved.
- Writing surfaces for the ground, local and flight data position

The instructor console shall be constructed to the same standard as the trainee console and shall contain the following equipment:

- Monitors for exercise interaction
- Voice Communications touch panel
- Task lighting
- Writing surface

All positions shall be equipped with headsets.

The TSS shall be equipped with four (4) chairs

The flight strip printer shall be mounted on a freestanding table easily accessible to the flight data controller.

2.9.5.5.1 [redacted]

[redacted]

[redacted]

[redacted]

2.9.5.6 Flight Strips

The TSS shall include flight strip emulation to include arriving and departing aircraft. Flight strips shall be printed using continuous feed, perforated flight strip paper. The format of the flight strips shall be IAW FAA Order 7110.65.

Flight strips for departing aircraft shall be printed at a user definable strip print lead-time, before the aircraft's estimated time of departure (ETD). Aircraft that have an ETD that falls within the period exercise start time plus strip print lead-time shall have their strips printed at the start of the exercise.

Flight strips for arriving aircraft shall be printed at a user definable strip print lead-time before Estimated Time Over (ETO) the strip-posting fix. (The strip-posting fix is the fix that has been defined

as triggering a flight progress strip). Aircraft that have an ETO that falls within the period from exercise start plus strip print lead-time shall have their flight strips printed at exercise start.

2.9.6 Scenario Recording and Playback

The TSS shall have record and playback capability. The operator may choose to execute a scenario in record mode. If record mode is selected, the simulator shall save the data necessary to replay the exercise. The data recorded shall include:

- Activation and deactivation of aircraft
- Aircraft movement
- All voice traffic that passes through the VCS

The playback shall recreate the recorded period with all aircraft and vehicle movement, all voice communications and the response to any commands given during the recorded period. Any response to light guns, crash phone and instructor initiated events shall also be recorded.

All system-defined simulation events shall be recorded and reused during scenario playback.

[redacted]

2.9.7 Scenario Generation/Modification

The TSS shall provide the tools necessary to create and modify airspace data and scenario data. The TSS equipment [redacted] shall allow the storage of a minimum [redacted] scenarios each of two-hour duration.

[redacted]

The scenario preparation suite (SPS) shall require no knowledge of any software languages or programming. Scenario Data is entered using Tabular (Whiteboard) based editing tools.

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

Transfer of generated scenario data to the TSS shall be possible via portable media such as floppy disc or CD-Rom.

As the standalone desktop computer is not required to be physically connected to the TSS, no synchronization of databases shall take place — the transfer shall be only generated scenario files (the small files used by the simulation engine to execute a scenario).

The transfer tool shall not be used to synchronize un-generated databases altered on the standalone computer with those on the TSS (or vice-versa). A tool shall be provided that will allow a manual copy of the entire database between the standalone PC and the TSS.

2.9.7.1 [redacted]

2.9.8 Security

The TSS shall have provisions for security of the systems delivered software and multiple layers of access for user functions as follows:

2.9.8.1 Software Security

The TSS shall have built in protection against malicious or inadvertent damage. All computers shall be installed with virus checking software that will scan the system on startup. In addition all software being installed via external media will be scanned for viruses.

All computer equipment will be protected by password access levels. The password access definition is a facility of the operating system and shall allow multiple user accounts to be created. Each installation shall be provided with an administrator account that shall allow further accounts to be defined. The following system access accounts shall be possible:

- System User – Allows the exercise to be setup and run
- System Administrator – Has complete access to the operating system.
- System Integrator – Allows installation of software

2.9.8.2 System Access

The SPS shall contain a tool to allow password definition and access to scenario preparation facilities. It shall be possible to define the following access privileges:

- Database Read Only
- Base Data Edit Permission (Base data includes key data such items as aircraft performance, airspace definition, airport information, route definition etc)
- Scenario Creation and Editing Permission
- Voice Recognition Editing Permission.
- System Administrator

It shall be possible to add and remove users from specific privilege groups. The system shall contain a system administration password that will be kept hidden from the operator. This password will ensure that the contractor will have access to the system without relying upon user defined password data.

2.9.9 Scenario Transportability

The TSS shall provide the capability to use a scenario package provided on portable media (e.g., Tape Drive). The package shall contain all of the data necessary to run a scenario for any available airfield. It shall also be possible to save a scenario package to portable media for use at other TSS installations.

2.10 Physical Characteristics

2.10.1 TSS Size

The TSS shall fit entirely within a room exactly 15 feet wide by 18 feet long with an 8-foot ceiling. All TSS assemblies shall fit through a 36-inch wide doorframe.

2.10.2 Reliability and Maintainability

The TSS shall be designed to meet an operational availability of 95%, based on a 12 hours a day seven days a week usage.

To determine reliability and maintainability the Combat Information Transport System (CITS) reliability and availability performance model created by the MITRE Corporation shall be used.

2.10.3 Power

The TSS shall operate using 120 Volt AC single-phase power at 50 Hz or 60 Hz. The system shall be capable of distributing the required power to all system components from a single power source.

The power requirements shall not exceed:

[redacted]

- [redacted]

The TSS shall be protected against power surges and spikes, and shall be tolerant of power outages.

The TSS shall be equipped with an un-interruptible power supply with a minimum of 15 minutes reserve power.

2.10.4 Electromagnetic Compatibility

The system shall be electro-magnetically compatible with other electronic equipment located at the facility. The system shall not interfere with or disrupt any operational system in use at ATC facilities nor shall other systems interfere with the TSS.

2.10.5 Heat and Ventilation

The TSS shall produce a heat output not exceeding [redacted]. The TSS shall operate in an ambient environment and any necessary cooling fans shall be included as part of the TSS.

2.10.6 Environmental Conditions

The TSS shall operate in standard office environment of 16-30 degrees Celsius, 20-80% humidity and no condensation. The Customer will be responsible for providing the necessary air conditioning to meet these requirements.

2.10.7 Noise

The noise generated by the TSS shall not detract from training. The noise level does not adversely affect the voice recognition system and verbal communication shall be possible without the need to raise the voice above normal conversational levels.

2.10.8 Packaging, Handling, Shipping and Transportation

All TSS packaging, handling, shipping and transportation (PHS&T) shall be the responsibility of the contractor. PHS&T shall be the best commercial practices for electronic equipment.

2.10.9 Facilities

Any facility that meets the specified room dimensions and is unobstructed inside shall not require new construction or extensive facility modifications.

[redacted]

2.10.10 Interfaces

The TSS shall be installed in a vacant room with a single point power source. The power source shall provide an output [redacted]. All required power distribution cables, digital, analog, video and voice signal interfaces shall be provided as part of the TSS.

2.10.11 Environment, Safety and Health

The TSS shall not require the use of hazardous materials or ozone depleting chemicals. Installation of the TSS shall meet applicable commercial safety and health standards.

3. Verification

3.1 General

One or more of the following qualification methods will be employed for each requirement to be verified/validated:

- Inspection (I) – Verification by visual examination of evidence of compliance without actually operating the system.
- Demonstration (D) – Verification by observing the result(s) of operating the system once and determining whether the expected results were achieved by a recording a simple yes/no against the acceptance criteria without the use of instrumentation, special test equipment or subsequent analysis of results.
- Test (T) or Measurement – Verification requiring the use of instrumentation and/or special test equipment to measure the result(s), or verification requiring repeated operation of the system for the derivation of statistical data.
- Analysis (A) – Verification by post-test analysis/review of data recorded during test execution.
- Certification (C) – Verification by production of independent documentary evidence of requirements conformance not witnessed by the customer as part of formal acceptance testing.
- Implication (P) – Verification of a requirement logically implied by the satisfactory verification of a lower level set of requirements.
- Not Applicable (N.A.) – Used to denote a statement (such as an 'Advice') that, by its nature, does not require verification
- Not Testable (N.T.) – Used to denote a requirement that is currently worded in such a way that it is unable to be verified through a finite testing process, e.g., incomplete, imprecise or immeasurable – a signpost that further requirements engineering or formal requirements clarification is needed before a verification process and acceptance criterion could be devised.

3.2 Verification Matrix

Specification requirement	Verification Method
2.1 General System Performance	D, I, P
2.1.1 Visual System Requirements	D, I, P
2.1.1.4 Visual Database	D, P
2.1.1.4.1 Airport Databases	D, P
2.1.1.5 Special Visual Features	D, P
2.1.1.6 Moving Aircraft and Vehicles	D
2.1.1.7 Visual Display Field of View	D
2.1.1.8 Ground Controller's Display	D
2.1.1.9 Aircraft Library	D, I
2.1.1.10 Vehicle Library	D, I

Specification requirement	Verification Method
2.1.1.10.1 Aircraft and Vehicle Effects	D
2.1.1.11 Binocular System	D
2.1.1.11.1 Local Controller Position	D
2.1.1.11.2 Ground Controller Position	D
2.1.1.11.3 Instructor Position	D
2.1.1.12 Situational Awareness Display	D
2.1.1.12.1 [redacted]	D
2.1.1.13 Visual Weather	D
2.1.1.13.1 Cloud Formations	D
2.1.1.13.2 Cloud Ceilings	D
2.1.1.13.3 Visibility	D
2.1.1.13.4 Time of Day/Time of Year	D
2.1.2 Aircraft Performance Characteristics and Profiles	D
2.1.2.1 Performance Characteristics	D
2.1.2.2 Aircraft Profiles	D
2.1.2.3 Aircraft Emergencies	D
2.1.2.4 Barrier Engagement	D
2.1.3 Control Tower Environment	D
2.1.3.1 Tower DBRITE Radar Display	D
2.1.3.2 Airport Environment	D
2.1.4 Digital Wind Indicators	D
2.1.5 Runway Lighting Panel	D
2.1.6 Weather Dissemination Display	D
2.2 Request-and-Acknowledge (RNA) Light Coordination System	D
2.2.1 [redacted]	D
2.3 Light Gun	D
2.4 Automatic Terminal Information Service (ATIS)	D
2.5 [redacted]	D
2.6 Runway Conditions	D
2.7 Voice Recognition/Synthesis	D
2.7.1 Voice Recognition	D
2.7.2 Voice Synthesis	D
2.7.2.1 Voice Communication System	D
2.7.2.2 Student Positions	D
2.8 Instructor Position	D
2.8.1 General Design Provisions	D
2.9 Pseudo-Pilot Function	D
2.9.5.4 Communication function	D
2.9.5.5 TSS Consoles	I

Specification requirement	Verification Method
2.9.5.5.1 [redacted]	D
2.9.5.6 Flight Strips	D
2.9.6 Scenario Recording and Playback	D
2.9.7 Scenario Generation/Modification	D
2.9.8 Security	D
2.9.8.1 Software Security	D
2.9.8.2 System Access	D
2.9.9 Scenario Transportability	D
2.10 Physical Characteristics	D
2.10.1 TSS Size	I
2.10.2 Reliability and Maintainability	A
2.10.3 Power	I, T
2.10.4 Electromagnetic Compatibility	D
2.10.5 Heat and Ventilation	A, I
2.10.6 Environmental Conditions	D, T
2.10.7 Noise	D, T
2.10.8 Packaging, Handling, Shipping, and Transportation	I, D
2.10.9 Facilities	I
2.10.10 Interfaces	I
2.10.11 Environment, Safety, and Health	I, D

4. Quality Characteristics

Simulator Quality

System time shall be kept to an accuracy of +/- one second and shall be displayed on consoles with a granularity of one second.

Facility shall be made for the Instructor or administrator to reset system time and to change the time to and from Summer Time.

Growth and Expansion:

The installed system shall be capable of handling a 50% increase in the number of moving vehicle models while still meeting specified functional and performance requirements.

The installed system shall be designed to be capable of growth by expansion and/or by technology update without system redesign/re-architecting. Note: The intent is that processing capacity, RAM, disk storage capacity, communication bandwidths, number of communications channels/ports, number of peripherals, etc., shall be able to be concurrently doubled.

Supportable Technology:

The System shall use technology that was current at the time of Initial Contract Award.

The System components shall be able to be multi-sourced and shall be likely to be cost-effectively supportable for a 10-year period. For the purposes of this requirement, the ability to make one-for-one substitutions by newer technology is deemed to be a satisfactory alternative.

The use of Commercial-off-the-Shelf (COTS) products and open architecture products shall be maximized.

Build Quality:

Field Replaceable Units shall

- Be readily installed and removed without the use of special tools and jigs
- Bear unique labels that identify each unit
- Be cabled with polarized plugs, or, in the absence of polarized plugs, have clear markings to indicate the correct method of plug insertion
- Have unique labels on each cable, identifying each cable and where each end goes
- Be readily handled without hazard

Software quality:

Software shall be modular, well documented and readily maintainable.

Software shall be based on readily available and well-supported programming languages, operating systems, development tools (e.g., compilers and run-time libraries) and databases.

Software shall employ defensive programming techniques, performing range checking of values and employing robust error handling and reporting techniques.

Appendix A — Aircraft and Vehicle Model Library

The following tables detail the visual models that are included as part of the TSS. The initial library are all those aircraft models that exist at time of writing, the total library is a comprehensive list of all models required as part of the TSS contract.

Initial Aircraft / Vehicle Library

Fairchild Republic A-10 Thunderbolt	McDonnell Phantom II
Rockwell B-1 Lancer	Grumman F-14 Tomcat
Northrop Grumman B-2 Spirit	McDonnell Douglas F-15C Eagle
Boeing B-52 Sratofortress (BUFF)	General Dynamics F-16C Fighting Falcon
B747 Air force One	McDonnell Douglas F/A-18A Hornet
Boeing 737-200 (T-43A)	Lockheed F-117 Nighthawk
Boeing 747-200	McDonnell Douglas DC9 Civil
Boeing 757-200	Boeing KC-135R Stratotanker
Beechcraft Super King 200 series (C-12 Huron)	Lear Jet 35
Lockheed C-5 Galaxy	Piper 140
Boeing/McDonnell Douglas C-17 Globemaster	McDonnell Douglas AV-8B Harrier II V/STOL
Lockheed EC-130H Hercules	Glider
Lockheed C-141B Starlifter	Raytheon T-6A Texan II
Cessna Skylane 172 USAF & Civil	Cessna T-37A Tweet
McDonnell Douglas DC-9 (C9) Nightingale	Northrop T-38 Talon
Boeing 707 E3 Sentry (AWACS)	Bell Helicopters CH-47D Chinook
Boeing 747-200 modified (NAOC) E4	
Grumman EA-6B Prowler	

Miscellaneous:	
Crop Duster	
Paratroops	
Birds	

Ground Vehicles	
Step Van	Barrier Maintenance Vehicle
Airfield lighting vehicle	Snow Plough
K Loader	Pick up truck
Fire truck	Push back truck (AC towing)

Ambulance	Pavement Maintenance
Sedan	Follow me car
Tractor/grass cutter	Sweeper

Total Library

Air force Aircraft	T3AFirefly
A-10 Thunderbolt II	F-15 Eagle
AC-130H Specter	F-16 Falcon
B-1B Lancer	F-22 Raptor
B-2 Spirit	F-5E Tiger 2
B-52 Sratofortress	KC-10A Extender
C-12 Huron	KC-135 Stratotanker
C-130 Hercules	LR-35
C-141B Starlifter	MH-53J Pave Low
C-17A Globemaster	MH-60G Pave Hawk
C-20 Gulfstream IV	OV-10 Bronco
C-21A	RC-135U Combat Sentry
C-22B	SR-71 Black Bird
C-5 Galaxy	T-1A Jayhawk
C-9A Nightingale	T-2C Buckeye
E-2C Hawkeye	T-37 Tweet
E-3A Sentry	T-38 Talon
E-4B NEACP	T-42A Cochise
E-6A TACAMO	T-6A Texan II
E-8C Joint Stars	U-2S
F-111 Aardvark	VC-137C
F-117A Nighthawk	VC-25A Air Force One
	VC9C

Navy Aircraft	
C-2 Greyhound	S-3 Viking
EA-6B Prowler	S-4
F-14 Tomcat	T-34 Chipmunk
F/A-18 Hornet	T-44
P-3C Orion	T-45 Goshawk
S-1	UH-60

Marine Aircraft	
AV-8B Harrier	MV-22 Osprey

Army Aircraft	
UH-1 Huey	OH-58
AH-6	OH-6
CH-47 Chinook	AH-64 Apache

Commercial Aircraft	
Boeing 707	Airbus A300
Boeing 727	McDonald Douglas DC-9
Boeing 737	Fokker F100
Boeing 747	McDonald Douglas Lockheed L-1011
Boeing 757	McDonald Douglas MD11
Boeing 767	McDonald Douglas MD80
Boeing 777	McDonald Douglas MD90

Non US Aircraft	
F-4 Phantom	F3 Tornado
JA37 Viggen	Jaguar
JAS 39 Gripen	Eurofighter Typhoon
MiG 29 Fulcrum	MiG-23 Flogger
Mirage 2000	MiG-31 Foxhound
Su-37 Flanker	MiG-25 Foxbat
Hunter	GR1 Tornado

Miscellaneous	
RQ-4A Global Hawk	C-182 Cessna
RQ-1A Predator	206 B3 Jet Ranger
PA-28	230 EMS& Corp.
PA-32	300C Law & utility
PA-34	
C-172 Cessna	
Balloon	
Bird flock	
Paratroops	

Ground Vehicles	
Step Van	Barrier Maintenance Vehicle
Airfield lighting vehicle	Snow Plough
K Loader	Pick up truck

Fire truck	Push back truck (AC towing)
Ambulance	Pavement Maintenance
Sedan	Follow me car
Tractor/grass cutter	Sweeper

Appendix B — Glossary

- Ansi-lumens – Standard unit for measurement of light.
- Anti-aliasing – A technique whereby pixels overlapping with polygon boundaries are modulated in order to reduce the effects of "stair stepping" along the boundaries.
- Aspect ratio – The ratio of the length of a display screen to the height of the display screen
- Channel – A single window image displayed on a screen.
- Color Convergence – The color White is composed of mixed Red, Green and Blue (RGB). To achieve a pixel showing a perfect square of White, the (RGB) colors must be perfectly aligned.
- Design Eyepoint – The point in the center of the tower that is equidistant from the screen surfaces.
- Ephemeris model – A model which uses solar data to calculate the position of the sun and moon according to the time of day and calendar date.
- Field Of View – FOV. The vertical and horizontal angles subtended from the design eyepoint to the screen edges. The channel FOV and the Screen FOV angles should match.
- Geometry – The positional accuracy of scene details measured in angular terms from the design eye point.
- Hot Target – An aircraft or vehicle added to a running scenario that was not defined as part of the scenario creation.
- Level Of Detail – LOD. Moving models are created in multiple levels of detail to aid database management. Distant models are displayed in reduced detail allowing the Image Generator to process closer models in greater detail.
- Luminance – Measured brightness of the projected image from the design eyepoint.
- Occultation – The visual obstruction of some scene elements on others.
- OpenFlight – An industry standard format for 3D modeling
- Pixel – Picture Element – the smallest individually addressable part of a picture.
- Resolution – The ability of the observer to resolve tiny details in the scene.
- Scene – The displayed visual database, all moving models and special effects as viewed from the tower eyepoint.
- Screen – A single physical surface of the projection display screen.
- Tower eyepoint – Position of the observer within the visual database.

- Visual database – A digital model of the airfield.
- Z buffer – A technique supporting correct occultation whereby the pixel displayed belongs to the scene element at the closest range to the tower eyepoint.
- Polygon – A planar convex surface defined by three or more points connected by straight edges.
- Texture – The application of a 2D pattern onto the surface of a polygon to enhance realism.

Tower Simulation System (TSS)

Attachment 4
Contract Data Requirements List (CDRL)

Prepared for:

Training Systems Product Group
Aeronautical Systems Center
Wright-Patterson Air Force Base, Ohio 45433-7111

Prepared by:

ADACEL

Document Number: 9950-00030-V3-ATT4-CDRL
Contract Number: F33657-01-C-0025

~~March 11, 2002~~~~03 Jun~~22 May 2002
~~Original~~

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LIST OF EFFECTIVE PAGES

Dates of issue for original and changed pages are:

Original	~~TBD~~02 Apr 02	Contract Award

TABLE OF CONTENTS

TITLE 1

~~STATEMENT OF CONFIDENTIALITY AND COPYRIGHT ..... 2~~

LIST OF EFFECTIVE PAGES ..... ~~3~~2

TABLE OF CONTENTS ..... ~~4~~3

GENERAL INSTRUCTION ..... ~~5~~4

CDRL ADDRESS LIST ..... ~~8~~7

EXHIBIT A CDRLs ..... ~~9~~8

TABLE OF CONTENTS ..... ~~10~~9

A001 Conference Agenda ..... ~~11~~10
A002 Conference Minutes ..... ~~12~~11
A003 Contract Change Proposal ..... ~~13~~12
A004 Instructional Media Package ..... ~~14~~13
A005 Engineering Change Proposal ..... ~~15~~14
A006 Request for Deviation ..... ~~16~~15
A007 Specification Change Notice ..... ~~17~~16
A008 ~~Request for Nomenclature~~Reserved ..... ~~18~~17
A009 Facility Design Criteria ..... ~~19~~18
A010 Technical Report-Study/Services ..... ~~20~~19
A011 Test Plan ..... ~~21~~20
A012 Test Procedures ..... ~~22~~21
A013 Commercial Off-the-Shelf Manual (COTS) ..... ~~23~~22
A014 Site Survey Report (SSR) ..... ~~24~~23
A015 Management Plan 24
A016 Integrated Logistics Support Plan 25
A017 Contractor's Configuration Management Plan 26

EXHIBIT B CDRLs ..... ~~25~~27

TABLE OF CONTENTS ..... ~~26~~28

B001 Engineering and Technical Services ..... ~~27~~29
B002 Contract Field Service Report (CFSR) ..... ~~28~~30
B003 Engineering Services Memorandum ..... ~~29~~31

GENERAL INSTRUCTIONS

1.0 SCOPE. The Contract Data Requirements List (CDRL) establishes the data to be delivered by the Contractor and the submittal, inspection, approval, acceptance and distribution requirements of all the CDRL items contained herein.

2.0 GENERAL. The Data Item Descriptions (DIDs) specified in the CDRL are in the Department of Defense (DoD) 5010.12-L, Volume II, Acquisition Management System and Data Requirements Control List (AMSDL) and the Acquisition Streamlining and Standardization Information System (ASSIST) (http://dodssp.daps.mil/assist.htm).

3.0 DATA APPROVAL. The following definitions apply to Block 8 of the DD Form 1423:

a. An "A" code in Block 8 of the DD Form 1423 denotes Air Force approval is required based on the content of the CDRL item. The government will respond by issuing a Contracting Officer (CO) letter to the contractor indicating approval, approval with comments, or disapproval. Unless otherwise specified in Block 16 of the DD Form 1423, the Air Force response may be anticipated within forty-five (45) days after receipt of the data item. This note does not apply to Engineering Change Proposal (ECPs) and Contract Change Proposals (CCPs).

b. The absence of an "A" in Block 8 does not relieve the contractor of the responsibility of compliance with the content requirements of the applicable data item description. All data submissions are subject to review and approval by the procuring agency for departure of said compliance.

c. Unless otherwise specified, the contractor shall incorporate the recommended changes/revisions and resubmit identified document within thirty (30) calendar days after receipt of such recommendations. Each revised page shall have changes indicated by a vertical line (change bar) down the outer margin opposite the bound edge designating those areas that have been revised. The document revision shall be indicated on the title page and each revised page of the data item submittal.

NOTE: *Flow times specified in Blocks 12 and 13 are shown in calendar days unless otherwise stated on the DD Form 1423. Data with a CDRL submittal date which falls on Saturday, Sunday, or a legal holiday shall be due on the first following work day.*

4.0 MODIFICATION OF DATA REQUIREMENTS.

a. During the performance of this contract, the CO may unilaterally change the place of delivery and technical office for any data line item, at no change in contract price, notwithstanding the provisions of the clause of Section I of the Schedule of the Contract, entitled "Changes".

b. During the performance of this contract, the CO may unilaterally increase or decrease the number of addresses and/or decrease the number of copies (regular or reproducible) specified for any data item of the CDRL. This shall be at no change in price provided that:

1) the increase in the total number of copies for an individual lines item of data shall not be greater than 150% of the total number of copies,
2) the decrease in the total number of copies for an individual item of data be greater than 50% of the total number of copies.

c. During the performance of this contract, the CO may unilaterally make other administrative and clarification changes to the CDRL, and the contract price will constitute full satisfaction of any entitlement of equitable adjustment under the "Changes" clause.

d. Unilateral action pursuant to paragraphs (a) and (b) above shall be by the issuance of a CO letter or message which will reference this paragraph as its authority. Any change pursuant to paragraph (b)

above which does impact the contract price shall not be acted upon by the Contractor but shall require notification of the estimated impact to the CO.

5.0 DATA PREPARATION.

a. Electronic delivery/media of CDRL documents is the preferred delivery method. ~~except for paper copies. The electronic data must comply with the following:~~

b. The contractor shall use software compatible with the current version of Microsoft for creating all TOWERS documents. As the revisions of this software change over time the Government reserves the right to require version updates by all parties, at no additional cost to the Government, by letter from the CO.

c. It is the responsibility of the contractor to transmit all documentation to the organizations listed in Block 14 of the DD Forms 1423. E-Mail addresses will be made available to the contractor.

6.0 DATA TRANSMITTAL.

a. A letter of transmittal shall accompany all data submittals whether hard copy or electronic copy. The letter of transmittal shall include as a minimum: reference to the contract number, program name, data item number, title, CDRL sequence number, revision level and any contractor's control number.

b. In addition to sending the data to the distribution addressees shown in Block 14 of the DD Form 1423, the original copy of the transmittal letter shall be sent to the CO.

c. The contractor shall place a complete list of the addressees at the end of the letter of transmittal. The contractor shall annotate the data recipients (as listed in Block 14 of the DD Forms 1423) and letter of transmittal only recipients as well as the number of copies distributed to each.

d. For the final delivery of each data item, the contractor shall clearly state in the final letter of transmittal that this is the last submittal being made and that all contractual requirements concerning that data item have been fulfilled.

7.0 DISTRIBUTION STATEMENTS.

a. Block 9 on DD Form 1423 designates the requirements for the which of following distribution statement(s) shall be placed on the cover page; with the appropriate document date (except engineering drawings which shall be marked on the top sheet); of all documents:

Distribution Statement A: "Approved for public released; distribution is unlimited"

Distribution Statement B: "Distribution authorized to U.S. Government Agencies only; Proprietary Data; (date of determination). Other requests for this document shall be referred to the Training Systems Product Group, ASC/YWM (Tower Simulation System), 2300 D Street, Wright-Patterson AFB, OH 45433-7249."

Distribution Statement C: "Distribution authorized to U.S. Government agencies and their contractor; Software Documentation (date of determination). Other requests for this document shall be referred to the Training Systems Product Group, ASC/YWM (Tower Simulation System), 2300 D Street, Wright-Patterson AFB, OH 45433-7249."

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b. Additional notices: In addition to the distribution statement, the following notices shall be used when appropriate:

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CDRL ADDRESS LIST

MAILING ADDRESS	OFFICE SYMBOL	e-mail
ASC/ 2300 D Street WPAFB OH 45433-7249	YWMB	kimberly.marshall@wpafb.af.milvirgilia.lemming@wpafb.af.mil dan.pennington@wpafb.af.mil
DCMA-Dayton Bldg 30, Area C 1725 Van Patton Drive Wright-Patterson AFB, OH 45433-5302	GYOI	carmentrout@dcmde.dcma.mildschlatter@dcmde.dcma.mil
AFFSA/ 1535 Command Drive, Ste D-308 Andrews AFB, MD 20762-7002	XRR	donna.creasap@andrews.af.mil
OO-ALC/ 6051 Gum Lane, Bldg 1225 Hill AFB UT 84056-5826	YWT	linda.wong@hill.af.mil
HQ ESC/ 75 Vandenberg Drive Hanscom AFB, MA 01731-2103	GAL	brian.harvie@hanscom.af.mildavid.rosa@hanscom.af.mil

CONTRACT DATA REQUIREMENTS LIST (CDRL)

FOR THE

TOWER SIMULATION SYSTEM
(TSS)

CONTRACT DATA REQUIREMENTS LIST

EXHIBIT A

11 March 2002

~~PREPARED BY~~

ADACEL SYSTEMS, INC
860 GREENVIEW DRIVE, GRAND PRAIRIE, TX 75050

CDRL Table of Contents

Data Item	Authority	Title	SOW
A001	DI-ADMN-81249A/T	Conference Agenda	Section 3.2.1.1, Section 3.2.1.2 Section 3.2.1.2.5
A002	DI-ADMN-81250A	Conference Minutes	Section 3.2.1.1, Section 3.2.1.2 Section 3.2.1.2.5
A003	DI-ADMN-81401A/T	Contract Change Proposal	Section 3.2.1.2.6, Section 3.2.1.6 Section 3.2.4.2.2.7
A004	DI-ALSS-81526A/T	Instructional Media Package	Section 3.2.7.1
A005	DI-CMAN-80639C/T	Engineering Change Proposal	Section 3.2.1.2.6, Section 3.2.1.6, Section 3.2.5.1.6
A006	DI-CMAN-80640C	Request for Deviation	Section 3.2.1.2.6, Section 3.2.1.6
A007	DI-CMAN-80643C	Specification Change Notice	Section 3.2.1.6
~~A008~~	~~DI-CMAN-81254A/T~~	~~Request for Nomenclature~~Deleted	~~Section 3.2.1.3~~
A009	DI-FACR-81451A/T	Facility Design Criteria	Section 3.2.3.1.3
A010	DI-MISC-80508A/T	Technical Report-Study/Services	Section 3.2.2.1.3, Section 3.2.6.2
A011	DI-NDTI-80566A/T	Test Plan	Section 3.2.3.1.9, Section 3.2.3.1.13
A012	DI-NDTI-80603	Test Procedures	Section 3.2.3.1.9, Section 3.2.3.1.13
A013	DI-TMSS-80527A	Commercial Off-the-Shelf Manual (COTS)	Section 3.2.1.3
A014	DI-MISC-81381/T	Site Survey Report (SSR)	Section 3.2.3.1.3
A015	DI-MGMT-80004/T	Management Plan	Section 3.2.1.1
A016	DI-ILSS-80095/T	Integrated Logistics Support Plan	Section 3.2.1.2.3
A017	DI-CMAN-80858B	Contractor's Configuration Management Plan	Section3.2.1.1

CONTRACT DATA REQUIREMENTS LIST

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 440 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington D.C. 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0005	A	TDP TM OTHER ADMN

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A001	Conference Agenda	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ADMN-81249A/T	SOW Section 3.2.1.1, 3.2.1.2, 3.2.1.2.5	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	A	ASREQ	Blk 16

8. APP CODE	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION
		Blk 16

16. REMARKS

Block 4: This data item is tailored as follows:

a. Delete para 10.2.f.

b. Delete para 10.2.i.

c. Delete para 10.2.k.

Blocks 12 and 13: The contractor shall deliver an agenda NLT 14 calendar days prior to each conference, meeting, review, and/or audit.

Block 14: Electronic media is the preferred delivery method.

14. DISTRIBUTION			
	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
ESC/GAL	000	001	000
OO-ALC/YWT	000	001	000
DCM/Dayton	000	001	000
- GYOI			
See Blk 16			
TOTAL	0	5	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilie Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0005	A	TDP TM OTHER ADMN

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A002	Conference Minutes	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ADMN-81250A	SOW Section 3.2.1.1, 3.2.1.2, 3.2.1.2.5	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	A	ASREQ	Blk 16

8. APP CODE	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION
		Blk 16

16. REMARKS

Blocks 12 and 13: The contractor shall deliver the formal minutes ten (10) days after any conference or meeting to all attendees of the conference or meeting, and to those addressees listed in blk 14.

Block 14: Electronic media is the preferred method of delivery.

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
ESC/GAL	000	001	000
OO-ALC/YWT	000	001	000
DCM/Dayton	000	001	000
-GYOI			
See Blk 16			
TOTAL	0	5	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0005	A	TDP TM OTHER ADMN

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A003	Contract Change Proposal	CCP

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ADMN-81401A/T	SOW Section 3.2.1.2.6, 3.2.1.6, 3.2.4.2.2.7	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	D	ASREQ	Blk 16

8. APP CODE	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION
A		Blk 16

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Req	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
DCM/Dayton	000	001	000
-GYOI			
See Blk 16			
TOTAL	0	3	0

16. REMARKS

Block 4:

a. All CCPs shall include a firm/not-to-exceed price with a time limit specified for expiration of that pricing information.

b. The CCP shall include all data to be affected from the contractual implementation of the proposal: i.e, the CCP shall identify applicable data items by sequence number, DID number and title, or shall include proposed new or revised data items.

Block 12 and 13:

a. The contractor shall prepare and submit a CCP whenever a change to any contractual document other than the System Specification is identified.

b. Whenever a CCP is requested by the Government, the contractor shall deliver the CCP in accordance with PCO's direction.

c. The CCP shall be submitted in two volumes as follows (both volumes to be submitted together):

1. Technical Volume
2. Cost Volume

Block 14: The contractor shall deliver the data item by electronic media except one (1) paper copy with original signature to the PCO.

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0001 and 0006	A	TDP TM OTHER ALSS

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A004	Instructional Media Package	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ALSS-81526A/T	SOW Section 3.2.7.1	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	A	ASREQ	Blk 16

8. APP CODE	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION
A		Blk 16

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
TSSC	000	000	001
See Blk 16			
TOTAL	0	2	1

16. REMARKS

Block 4: Delete all but paragraph 3.6.2.

Blocks 12 and 13:

a. Course data files shall be delivered in conjunction with the delivery of the first training system.

b. Training media will be delivered IAW CLIN 0001.

Block 14: CD-ROM is the preferred method of delivery for Computer Based Instruction (CBI) training.

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0005	A	TDP TM OTHER CMAN

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A005	Engineering Change Proposal	ECP

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-CMAN-80639C/T	SOW Section 3.2.1.2.6, 3.2.1.6, 3.2.5.1.6	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	D	ASREQ	Blk 16

8. APP CODE	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION
A		Blk 16

16. REMARKS

Block 4: ECPs shall apply to all au specifications within the contract. Specification Change Notices (DI-CMAN-80643B) shall be used in conjunction with this data item.

Blocks 10, 12 and 13:

a. The contractor shall prepare and submit an ECP whenever a change to an specification is identified and/or in accordance with the PCO letter.

b. The ECP shall be submitted in two parts as follows:

1. Technical volume
2. Cost volume

Block 14: Delivered 1 paper copy and 1 CD ROM if available electronically.

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
DCM/Dayton	000	001	000
-GYOI			
See Blk 16			
TOTAL	0	3	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CMDM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

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A. CONTRACT LINE ITEM NO. 0005	B. EXHIBIT A	C. CATEGORY: TDP TM OTHER CMAN
D. SYSTEM / ITEM TOWER SIMULATION SYSTEM	E. CONTRACT / PR NO. F33657-01-C-0025	F. CONTRACTOR ADACEL
1. DATA ITEM NO. A006	2. TITLE OF DATA ITEM Request for Deviation	3. SUBTITLE RFD
4. AUTHORITY (Data Acquisition Document No.) DI-CMAN-80640C	5. CONTRACT REFERENCE SOW Section 3.2.1.2.6, 3.2.1.6	6. REQUIRING OFFICE ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	D	ASREQ	Blk 16
8. APP CODE		**11. AS OF DATE**	**13. DATE SUBSEQUENT SUBMISSION**
A			Blk 16

16. REMARKS

Blocks 12 and 13:

a. Submit as required to request deviations.

Block 14: The contractor shall deliver the data item by electronic media except for one (1) paper copy with original signature to the PCO.

14. DISTRIBUTION			
a. ADDRESSEE	b. COPIES		
	Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
DCM/Dayton	000	001	000
-GYOI			
See Blk 16			
TOTAL	0	3	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0005	A	TDP TM OTHER CMAN

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A007	Specification Change Notice	SCN

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-CMAN-80643C	SOW Section 3.2.1.6	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	A	ASREQ	Blk 16

8. APP CODE	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION

16. REMARKS

Block 12: Submit the draft SCN with the ECP (DI-CMAN-80639B). Note: final submission of an approved SCN is not required.

Block 14: Deliver 1 paper copy and 1 CD ROM if available electronically.

M

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
DCM/Dayton	000	001	000
-GYOI			
See Blk 16			
TOTAL	0	3	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~ 02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~ 02-Jun-02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0005	A	TDP TM OTHER CMAN

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A008	DeletedRequest for Nomenclature	Request for Nomenclature

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-CMAN-81284A/T	SOW Section 3.2.1.3	ASC/YWMB

7. DD 250 REQ	8. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	A	OTIME	Blk 16

9. APP CODE	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION

16. REMARKS

Block 4: This data item is tailored as follows: para 10.2.2., submit request through: ASC/YWMB, ATTN: Tom Harris, 2240 B Street, Room 150, WPAFB OH, 45433

Block 12:

a. Submit 60 calendar days after contract award.

Block 14: Electronic media is the preferred method of delivery.

14. DISTRIBUTION			
a. ADDRESSEE	b. COPIES		
	Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
OO-ALC/YWT	000	001	000
DCM/Dayton	000	004	000
GYOI			
See Blk 16			
TOTAL	0	3	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CMDM (MTC)	11 Mar 02 Jun 02	Tom Harris Program Manager	11 Mar 02 Jun 02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0005	A	TDP TM OTHER FACR

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A009	Facility Design Criteria	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-FACR-81451/T	SOW Section 3.2.3.1.3	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	A	ONE/R	Blk 16

8. APP CODE	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION
		Blk 16

16. REMARKS

Block 4: This data item is tailored as follows.

a. Delete para 10.2.a.(2)

b. Delete para 10.2.b.

c. Delete para(s) 10.2.c (1) and (2).

d. Delete para 10.2.c(3), delete subparagraphs d, e, g, h and j.

e. Para 10.2.c(4), delete subparagraphs a and b.

f. Para 10.2.c(4)c., delete subparagraphs 1, 5, 6, 7 and 8.

g. Para 10.2.c(4)d., delete subparagraphs 1, 3, and 7.

Blocks 12 and 13:

a. First draft submittal is due with proposal with a minimum outlining TSS power and HVAC requirements.

b. Final delivery is due 45 calendar days after contract award.

c. Revisions as required to update information.

Block 14: Electronic media is the preferred method of delivery.

14. DISTRIBUTION			
	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
ESC/GAL	000	001	000
DCM/Dayton	000	001	000
-GYOI			
See Blk 16			
TOTAL	0	4	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0005	A	TDP TM OTHER MISC

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A010	Technical Report-Study/Services	Technical Refresh Requirements

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MISC-80508A/T	SOW Section 3.2.2.1.3, 3.2.6.2	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION	14. DISTRIBUTION
LT	A	R/ASR	Blk 16	
8. APP CODE		11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION	

16. REMARKS

Block 4: Contractor format is acceptable.

Block 12: The submittal shall be delivered no later than 30 Sep 2004.

Block 14: Electronic media is the preferred method of delivery.

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
TOTAL	0	2	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11 Mar 02~~02-Jun-02	Tom Harris Program Manager	~~11 Mar 02~~02-Jun-02

DD FORM 1423-1, JUN 90 Computer Generated *Previous editions are obsolete* Page 1 of 1

CONTRACT DATA REQUIREMENTS LIST

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0005	A	TDP TM OTHER NDTI

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A011	Test Plan	System Test Plan

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-NDTI-80566A/T	SOW Section 3.2.3.1.9, 3.2.3.1.13	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	A	ONE/R	Blk 16

8. APP CODE	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION
A		Blk 16

16. REMARKS

Block 4: This data item is tailored as follows:

a. Para 10.3.7, put a period after 'performed' and delete rest of sentence.

b. Delete para(s) 10.3.9.2, 10.3.9.3, 10.3.9.6 10.3.9.10, 10.3.9.11, 10.3.9.12, 10.3.9.13 and 10.3.10.

c. Para 10.3.9.7, delete subparagraph c.

d. Para 10.3.9.8, delete subparagraphs c, d, e and f.

e. Para 10.3.9.9, delete subparagraph c.

Blocks 12 and 13:

a. Draft submittal is required with the contractor's proposal.

b. Final submittal is due 45 calendar days prior to start of test.

Block 14: Electronic media is the preferred method of delivery.

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
DCM/Dayton	000	001	000
-GYOI			
See Blk 16			
TOTAL	0	3	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0005	A	TDP TM OTHER NDTI

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A012	Test Procedures	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-NDTI-80603A	SOW Sections 3.2.1.9, 3.2.3.1.13	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT		OTIME	Blk 16
8. APP CODE	A	**11. AS OF DATE**	**13. DATE SUBSEQUENT SUBMISSION**

16. REMARKS

Block 12: Submittal is due 45 calendar days before conduct of in-plant testing.

Block 14: Electronic media is the preferred method of delivery.

14. DISTRIBUTION a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
DCM/Dayton	000	001	000
-GYOI			
See Blk 16			
TOTAL	0	3	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

DD FORM 1423-1, JUN 90 Computer Generated *Previous editions are obsolete* **Page 1 of 1**

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0005	A	TDP TM OTHER TMSS

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A013	Commerical Off-the-Shelf Manual and Associated	COTS

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-TMSS-80527A	SOW Section 3.2.1.3	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	A		Blk 16

8. APP CODE	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION
		Blk 16

16. REMARKS

Blocks 12 and 13:

a. Deliver the COTS manual concurrent with the delivery of the Training Device.

b. Revisions as required to keep data current with the equipment.

Block 14:

a. One copy of the manual shall be delivered to each site.

b. Electronic media is the preferred method of delivery.

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
Each Site	000	001	000
DCM/Dayton	000	001	000
-GYOI			
ASC/YWMB		LTR	ONLY
Blk 16			
TOTAL	0	2	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
	A	TDP TM OTHER MISC

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A014	Site Survey Report (SSR)	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MISC-81381/T	SOW Section 3.2.3.1.3	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT		ASREQ	Blk 16
8. APP CODE		**11. AS OF DATE**	**13. DATE SUBSEQUENT SUBMISSION**
	A		Blk 16

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
ASC/YWMB	0000	001	000
AFFSA/XRR	000	001	000
See Blk 16			
TOTAL	0	2	0

16. REMARKS

Block 4: This data item is tailored as follows: delete paragraphs 10.2 through 10.2.5.

Blocks 12 and 13:

The report shall be submitted within 15 days of each site survey.

Block 14: Electronic media is the preferred delivery method.

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

DD FORM 1423-1, JUN 90 Computer Generated *Previous editions are obsolete* Page 1 of 1

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
	A	TDP TM OTHER MGMT

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A015	Management Plan	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MGMT-80004/T	SOW Section 3.2.1.1	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION	14. DISTRIBUTION
LT	D	ANNLY		
8. APP CODE		11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION	
A				

16. REMARKS

Block 4 is tailored as follows:

a. The Management Plan shall be prepared in contractor format. The Management Plan shall be in accordance with the contractor's processes and procedures, or as specified in the contract.

b. Delete paragraphs 10.1 through 10.3.7.

Blocks 12 and 13:

a. The contractor shall deliver the Management Plan 90 days after contract award.

b. If no changes have occurred during the year, a letter of transmittal stating such shall suffice.

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
OO-ALC/YWT	000	001	000
DCMA/Dayton -GYOI	000	001	000
TOTAL	0	4	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	02-Jun-02	Tom Harris Program Manager	02-Jun-02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
	A	TDP TM OTHER ILSS

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A016	Integrated Logistics Support Plan	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ILSS-80095/T	SOW Section 3.2.1.2.3	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT		ANNLY	Blk 16
8. APP CODE		**11. AS OF DATE**	**13. DATE SUBSEQUENT SUBMISSION**
A	D		Blk 16

16. REMARKS

Block 4 is tailored as follows:

a. The ILSP shall be prepared in contractor format. The ILSP shall be in accordance with the contractor's processes and procedures, or as specified in the contract.

b. Delete paragraphs 10.1 through 10.11.3.

Blocks 12 and 13:

a. The contractor shall deliver the ILSP 90 days after contract award.

b. If no changes have occurred during the year, a letter of transmittal stating such shall suffice.

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
OO-ALC	000	001	000
DCMA/Dayton	000	001	000
-GYOI			
TOTAL	0	4	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	02-Jun-02	Tom Harris Program Manager	02-Jun-02

DD FORM 1423-1, JUN 90 Computer Generated *Previous editions are obsolete* Page 1 of 1

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
	A	TDP TM OTHER CMAN

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A017	Contractor's Configuration Management Plan	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-CMAN-80858B	SOW Section 3.2.1.6	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION	14. DISTRIBUTION
LT	D	ANNLY		
8. APP CODE		11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION	
A				

16. REMARKS

Blocks 12 and 13:

a. The contractor shall deliver the CMP 90 days after contract award.

b. The contractor shall submit an update 90 days after activation of the TSSC.

c. If no changes have occurred during the year, a letter of transmittal stating such shall suffice.

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
DCMA/Dayton	000	001	000
-GYO/			
See Blk 16			
TOTAL	0	3	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Vimalia Lemming CM/DM (MTC)	02-Jun-02	Tom Harris Program Manager	02-Jun-02

DD FORM 1423-1, JUN 90 Computer Generated *Previous editions are obsolete* Page 1 of 1

CONTRACT DATA REQUIREMENTS LIST (CDRL)

FOR THE

TOWER SIMULATION SYSTEM
(TSS)

CONTRACT DATA REQUIREMENTS LIST

EXHIBIT B

11 March 2002

~~PREPARED BY~~

ADACEL SYSTEMS, INC
860 GREENVIEW DRIVE, GRAND PRAIRIE, TX 75050

CDRL Table of Contents

Data Item	Authority	Title	SOW
B001	DI-MGMT-80061A/T	Engineering and Technical Services	Section 3.2.4.2.2.12, Section 3.2.5.1.7
B002	DI-MGMT-81238/T	Contract Field Service Report (CFSR)	Section 3.2.5.1.8
B003	DI-MISC-80748A	Engineering Services Memorandum	Section 3.2.5.1.9

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OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0007	B	TDP X TM OTHER

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
B001	Engineering and Technical Services	Accomplishment

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MGMT-80061A/T	SOW Section 3.2.4.2.2.12, 3.2.5.1.7	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
LT	A	MTHLY	Blk 16

8. APP CODE	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION
		Blk 16

16. REMARKS

Block 4: This data items is tailored as follows: Para 10.2.11, delete the remainder of the sentence after 'revised completion date'.

Block 12 and 13:

a. First submittal due 10 days after the last day of the month, begining with the first month of TSSC effort for the basic award and each exercised TSSC option.

b. Subsequent submittals are due 10 days after the end of the month thereafter.

Block 14: Electronic media is the preferred method of delivery.

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
OO-ALC/YWT	000	001	000
DCM/Dayton	000	001	000
-GYOI			
See Blk 16			
TOTAL	0	4	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

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Page 1 of 1

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0007	B	TDP X TM OTHER

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
B002	Contract Field Service Report	CFSR

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MGMT-81238/T	SOW Section 3.2.5.1.8	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION	14. DISTRIBUTION
LT		MTHLY	Blk 16	
8. APP CODE	A	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION Blk 16	

16. REMARKS

Block 4: This data item is tailored as follows:
Delete para 10.2.15.f.

Block 12 and 13:

a. First submittal is due 10 days after the last day of the month, begining with the first month of CLS for the basic award and each exercised CLS option.

b. Subsequent submittals are due 10 days after the end of the month of CLS.

Block 14: Electronic media is the preferred method of delivery.

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
OO-ALC/YWT	000	001	000
DCM/Dayton	000	001	000
-GYOI	000	001	000
See Blk 16			
TOTAL	0	5	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY:
0007	A	TDP TM OTHER MISC

D. SYSTEM / ITEM	E. CONTRACT / PR NO.	F. CONTRACTOR
TOWER SIMULATION SYSTEM	F33657-01-C-0025	ADACEL

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
B003	Engineering Services Memorandum	ESM

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MISC-80748A	SOW Section 3.2.5.1.9	ASC/YWMB

7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION	14. DISTRIBUTION
LT		ASREQ	Blk 16	
8. APP CODE	A	11. AS OF DATE	13. DATE SUBSEQUENT SUBMISSION Blk 16	

16. REMARKS

Blocks 12 and 13: Submit as required when tasking is provided by the PCO.

Block 14: Electronic media is the preferred method of delivery.

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
ASC/YWMB	000	001	000
AFFSA/XRR	000	001	000
DCM/Dayton	000	001	000
-GYOI			
See Blk 16			
TOTAL	0	3	0

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE
Virgilia Lemming CM/DM (MTC)	~~11-Mar-02~~02-Jun-02	Tom Harris Program Manager	~~11-Mar-02~~02-Jun-02

DD FORM 1423-1, JUN 90 Computer Generated *Previous editions are obsolete* Page 1 of 1

PRICING MATRIX
FOR THE
TOWER SIMULATOR SYSTEM (TSS)

DATE: 11 March 2002

Original

Prepared for:

Training Systems Product Group
Aeronautical Systems Center
Wright-Patterson Air Force Base, Ohio 45433-7111

This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed – in whole or in part – for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of – or in connection with – the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in all pages.

Example CLIN 0001

SubCLIN 0001AB					
Quantity Break Points	TSS Unit Price	Overseas Delivery Unit Price	CONUS Deliver Unit Price	First Delivery After Receipt of Order (ARO) {*In Months*}	Quantity To Be Delivered Per Month After The First Delivery
1 to 5 Units					
6 to 10 Units		$Y			
11 to 20 Units			$Z		
21 to 30 Units	$X			7 mo.	3 per mo.
31 to 40 Units					
41 to 50 Units					
51 to 60 Units					
61 to 72 Units					

Below is an example of how the pricing matrix will be employed to derive the prices and delivery schedule for CLIN 0001.

Assume in CY03, 23 systems are procured. 8 systems are being procured for oversea sites and 15 for CONUS sites. In this example, the price for SubCLIN 0001AB would be derived in the following manner:

SubCLIN 0001AB price = (23)($X) + (8)($Y) + (15)($Z)

The delivery schedule would appear as follows in Section F for SubCLIN 0001AB:

Whiteman AFB	7 mo. ARO
Kelly-Lackland AFB	8 mo. ARO
Davis-Monthan AFB	8 mo. ARO
Edwards AFB	8 mo. ARO
Elmendorf AFB	9 mo. ARO
Osan AB	9 mo. ARO
Yokota AB	9 mo. ARO
Etc.	

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Example CLIN 0004

SubCLIN 0004AB, CY04 CLS			
Quantity Break Points	Overseas Support Unit Price	CONUS Support Unit Price	~~Annual Software License Fee Unit Price~~
1 to 5 Units			
6 to 10 Units	$A		
11 to 20 Units		$B	
21 to 30 Units			
31 to 40 Units			
41 to 50 Units			
51 to 60 Units			~~$C~~
61 to 70 Units			

Below is an example of how the pricing matrix will be employed to derive the prices for CLIN 0004.

The price for CLIN 0004 will be derived based upon the number of systems procured in the past.

Assumption for this example:

3 systems were procured in CY02:	1 Overseas	2 CONUS
23 systems were procured in CY03:	8 Overseas	15 CONUS
30 systems are being procured in CY04:	10 Overseas	20 CONUS

To derive the quantity for the CY04 "Overseas Support" and "CONUS Support", only add the quantities procured in CY02 and CY03, do not include the quantities being procured in CY04 since these items will be under warranty. See Special Provision SP-002 for further details.

3 systems were procured in CY02:	1 Overseas	2 CONUS
23 systems were procured in CY03:	8 Overseas	15 CONUS
	9 Overseas	17 CONUS

~~In deriving the quantity for annual software license fee for CY04, the quantities for CY04 do need to be counted.~~

~~3 systems were procured in CY02:~~	~~1 Overseas~~	~~2 CONUS~~
~~23 systems were procured in CY03:~~	~~8 Overseas~~	~~15 CONUS~~
~~30 systems are being procured in CY04:~~	~~10 Overseas~~	~~20 CONUS~~
~~Total~~	~~19 Overseas + 37 CONUS = 56 systems~~	

In this example, the price for SubCLIN 0004AB would be derived in the following manner:

SubCLIN 0004AB price = (9)($A) + (17)($B) ~~+ (56)($C)~~

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SubCLIN 0001AA					
Quantity Break Points[1]	TSS Unit Price	Overseas Delivery Unit Price[2]	CONUS Delivery Unit Price[3]	First Delivery After Receipt of Order (ARO) {*In Months*}	Quantity To Be Delivered Per Month After The First Delivery[4]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

SubCLIN 0004AA			
Quantity Break Points	Overseas Support Per Unit	CONUS Support Per Unit	~~Annual Software License Fee Per Unit~~
1 to n	[redacted]	[redacted]	

[1]The price *shall* include all the costs associated with delivering the system to an Overseas site including system assembly, installation, checkout, and host base interface, import duties, taxes, and Value Added Taxes. See pricing assumption No. 2, Volume III – Contract Documentation, Page 2.
[3] The price shall include all the costs associated with delivering the system to a CONUS site including system assembly, installation, checkout, and host base interface.
[4] In order to comply with the government funding laws, all deliveries shall be completed within 12 months after the first delivery. For example, if 49 systems were procured on 15 Nov 02 and the first delivery was 6 months ARO (or 15 May 03), the remaining 48 systems would have to be delivered and installed at a rate of 4 per month in order to complete deliveries before 15 May 04.

Use or disclosure of data contained on this page is subject to the restriction on the title page of this proposal or quotation.

SubCLIN 0001AB					
Quantity Break Points[5]	TSS Unit Price	Overseas Delivery Unit Price[6]	CONUS Delivery Unit Price[7]	First Delivery After Receipt of Order (ARO) *{In Months}*	Quantity To Be Delivered Per Month After The First Delivery[8]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

SubCLIN 0004AB			
Quantity Break Points	Overseas Support Per Unit	CONUS Support Per Unit	~~Annual Software License Fee Per Unit~~
1-n	[redacted]	[redacted]	

[6] The price shall include all the costs associated with delivering the system to an Overseas site including system assembly, installation, checkout, and host base interface, import duties, taxes, and Value Added Taxes. See pricing assumption No. 2, Volume III – Contract Documentation, Page 2.

[7] The price shall include all the costs associated with delivering the system to a CONUS site including system assembly, installation, checkout, and host base interface.

[8] In order to comply with the government funding laws, all deliveries shall be completed within 12 months after the first delivery. For example, if 49 systems were procured on 15 Nov 02 and the first delivery was 6 months ARO (or 15 May 03), the remaining 48 systems would have to be delivered and installed at a rate of 4 per month in order to complete deliveries before 15 May 04.

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SubCLIN 0001AC					
Quantity Break Points	TSS Unit Price	Overseas Delivery Unit Price[9]	CONUS Delivery Unit Price[10]	First Delivery After Receipt of Order (ARO) {*In Months*}	Quantity To Be Delivered Per Month After The First Delivery[11]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

CLIN 0004AC			
Quantity Break Points	Overseas Support Per Unit	CONUS Support Per Unit	~~Annual Software License Fee Per Unit~~
1-n	[redacted]	[redacted]	

[9] The price shall include all the costs associated with delivering the system to an Overseas site including system assembly, installation, checkout, and host base interface, import duties, taxes, and Value Added Taxes. See pricing assumption No. 2, Volume III – Contract Documentation, Page 2.

[10] The price shall include all the costs associated with delivering the system to a CONUS site including system assembly, installation, checkout, and host base interface.

[11] In order to comply with the government funding laws, all deliveries shall be completed within 12 months after the first delivery. For example, if 49 systems were procured on 15 Nov 02 and the first delivery was 6 months ARO (or 15 May 03), the remaining 48 systems would have to be delivered and installed at a rate of 4 per month in order to complete deliveries before 15 May 04.

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SubCLIN 0001AD					
Quantity Break Points	TSS Unit Price	Overseas Delivery Unit Price[12]	CONUS Delivery Unit Price[13]	First Delivery After Receipt of Order (ARO) {*In Months*}	Quantity To Be Delivered Per Month After The First Delivery[14]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

SubCLIN 0004AD			
Quantity Break Points	Overseas Support Per Unit	CONUS Support Per Unit	~~Annual Software License Fee Per Unit~~
1-n	[redacted]	[redacted]	

[12] The price shall include all the costs associated with delivering the system to an Overseas site including system assembly, installation, checkout, and host base interface, import duties, taxes, and Value Added Taxes. See pricing assumption No. 2, Volume III – Contract Documentation, Page 2.

[13] The price shall include all the costs associated with delivering the system to a CONUS site including system assembly, installation, checkout, and host base interface.

[14] In order to comply with the government funding laws, all deliveries shall be completed within 12 months after the first delivery. For example, if 49 systems were procured on 15 Nov 02 and the first delivery was 6 months ARO (or 15 May 03), the remaining 48 systems would have to be delivered and installed at a rate of 4 per month in order to complete deliveries before 15 May 04.

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SubCLIN 0001AE					
Quantity Break Points	TSS Unit Price	Overseas Delivery Unit Price[15]	CONUS Delivery Unit Price[16]	First Delivery After Receipt of Order (ARO) *{In Months}*	Quantity To Be Delivered Per Month After The First Delivery[17]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

SubCLIN 0004AE			
Quantity Break Points	Overseas Support Per Unit	CONUS Support Per Unit	~~Annual Software License Fee Per Unit~~
1 to n	[redacted]	[redacted]	

[15] The price shall include all the costs associated with delivering the system to an Overseas site including system assembly, installation, checkout, and host base interface import duties, taxes, and Value Added Taxes. See pricing assumption No. 2, Volume III – Contract Documentation, Page 2.

[16] The price shall include all the costs associated with delivering the system to a CONUS site including system assembly, installation, checkout, and host base interface.

[17] In order to comply with the government funding laws, all deliveries shall be completed within 12 months after the first delivery. For example, if 49 systems were procured on 15 Nov 02 and the first delivery was 6 months ARO (or 15 May 03), the remaining 48 systems would have to be delivered and installed at a rate of 4 per month in order to complete deliveries before 15 May 04.

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SubCLIN 0001AF					
Quantity Break Points	TSS Unit Price	Overseas Delivery Unit Price[18]	CONUS Delivery Unit Price[19]	First Delivery After Receipt of Order (ARO) *{In Months}*	Quantity To Be Delivered Per Month After The First Delivery[20]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

SubCLIN 0004AF			
Quantity Break Points	Overseas Support Per Unit	CONUS Support Per Unit	~~Annual Software License Fee Per Unit~~
1 to n	[redacted]	[redacted]	

[18] The price shall include all the costs associated with delivering the system to an Overseas site including system assembly, installation, checkout, and host base interface, import duties, taxes, and Value Added Taxes. See pricing assumption No. 2, Volume III – Contract Documentation, Page 2.

[19] The price shall include all the costs associated with delivering the system to a CONUS site including system assembly, installation, checkout, and host base interface.

[20] In order to comply with the government funding laws, all deliveries shall be completed within 12 months after the first delivery. For example, if 49 systems were procured on 15 Nov 02 and the first delivery was 6 months ARO (or 15 May 03), the remaining 48 systems would have to be delivered and installed at a rate of 4 per month in order to complete deliveries before 15 May 04.

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SubCLIN 0004AG			
Quantity Break Points	Overseas Support Per Unit	CONUS Support Per Unit	~~Annual Software License Fee Per Unit~~
1 to n	[redacted]	[redacted]	

SubCLIN 0004AH			
Quantity Break Points	Overseas Support Per Unit	CONUS Support Per Unit	~~Annual Software License Fee Per Unit~~
1-n	[redacted]	[redacted]	

SubCLIN 0004AJ			
Quantity Break Points	Overseas Support Per Unit	CONUS Support Per Unit	~~Annual Software License Fee Per Unit~~
1 to n	[redacted]	[redacted]	

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CONTRACT FILES

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE: J - FFP

PAGE OF PAGES: 1 of 17

2. AMENDMENT/MODIFICATION NO.: P00002

3. EFFECTIVE DATE: JUL 24 2002

4. REQUISITION/PURCHASE REQ.NO.:

5. PROJECT NO. (If applicable):

6. ISSUED BY ASC/YWM CODE FA8621

USAF/AFMC
HQ AERONAUTICAL SYSTEMS CENTER
2300 D STREET
WRIGHT-PATTERSON AFB OH 45433-7249
JACK K. MYLAN (937) 255-7288 X3464
Jack.Mylan@wpafb.af.mil

7. ADMINISTERED BY (If other than Item 6) CODE S3605A

DCMA DAYTON
AREA C BUILDING 30
1725 VAN PATTON DRIVE
WRIGHT-PATTERSON AFB OH 45433-5302

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)

ADACEL SYSTEMS, INC.
860 GREENVIEW DRIVE
GRAND PRAIRIE TX 75050
(972) 522-9100

MAILING DATE
JUL 24 2002

CODE 2AA91 FACILITY CODE

(X) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

X 10A. MODIFICATION OF CONTRACT/ORDER NO. F33657-01-C-0025

10B. DATED (SEE ITEM 13) 02 APR 2002

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATION OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(X)

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: ( ) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: 43.103(a)(3) Mutual Agreement of the Parties

D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

SUBJECT: NO COST SUPPLEMENTAL AGREEMENT INCORPORATING POST AWARD CONFERENCE ADMINISTRATIVE CHANGES
CHANGE IN CONTRACT PRICE: NONE
CHANGE IN CONTRACT OBLIGATION: NONE
CONTRACTING OFFICER: Dan.Pennington@wpafb.af.mil; 937-255-7288 x3437

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print): ROBERT MONTCALM - CORPORATE SECRETARY

16A. NAME AND TITLE OF SIGNER (Type or print): DAN PENNINGTON, Contracting Officer

15B. CONTRACTOR/OFFEROR: (Signature of person authorized to sign)

15C. DATE SIGNED: Jul 16/02

16B. UNITED STATES OF AMERICA: BY Dan Pennington (Signature of Contracting Officer)

16C. DATE SIGNED: 18 Jul 02

1. Pursuant to FAR 43.103(1)(3), Mutual Agreement of the Parties, Contract F33657-00-C-0025 is hereby modified to incorporate no cost administrative changes resulting from the Post Award Conference (08-09 May 02).

2. As a result of the above paragraph, the following changes have been made to the basic contract: The appropriate pages have been revised and are attached to this modification.

a. Section B, SUPPLIES OR SERVICES, is hereby modified as follows:

1) SubCLINs 0002AA through 0002AJ description is changed to delete the space between "government/ contractor" to read "government/contractor".

2) SubCLIN 0002AJ is changed to delete the extra space from "operate the TSSC" to read "operate the TSSC".

3) CLIN 0006 description is changed to delete the second s on "Simulations" from "Simulations" to read "Simulation".

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount
0002AA	OPTION CLIN		

Noun: TSSC (CY 03)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0002AB OPTION CLIN

Noun: TSSC (CY 04)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

0002AC OPTION CLIN

Noun: TSSC (CY 05)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

0002AD OPTION CLIN

Noun: TSSC (CY 06)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0002AE OPTION CLIN

Noun: TSSC (CY 07)
Total Quantity: 0
Total Item Amount: $0.00
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

0002AF OPTION CLIN

Noun: TSSC (CY 08)
Total Quantity: 0
Total Item Amount: $0.00
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0002AG OPTION CLIN

Noun: TSSC (CY 09)
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

0002AH OPTION CLIN

Noun: TSSC (CY 10)
Total Quantity: 0
Total Item Amount: $0.00
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0002AJ OPTION CLIN

Noun: TSSC (CY 11)
Total Quantity: 0
Total Item Amount: $0.00
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: SOURCE
Acceptance: SOURCE
FOB: SOURCE
Descriptive Data:
The contractor shall provide all necessary management, resources, and effort to activate and operate the TSSC in accordance with the Product Specification and the Statement of Work, attached at Section J. Provide a web-based integrated data environment that is accessible by the government/contractor team. This option may be exercised in accordance with special provision SP-002. This SubCLIN, if exercised, will be awarded as a firm fixed price contract. The price of this option is [redacted].

0006 CLIN Change [redacted]

Each +$0.00

Noun: TRAINING AND TRAINING MEDIA
Total Quantity: 1
Total Item Amount: [redacted]
ACRN: AA
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION

c. Section F, Contractual Line Item Numbers (CLINs), Supplies Schedule Data, is modified as follows:

1) CLIN 0006 is revised to delete the descriptive data in its entirety.

2) CLIN 0006 delivery date is revised to read, "**30 Sep 02**".

ITEM	SUPPLIES SCHEDULE DATA	QTY	SHIP TO	MARK FOR	TRANS PRI	DATE
0006		1	U			30 Sep 2002
	Noun:	TRAINING AND TRAINING MEDIA				
	ACRN:	AA				

d. Section I, Contract Clauses, 52.212-04, Addendum to Contract Terms and Conditions -- Commercial Items (May 1999), Special Provisions, is modified as follows:

1) Special Provision (SP) SP-002, options is deleted in its entirety and replaced with, "SP-002 OPTIONS

The Government is hereby granted the unilateral right to acquire any or all of the supplies and services identified in Section B as option CLINs and/or SubCLINs by 31 Dec of the **preceding calendar** year as identified in **Attachment 5** (e.g., the Government would have until 31 Dec 03 to exercise SubCLIN 0002AB (CY04)).

Upon exercise of the option, the appropriate information in Sections B, F, and G of this contract shall be revised accordingly.

The options for SubCLINs 0001AB through 0001AF do not have to be exercised consecutively (e.g., the Government may not exercise SubCLIN 0001AE in 2006 but shall still have the right to exercise SubCLIN 0001AF in 2007). **In the event the government does not exercise CLIN 0001 consecutively, the government will provide a letter of the intent to exercise the next SubCLIN option 90 days prior to exercise.**

The period of performance for CLINs 0002, 0004, 0005 and 0007 ends on 31 Dec of the **option** year exercised (e.g., if the Government exercises the option for SubCLIN 0002AB (CY04) in Nov 03, the period of performance would end on 31 Dec 04). **CLINs 0002 and 0004 must be exercised consecutively.**

The period of performance for CLIN 0003 shall be from Award of Option (AO) in CY04 to delivery no later than 1 September 2004.

The amount of CLS dollars to be exercised for CLIN 0004 is dependent upon the number of systems coming out of warranty during the calendar year exercised. The assumption is that the items will be delivered at the first of the month. For example, based upon the CY 02 buy (SubCLIN 0001AA), the CLS support for CY 03 (SubCLIN 0004AA) is derived as follows:
The items procured in CY 02 will be coming out of warranty in
Eglin TSS 30 Sep 03
Barksdale TSS 15 Nov 03
Little Rock TSS 18 Dec 03
Thus in CY 03 Eglin will require 4 months of CLS (Sept, Oct, Nov, Dec) Barksdale will require 2 months (Nov, Dec) and Little Rock will require one month (Dec).
Next take the yearly CLS price for CY 03 (SubCLIN 0004AA) in attachment 5, [redacted] and divide it by 12 to get [redacted]. As a result Eglin's CLS price would be (4 months X [redacted]) [redacted]; Barksdale CLS price would be (2 months X [redacted]) [redacted]; and Little Rock CLS price would be (1 month X [redacted]) [redacted]; for a total CLS SubCLIN 0004AA value of ([redacted] + [redacted] + [redacted]) [redacted]."

2) Special Provision (SP) SP-004, Warranty, first paragraph, fourth sentence is deleted in its entirety and replaced with, "The Contractor shall repair a failed training device within 3 days of notification for CONUS locations and 7 days for overseas locations **with the exception of Ascension, Soto Cano, and Thule AB, which are subject to transportation availability or severe weather problems. For those sites, the repair shall be made 7 days after the first available flight to the site. "**

3) Special Provision (SP) SP-005, Special Payment Provisions, is changed by deleting #1, Receipt of Hardware In Plant paragraph in its entirety and replacing with,
"Receipt of Hardware In Plant:
The contractor shall receive as a minimum the following hardware items in plant: 7 Image Generators, Display System **(6 channel IG screens with projectors),** Computer Systems **(10 PCs and 1 voice communication system server),** and Consoles/**table (3 student, 1 coordinator and 1 instructor workstations).** Verification by **designated government personnel** is required. If the offeror drop ships the hardware directly from the vendor to the sites, this event is nullified and the 50% amount will be added to the installation event. "

4) Special Provision (SP) SP-005, Special Payment Provisions, #5 Data Package is deleted in its entirety.

5) Special Provision (SP) SP-005, Special Payment Provisions, 6) TRAINING AND TRAINING MEDIA (CLIN 0006), is renumbered to read "**5)** TRAINING AND TRAINING MEDIA (CLIN 0006)".

6) Special Provision (SP) SP-008, Inspection/Acceptance is changed to delete "The PCO will forward the DD Form 250 to the ACO for Payment" from paragraphs 1, 3 and 4.

7) Special Provision (SP) SP-009, Escrow Agreement is added in its entirety to read,

"SP-009 Escrow Agreement

The contractor shall deposit the MaxSim 3.2 software and all revisions received by the Government into an escrow account. The required Escrow Agreement shall be mutually agreed to by the parties and satisfactorily executed within 30 days of completion of first TSS Site Acceptance Test. The Escrow Agreement, once executed by the parties, shall become Attachment 2 to the contract."

e. Section I, Contract Clauses, DFARS clause 252.246-7000, Material Inspection and Receiving Report, is added in its entirety.

f. Section J, Listing of Contract Documents, Exhibits, and Attachments, is modified as follows:

1) Attachment 7 -- 12 are deleted in their entirety

2) Attachment 61 is being renamed from "P00001 Slip Pages" to "Conformed Contract". Attachment 61 will be updated after each contract modification to reflect the current conformed contract.

g. Section J, Attachment 1, Statement of Work (SOW), dated 11 Mar 02, is modified as follows:

1) Header is revised to read, "F33657-01-C-0025, P00002
Attachment 1 - Rev **A**"

2) Cover page, document date is revised to read, **"22 May 2002"**

3) Table of Contents is revised to delete "Appendix A 25"

4) Paragragh 2, Applicable Documents is deleted in its entirety and replaced with,

"2. Applicable Documents

The following documents have been used as reference or are applicable to this SOW to the extent specified herein. In the event a revision is not specified, the latest revision as of the date of this SOW shall apply. In the event of conflict between the referenced documents and this SOW, the requirements of the SOW shall apply.

2.1 Non-Government Standards and Other Publications

ISO 9001: 2000 Quality management systems - Requirements.

2.2 Adacel Documents

Product Specification 9950-00030F-V3-ATT3-PS"

5) Paragraph 3.1, General, is changed as follows:

a) Subparagraph 3, is revised to add "**(upon option CLIN 0002 being exercised)**" after "(TSSC)".

b) Subparagraph 4 is revised to add, "**Upon option CLIN 0003 being exercised**" at the beginning of the paragraph and change the first word "The" to read "the".

c) Subparagraph 5 is revised to add, "**Upon option CLIN 0004 being exercised**" at the beginning of the paragraph and change the first word "The" to read "the".

6) Paragraph 3.2.1.1, Program Control and Status Reporting, is changed to add "**within the scope of the contract**" in the third paragraph, third sentence after the word "understandings".

7) Paragraph 3.2.1.2.3, ILS Working Groups, is changed to add the following after the first paragraph,

"In addition, the ILS Working Group shall be responsible for keeping the Integrated Logistics Support Plan (ILSP) current. The group shall be responsible for the ILS elements including, but not limited to:

- **Maintenance planning**
- **Supply support**
- **Spares management**
- **Technical data**
- **Training and training material**
- **Design interfaces**
- **Facilities**
- **Packaging, handling, storage and transportation**

The Group shall be responsible for monitoring all CLS and TSSC processes and functions supporting the TSS upon CLIN 0002 and 0004 being exercised.

8) Paragraph 3.2.1.2.5, Program Management Review, is changed to delete, "**in Grand Prairie, TX**" from the last sentence.

9) Paragraph 3.2.3.1.4, Site-Specific Databases, is changed to delete paragraphs 2, 3, and 4 in its entirety and replaced with,

"The Contractor shall prepare its standard Visual Database Design Document (VDDD) from data gathered during the site survey.

The initial VDDDs and visual databases shall require review and approval from the Visual Database working Group. When, after reviewing multiple VDDDs and visual databases, it is mutually agreed by the working group that the review process is adding no value to the end result, the level of effort applied to the review process shall be reduced until it is based on spot

checks within a limited post issue period only. Any non-conformance items shall be rectified and the visual database shall be re-submitted for approval by the Visual Database Working Group.

A visual database shall be baselined once approved **according to the review process in place** and will not be subject to site testing (other than confirming it is operational on site).

10) Paragraph 3.2.3.1.6, Aircraft/Vehicle Models delivery, is changed to add "**models**" after the word "aircraft".

11) Paragraph 3.2.3.1.10, TSS Deployment, is changed to delete, "specified in this SOW (refer to)" from the first sentence.

12) Paragraph 3.2.3.1.11, Shipping, is changed to delete the third paragraph, "The Contractor shall prepare the form DD 250 for Government acceptance of TSS material when the material is received and inventoried at the staging facility." in its entirety.

13) Paragraph 3.2.3.1.12, Installation, is changed as follows:

a) Paragraph 1, last word, "SOW" is deleted and replaced with, "**contract**".

b) Parapragh 2, second sentence the word "TSSC" is deleted.

14) Paragraph 3.2.3.1.13, On-Site Acceptance Testing, is changed to delete the last two paragraphs in their entirety.

15) Paragraph 3.2.3.1.14, On-Site Training, is revised to change "paragraph 3.2.7.1.2" to read, "**paragraph 3.2.7.2.3**".

16) Paragraph 3.2.4.1, TSSC Establishment, Workup and Internal Use, is changed to delete the first sentence in the first paragraph in its entirety.

17) Paragraph 3.2.4.2.1, TSSC Operations, is changed to delete"**in Grand Prairie, TX**" from the second paragraph.

18) Paragraph 3.2.4.2.2.6, Hardware Configuration Management, is changed to delete the third paragraph, "The TSSC shall support, at least in part, all installed hardware configuration for use in testing site modifications." in its entirety.

19) Paragraph 3.2.4.2.2.7, Software Configuration Management, is changed to delete the fourth paragraph in its entirety and replace with, "Software changes affecting the Product Specifications shall be controlled via **Engineering** Change Proposals (ECPs) (CDRL A005)".

20) Paragraph 3.2.4.2.3, TSSC effort, is changed as follows:

a) Paragraph CY 03, second subparagraph is revised to delete, "Experts (SMEs)" in the first sentence and replace with, "Expert (SME)"

b) Paragraph CY 03, second subparagraph, third sentence is deleted in its entirety.

c) Paragraph CY 03, fourth subparagraph, delete the semicolon and replace with a period.

d) Paragraph CY 04, third subparagraph is revised to delete, "Experts (SMEs)" in the first sentence and replace with, "Expert (SME)"

e) Paragraph CY 04, fifth subparagraph, delete the semicolon and replace with a period.

f) Paragraph CY 05 to CY 11, fifth subparagraph, delete the semicolon and replace with a period.

21) Paragraph 3.2.5, Contractor Logistic Support, is changed to delete a space between (CLS) and the hyphen.

22) Paragraph 3.2.5.1.2, Contractor Spares Management, is deleted in its entirety and replaced with,

"The Contractor shall implement spares management processes to meet required repair of a failed training device (training critical failures) within 3 days of notification for CONUS locations and 7 days for overseas locations with the exception of Ascension, Soto Cano, and Thule AB, which are subject to transportation availability or severe weather problems. For those sites, **the repair shall be made 7 days after the first available flight to the site.**

The Contractor shall manage a spares inventory at its staging facility to support the required repair times.

The Contractor shall provide on-site storage of critical spares as defined in the Integrated Logistic Support Plan **to at least four geographic locations.**

Consumable Item Kits shall be deployed as part of the installation process to all sites. Consumable kits shall be as defined in the Integrated Logistic Support Plan."

23) Paragraph 3.2 .5.1.3, Inventory Control of Spares and Repair Parts, is changed to delete the first sentence in its entirety and replace with, "The Contractor shall manage TSS Spare Parts Processes from the **contractor's** staging facility."

24) Paragraph 3.2.1.5, Risk Mitigation for Parts Obsolescence, is changed to delete the last paragraph in its entirety.

25) Paragraph 3.2.5.1.7, Engineering and Technical Service reports is renumbered to become paragraph 3.2.5.1.8.

26) Paragraph 3.2.5.1.7 is added in its entirety as follows,

"3.2.5.1.7 **Field Support**

Field Support Technicians (FST) will provide onsite support to TSS bases worldwide. The FST will be capable of troubleshooting and maintaining TSS components. The FST will be able to load operating systems and applications from TSSC furnished software disks."

27) Paragraph 3.2.5.1.8, Contract Field Service Reports, is renumbered to become paragraph 3.2.5.1.9 and changed to delete, "Attachment 10" from the second sentence.

28) Paragraph 3.2.5.1.9, Engineering Services Memorandum Requests, is renumbered to become paragraph 3.2.1.10

29) Paragraph 3.2.7.1, Equipment / Materials, is changed to delete, "furnished equipment (GFE)" and replaced with "**owned**" from the second sentence.

30) Paragraph 3.2.7.2.1, Maintenance Training, the first paragraph is deleted in its entirety and replaced with, "The Contractor shall provide, per site, one (1) day of high-level maintenance training following site acceptance. **The course is optimized for 2 students, however, Adacel can accommodate up to four (4) students without significant erosion of the course effectiveness."**

31) Paragraph 3.2.7.2.1.1, CBI Training, is renumbered "**3.2.7.2.2**, CBI Training"

32) Paragraph 3.2.7.2.1.2, On-Site Training, is renumbered and renamed "**3.2.7.2.3**, **Operator** Training" and is deleted in its entirety and replaced with, "The Contractor shall provide three (3) days on-site system operational training following site acceptance. **The course is optimized for 2 students, however, Adacel can accommodate up to four (4) students without significant erosion of the course effectiveness.**

The hands-on training shall provide performance demonstration of knowledge gained from the CBI and instructor-led courses, and shall concentrate on the site-specific training application of the system.

33) Paragraph 3.2.7.2.1.3, Training Scenarios, is renumbered "**3.2.7.2.3.1**, Training Scenarios" and the word "instructor" is deleted and replaced with, "**operator**".

34) Appendix A is deleted in its entirety.

h. Section J, Attachment 3, Product Specification dated 11 Mar 02, is modified as follows:

1) Header is revised to read, "F33657-01-C-0025, P00002
Attachment 3 - **Rev A**"

2) Cover page, document date is revised to read, "**22 May 2002**"

3) Paragraph 2, Functional Specifications is deleted in its entirety and replaced with, "This section describes the implementation of the TSS functionality. All **functional display** screen captures shown in this document are **examples**. Details **of the final** screen formats shall be subject to customer agreement."

4) Paragraph 2.1.1.9, Aircraft Library, is changed to delete "Appendix B" in the first sentence and replace with, "Appendix **A**".

5) Paragraph 2.1.1.10, Vehicle Library, is changed to delete "Appendix B" in the first sentence and replace with, "Appendix **A**".

6) Paragraph 2.1.1.11, Binocular System, is deleted in its entirety and replaced with, "[redacted]

Note: the binocular system functionality differs between Tower and Ground as described in the following paragraphs."

7) Paragraph 2.1.4, Digital Wind Indicators, delete, "(actual screenshot of display)" from Figure 20 title.

8) Paragraph 2.1.6, Weather Dissemination Display, delete, "(actual screenshot of display)" from Figure 22 title.

9) Paragraph 2.3, Light Gun, delete last sentence and replace with, "[redacted]"

10) Paragraph 2.10.3, Power, delete the first sentence and replace with, "The TSS shall operate using 120 Volt AC single-phase power at **50 Hz or** 60 Hz."

11) Paragraph 2.10.3, Power, delete the 2nd paragraph in its entirety and replace with, "The power requirements shall not exceed:

- [redacted]

- [redacted]

12) Paragraph 2.10.10, Interfaces, delete, "[redacted]".

i. Section J, Attachment 4, CDRLs dated 11 Mar 02, is modified as follows:

1) Header is revised to read, "F33657-01-C-0025, P00002
Attachment 4 - **Rev A**"

2) Cover page, document date is revised to read, "**22 May 2002**"

3) Page 2 is deleted in its entirety, remaining pages are renumbered accordingly.

4) The footer, "User or disclosure of data on this sheet is subject to the restriction on page 2." is deleted in its entirety.

5) Table of Contents, "Statement of Confidentiality and Copyright" is deleted in its entirety.

6) Table of Contents, "CDRL A008" is deleted in its entirety and replaced with, "**Reserved**".

7) CDRLs **A015, Management Plan, A016, Integrated Logistics Support Plan and A017, Contractor's Configuration Management Plan** are added in their entirety.

8) Paragraph 5, Data Preparation, subparagraph a) is deleted in its entirety and replaced with, "a. Electronic delivery/media of CDRL documents is the preferred delivery method."

9) CDRL Mailing list, replace "kimberly.marshal@wpafb.af.mil" with "**virgilia.lemming@wpafb.af.mil**"

10) CDRL Mailing list, replace, "carmentrout@dcmde.dcma.mil" with "**dschlatter@dcmde.dcma.mil**"

11) CDRL Mailing list, replace, "brian.harvie@hanscom.af.mil" with "**david.rosa@hanscom.af.mil**"

12) Exhibit A, cover page, delete, "PREPARED BY".

13) Exhibit A, table of contents, delete, "CDRL A008, Request for Nomenclature" in its entirety.

14) Exhibit A, table of contents, add CDRLs **A015, Management Plan, A016, Integrated Logistics Support Plan and A017, Contractor's Configuration Management Plan**

15) Exhibit A, blocks H and J of each CDRL are changes from, "11 Mar 02" to read, "**02 Jun 02**".

16) Exhibit B, cover page, delete, "PREPARED BY".

17) Exhibit B, blocks H and J of each CDRL are changes from, "11 Mar 02" to read, "**02 Jun 02**".

j. Section J, Attachment 5, Option Matrix dated 11 Mar 02, is modified as follows:

1) Example CLIN 0004, is changed as follows:

a) Delete "Annual Software Licence Fee Unit Price" column in its entirety.

b) Fourth subparagraph is changed to add, "**See Special Provision SP-002 for further details.**" to the end of the paragraph.

c) Sixth subparagraph, "In deriving the quantity for annual software license fee for CY04, the quantities for CY04 do need to be counted.

3 systems were procured in CY02:	1 Overseas	2 CONUS
23 systems were procured in CY03:	8 Overseas	15 CONUS
30 systems are being procured in CY04:	10 Overseas	20 CONUS
Total	19 Overseas +	37 CONUS = 56 systems"

is deleted in its entirety.

2) SubCLINs 0004AA -- 0004AJ delete "Annual Software Licence Fee Unit Price" column in its entirety.

k. Section J, Attachment 6, Software Rights dated 11 Mar 02, is modified as follows:

1) Cover page, document date is revised to read, "**11 Jun 2002**"

2) Page 2, "Statement of Confidentiality and Copyright" is deleted in its entirety and replaced with, "Statement of Confidentiality and Copyright: © 2002 Adacel Systems, Inc"

3) Paragraph 1, Restricted Rights Notice is changed to add, "**F33657-01-C-0025**" after "Government Contract Number".

4) SOFTWARE OBJECT CODE LICENSE AGREEMENT, is deleted in its entirety and replaced with,
"THIS SOFTWARE OBJECT CODE LICENSE AGREEMENT ("Agreement") is made and entered into this **2nd** day of **April**, 2002 (the "Effective Date") by and between Adacel Systems Inc. ("Adacel"), having a place of business at 860 Greenview Drive, Grand Prairie, Texas USA 75050 and the United States Air Force/AFMC HQ Aeronautical Systems Center, **2300** D St., Wright-Patterson Air Force Base, OH USA 45433-7249 ("Licensee"). "

5) RECITALS, subparagraph c, is changed to add, "**F33657-01-C-0025 dated 2 Apr 2002**" after "Terms of Contract".

6) RECITALS, subparagraph c, is changed to delete, "200-" after "Terms of Contract".

7) Paragraph 1, Definitions, subparagraph 1.4, "MaxSim 2.2 USAF" is replaced with "MaxSim 3.2".

8) Paragraph 2.1. is deleted in its entirety and

replaced with, "Adacel hereby grants to Licensee, subject to the terms and conditions of this Agreement, an irrevocable, non-exclusive, nontransferable, license to (i) use the Licensed Software to **create training scenarios and conduct** Air Traffic Control training **with government personnel and contractors** as **contemplated by** the Contract, to (ii) copy the Licensed Software for backup purposes, and (iii) upon prior written approval by Adacel, to use the Licensed Software for the purposes of maintaining the Tower Simulation System (TSS) including the reproduction and provision of the Licensed Software in executable form to Licensee's contractors for the purposes of

maintaining the TSS."

9) Paragraph 2.4, is revised to delete, "Article 2.2" and replace with, "Article 2.3"

10) Paragraph 2.6, is revised to read, "Whenever Licensee pursuant to **section 2.1 (iii)** above uses the right to have a contractor of Licensee use the Licensed Software, it shall first obtain the written consent of Adacel, which consent shall not be unreasonably withheld and shall be concluded in accordance with such reasonable conditions as determined by Adacel."

11) Paragraph 2.7 is deleted in its entirety and replaced with, "In addition, Licensee shall ensure that it obtains from **any** contractors of Licensee non-disclosure undertakings and **indemnities** of the nature of those found in this Agreement, as well as undertakings that the contractors of Licensee shall use the Licensed Software only for the limited purpose referred to in this section 2, not copy the Licensed Software; not reverse engineer it; and take all reasonable precautions to prevent the contractor of Licensee from accessing or using it in any way including such precautions as Licensee would otherwise take to protect its own proprietary software and information.

12) Paragraph 10.0, Miscellaneous, subparagraph 10.4, an extra space is deleted between, "their" and "respective".

13) Licensee is changed from, "The UNITED STATES AIR FORCE (AMFC-ASC/YW)" to read, "The UNITED STATES AIR FORCE (AFMC ASC/YW)".

14) Exhibit A of enclosure to Attachment 6, paragraph A.1, second subparagraph, "TSS 3.0 software" is changed to read, "**MaxSim 3.2** software".

3. This Supplemental Agreement constitutes a full and final settlement of all claims of the Contractor arising out of or in connection with the changes affected hereby. All other contractual terms and conditions not specifically addressed in this contractual modification remain unchanged and in full force and effect.

DOCUMENT	PGS	DATE	TITLE
ATTACHMENT 1	27	22 MAY 2002	STATEMENT OF WORK -- REV A
ATTACHMENT 3	89	22 MAY 2002	PRODUCT SPECIFICATION -- REV A
ATTACHMENT 4	32	22 MAY 2002	CONTRACT DATA REQUIREMENTS LIST (CDRL) GENERAL INSTRUCTIONS FOR THE TOWER SIMULATION SYSTEM (TSS)
ATTACHMENT 5	10	11 MAR 2002	VARIABLE PRICING MATRIX TABLE
ATTACHMENT 6	10	11 JUN 2002	SOFTWARE RIGHTS
~~ATTACHMENT 7~~	~~1~~	~~11 MAR 2002~~	~~SMALL BUSINESS PLAN~~
~~ATTACHMENT 8~~	~~29~~	~~11 MAR 2002~~	~~PROJECT MANAGEMENT PLAN~~
~~ATTACHMENT 9~~	~~8~~	~~11 MAR 2002~~	~~RISK MANAGEMENT PROCEDURE~~
~~ATTACHMENT 10~~	~~17~~	~~11 MAR 2002~~	~~INTEGRATED LOGISTIC SUPPORT PLAN~~
~~ATTACHMENT 11~~	~~13~~	~~11 MAR 2002~~	~~CONFIGURATION MANAGEMENT PLAN~~
~~ATTACHMENT 12~~	~~11~~	~~11 MAR 2002~~	~~TEAMING AGREEMENT~~
ATTACHMENT 61	36	02 JUL 2002	CONFORMED CONTRACT

CONTRACT FILES

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE: J - FFP

PAGE OF PAGES: 1 of 5

2. AMENDMENT/MODIFICATION NO.: P00001

3. EFFECTIVE DATE: JUN 14 2002

4. REQUISITION/PURCHASE REQ. NO.: SEE SCHEDULE

5. PROJECT NO. (If applicable):

6. ISSUED BY: ASC/YWM CODE: FA8621

USAF/AFMC
HQ AERONAUTICAL SYSTEMS CENTER
2300 D STREET
WRIGHT-PATTERSON AFB OH 45433-7240
JACK K. MYLAN (937) 255-7288 X3164
Jack.Mylan@wpafb.af.mil

7. ADMINISTERED BY (If other than item 6): CODE: S3005A

DCMA DAYTON
AREA C BUILDING 30
1725 VAN PATTON DRIVE
WRIGHT-PATTERSON AFB OH 45433-5302

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)

ADACEL SYSTEMS, INC.
800 GREENVIEW DRIVE
GRAND PRAIRIE TX 75050
(972) 522-9100

MAILING DATE
JUN 14 2002

CODE 2AA91 FACILITY CODE

(X) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

X 10A. MODIFICATION OF CONTRACT/ORDER NO. F33657-01-C-0025

10B. DATED (SEE ITEM 13) 02 APR 2002

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
SEE SCHEDULE

13. THIS ITEM APPLIES ONLY TO MODIFICATION OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(X)

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO ( ) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. ITEM 10A

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: 52.212-04 Contract Terms and Conditions -- Commercial Items, (c) Changes

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

SUBJECT: Add One additional Tower Simulation System
CHANGE IN PRICE: $691,459.00 (Increase)
CHANGE IN OBLIGATION: $691,450.00 (Increase)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)
MICHAEL ASCH
Vice-President, General Manager

16A. NAME AND TITLE OF SIGNER (Type or print)
DAN PENNINGTON
Contracting Officer

15B. CONTRACTOR/OFFEROR

(Signature of person authorized to sign)

15C. DATE SIGNED: June 12, 2002

16B. UNITED STATES OF AMERICA

BY Dan Pennington
(Signature of Contracting Officer)

16C. DATE SIGNED: 12 Jun 02

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STANDARD FORM 30 (REV.10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

1. Pursuant to FAR 52.212.04 Contract Terms and Conditions, Section (c) Changes, Contract F33657-01-C-0025 is hereby modified to incorporate the addition of one tower simulation system.

2. As a result of the above paragraph, the following specific changes are made to the contract: The appropriate pages have been revised and are attached to this modification as Section J, attachment 61.

a. Section A, Standard Form 1449, is hereby modified as follows:

1) Block 17a, CAGE Code, is changed from "98897" to "**2AA91**."

2) Block 26, Total Contract Amount changed from **$2,366,127.00** to $3,057,586.00, an increase of **$691,459.00.**

b. Section B, Supplies or Services, the following changes are made:

(1) CLIN 0001AA:

Unit Price is changed from [redacted] to [redacted]

Quantity is increased by 1.

Total Amount is increased by [redacted] to [redacted]

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount

0001AA CLIN Change +1 Each [redacted] **+$691,459.00**

Noun: TOWER SIMULATION SYSTEM (CY02)
New Total Quantity: 4
New Total Item Amount: $2,919,040.00
ACRN: AA
NSN: N - Not Applicable
Contract type: J - FIRM FIXED PRICE
Inspection: DESTINATION
Acceptance: DESTINATION
FOB: DESTINATION
Descriptive Data:

The contractor shall provide all necessary management, resources, and effort to provide Tower Simulation Systems (TSS) in accordance with the Statement of Work and Product Specification attached at Section J. The TSS shall consist of hardware, software, firmware, databases, and documentation required to support the simulation of the air traffic control tower environment. As part of this effort, the contractor shall provide system assembly, installation, checkout and host base interface at the delivery site. The contractor shall also provide training and training materials to include class II+ Computer Based Training (CBT) in the use and operation of the system and scenario generation, to include on site training (train the trainer) of selected personnel in accordance with the Statement of Work and Product Specification attached at Section J as part of this effort. This line item price was derived using the prices as set forth in Attachment 5, Variable Pricing Matrix. The price includes the software license fees for the life of the TSS as delivered. Schedule for delivery locations and required delivery dates are identified in Section F, Delivery Schedule.

c. Section F - Supplies Schedule Data, the following revisions are made:

(1) 0001AA:

Delivery Schedule changed from 3 to 4.

Delivery Schedule Date added "14 Feb 2003".

Delivery Schedule Description is revised to read, "The delivery locations and schedule for the 4 systems procurred in FY 02 is:

1st System -- Delivered to Eglin Air Force Base, FL -- 30 Sep 02
2nd System -- Delivered to Barksdale Air Force Base, LA -- **15 Nov** 02
3rd System -- Delivered to Little Rock Air Force Base, AR -- **18 Dec** 02
4th System -- Delivered to Grand Forks Air Force Base, ND -- 14 Feb 03."

ITEM	SUPPLIES SCHEDULE DATA	QTY	SHIP TO	MARK FOR	TRANS PRI	DATE
0001AA		1	U			30 Sep 2002
		1	U			15 Nov 2002
		1	U			18 Dec 2002
		1	U			14 Feb 2003

Noun: TOWER SIMULATION SYSTEM (CY02)
ACRN: AA
Descriptive Data:
The delivery locations and schedule for the 4 systems procurred in FY 02 is:

1st System -- Delivered to Eglin Air Force Base, FL -- 30 Sep 02
2nd System -- Delivered to Barksdale Air Force Base, LA -- 15 Nov 02
3rd System -- Delivered to Little Rock Air Force Base, AR -- 18 Dec 02
4th System -- Delivered to Grand Forks Air Force Base, ND -- 14 Feb 03

d. Section G - Contract Administration/Payment Data, ACRN AA is revised with a total obligation value of **$3,057,586.00**, an increase of **$691,459.00**.

ACRN	Appropriation/Lmt Subhead/Supplemental Accounting Data	Obligation Amount
AA	ACRN Change 57 23080 172 3650 833016 000000 00000 35114F 503000 F78100 *New ACRN Amount:* $3,057,586.00 *Funding breakdown:* On CLIN 0001AA: +$691,459.00 *PR/MIPR:* **NGAXMX02682078 $691,459.00**	**+$691,459.00**

f. Section J, Contract Documents, Exhibits and Attachments, is revised as follows:

(1) Attachment 61 is hereby established which provides the contract slip pages resulting from this modification.

3. This supplemental agreement constitutes full and final settlement of all claims of the contractor arising out of or in connection with the changes effected hereby. All other contractual terms and conditions not specifically addressed in this modification remain unchanged and in full force and effect.

DOCUMENT	PGS	DATE	TITLE
ATTACHMENT 61	42	12 JUN 2002	P00001 SLIP PAGES