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ROUTING AND RECORD SHEET

SUBJECT: (Optional)

User Requirements for an Agency Standard Soft Copy Computer Terminal

STAT FROM: [redacted] DC/DD/ODP

EXTENSION [redacted] NO.

STAT DATE 1 November 1977

TO: (Officer designation, room number, and building)	DATE RECEIVED	DATE FORWARDED	OFFICER'S INITIALS	COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)
1. D. May, D/ODP				Attached is the User Requirements for an Agency Standard Soft Copy Computer Terminal. A draft copy of this document was reviewed in September by the entire Terminal Requirements Working Group. In October the ODP contingent of the group (Bill [redacted] reviewed the comments from the entire group. I've scheduled distribution of this resulting updated document to the entire group on 7 November 1977. As chartered, an RFP is now being prepared by Engineering Division with my participation. Much of Section II and III of the requirements document is appropriate for direct inclusion into the RFP. Additional refinement, from an engineering rather than a user requirement standpoint, must be done to the security/emanations and communications portions of this document by Engineering Division during the RFP generation period. If you have any comments please call. (cc sent C/MS) Looks like a good job -
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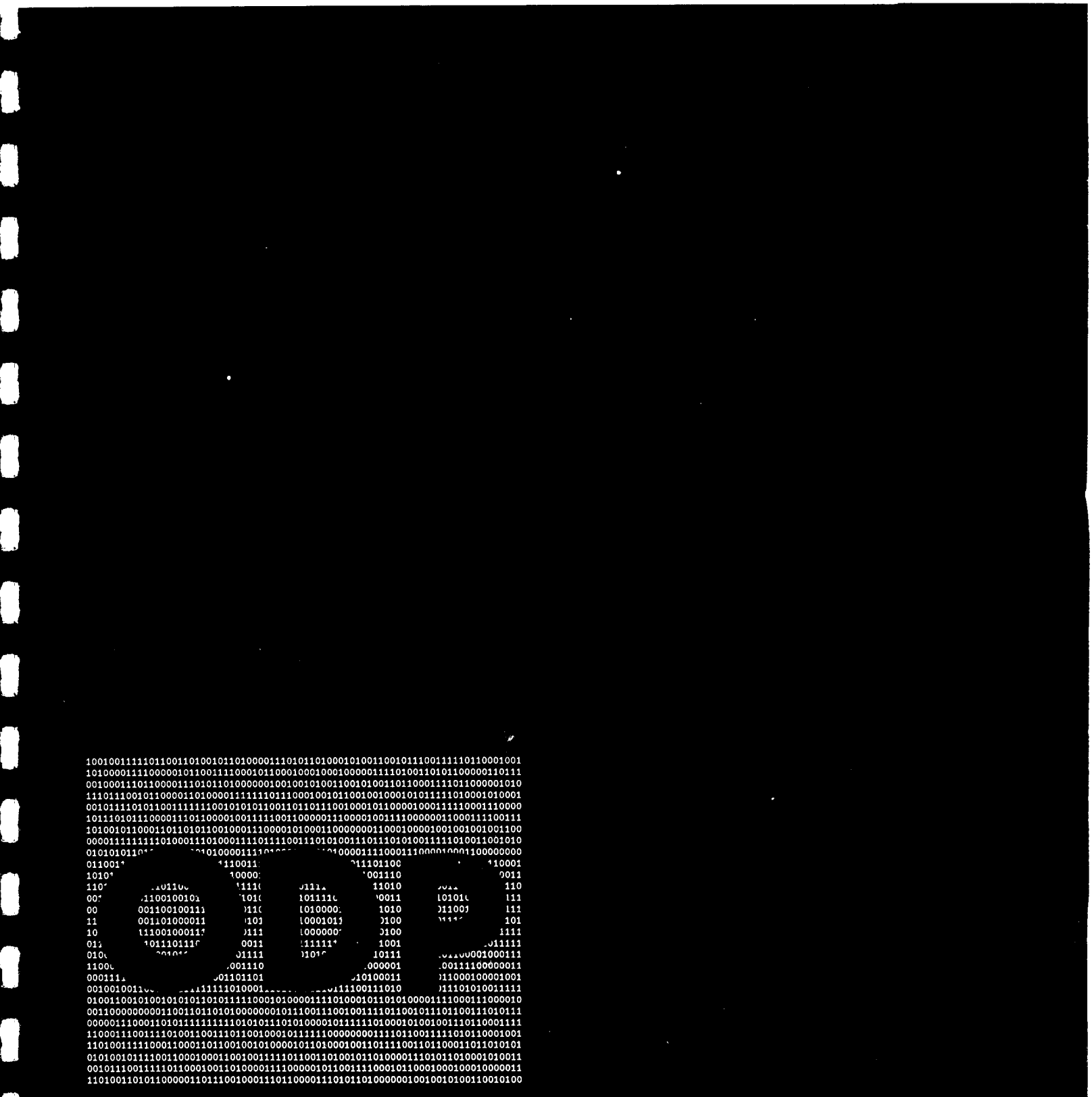
610 USE PREVIOUS EDITIONS ☐ SECRET ☐ CONFIDENTIAL ☐ INTERNAL USE ONLY ☐ UNCLASSIFIED

USER REQUIREMENTS FOR AN AGENCY STANDARD SOFT COPY COMPUTER TERMINAL

26 October 1977



Office of Data Processing

USER REQUIREMENTS

FOR AN

AGENCY STANDARD SOFT COPY COMPUTER TERMINAL

26 October 1977

TABLE OF CONTENTS

I. INTRODUCTION

This document contains the user requirements for a soft copy* computer terminal which will be adopted as Agency standard for the period FY 78 to FY 83. It was prepared by the ODP contingent of the Terminal Requirements Working Group. The Terminal Requirements Working Group, chartered in April 1977, consisted of representatives from most components of the Agency.

A primary input to this document was the Terminal Questionnaire (Attachment I) that was completed by members of the entire Working Group during June-September 1977. Also considered was the availability of terminal features in the marketplace. This information was obtained from the literature, discussions with users, and through vendor presentations to the Terminal Requirements Working Group.

A draft version of this document was distributed for comments to the entire Working Group during September 1977. Resulting comments were reviewed by the ODP contingent of the Working Group.

An important assumption for the requirements is that existing Agency Delta Data and some of the other Agency terminals will remain in use until at least FY 82. That is, existing terminals will continue to service a large portion of the Agency's terminal requirements for several years.

The requirements specified in this document shall be used as input to a Request for Proposal (RFP) to be generated by Engineering Division of ODP for competitive procurement of terminals. Much of the Section II and II of this document is appropriate for direct inclusion into an RFP. Additional refinement, from an engineering rather than a user requirement standpoint, must be done to the security/emanation and communication portions of this document by Engineering Division during the RFP generation period.

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* As opposed to hard copy.

II. GENERAL TERMINAL REQUIREMENTS

The user requirements for general terminal features are based upon availability in the market place and the terminal questionnaire ratings (See Attachment II) and comments. Questionnaire items, when applicable, are referenced following the feature.

A. Configuration

1. Local Peripheral Support

a. Mandatory

- The ability to interconnect to a local* low to medium quality printer* and to a local* high quality printer* (II.A.10 and II.A.11).
- The ability to overlap local* printing with normal operation of the terminal (II.A.12).
- The ability to add a local* removable data storage (e.g., cassette tape drive(s) or diskette drive(s)) capability of at least 90K bytes on-line (II.A.8).

b. Desirable

- The ability to add a local*, removable data storage capability of at least 1 million bytes on-line (II.A.8).

2. Local Capability/Compatibility

a. Mandatory

- Local character editing* (II.A.4 and II.A.5).
- Validation of the data locally*, prior to transmission to the mainframe(s) (II.A.6).
- The ability to add a capability for local text editing* (II.A.4).
- Compatible with the Agency's general office environment.

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* See Glossary

3. Size

a. Mandatory

° Not a floor model.

° No larger than a Delta Data 5000 series terminal*.

4. Programmability

a. Mandatory

° Terminal is supported by firmware architecture which is customer modifiable.

b. Desirable

° Ability for firmware image to be changed from host computer.

° Ability for users to program on terminal, locally (e.g., using BASIC on terminal, independent of host computer).

5. Remote Locations

a. Desirable

° The ability for the terminal to be used at domestic remote locations (outside the Washington, D.C. area) and overseas sites, subject to local power supply and security requirements (II.A.2 and II.A.3).

B. Display Features and Character Sets

1. Display Area and Format

a. Mandatory

° 24 lines in an 80 column screen format (II.B.4).

° Usable display area** of at least 45 square inches (II.B.10).

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* A requirement for a terminal with size smaller than the Delta Data 5000 series terminals eliminates vendors who otherwise may be able to accommodate mandatory requirements.

** See Glossary

b. Desirable

- At least 27 lines in an 80 column screen format (II.B.4)*.
- 132 column screen format**.
- Usable display area*** of at least 90 square inches (II.B.10).
- At least 4000 characters per screen full***.

2. Other Display Features

a. Mandatory

- Glare-free screen.
- Screen that is free of perceptible flicker.
- Adjustable over-all screen intensity using a control(s) that is easily operator accessible (II.B.8).
- Nondestructive cursor which is easily locatable by the user.
- Addressable/readable cursor.
- The ability to retain at least 16 tabulation*** positions (II.B.14).
- Backtabbing (II.B.13).
- Buffering to allow storage of 3 full screens of character data and a paging*** function to display this data (II.A.15).
- Scrolling (Rolling)***.
- At least three modes of selective high-lighting. Examples of highlighting are: reverse video***, blinking, underlining

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* A requirement for 27 display lines on the terminal screen (as in ODP's Delta Data) reduces the number of potential vendors to one or two. The most common number of display lines is 24.

** A requirement of 132 characters per display line eliminates virtually all potential vendors.

*** See Glossary.

and two brightness levels (II.B.2 and II.B.8 and II.B.9).

° Split display screen* (II.B.1).

° Format, system available and insert mode indicators.

b. Desirable

° Multi-color display capability (II.B.3).

° The ability to make bar charts and simple line graphs (II.A.7).

° Buffering to allow storage of more than three screens full* of character data and a paging* function to display this data (II.A.15).

° At least four programmable status indicators.

3. Character Sets

a. Mandatory

° At a minimum the full ASCII upper and lower case 96 character set (II.B.5).

° Ability to support an APL character set and a two character overstrike feature on terminal (II.B.6).

b. Desirable

° User programmable character set.

° Ability to accommodate additional character sets (e.g., foreign language character sets).

C. Terminal Controls and User Entry Devices

1. Light Pen

a. Mandatory

° The ability to attach a light pen (used for field selection and attention getting) to selected terminals (II.C.1).

* See Glossary.

2. Keyboard

a. Mandatory

° N-key roll over*.

° At least 12 programmable function keys (II.C.5).

° A switch within easy user reach that converts the terminal from upper/lower case to upper case only and vice versa (II.C.3).

° The ability to easily repeat characters (II.C.4).

° Detachable keyboard (II.C.2).

b. Desirable

° Different pressures for selected keyboard keys.

° Numeric keypad with decimal point.

° Acoustic feedback from keyboard.

3. Terminal Controls and Alarms

a. Mandatory

° Programmable audible alarm.

° ON/OFF switch.

° The ability to add a physical lock mechanism on terminal (II.C.6).

D. Transmission Parameters

1. Transmission Speed

a. Mandatory

° Transmission speed switch selectable up to and including 4,800 baud (II.D.1).

* See Glossary.

b. Desirable

- Transmission speed switch selectable up to and including 9600 baud (II.D.1).

2. Transmission Technique

a. Mandatory

- A terminal configuration supporting the synchronous transmission technique.
- A terminal configuration supporting the asynchronous transmission technique.

b. Desirable

- A configuration supporting both the synchronous and asynchronous transmission technique on the same terminal.

3. Error Control

a. Mandatory

- At least longitudinal redundancy checking and character parity checking at each terminal.

E. Emanations Control

1. TEMPEST Testing

a. Mandatory

- A version of the terminal is required such that the display, associated user data entry devices and connecting cables comply with the Compromising Emanations Laboratory Test Standard Electromagnetics, NACSEM 5100, National Security Agency. Specific TEMPEST test requirements will be stated in request for proposal (RFP) that will be used in procurement of these terminals.

III. KEY REQUIREMENTS

A. Terminal Emulation and Mainframe Accessibility

1. Emulation*. It shall be the intent of the RFP to provide terminals sufficiently compatible with the existing environments such that they may be used in place of existing terminals with minimal impact on the user.

a. Mandatory

° The ability to implement emulation* of most** of the features the Delta Data 5260 (ODP configuration).

° The ability to implement emulation* of most** of the features of Delta Data 5000 (NPIC configuration).

° The ability to implement emulation* of most** of the features of the IBM 3270.

° The ability to implement standard TTY protocol*.

b. Desirable

° The ability to implement emulation* of most** of the features of the Beehive Superbee.

2. Mainframe Accessibility

a. Mandatory

° The ability to access one, two, or more of the following mainframes from individual selected terminals (accessing more than one mainframe is contingent upon a review of security and communications considerations):

* See Glossary.

** For example, a feature which may not practically be emulated is: 27 lines in an 80 column screen format, as on the Delta Data 5260.

- The ODP mainframes.

- The NPIC mainframe.

- The DDO mainframe.

- The COMIREX Automated Management System (CAMS) mainframe.

  The CAMS terminal requirements will be finalized in the future. Preliminary requirements are addressed either as mandatories or desirables in this document.

- The SAFE mainframe.

  The SAFE terminal requirements will be finalized in the future. In the context of this document, the requirements stated in Section VII of the 1 March 1977, SAFE Functional Requirements (See Attachment III) shall be treated as desirables. Where conflicting requirements exist, this document, not the SAFE Functional Requirements, shall supercede.

- Other mainframes.

  Terminals shall be attachable to other mainframes. Communications shall be in TTY mode*. Examples are terminals attached to the COINS and DIAOLS systems. Not included is the interface of the Electronic Text Editing and Composing (ETEC) system with ODP mainframe which is currently under study by ODP.

* See Glossary.

IV. TERMINAL TECHNOLOGY CONSIDERED

A. Vendor Presentations

Thirty four terminal vendors were invited to provide information/presentations on their soft copy terminal lines. This includes plasma panel as well as CRT terminals. Twenty three vendors responded and twenty gave presentations to the Terminal Requirements Working Group on their terminal line's features.

B. CRT vs Non-CRT Soft Copy Displays

Even though non-CRT soft copy displays, including plasma panels, LED's and liquid crystal displays, are gaining in popularity, CRT displays dominate the alphanumeric display industry, and are expected to do so for several years. Because of the prohibitive cost of displaying large quantities of data (e.g., 2000 characters) on non-CRT displays, such devices are still a long way from replacing the CRT.

C. Some Conclusions

CRT terminals or terminal lines do exist which can be configured with relatively little development to satisfy at least the responses of the mandatory items in Sections II and III of this document. This document does not presume that a single terminal best satisfies all of the requirements in this document. For example, two or more terminals within a vendor's terminal line may best satisfy the requirements.

V. GLOSSARY OF TERMS

Addressable Readable Cursor - A cursor which the computer can locate and move.

Emulation - The imitation of the features of one terminal by another, perhaps considerably different, terminal.

High Quality Printer - A printer with the approximate print quality of a standard electric office typewriter.

Local - Independent of mainframe(s).

Local Character Editing - Manipulation of characters by means of functions such as character insert and character delete.

Local Text Editing - Manipulation of words, sentences and paragraphs.

Low to Medium Quality Printer - A printer with the approximate print quality of a 10 line per minute nonimpact printer.

N-Key Roll Over - The sending of keyboard key signals in the order that the keys were depressed rather than in the order that they were released.

Paging - The storage of two or more pages, screens full of data, and a function to shift through and display this data.

Reverse Video - Negative image of character or data (e.g., white or black instead of black on white or vice versa).

Screen Full - A character in every position of the usable screen area.

Scrolling (Rolling) - Moving all displayed lines of data up or down by one line as a new line is added and an existing one removed.

Split Display Screen - Splitting the display screen into two or more parts with all of the capabilities that apply to the screen in non-split mode applying to each of the parts separately.

TTY Protocol - Transmission of ten bit ASCII communications code using one start and one stop bit.

Tabulation - The capability to set tab stops differently for each line of the display.

Usable Screen Area - The part of the display screen on which character data may be displayed.

ATTACHMENT I

ATTACHMENT I

Name_____

Component_____

Extension_____

TERMINAL QUESTIONNAIRE

I.A. What CRT terminals does your component now use?

Please separate Terminal Types according to services (e.g., APL, ATS, BASIC, BATCHMON/ASP, CAMEXEC, CAMS, CDS, COINS, DIAOLS, EDIT/SEDIT, ETEC, GIMS, NDS, NIPS, RAMIS, SAFE (INTERIM), STAR, SCRIPT, UMLS). To assist you, we have included a list of your component's terminals which (according to our records) are attached to ODP hardware. Please correct any error or deficiencies in this list.

Be sure to list below all CRT terminals, not just those attached to ODP hardware.

Terminal Types	Number of Terminals	Services

B. Which features, if any, of the above terminals do you find inadequate?

C. Assuming that existing CRT terminals such as the Delta Data, Superbee and IBM 3270 will remain in use through at least FY 82; please provide a "working" number (if any) of additional alpha-numeric soft copy terminals that your component will require in each of FY 78, FY 79, FY 80, FY 81, FY 82 and FY 83.

_____ FY 78

_____ FY 79

_____ FY 80

_____ FY 81

_____ FY 82

_____ FY 83

II. In the left-most column please rate each item:

-1 Not required.
0 Not rated (Utility for my component's applications is unknown).
1 Desirable (Evaluation based on cost).
2 Mandatory requirement.

In the second column for any item rated 1 or 2 please provide an estimated percentage of the terminals indicated in Section I. C. which your component requires (or desires) to have this feature.

Also for item(s) rated 1 or 2, please describe, when possible, your application(s) of the item(s). You may use the space below item(s) or a separate sheet of paper.

Some items which are obvious requirements (e.g., non-glare terminal screen) have been omitted.

Any items that you feel should be added may be listed (and rated) at the end of any of the sections (A, B, C or D) below.

A. Configuration

	Rating	Percentage	
1	_____	_____	The ability to switch terminals between services (Refer to Section I. A.) If rating is 1 or 2, associate services with application(s).

	Rating	Percentage	
2	_____	_____	The ability to be used at domestic remote sites. If rated 1 or 2, indicate whether terminal size and environment are considerations?
3	_____	_____	The ability to be used at overseas sites. If rated 1 or 2, indicate whether size and environment are considerations?
4	_____	_____	Word processing (e.g., SCRIPT, ATS).
5	_____	_____	Local text editing.
6	_____	_____	Local validation of data.

	Rating	Percentage	
7	_____	_____	The ability to make bar charts and simple line graphs.
8	_____	_____	Local (e.g., cassette, floppy disk) storage capability. If rated 1 or 2, please indicate the amount of storage you require (desire). _____ bytes.
9	_____	_____	Small size at the expense of other features.
10	_____	_____	Interconnect to and support a high quality printer.
11	_____	_____	Interconnect to and support a low to medium quality non-impact printer.

	Rating	Percentage	
12	_____	_____	The ability to overlap local printing with normal operation of terminal.
13	_____	_____	The ability to backtab --- move the cursor to a previous tab or format field.
14	_____	_____	The ability to retain tabulation position(s). If rated 1 or 2, _____ tabulation position(s) are required (desired).
15	_____	_____	Buffering to allow storage of at least one completely full screen of character data and a paging function to display this data. If rated 1 or 2, please indicate, here, the number of full screens of character data you require (desire). _____

B. Screen, Display Formats and Character Sets

	Rating	Percentage	
1	_____	_____	Split display --- the division of the screen into two or more areas.
2	_____	_____	The ability to display reversed video --- light characters on dark background.
3	_____	_____	Multi-color display capability.
4	_____	_____	The ability to display at least 12 lines in an 80 column format. If rated 1 or 2, please indicate number of lines (either 12, 24, 27 or more than 27) you require (desire). _____

	Rating	Percentage	
5	_____	_____	Full ASCII upper and lower case character set (i.e., not ASCII upper case only)
6	_____	_____	APL
7	_____	_____	Special character set(s) (e.g., foreign language character set(s)).
8	_____	_____	Variable intensity character display.
9	_____	_____	Blinking

	Rating	Percentage	
10	_____	_____	A display area of at least 6 inches by 9 inches. If rated 1 or 2, please indicate display area dimensions (e.g., Delta Data 5260 has dimensions of 6 inches by 11 inches and the IBM 3270 has a 14 inch diagonal dimension) required (desired).

_____

C. Keyboard, Other Terminal User Entry Devices, and Terminal Controls

	Rating	Percentage	
1	_____	_____	Light pen.
2	_____	_____	Detachable keyboard.
3	_____	_____	A switch within easy user reach that converts the terminal from upper/ lower case (assuming of course that the terminal has both) to upper case only and vice versa.
4	_____	_____	The ability to easily repeat characters.
5	_____	_____	Programmable function keys. If rated 1 or 2, _____ keys are required (or desired).

	Rating	Percentage	
6	_____	_____	Physical key lock mechanism at terminal.

D. Display Speed

	Rating	Percentage	
1	_____	_____	The ability to get full screen display in less than 15 seconds. If rated 1 or 2, please indicate number of seconds (either 10 to 15 seconds, 6 to 10 seconds, 3 to 5 seconds, 1 to 2 seconds or less than one second) required (desired). _____ The Delta Data 5260 (ODP version) requires, for example, 6 to 10 seconds to get full screen display at a 2400 baud transmission rate.

ATTACHMENT II

UNCLASSIFIED

HIGHEST RATING PER QUESTIONNAIRE ITEM

	A															B										C						D
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	1
DDO																																	
(ALL)	2	2	2	2	2	2	1	2	2	2	2	1	2	2	2	0	0	-1	2	2	-1	0	1	0	2	2	1	1	2	2	0	2
DDS&T																																	
O/DDS&T	2	-1	-1	1	1	1	2	1	-1	2	2	1	2	2	1	1	1	1	2	2	-1	1	1	1	2	1	-1	2	2	2	1	1
FBIS	2	1	0	2	2	1	0	0	0	1	1	1	0	1	1	1	0	-1	1	2	0	2	1	-1	1	1	0	2	-1	1	2	1
NPIC	2	2	-1	1	2	2	1	2	-1	1	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2	2	1	2
OD&E	2	0	-1	-1	-1	-1	1	-1	-1	1	2	-1	-1	2	2	-1	1	-1	2	-1	1	-1	2	0	2	1	-1	2	-1	-	-1	1
OSO	2	0	0	1	1	1	1	0	-1	1	1	1	1	1	1	0	0	1	2	1	1	0	1	1	1	1	0	1	0	1	0	1
ORD	2	1	0	2	1	1	2	2	1	2	2	2	2	1	2	0	1	1	2	2	1	1	1	1	2	1	0	1	2	1	0	1
OTS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DDI																																	
CIA OPS CTR	1	-1	-1	-1	1	-1	0	0	0	2	-1	-1	-1	-1	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
OIA	2	2	-1	0	2	2	2	1	-1	2	2	1	2	0	1	0	-1	-1	2	2	-1	-1	2	2	0	1	-1	2	2	0	-1	2
OCR	2	-1	0	2	2	1	0	1	-1	2	2	1	2	2	2	2	0	0	2	2	0	2	2	1	2	1	1	2	2	2	1	2
OER	2	-1	-1	0	0	0	1	0	-1	2	0	0	0	0	2	-1	-1	0	2	1	2	-1	-1	-1	2	-1	-1	1	1	-	-1	2
OGCR	2	-1	-1	1	1	1	1	1	-1	2	1	1	1	2	2	1	0	1	2	2	0	1	0	1	2	1	1	2	0	0	0	1
ORPA	2	0	0	1	2	2	1	1	0	1	1	1	1	0	2	1	1	1	2	2	1	1	1	1	2	1	1	2	0	1	0	2
OSI	2	0	-1	2	2	2	1	2	-1	2	2	2	1	1	2	1	1	1	2	2	2	2	2	2	2	1	-1	2	2	2	-1	2
OSR	1	1	-1	2	2	1	2	0	-1	2	2	2	1	2	2	1	-1	1	2	2	2	1	2	1	2	1	0	2	2	1	0	1
OWI	2	-1	-1	2	2	2	2	1	-1	1	2	1	2	2	1	1	0	0	2	2	1	0	2	2	2	2	0	1	1	1	-1	0
COMIREX	2	2	1	1	1	1	1	1	-1	2	1	1	1	1	1	2	0	1	0	2	1	-1	0	0	0	0	0	0	0	2	2	2
DCI																																	
OGC	0	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	0
IC STAFF	1	2	-1	1	0	0	-	0	0	1	2	1	1	1	2	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	1
IG STAFF	2	-1	-1	0	0	-1	0	-1	-1	-1	2	0	2	-1	2	-1	-1	-1	2	-1	0	-1	-1	-1	0	-1	-1	2	-1	-1	-1	-1
RES	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1
O/COMPTROLLER	2	0	0	0	1	0	1	0	0	1	2	0	0	0	2	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1

Attachment II

TERMINAL QUESTIONNAIRE RESPONSES

UNCLASSIFIED

HIGHEST RATING PER QUESTIONNAIRE ITEM

	A															B										C						D
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	1
DDA																																
OF	-1	0	0	-1	2	2	2	-1	0	2	2	0	2	0	2	0	-1	-1	2	1	0	-1	2	2	2	-1	-1	2	2	0	-1	2
OL	2	2	0	2	2	1	1	1	-1	2	2	1	2	2	2	-1	1	-1	2	2	0	-1	1	-1	2	0	1	1	2	2	1	2
OMS	2	2	1	0	2	2	-1	1	0	0	1	0	1	1	1	-1	-1	-1	1	0	0	-1	2	-1	1	1	-1	0	-1	1	-1	0
OP	2	-1	-1	0	2	2	1	2	1	1	2	1	2	2	2	0	-1	-1	1	2	-1	-1	2	2	2	-1	-1	1	1	0	-1	2
OS	2	2	0	2	2	2	1	0	0	2	2	1	2	2	2	1	0	1	2	2	1	-1	2	2	2	1	-1	2	2	1	2	2
OTR	2	1	1	1	1	0	1	0	-1	2	2	1	0	2	2	0	0	1	2	1	1	0	0	1	2	1	0	2	0	0	0	2
ISAS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OC	2	2	-1	2	2	2	2	-1	-1	2	2	2	2	2	2	-1	-1	-1	2	2	-1	-1	-1	1	2	-1	-1	2	1	-1	-1	2
O/DDA	2	1	-1	1	0	0	1	0	-1	-1	2	2	2	1	2	-1	-1	-1	2	1	-1	-1	-1	-1	2	0	1	1	1	1	-1	2

NOTE: If more than one rating for any one item was provided, the highest of the ratings is provided here.

- = Not Rated
2 = Mandatory Requirement
1 = Desirable
0 = Not Rated (Utility Unknown)
-1 = Not Required

TERMINAL QUESTIONNAIRE RESPONSES

HIGHEST RATING PER QUESTIONNAIRE ITEM

	A															B										C						D
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	1
ODP/PROCESSING																																
William E.*	1	1	-1	2	1	2	1	1	-1	2	2	1	1	2	2	1	1	0	2	2	2	0	1	-1	0	1	1	2	2	2	0	2
David M.*	2	-1	-1	2	2	2	2	-1	-1	1	2	0	2	2	2	0	-1	-1	2	2	1	-1	2	1	2	1	-1	2	2	1	-1	2
ODP/SPECIAL PROJECT STAFF																																
Dennis M.*	2	2	-1	2	1	0	1	-1	0	2	1	1	1	1	2	-1	-1	-1	2	2	-1	-1	-1	-1	2	-1	1	1	2	1	-1	2
ODP/MANAGEMENT STAFF																																
Jay R.*	2	0	0	2	2	1	1	1	0	0	2	1	2	2	2	0	-1	1	2	2	1	-1	2	1	2	-1	-1	2	1	1	1	2
ODP/APPLICATIONS																																
Division A	2	0	0	2	1	1	2	0	-1	1	1	1	1	2	1	0	0	0	2	1	0	0	1	1	2	1	0	1	2	1	2	2
Division B	2	2	0	2	1	1	2	1	-1	1	2	1	2	2	2	0	0	1	2	1	1	1	2	1	2	1	-1	2	2	2	-1	2
Division C	2	-	-	1	-	-	-	-	-1	1	-	1	2	-	2	-	-	1	2	1	-	-	1	1	2	-	-	1	2	1	2	2
Division D	2	2	-1	1	1	1	2	1	0	1	1	1	1	1	2	1	-1	1	2	2	2	0	1	1	2	1	-1	1	1	1	1	2
Training	2	2	-1	2	1	2	1	0	-1	1	2	1	1	1	1	-1	-1	-1	2	2	2	-1	2	1	1	1	-1	1	1	0	0	1
Dale G.*	2	-1	-1	2	1	1	1	1	-1	1	2	1	1	2	2	1	0	1	2	2	2	1	1	1	2	1	1	2	2	1	0	2
Dennis H.*	2	0	0	2	-	2	1	1	0	1	1	2	2	2	2	0	1	0	2	2	0	0	1	1	1	1	0	1	2	1	0	2

NOTE: If more than one rating for any one item was provided, the highest of the ratings, is provided here.

- = Not Rated
2 = Mandatory Requirement
1 = Desirable
0 = Not Rated (Utility Unknown)
-1 = Not Required
* = Member of Terminal Requirements Working Group

TERMINAL QUESTIONNAIRE RESPONSES

ADDITIONAL TERMINALS REQUIRED FOR FY'78 to FY'83

("WORKING" NUMBERS)

	FY 78	FY 79	FY 80	FY 81	FY 82	FY 83
DDO						
(ALL)	29	44	66	49	38	38
DDS&T						
O/DDS&T	3	-	-	-	-	-
FBIS	4	7	9	12	7	10
NPIC	50	50	50	50	50	50
OD&E	3	2	0	0	0	0
OSO	-	-	-	-	-	-
ORD	2	2	3	4	4	4
OTS	-	-	-	-	-	-
DDI						
CIA OSP CTR	2	3	3	2	3	3
OIA	2	2	2	1	1	1
OCR	16	13	5	5	5	5
OER	12	6	6	3	1	1
OGCR	5	2	2	1	0	0
ORPA	4	5	4	4	4	4
OSI	3	3	3	3	3	3
OSR	18 to 27	8	6	5	4	4
OWI	10	20	3	3	3	3
COMIREX	20 to 50	-	-	-	-	-
DCI						
OGC	2	2	2	2	2	2
IC Staff	-	-	-	-	-	-
IG Staff	1	1	1	0	0	0
RES	2	2	2	1	1	1
O/COMPTROLLER	0	0	0	0	0	0
DDA						
OF	4	3	2	-	-	-
OL	21	17	10	-	-	-
OMS	1	5	2	2	1	1
OP	3	8	10	10	10	10
OS	2	2	2	0	0	0
OTR	30	15	15	0	0	0
ISAS	-	-	-	-	-	-
OC	4	-	-	-	-	-
O/DDA	1	2	0	1	0	0

- = No Number Provided

TERMINAL QUESTIONNAIRE RESPONSES

ADDITIONAL TERMINALS REQUIRED (FY'78 to FY'83)

	FY 78	FY 79	FY 80	FY 81	FY 82	FY 83
ODP/PROCESSING						
William E.*	-	-	-	-	-	-
David M.*	6	5	5	5	5	5
ODP/SPECIAL PROJECTS STAFF						
Dennis M.*	1	2	2	1	0	1
ODP/MANAGEMENT STAFF						
Jay R.*	-	1	-	-	-	-
ODP/APPLICATIONS						
Division A	5	2	2	2	2	2
Division B	-	-	-	-	-	-
Division C	-	-	-	-	-	-
Division D	-	-	-	-	-	-
Training	3	0	0	0	0	0
Dale G.*	-	-	-	-	-	-
Dennis H.*	-	-	-	-	-	-

- = No Number Provided
* = Member of Terminal Requirements Working Group

TERMINAL QUESTIONNAIRE RESPONSES

ATTACHMENT III

ATTACHMENT III

Project SAFE Workstation (Terminal) Requirements
(Excerpt from: SAFE Functional Requirements, Dated 1 March 1977)

7.1 INTRODUCTION

User workstations will consist of up to seven modular components. Two or more modular components may be combined to satisfy the needs of a given user. This approach will facilitate cost/functional trade-off analysis, cost-effectiveness, and reliability and maintenance of each workstation. The modules available for a workstation include the following: (1) interactive display module, (2) hardcopy image-display module*, (3) receive-only, medium-quality printer module, (4) receive-only, high quality printer module*, (5) user keyboard module, (6) secure telephone*, and (7) writing area, storage area for listings and reference aids*.

Controls and indicators, technical requirements, and functional requirements are documented for each module. Functional requirements do not mean that a particular function must be directly supported by the module under discussion; rather, the requirements simply address a means for a user to cause a given action to take place. Whether that action is implemented in a particular workstation component, the workstation as a composite, a computer, or some other facility, is not relevant to these requirements. Physical requirements for a workstation are documented in paragraph 7.7; interface requirements are documented in paragraph 7.8.

7.2 INTERACTIVE DISPLAY MODULE

An interactive display module will be used for communicating with the system and viewing the display of digital data from the SAFE data base.

7.2.1 CONTROLS AND INDICATORS

Controls and indicators provided with the interactive display module will include but may not be limited to:

* Not applicable to the Agency Standard Soft Copy Computer Terminal Requirements.

(1) ON/OFF switch, (2) FOCUS control, (3) BRIGHTNESS control, (4) CLEAR-SCREEN switch, (5) CLEAR-MEMORY switch (if the module includes a buffer memory), (6) POWER-ON indicator, (7) Transmit light to indicate when the workstation is transmitting data to the system, (8) ALERT-ALARM indicator which will be activated by a remote computer, (9) ALERT-ALARM reset switch, (10) MODE-OF-OPERATION switch, and (11) GENERAL RESET switch.

7.2.2 TECHNICAL REQUIREMENTS

The following describes the requirements that will be met by each interactive display module:

(a) Phosphor Color - Characteristics will be chosen to maximize user's visual comfort.

(b) Highlighting - At least three modes of selective highlighting will be provided, one of which will be character or field blinking. Other examples of highlighting are reverse video, underlining, and programmable brightness levels.

(c) Read/Write Rates - The workstation will perform at read/write rates of approximately 1,000 characters per second.

(d) Screen Size - The minimum diagonal screen measurement will be 12 inches, and the screen will display a minimum of 2,080 characters simultaneously, without discernible flicker, arranged in a minimum of 26 rows of 80 characters each.

(e) Character Set - A 96-character set, uppercase and lowercase, will be displayable. Further, some interactive display modules will be equipped with support for A Programming Language (APL), and will require the capability for user-dynamic selection of the APL or other character sets.

(f) Field Selection - Support will be provided to facilitate a user's dynamic selection of any character(s) or screen position(s), by devices such as a light pen or mouse.

(g) Function Keys - A set of programmable function keys will be provided to support various technical or functional requirements and user functions required by individual users or user groups.

(h) Alert-Alarm Indicator - Support will be provided to enable remote activation of the Alert Alarm indicator whether the interactive display module is powered on or powered off.

7.2.3 FUNCTIONAL REQUIREMENTS

The following describes the functions that will operate on each device:

(a) Operational Modes - Support will be provided to operate the interactive display module in either the overstrike or insert modes, as selected by the operator. Overstrike causes the character typed in at the cursor location to replace the existing character in that position, and advances the cursor one position to the right. Insert causes the character typed to be placed at the cursor location and, to make room, moves characters to the right of and below the cursor. During insert operations fullword wraparound is effected such that as characters are pushed right by inserted characters, and the maximum positions of the line are filled, only full words are moved to the next line.

(b) Delete Character - Support will be provided such that depression of the appropriate key will result in the deletion of the character at the cursor location and cause the text to the right of and below that location to shift back and up to fill the gap, following the rules of fullword wraparound defined in (a) above.

(c) Delete Word - Delete word will operate the same as delete character except that an entire word is deleted.

(d) Delete Line - Delete line will operate the same as delete character except that an entire line is deleted.

(e) Move Block - Support will be provided such than an arbitrary block of text displayed on the screen may be defined and moved to another designated location on the screen.

(f) Scroll - Support will be provided to facilitate scrolling lines up or down, one line at a time. If the scroll key (either up or down) is depressed for more than one-half second, the scroll function will be repeated until the key is released.

(g) Split-Screen - Support will be provided to allow a display to be split into two parts under user control. All of the capabilities that apply to the display in non-split mode will apply to each of the parts separately.

7.3 HARDCOPY IMAGE-DISPLAY MODULE*

7.3.1 GENERAL

Remote viewing of hardcopy documents requires a high resolution, display system. Hardcopy images will be requested through the interactive display and keyboard modules. The requested data will be displayed on the hardcopy image-display module.

7.3.2 TECHNICAL/FUNCTIONAL REQUIREMENTS

The technical and functional requirements for the hardcopy Image-Display Module will be specified in the ADSTAR Requirements Document or Systems Specification document.

7.4 RECEIVE-ONLY, MEDIUM-QUALITY PRINTER MODULE

7.4.1 GENERAL

A remote, quiet, medium-speed, medium-quality, receive-only printer will be furnished to produce local hardcopy (from either of the display modules) at the user's command.

7.4.2 CONTROLS AND INDICATORS

Controls and indicators that will be provided with the receive-only, medium-quality printer module will include but not be limited to: (1) ON/OFF switch, (2) paper-jam indicator, (3) START/STOP-PRINTING switch, and (4) RESET switch.

7.4.3 TECHNICAL REQUIREMENTS

The following characteristics are required:

(a) Speed - The printer will print at a maximum of 120 lines-per-minute.

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*Not applicable to Agency Standard Soft Copy Computer Terminal Requirements.

(b) Character Set - The printer will print a 96-character set (plus the special characters required in paragraph 4.3.6, Print), uppercase and lowercase, or images from the hardcopy image module.

7.5 RECEIVE-ONLY, HIGH-QUALITY PRINTER MODULE*

7.5.1 GENERAL

A relatively slow, high-quality, hardcopy printer is required to produce text suitable for reproduction and publication.

7.5.2 CONTROLS AND INDICATORS

Controls and indicators provided will include but not be limited to: (1) paper-jam indicator, (2) ON/OFF switch, (3) START/STOP-PRINTING switch, and (4) RESET switch.

7.5.3 TECHNICAL REQUIREMENTS

The following characteristics are required:

(a) Speed - The printer will print at a minimum of 30 characters-per-second.

(b) Quality - The print quality will be such that it is suitable for camera-ready copy at least equal to text typed on an IBM Selectric typewriter.

(c) Character Set - The printer will print a 96-character set (plus the special characters called for in paragraph 4.3.6, Print), uppercase and lowercase.

7.6 USER KEYBOARD MODULE

7.6.1 GENERAL

The user keyboard will be provided with each user workstation, to provide input of user requests and data to the computer system. Flexibility is required in attaching and interfacing this module to the other modular components.

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*Not applicable to Agency Standard Soft Copy Computer Terminal Requirements.

7.6.2 CONTROLS AND INDICATORS

In addition to the interactive display module controls and indicators, keyboard controls and indicators for each keyboard will include but not be limited to: (1) a modular configuration-selection switch capable of specifying the configuration of the workstation, (2) LOCAL/REMOTE indicator (controlling all modules), (3) TRANSMIT/RECEIVE indicator, and (4) character set switch for APL and/or a 96-character set when needed.

7.6.3 TECHNICAL REQUIREMENTS

Requirements that will be met by each keyboard module are the following:

(a) Function Keys - There will be support for a minimum of ten programmable function keys.

(b) Compatability - Each keyboard will be compatible with the technical requirements of the other modules of a user workstation.

7.6.4 FUNCTIONAL REQUIREMENTS

A user keyboard will be equipped to accommodate the functions of each of the other workstation modules.

7.7 PHYSICAL REQUIREMENTS

The following characteristics are required:

(a) Environmental - The workstation will be compatible with the Agency's general office environment, defined herein as an enclosed or non-enclosed 100-square-foot area. The workstation will tolerate temperate ranges, humidity, and pollutants, such as smoke and dust, found in an office area.

(b) Size - A workstation will not exceed more than 10-square-feet of floor or desk space. The shorter side will fall in the range of 1.5 to 2.5 feet.

(c) Weight - To facilitate maintenance, each modular component will be manually portable.

(d) Power - Because the workstations will be installed in ordinary office space, the capacity to dissipate heat may be quite limited. Therefore, it is essential to reduce power dissipated by the workstation to a minimum. The goal is not to exceed 250 watts.

7.8 INTERFACE REQUIREMENTS

Each module will be compatible with and capable of successfully interfacing with the other devices of the workstation.