Minimum Specifications for OMR Scanners

- Optical Mark Recognition (OMR) scanner (more robust/reliable than OCR)

- Able to read bubbles (no "tick" marks because specialized printing of questionnaires would be required).

- Scanning throughput : 2,000 sheets per hour. Overall speed is limited by on-line edits and human speed of corrections.

- 2 sided read capability (to read forms printed on both sides)

- Pencil read (allows for more background colors).

- 48 columns (6 per inch) because allows for more data on the sheet.

- 220 Volts

- Must include a kit of most basic spare parts per machine as well as instructions on how to replace them. More serious repairs can be provided by shipping the equipment back to manufacturer's office if local technical support is not available.

Minimum Specifications for Utility Software

1. The scanner must be compatible with an easy to use, menu-driven software program for applications development. The software must be compatible with the vendor's entire scanning product line.

2. A single, integrated software package is required to manage all aspects of output record definition, data resolution, forms identification, forms sequence checking, data editing and scanning for one or more integrated single page or multiple page documents. A single, integrated program is required to simplify development and increase productivity.

3. No previous programming experience or knowledge of computer programming languages is necessary for the development of a new scanning application. Application development that requires writing or modifying a program and then assembling or compiling that program does not meet this requirement.

4. Forms definition (number and location of "skunk" marks, and number of timing marks) and sequencing of multiple page documents shall be accomplished by simply scanning the documents. Measuring the document to determine the location of these marks or manual counting is not acceptable.

5. Definition of the output data record and resolution of the forms shall be accomplished through the use of straight-forward, interactive screen prompts and menu selections.

6. As the scannable form is resolved, a facsimile of the form shall be displayed on the computer screen, providing visual feedback which simplifies the resolution process.

7. The software must provide the ability to set edit criteria for each of the fields read from a scannable form. These edits must include at least:

   a. Blank valid (is it valid for a grid to be blank?)

   b. Completeness (is the grid fully filled in?)

   c. Left or right justification

   d. Multiple marks are invalid

   e. Value is within a specified range

   f. Number of allowable omits for a grid

   g. Number of allowable multiples marks for a grid.

8. The software must provide the ability to specify the actions that take place if the information on the sheet fails the edit criteria:

   a. Program action on failure: no action, flag the scanned record for later keyboard correction, or reject the record.

   b. Scanner action on failure: continue scanning or stop the scanner

   c. A description of the edit failures should be displayed on the screen while scanning.

9. The software must be capable of controlling the scanner's reading of multiple-page documents and writing out the data from these multiple pages in a single data record. This is required to simplify processing a data obtained from multiple page documents by eliminating a separate collation step.

10. The software provided with the scanning system must include the ability to produce data files in the following formats:

    a. Fixed filed ASCII format

    b. Variable length delimited ASCII format

11. The scanning system must include an on-line help facility that is available to the scanner operator so that operational questions may be quickly resolved.