

JIS

JAPANESE INDUSTRIAL STANDARD

**File Specification for Japanese
Documents Interchange
(Raster Graphics Type)**

JIS X 4004—1989

Translated and Published

by

Japanese Standards Association

In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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JAPANESE INDUSTRIAL STANDARD

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File Specification for Japanese Documents Interchange X 4004-1989
(Raster Graphics Type)1. Scope

This Japanese Industrial Standard specifies the document file specifications for use in the case where the Japanese document interchanges through characters and raster graphics are to be carried out, using flexible disk cartridges, between Japanese word processors or information interchanging machines having performances equal to or superior to these.

This Standard specifies the following contents.

- (1) Configuration of a document file
- (2) Types and forms of information constituting a document file
- (3) Types and functions of character symbols (graphic characters and control characters) to be used.
- (4) Configuration of block data part.
- (5) Representation of raster graphics and forms for storage into document file.

2. Definitions

For the main terms used in this Standard the definitions in the Japanese Industrial Standards dealing with information processing terms apply, and the rest of the terms shall be as follows:

- (1) document Information represented in two-dimensional form so as to be comprehensible by humans, for example, that which is printed on papers or displayed on screens. In this Standard, the document consists of not less than one page of document format information which defines the initial value of format at time of creation of document.
- (2) document file A file consisting of one or more pages of document as objects of Japanese document interchange. The document file consists of document header and document data. One document is stored on a medium as a pair of the document header information in the document header part and the document substance in the document data part.
- (3) file A string of related records to be treated as a single unit. The file can either be stored in the whole or part of one volume or extend over two or more volumes.
- (4) volume The physical unit of data medium which is capable of being attached or detached. In this Standard, one volume corresponds to a flexible disk cartridge. In one volume, either the whole body or one part of one file, or two or more files can be stored.

Applicable Standards, Corresponding International Standards and Reference Standards: See pages 49 and 50.

- (5) record A set of continuous data constituting the unit of storing and reading on a medium. In this Standard, a record shall be 256 bytes in length.
- (6) extent A string of records having continuous addresses of an ascending order.
- (7) system label An assembly of volume header label, file header label, etc. specified in JIS X 0603.
- (8) document header information Information which is placed in advance of the document substance to be stored in a document file, and which, identifying each document, indicates the storage location, the attributes of the document, etc.
- (9) document interchange level The level of a document classified in terms of the existence or nonexistence of graphs for business, geometrical figures and raster graphics included in the documents to be interchanged, coded representation of characters to be treated and types of control functions and the like.
- (10) document format information Information which defines the dimensions of papers to print document, physical arrangement of characters on papers, method of physical representation of individual characters, etc. In this Standard, this information is used for defining the initial value of the format of interchanged document.
- (11) control functions A control string which begins with control character or the particular function it represents.
- (12) graphic characters Characters other than control characters capable of being visually represented by printing and displaying.
- (13) text A string of graphic characters and control functions in a document comprising one or more pages.
- (14) page A split unit of a text effected through physical restriction of paper or the style of document.
- (15) line One dimensional row of characters in a page, which is a unit for dividing a page in the character direction.
- (16) character pitch The feed amount of character shift for arranging characters in a line.
- (17) line pitch The feed amount of line shift for arranging lines.
- (18) character direction The direction of the reading of characters.
- (19) line direction The direction vertical to the direction of the reading of characters.
- (20) vertical writing The arrangement of characters to be read vertically from top to bottom of each line of characters.

- (21) horizontal writing The arrangement of characters to be read horizontally from left to right of each line of characters.
- (22) active position The position of the character to be processed next. After processing, the active position usually advances by one character.
- (23) home position of line The position where the first character of a line begins. This is the position where the leftmost character begins in the case of horizontal writing, and the position where the uppermost character begins in the case of vertical writing. This is equivalent to the character position next to the margin corresponding to the number of characters present in the margin column in the character direction of document format information.
- (24) end position of line The position of the last character of a line, i.e., the position where the rightmost character terminates in the case of horizontal writing, and where the lowermost character terminates in the case of vertical writing. This is equivalent to the character position corresponding to the sum of the number of characters in the character direction in the margin column and the number of characters in the character column per line of document format information.
- (25) full size The size of a character of which size in the character direction is normal.
- (26) half size The size of a character of which size in the character direction is 50 % of the full size.
- (27) double size The size of a character of which size in the character direction is 200 % of the full size.
- (28) block The rectangular area for accommodating the graphs for business, geometrical graphics, raster graphics, etc. in the page of a document.
- (29) block format information Information which specifies the number, position and size of a block.
- (30) picture element The minimum unit of a two-dimensional image as split horizontally and vertically.
- (31) raster graphics Graphics represented by binary picture elements as arranged in 2 dimensions.
- (32) raster graphic information An assembly of information for representing raster graphics.
- (33) raster graphic area An area provided in a block for displaying raster graphics.
- (34) background A part in the raster graphic area as a foundation for representing raster graphics.
- (35) foreground The part of raster graphics in the raster graphic area.

- (36) main scanning line A line of picture elements arranged one-dimensionally in the character direction.
- (37) main scanning direction The direction in which picture elements develop in the main scanning line.
- (38) auxiliary scanning The process in which the main scanning lines develop.
- (39) auxiliary scanning direction The direction in which the main scanning lines develop, and this coincides with the line direction.
- (40) picture element interval The distance between the center of a picture element and that of an adjoining picture element.
- (41) auxiliary scanning interval The distance between the center of one main scanning line and that of the next main scanning line.
- (42) BMU A unit of length equivalent to 25.4/1200 mm.
- (43) picture element density The number of picture elements per 25.4 mm in the main scanning direction. In this Standard, the picture element interval is specified as equal to the auxiliary scanning interval.

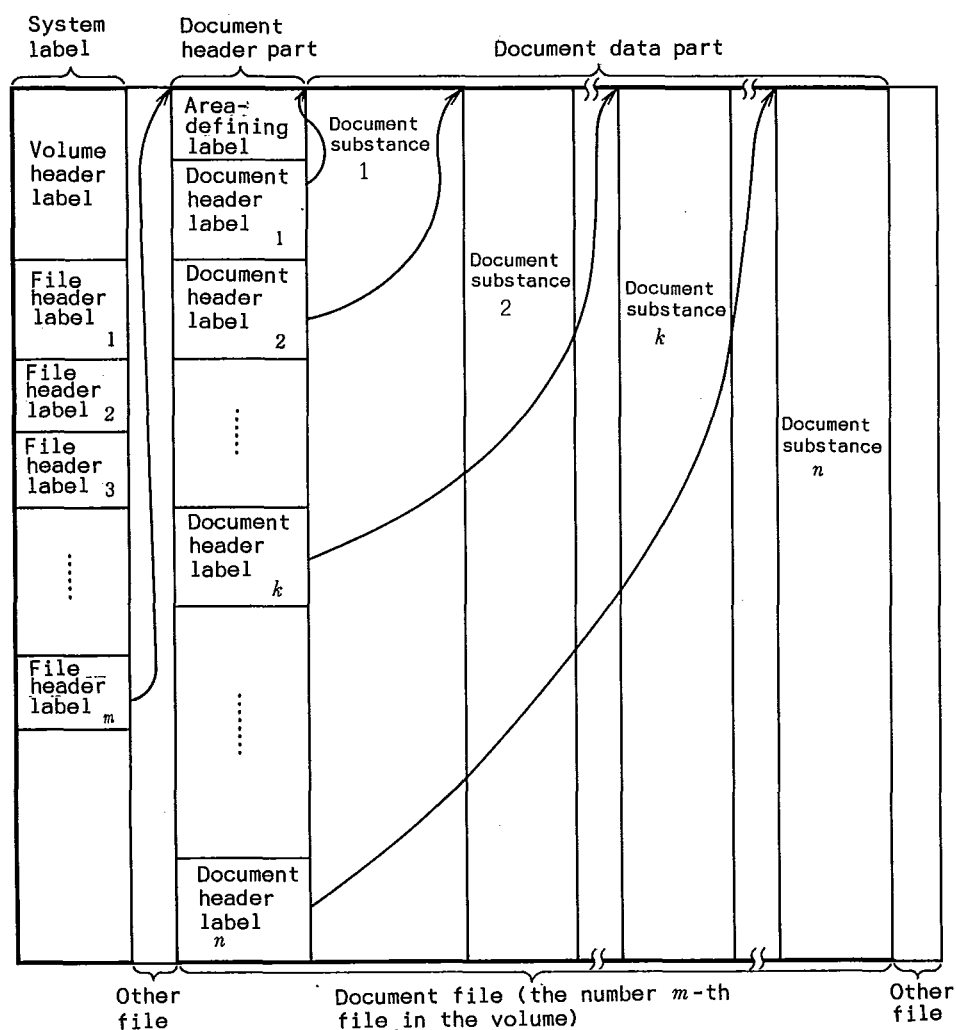
3. Configuration of File for Japanese Document Interchange (Raster Graphics Type)

3.1 Document File The document file shall be the file configured on a flexible disk cartridge in accordance with JIS X 0603, and shall be the deblocking type of 256 bytes per sector.

The document file shall be composed of the document header and the document data.

The document treated in this Standard shall be composed of the document header label and the document substance. These shall be designated in correspondence with the document header and the document data respectively on a document file. The positioning and configuration of a document file shall be as given in Fig. 1.

Fig. 1. Positioning and Configuration of Document File



Remarks 1. The document k shall be composed of document header label k and document substance k (k means one of the numerals from 1 to n).

2. The block definition label shall be in accordance with 4.2.

Further, one document file shall be stored in one volume.

3.2 Document Header Part The document header part shall be positioned at the front of the document file, and shall consist of one area-defining label and one or more document labels. The area-defining label shall be the area-defining information designating the block of document header, and its contents shall be in accordance with 4.2.

The document header label shall be the document header information for identifying each document included in the document file and for designating the place for storing it in the file, and its contents shall be in accordance with 4.3.

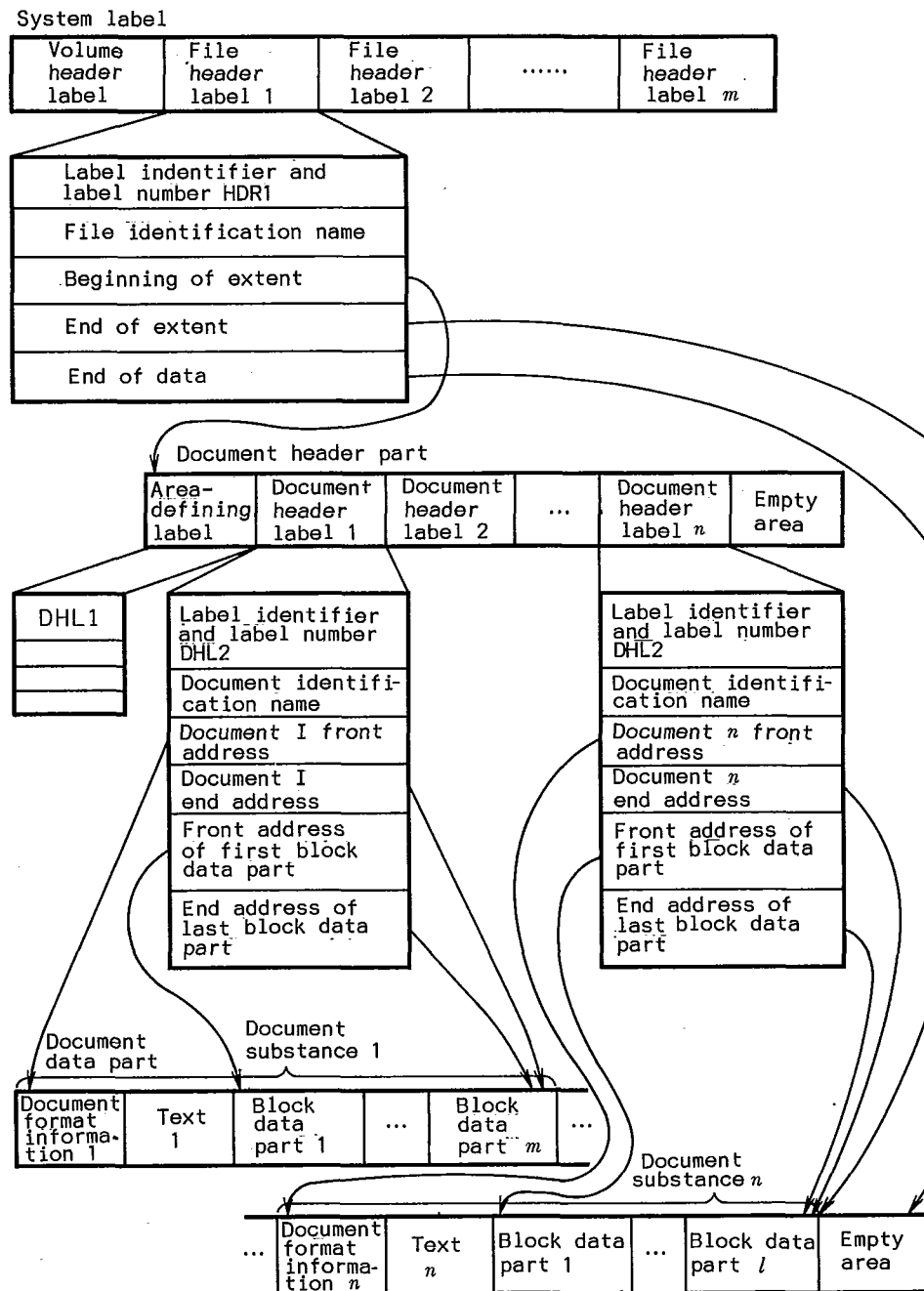
3.3 Document Data Part The document data part shall consist of one or more document substances defined by the document header label in the document header part. One document substance shall be composed of one document format information, one text and no block data or more. The document format information shall be stored at the front of the document substance, and its contents shall be in accordance with 5.2. The text and the block data part shall be as given in (1) to (7), and their contents shall be in accordance with 6., 7., and 8., respectively.

- (1) The text shall be stored in the whole body or part of one volume.
- (2) The text shall start immediately after the preceding document format information.
- (3) The block data part shall follow the text.
- (4) The whole part or part of the text and the block data part shall be stored in the continuous record in the volume.
- (5) The front head of the first block data part of the document data part shall be designated by the document header label concerned.
- (6) The length of each block data part shall be designated by the block format information concerned, and the next block data part starts from the succeeding record.
- (7) All the characters from the control function DT (document terminator) in the text or in the block data part of each document to the end of its document substance shall be ignored at the time of document interchange.

The positioning of the document header part and the document data part on the document file shall be as given in Fig. 2.

Further, the format of the system label shall be in accordance with Appendix 1.

Fig. 2. Positioning of Document Header Part and Document Data Part on Document File



- Remarks 1. The details of the file header label shall be in accordance with Appendix 1 Table 2.
2. One document substance shall be composed of one document format information, one text and no block data part or more.

4. Document Header Part

4.1 Configuration of Document Header Part The document header part shall be positioned at the front of the document, and shall be composed of one area-defining label and one or more document header labels.

4.2 Area-defining Label The area-defining label shall indicate the area where the header label of the document contained in the document file is to be stored. The contents of the area-defining label shall be as given in Table 1. The details shall be as given in (1) to (5).

Table 1. Area-defining Label

Positions in label	Name	Length (byte)	Content
1 to 3	Label identifier	3	Graphic character "DHL"
4	Label number	1	Digit "1"
5 to 103	(To be secured for future standardization)	99	Space
104 to 108	Address of last header label of document header part	5	Digit
109 to 113	End address of document header part	5	Digit
114 to 256	(To be secured for future standardization)	143	Space

Remark: The code of a character expressing contents shall be in accordance with JIS X 0201.

- (1) Label Identifier (Positions in label 1 to 3) This shall be the column for designating the label identifier, and its graphic character shall be "DHL".
- (2) Label Number (Position in label 4) This shall be the column for designating the label number, and shall be expressed by digit "1".
- (3) Address of Last Header Label of Document Header Part (Positions in label 104 to 108) This shall be the column for indicating the record number of the last header label of document header part, and shall designate the relative record number counted from the top of file with a 5-digit number. The number of the top record of the file shall be "00000".
- (4) End Address of Document Header Part (Positions in label 109 to 113) This shall be the column for indicating the record number of the end of document header part, and shall designate the relative record number counted from the top of file with a 5-digit number. The number of the top record of the file shall be "00000".

- (5) Columns to Be Secured for Future Standardization (Positions in label 5 to 103, 114 to 256) These shall be those columns to be secured for future standardization and shall be filled with spaces.

4.3 Document Header Label The document header label shall be determined for each document which is included in document file, and shall indicate the identification of document, designation of storing place in the file, document interchange level, etc.

The first document header label shall be recorded immediately after the area-defining label, namely, in the record number "00001".

The succeeding document header label shall be recorded immediately after the preceding document header label.

The contents of document header label shall be as given in Table 2. The details shall be as given in (1) to (18).

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Table 2. Document Header Label

Positions in label	Name	Length (Byte)	Content
1 to 3	Label identifier	3	Graphic character "DHL"
4	Label number	1	Digit "2"
5	(To be secured for future standardization)	1	Space
6 to 65	Document identification name	60	Graphic character (JIS X 0208)
66 to 85	Names of author	20	Graphic character (JIS X 0208)
86 and 87	Edition number	2	Digits
88 to 95	Creation date	8	Digits
96 to 99	Number of pages	4	Digits
100	(To be secured for future standardization)	1	Space
101 and 102	Document interchange level	2	Digit "10", "11", "20", "30" or "40"
103	(To be secured for future standardization)	1	Space
104 to 108	Top address of document substance	5	Digits
109 to 113	End address of document substance	5	Digits
114 to 116	Number of unused bytes in last record of text	3	Digits
117	Bypass indicator	1	Graphic character
118 to 125	Password	8	Graphic character
126	(To be secured for future standardization)	1	Space
127 to 131	Top address of first block data part	5	Digits or spaces
132 to 136	End address of last block data part	5	Digits or spaces
137 to 180	(To be secured for future standardization)	44	Space

Table 2. (Continued)

Positions in label	Name	Length (Byte)	Content
181	Graphic indication for business	1	Digit or space
182	Geometrical graphic indication	1	Digit or space
183	Raster graphic indication	1	Digit or space
184 to 196	(To be secured for future standardization)	13	Space
197 to 256	Document memo	60	Graphic character (JIS X 0208)

Remark: The code of characters for representing contents, unless referred to JIS X 0208, shall be in accordance with JIS X 0201.

- (1) Label Identifier (Positions in label 1 to 3) This shall be the column for indicating label identifier, and shall be expressed by graphic character "DHL".
- (2) Label Number (Position in label 4) This shall the column for indicating label number, and shall be expressed by the numeral "2".
- (3) Identification Name of Document (Positions in label 6 to 65) This shall be the column for identifying document, and shall be expressed by graphic character. The identification name of document shall be designated for the document by the author of the document at the time of creation of the document.
- (4) Name of Author (Positions in label 66 to 85) This shall be the column for indicating the author of the document, and shall be expressed by graphic character.
- (5) Edition Number (Positions in label 86 and 87) This shall be the column for indicating the serial number of the edition, and shall be expressed by digit.
- (6) Creation Date (Positions in label 88 to 95) This shall be the column for indicating the date of creation of the document, and shall be represented by a 6-digit number consisting of the year of lower 2 places of A.D., the month of 2 places and the day of 2 places with hyphens "-" interposed between the year, month and day.
- (7) Page Number (Positions in label 96 to 99) This shall be the column for indicating the serial number of the page of the document, and shall be represented by numerals.
- (8) Document Interchange Level (Positions in label 101 and 102) This shall be the column for designating the interchange level of the document, and shall be classified according to the coded representation of characters treated in the document, control functions, presence or nonpresence of blocks and types of block.

- Digit "10": This shall treat the 21 types of control functions given in Table 5 excluding BUS, and shall not include a block (fundamental type).
- Digit "11": This shall treat the 16 types of control functions given in Table 5 excluding CHT, HTSA, JFY, NUL, DT and BUS, and shall not include a block.
- Digit "20": This shall treat the 22 types of control functions given in Table 5, and shall include without fail the block of graphs for business specified in JIS X 4002 or blank block only.
- Digit "30": This shall treat the 22 types of control functions given in Table 5, and shall include the block for geometrical graphics specified in JIS X 4003 without fail. However, this may include the block of graph for business and blank block.
- Digit "40": This shall treat the 22 types of control functions given in Table 5, and shall include the block for raster graphics without fail. However, this may include the block for business graph, block for geometrical graphics and blank block.
- (9) Top Address of Document Substance (Positions in label 104 to 108)
This shall be the column for indicating the top record number in which the document substance is stored, and shall designate the relative record number counted from the top of the file with a 5-digit number. The top record number of the file shall be "00000".
- (10) End Address of Document Substance (Positions in label 109 to 113)
This shall be the column for indicating the last record number in which the document substance is stored, and shall designate the relative record number counted from the top of the file with a 5-digit number.
- (11) Number of Unused Bytes in Last Record of Text (Positions in label 114 to 116) The number of unused bytes in the last record of the text shall be designated by a 3-digit number.
- (12) Bypass Indication (Position in label 117) In the document interchange, this shall be the column for indicating whether the particular document is to be ignored or not, and shall be designated by the following character:
- | | |
|------------------------|-------------|
| Space: | Not ignored |
| Graphic character "B": | Ignored |
- (13) Password (Positions in label 118 to 125) This shall be the column for designating the password for the document, and shall be designated by a graphic character of 8 places. When a character string conforming to the password has been given, then the document can be read. Only in the case where all the graphic characters in a string of 8 places are spaces, there shall be no passwords.

- (14) Top Address of First Block Data Part (Positions in label 127 to 131)
This shall be the column for indicating the top record number in which the first block data are stored, and shall designate the relative record number counted from the top of the file with a 5-digit number. However, when the number of pieces in the block data is zero, it shall be filled with spaces.
- (15) End Address of Last Block Data Part (Positions in label 132 to 136)
This shall be the column for indicating the last record number in which the last block data are stored, and shall designate the relative record number counted from the top of file with a 5-digit number. However, when the number of pieces in the block data is zero, it shall be filled with spaces.
- (16) Types of Data in Block in Document (Positions in label 181 to 183)
In the case where document interchange levels are "20", "30" and "40", this shall be the column for indicating the type of data in block included in the document, and shall designate the presence or nonpresence of data with the character of each position in the following.

Position 181 Space: this shall not include any graph for business.

Digit "1": this shall include graph for business.

Position 182 Space: this shall not include any geometrical graphic.

Digit "1": this shall include geometrical graphic.

Position 183 Space: this shall not include any raster graphic.

Digit "1": this shall include raster graphic.

- (17) Document Memo (Positions in label 197 to 256) In the case where any document memo is intended to be attached, this shall be used for notes.
- (18) Columns to Be Secured for Future Standardizations (Positions in label 5, 100, 103, 126, 137 to 180 and 184 to 196) These shall be the columns to be secured for future standardizations, and shall be filled with spaces.

5. Document Data Part

5.1 Configuration of Document Data Part The document data part shall be composed of one or more document substances which have been defined by the document header label in the document header part. Each document substance shall consist of the document format information of 256 bytes, and the texts and block data parts which immediately follow it.

5.2 Document Format Information The document format information shall define the initial value of the format of document interchange, and its contents shall be as given in Table 3. The details shall be as given in (1) to (9). Part or all of the document format information may be omitted. When an omission is made, columns concerned shall be filled with spaces. The format when whole parts have been omitted shall be in accordance with Appendix 2.