DIGITAL EQUIPMENT COMPUTER USERS SOCIETY

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Title: UAC-14 Digital Function Generate and Display

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Purpose: Scope display for univariant or bivariant functions stored in UAC-10
                    (DECUS No. 34) format.

Options include: 1. Typewriter command for first data location, number of points per
                        curve, and number of curves per function.

                    2. Sense switch control for point, curve, calibrated axes, multi or
                        single sequenced curve displays.

                    3. Light pen modification or generation of functions.

Locations: 0-15   Loader (UAC-9)
                    16-502   Character Display (BBN-37)
                    503-1510 Program

Start: 506

Stops: 506 Program ready to receive typewriter command for new function
                    after continue.

Sense Switches: 1 off - plot function values only.
                      on - fill space between function values with straight line segments.

                    2 off - axes not plotted.
                      on - axes plotted with data.

                    3 off - plot all curves of bivariate.
                      on - plot single curve of family. First curve to appear when switch
                           turned on will be first curve in data sequence.

                    4 off - no affect
                      on - step to next sequential curve if sense switch 3 is on. This
                           switch must be turned off and on again before subsequent curve
                           can be displayed.

                    5 off - no affect
                      on - return to 506 stop.

                    6 off - permit light pen pick up of existing function value
                      on - alter function ordinate in memory to value provided by light
                           pen. Function abscissa unaffected. Inhibits light pen pick up.

Description: UAC-14 permits generation and/or display of any function stored above
1510_8 in UAC-10 format.

When loaded, UAC-14 will stop at 506. Pressing continue will allow the program to inter-
rogate the user for function first octal location, decimal number of points per function, and
decimal number of curves per function. Each request is followed by a tab after which the
user types the requested information and a carriage return. Scope display will follow the last
carriage return.

Sense switches 1-4 are used to control the display format. With all switches off, all function values will be displayed with values of each curve equispaced across the face of the scope. Sense switch 1 on will produce straight line segements between points.

Sense switch 2 on will add axes to the display. The vertical axis contains 5 volt least divisions in analog scaling (s7/10)* with each 25v division emphasized and each 50v interval numbered. The horizontal axis shows a point at each function abscissa location with every fourth point emphasized.

Sense switches 3 and 4 are used to view single curves of a family. The first sequential curve will appear when sense switch 3 is turned on. Stepping through the curves is permitted on at a time by turning sense switch 4 on and off. If sense switch 4 is turned on when the last curve is being displayed, the step will be made back to the first curve in the sequence.

Sense switch 5 is used to terminate the program at its loading stop, 506.

Light pen generation or modification is provided. In generating new functions, use of single curve option is required. The light pen will pick up function values only, regardless of options displayed. When the light pen "sees" a point, the function data and axes will be blanked as they normally would appear. In place, a cross at the light pen position and the vertical axis described above will appear. The vertical axis remains stationary passing through the abscissa of the selected function point. The cross will move horizontally or vertically with the light pen until the desired new function value is reached. The horizontal motion is permitted to aide in viewing the cross horizontal bar relative to the vertical axis.

The selected function ordinate can be changed to the position of the light pen by turning sense switch 6 on. Light pen pick up is inhibited when switch 6 is on to prevent "slipping" of the desired value.

Write DECUS Program Library, Digital Equipment Corporation, Maynard, Massachusetts for binary operational tape and macro symbolic tape.

*Sign plus 7 bits left of binary point and 10 bits right of binary point.

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