

# A suggested way to express the control codes of the 1976 Broadcast Teletext Specification in plain text using existing characters of the Universal Character Set

William J. G. Overington

Monday 3 January 2022

**Abstract:** The author suggests using a three-character sequence consisting of a hexadecimal 007E TILDE character followed by two capital letters to express each of the teletext control code of the 1976 Broadcast Teletext Specification in plain text in computing environments. The author suggests using these sequences as if ligatures in a special purpose font.

At the time of writing this document, the control codes of the 1976 Broadcast Teletext Specification are not encoded as such in the Universal Character Set.

This document suggests a way, usable now, to express each of those control codes using a sequence of existing characters of the Universal Character Set that produce a visible display. This could be useful for archiving of the content of teletext pages in non-special-purpose formats and provides an indication of the colours used in such a page in ordinary, non-special-purpose computing application software.

The suggestion is to express each of the teletext control characters as a three-character sequence consisting of a hexadecimal 007E TILDE character followed by two capital letters, the particular capital letters being based on the name of the teletext control code as stated in the 1976 Broadcast Teletext Specification: if two words were used, then the first letter of each of those words; if one word or one group of capitals was used, then the first two letters of the word or group.

For example

~AG for Alpha Green

~ST for Steady

All thirty-two of the control characters in the list in the 1976 specification are represented in this manner, notwithstanding that some of them are not used.

This format is possible because, in fact, no clashes are produced.

In a non-teletext display, yet with a monospaced font so as to give an impression of how the page would look, each of these three character sequences could be regarded as ligatures and expressed using an Open Font Format font, with each three-character sequence substituted with a glyph of the width needed for such a monospaced font.

Such a ligature-like glyph could be expressed by smaller versions of the two capital letters of the sequence one above the other, though not overlapping.

Thus, for example, ~AG could be expressed as a glyph of a capital letter A above a capital letter G yet neither overlapping the other. This would mean that in a non-teletext display, yet with a monospaced font so as to give an impression of how the page would look, the display would indicate the colours that were intended.

Example of use of three-character sequences.

~AGGood morning.

This expresses that the message

Good morning.

is being displayed in green alphanumeric characters. This would be upon a black background as black is the initial background colour and this sequence does not indicate a change of the background colour..

~AGIt is~AWsnowing~AGtoday.

This expresses that the message

It is snowing today.

is being displayed, the words

It is

and

today

being displayed in green alphanumerics and the word

snowing

being displayed in white alphanumerics.

This would be upon a black background as black is the initial background colour and this sequence does not indicate a change of the background colour..

Reference:

Broadcast Teletext Specification, Published jointly by the British Broadcasting Corporation, Independent Broadcasting Authority, British Radio Equipment Manufacturers' Association. September 1976

## Twenty-seven three-character sequences and their meanings

~AR Alpha Red

~AG Alpha Green

~AY Alpha Yellow

~AB Alpha Blue

~AM Alpha Magenta

~AC Alpha Cyan

~AW Alpha White

~FL Flash

~ST Steady

~EB End Box

~SB Start Box

~NH Normal Height

~DH Double Height

~GR Graphics Red

~GG Graphics Green

~GY Graphics Yellow

~GB Graphics Blue

~GM Graphics Magenta

~GC Graphics Cyan

~GW Graphics White

~CD Conceal Display

~CG Contiguous Graphics

~SG Separated Graphics

~BB Black Background

~NB New Background

~HG Hold Graphics

~RG Release Graphics

For completeness the five codes reserved for compatibility with other data codes are also encoded using the format suggested in this document.

~NU NUL

~SO SO

~SI SI

~DL DLE

~ES ESC

## Examples

If one keys

» AYHe l l o

the display in a non-teletext display using a special purpose font is

␣ He l l o

and in a teletext display is



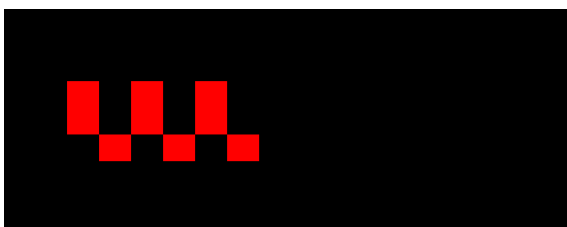
If one keys

» GR e e e

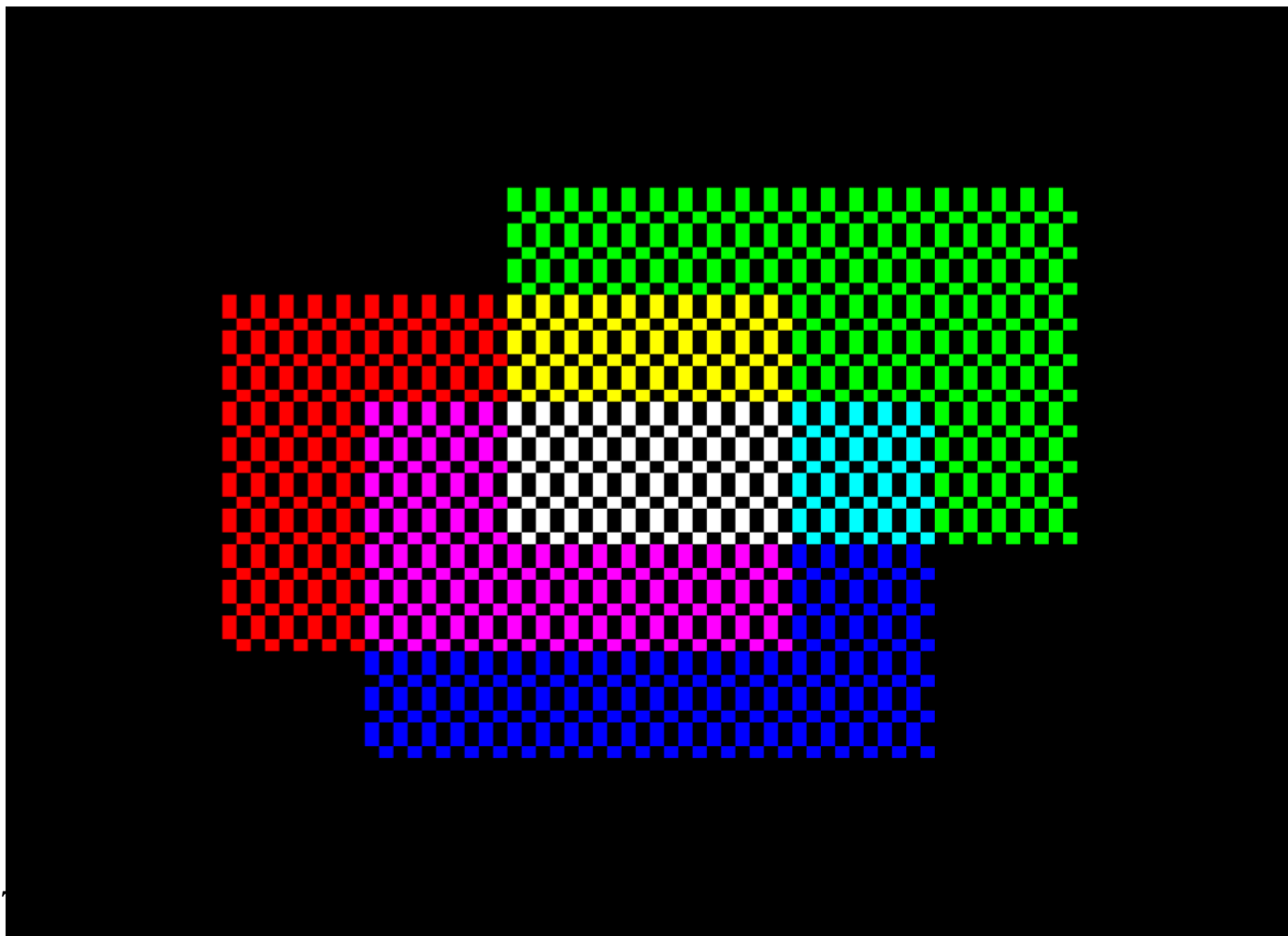
the display in a non-teletext display using a special purpose font is

␣ e e e

and in a teletext display is



Please consider the following image.



This graphic, newly made using the Affinity Designer software program, is based, as best the present author remembers, on the design of the Colour Check page that the present author designed in 1977 and which was displayed on page 786 of the Post Office's Viewdata system. The present author saw Colour Check displayed on a Viewdata equipped television set in September 1977, yet does not know for how long that page remained on the Viewdata system.

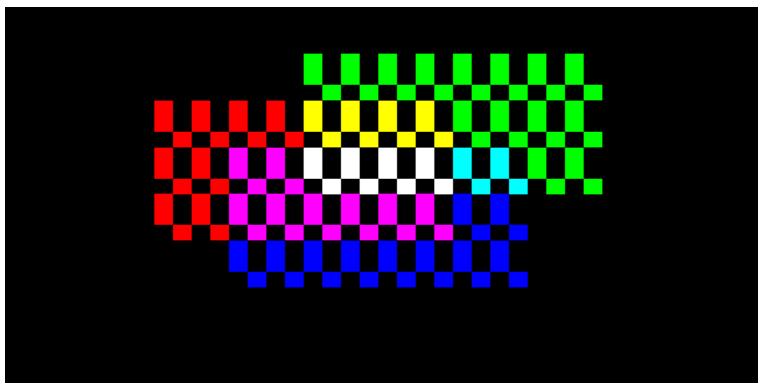
Please note that the design, in the teletext and viewdata format, is using lowercase letters e in graphics mode in seven colours. The design included eight different control codes, each a number of times. These eight control codes were the Hold Graphics control character and seven control codes of the form Graphics Colour, where Colour can be any one of Red, Green, Yellow, Blue, Magenta, Cyan, White.

Although designed to look as if three semi-filled rectangles, red, green, blue are overlapping, the design needed to have each of the areas encoded directly in the appropriate colour.

Please note that the design has repeats of five lines.

In this document, the encoding of a simplified version of the design, with just five lines and the lines shorter is discussed. However, the simplified design contains all of the encoding features of the above design.

Here is the simplified design.

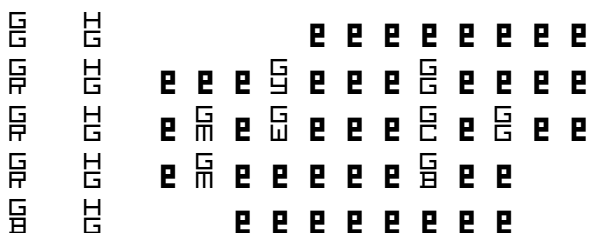


The simplified design can be expressed as follows in plain text.

```

~GG ~HG  eeeeeee
~GR ~HG eee~GYeee~GGeeee
~GR ~HG e~GMe~GWeee~GCe~GGee
~GR ~HG e~GMeeee~GBee
~GB ~HG  eeeeeee
  
```

When displayed using a special monospaced font using a font that uses glyph substitution for these ligatures, with glyph substitution for ligatures turned on, the result is as follows.



Or, the simplified design could be expressed as follows in plain text.



When this plain text is displayed using a special monospaced font using a font that uses glyph substitution for these ligatures, with glyph substitution for ligatures turned on, the result is as follows, which provides an indication of the design in a plain text system..

