CCITT SGXV
Working Party XV/1
Experts Group for ATM Video Coding

Document AVC-213
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SOURCE : NORWAY
TITLE : FILTERS FOR CONVERSION BETWEEN CCIR-601 AND SCIF
Purpose : Information

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1. Introduction

At the Singapore meeting AVC-203 was presented, describing a filter for conversion between CCIR 601-4.2.2 (50 Hz/625 lines or 60 Hz/525 lines) and SCIF. The document was accompanied by a D1 tape demo, displaying the resulting SCIF sequences in a CCIR 601 mode.

This document defines a filter for the conversion back from SCIF to CCIR 601. It is also accompanied by a demo showing the SCIF sequences displayed at the Singapore meeting, but this time it is displayed using a SCIF raster.

2. Conversion from CCIR 601-4.2.2 to SCIF

Figure (a) indicates the conversion from 4.2.2 to SCIF as defined in AVC-203. Capital letters indicate the "4.2.2" points. Lower case letters indicate "SCIF" points. For the conversion to SCIF the following expression apply (as given in AVC-203):

$a = (A + 2D + B)/4$, $b = (7D + 10B + 3E)/20$, $c = (9B + 10E + C)/20$, $d = (E + C)/2$

3. Conversion from SCIF to CCIR 601-4.2.2

For the conversion back to 4.2.2, it is proposed that reconstructed points are shifted upwards as indicated in figure (b) (see the different positions of "lower case" points in (a) and (b)). This is done to reduce quality loss by filtering. With this procedure the reconstructed "4.2.2" points (capital letters) are given by:

$D = (7p + 10f + 7g)/24$, $E = (3g + 10h + 10i + j)/24$, $B = (5a + 10b + 9c)/24$

4. Usage of the filters for CCIR 601 4.2.2/625/50 and 4.2.2/525/60

If the conversion is between 4.2.2/625 lines and SCIF, time is in the horizontal direction and "vertical image" in the vertical direction on the figures.

If the conversion is between 4.2.2/525 lines and SCIF, time is in the vertical direction and "vertical image" in horizontal direction on the figures.

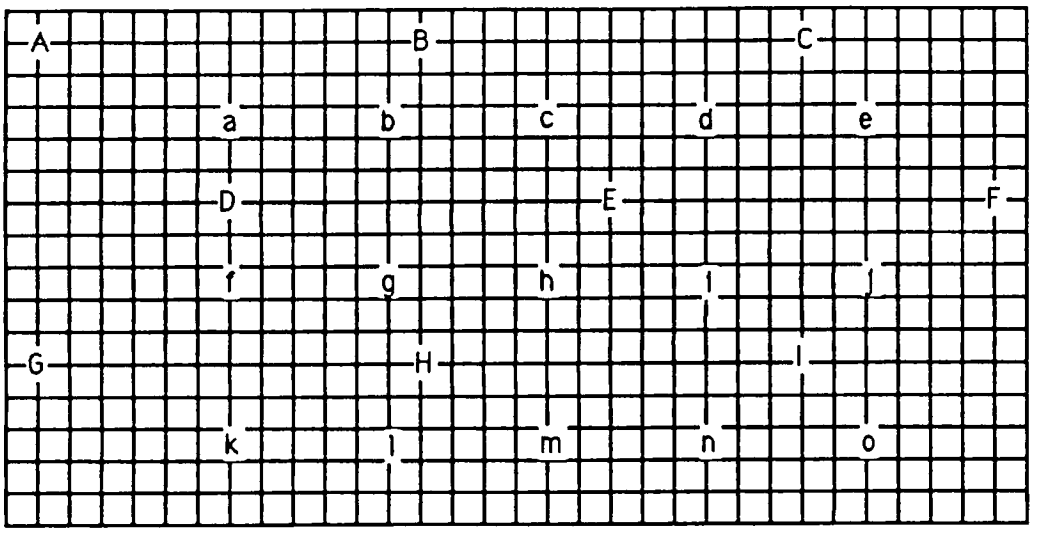
5. Simulation results on conversion from CCIR 601 to SCIF

3 sequences have been converted from CCIR 601 (4.2.2/625/50) to "SCIF". The conversion has only been done in the temporal direction, so the result is "SCIF" with 625 lines and 60 Hz. The sequences are displayed using 60 Hz/525 lines.

6

(a)

4.2.2 to SCIF



(b)

SCIF TO 4.2.2