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## Limitation of SDTV Encoder Scaling Engine

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### Description of Problem

Inaccurate composite/s-video output may occur from some TV encoders due to specific input patterns. Affected encoders are CH7003 - CH7019 and CH7205. This Technical Bulletin addresses the case in which moire test patterns can create such an inaccuracy in the output due to the nature of the SDTV scaling engine within these Chrontel TV encoders.

### Explanation of Problem

This inaccurate video output from the TV encoders mentioned above can be observed as blurring/flickering artifacts when using the moire test patterns (**Figure 1** and **Figure 2**). This blurring artifact is the result of line averaging within the SDTV scaling engine. As the input VGA lines go into the Chrontel SDTV scaling engine, each line may be weighted differently depending on the scaling ratio of the desired video output. With the two moire test patterns shown below, the SDTV scaling engine will introduce an uneven, repeating vertical pattern. The uneven weight distribution among the lines from the SDTV scaling engine becomes more pronounced to the human eye on the output video.

However, when the output scaling ratio is selected to be 1 to 1, the composite/s-video output will not have any blurring/flickering artifacts while using these same moire test patterns.

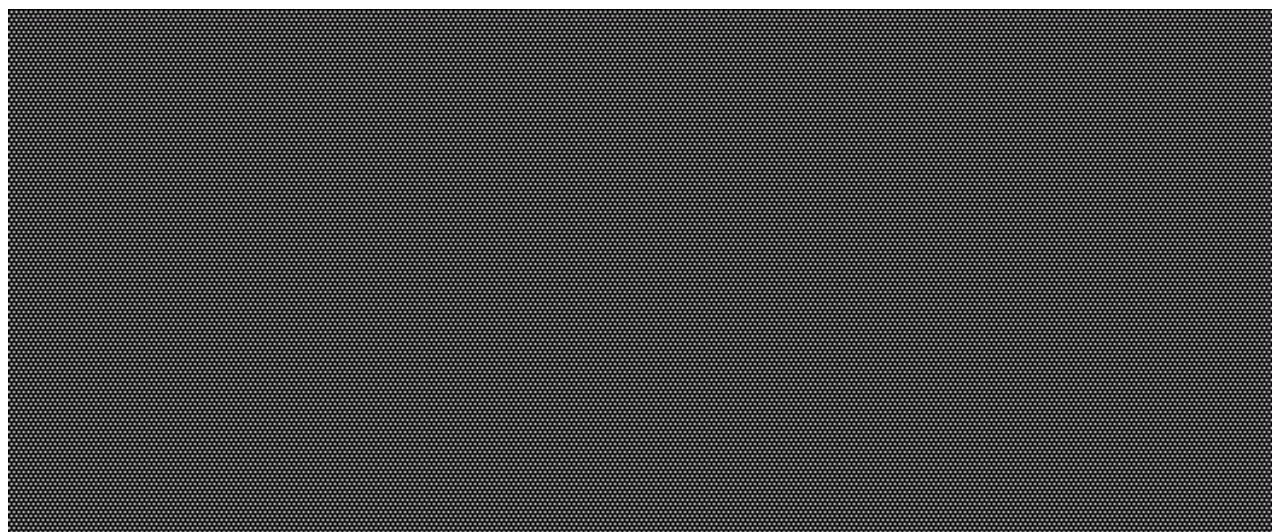
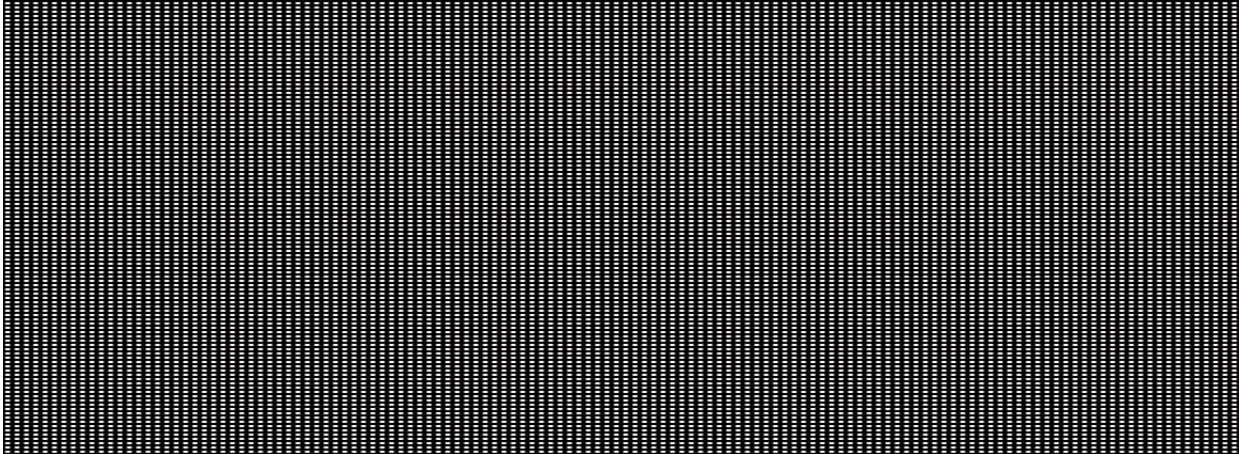


Figure 1: Moire Test Pattern 1



**Figure 2: Moire Test Pattern 2**

**Solution**

This is a limitation within the CH7003 - CH7019 and CH7205 SDTV scaling engines. There are no solutions at this time. If the TV output must contain moire test patterns, modes with scaling ratio 1 to 1 are recommended in order to prevent blurring/flickering artifacts.

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