PSB

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte TAKASHI HONDA
and
DAI SATO

Appeal No. 95-1297
Application 07/983,734[1]

ON BRIEF

Before HAIRSTON, BARRETT and CARMICHAEL, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

[1] Application for patent filed December 1, 1992.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 3, 5, 6 and 8 through 11. As a result of a finding of allowability of claims 6 and 8 through 11 (Answer, page 1), claims 1 through 3 and 5 remain before us on appeal.

The disclosed invention relates to an apparatus for processing an input video signal that includes a chrominance signal and a luminance signal. In the processing of the input video signal, the chrominance signal is subsampled in accordance with a sampling clock set to one quarter of the color subcarrier frequency.

Claim 1 is the only independent claim on appeal, and it reads as follows:

1. An apparatus for processing an input video signal that includes a chrominance signal and a luminance signal, comprising:

means for subsampling said chrominance signal including means for sampling said chrominance signal in accordance with an $f_{sc}/4$ sampling clock, where f_{sc} is a color subcarrier frequency;

means for frequency modulating said luminance signal;

means for frequency converting the subsampled chrominance signal to a lower frequency band than that of the frequency-modulated luminance signal;

means for combining the frequency-modulated luminance signal and the frequency-converted subsampled chrominance signal to provide a combined signal; and

means for recording said combined signal on a recording medium.

The references relied on by the examiner are:

Fukuda	4,709,275	Nov. 24, 1987
Emori	5,043,798	Aug. 27, 1991

Claims 1 through 3 and 5 stand rejected under 35 U.S.C. § 103 as being unpatentable over Emori in view of Fukuda.

Reference is made to the brief and the answer for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will reverse the obviousness rejection of claims 1 through 3 and 5.

In the video signal processing system taught by Emori, the luminance signal is described (column 3, lines 59 through 64) as having a broadband with a maximum frequency of 4.2 MHz. The sampling frequency f_c and the maximum frequency f_m of the video signal are described (column 4, lines 8 through 22) as having the relationship $f_c > f_m$, with f_c=5.011363 MHz and f_m=4.2 MHz. In the processing of the chrominance signal, the A/D converter 22 in Figure 1 of Emori generates sampled signals by sampling the input

sequential color difference signals at a sampling frequency of $f_{c2}=f_c/4=5.011363/4=1.2528407$ MHz (column 4, line 65 through column 5, line 8). Thereafter, the color difference signals are filtered through lowpass filters 25 and 26 to filter out the signal component with a frequency equal to or less than $f_{c2}/2=1.2528407/2=.625$ MHz or 625 KHz, and the outputs from the filters 25 and 26 are supplied to an encoder 27 where they are converted into a carrier chrominance signal with a chrominance subcarrier frequency of 3.58 MHz[2] (column 5, lines 37 through 45).

In the video system taught by Fukuda, the two audio input signals 1 and 2 (Figure 1) are converted into frequency-modulated audio signals Af' by frequency-modulating circuit 12. The luminance input signal Y is converted by frequency-modulated luminance signal generating circuit 16 into frequency-modulated luminance output signal Yf, and the chrominance input signal C is converted by frequency-converted chrominance signal generating circuit 15 into frequency-converted chrominance output signal Cc.

[2] The column 5 listing of 2.58 MHz as the chrominance subcarrier frequency is an obvious mistake in view of the correct value of 3.58 MHz at column 8, lines 45 through 56 of Emori.

The frequency-modulated audio signals Af', the frequency-modulated luminance signals Yf, and the frequency-converted chrominance output signals Cc are recorded in oblique record tracks on a magnetic tape by rotary magnetic heads 18a and 18b. In the recorded tracks, each frequency-modulated audio signal is located in an audio frequency band arranged between the frequency bands of the frequency-converted chrominance signal and the frequency-modulated luminance signal to avoid any adverse interference between the different frequency bands (column 3, lines 26 through 42). Fukuda is not concerned with subsampling the chrominance signal C.

Appellants argue (Brief, page 11) that:

> Since the Fukuda reference contains no disclosure concerning sampling a chrominance signal, and does not even begin to suggest desirable frequencies at which such sampling may be performed, and since the Emori reference provides no motivation for selecting a luminance sampling frequency f_c other than 5 MHz or a chrominance sampling frequency $f_c/4$ other than 1.25 MHz, there simply is no basis for making the modification proposed by the Examiner in which $f_c/4$ would be .895 MHz (which equals $f_{sc}/4$).

We agree with appellants' argument that the applied references neither teach nor would they have suggested to one of ordinary skill in the art the sampling of a chrominance signal in accordance with a sampling clock specifically set to one quarter

of the color subcarrier frequency. In view of the lack of such sampling by the applied references, the obviousness rejection of claims 1 through 3 and 5 is reversed.

DECISION

The decision of the examiner rejecting claims 1 through 3 and 5 under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON
Administrative Patent Judge

LEE E. BARRETT
Administrative Patent Judge

JAMES T. CARMICHAEL
Administrative Patent Judge

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