Emulsion Raw Data

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Abstract

The possibility of producing "emulsion rawdata", for a subset of the events or even for the full data-sample, is again reviewed. Contrarily to the statements done in the past, nowadays digital video technology has reached a standardization level such that almost any of the fields (multimedia, TV, videoconferencing, satellite broadcasting) is covered by proper "tuning" of a general purpose standard called MPEG, suited for "lossy" compression of digital information (sound and video mainly). Studies - reported in the Chorus Internal Note 97027 - show that these compression technologies are also suited to reduce in size the image sequences of typical microscope data-taking, therefore allowing to store the data in a digital way. The price to be paid in terms of S/N reduction is reported in fig. 1, using non-optimized code from the Berkeley MPEG Group.

Hardware and patented technology claim to be much better (i.e. a higher curve in the mentioned plot), achieving also "real-time" compression with the higher end systems in the few thousands dollars range. The market trend expects a reduction of their cost by a factor of 20X within 2001 (Dataquest).

From the practical point of view, the application of this technology for a uniform emulsion scanning of the complete CHORUS data set seems feasible. Technically, a S/N of 36 dB could allow to store the information on less than 25 20 Gb DLT tapes. However, it could also open a standard and simple way to exchange information on subsets of events (also: special events) for distribution of the scanning information around the collaboration. tracking/vertexing algorithms, and special events analysis, could be easily tuned and studied also from collaborators not accessing the microscopes, with an overall improvement of our "productivity".

References

[1] Piero Zucchelli, CHORUS internal note 97027 (13-02-98), "On microscope images, filtering and compression"

table Chart 1

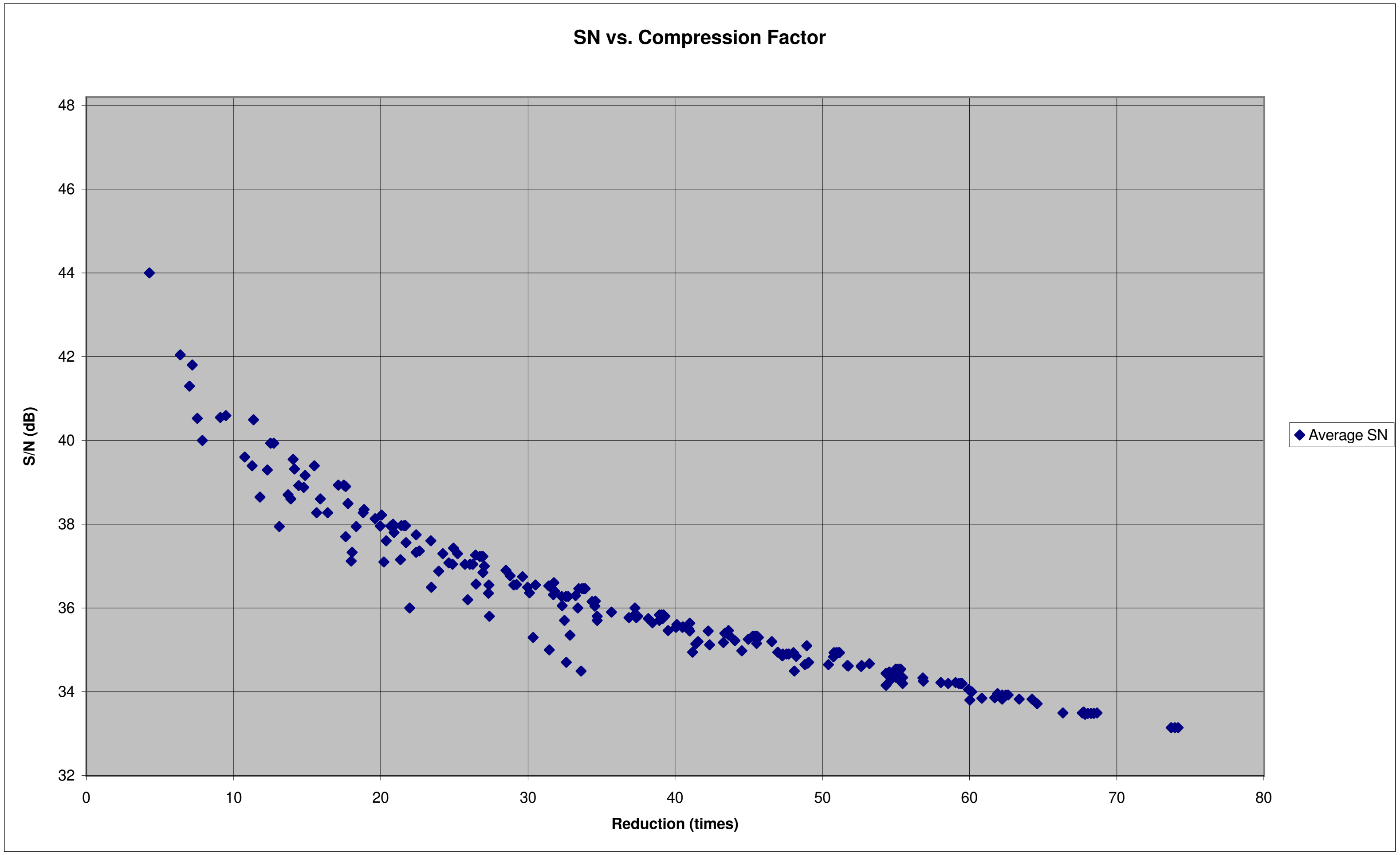

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Figure 1: