International Standard 6068

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Information processing — Recording characteristics of instrumentation magnetic tape (including telemetry systems) — Interchange requirements

Traitement de l'information — Caractéristiques d'enregistrement de la bande magnétique de mesure (y compris les systèmes de télémesure) — Spécifications d'échanges

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6068 was prepared by Technical Committee ISO/TC 97, *Information processing systems*.

It cancels and replaces ISO 3413-1975 and ISO 3615-1976 of which it constitutes a technical revision.

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Information processing — Recording characteristics of instrumentation magnetic tape (including telemetry systems) — Interchange requirements

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1 Scope and field of application

This International Standard specifies the tape and recorder/reproducer characteristics and modes of recording to enable users of different systems to interchange information recorded on instrumentation magnetic tape.

Modulation patterns are described in clause 6.

Test procedures recommended for use in measuring performance parameters of magnetic tape recorder and reproducer systems are described in annex B.

Annexes C to F provide additional information but do not form part of this International Standard. The characteristics of unrecorded tape are specified in ISO 6371.

2 References

ISO 1858, *Information processing — General purpose hubs and reels, with* 76 mm (3 in) *centre hole, for magnetic tape used in interchange instrumentation applications.*

ISO 1860, *Information processing — Precision reels for magnetic tape used in interchange instrumentation applications.*

ISO 3802, *Information processing — General purpose reels with* 8 mm (5/16 in) *centre hole for magnetic tape for interchange instrumentation applications.*

ISO 6371, *Information processing — Interchange practices and test methods for unrecorded instrumentation magnetic tape.*

3 Definitions

The following terms have a special technical meaning in this International Standard, and no attempt is made to lay down definitive terminologies outside the specific context of this International Standard.

3.1 bi-phase (or Bi-Φ) : Form of representation for binary "1" and "0" in pulse code modulation (PCM). Three variants, known as "level", "mark" and "space", are defined in 6.3.3 and figure 1.

3.2 data azimuth[1] : Angle in the plane of the tape, at any instant in time, between a line perpendicular to the reference edge of the tape and either of the two parallel lines defining data scatter.

NOTE — Data azimuth may be expressed as the sum of static and dynamic components in the form :

$$A + Bf(t)$$

where

$$\int_0^t f(t)\,dt = 0$$

3.3 data azimuth (dynamic)[1] : Maximum angular deviation, over a period of time, of the data azimuth from its mean value as defined by data azimuth (static). For the purposes of this definition, the word maximum is interpreted as being at the 95 % probability level. For a Gaussian distribution, this is two standard deviations (2σ).

NOTE — Data azimuth (dynamic) is the maximum value of the quantity $Bf(t)$ in the note on data azimuth.

3.4 data azimuth (static)[1] : Mean value, over a period of time, of the data azimuth.

NOTE — Data azimuth (static) is the quantity A in the note on data azimuth.

3.5 data scatter[1] : Minimum distance between two parallel lines, in the plane of the tape, between which all data transitions recorded in the same head, at the same time, shall fall.

3.6 data spacing : Distance on the tape between simultaneous events recorded on odd and even numbered tracks, when interlaced heads are used.

NOTE — On recording, this is equal to the head spacing, but on reproducing is only exactly equal to head spacing when record and reproduce tensions are equal. Different record and reproduce tensions will give rise to small errors in time correlation between the signals from the two heads.

1) The errors in location and angular relation among transient data recorded simultaneously on all odd or even tracks are defined by the terms : data azimuth, data scatter, and individual track data azimuth difference. These are approximately equivalent to the terms : head azimuth, gap scatter and head segment gap azimuth difference; however, guiding misalignment is included in the data location error definitions.