

STANDARD

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**Information technology — 3,81 mm wide  
magnetic tape cartridge for information  
interchange — Helical scan recording —  
DDS-2 format using 120 m length tape**

*Technologies de l'information — Cartouche de bande magnétique de  
3,81 mm de large pour l'échange d'information — Enregistrement par  
balayage en spirale — Format DDS-2 utilisant une bande de 120 m de long*

**Adopted by INCITS (InterNational Committee for Information Technology Standards) as an American National Standard.**

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**Contents****Page****Section 1 - General**

<b>1</b>	<b>Scope</b>	<b>1</b>
<b>2</b>	<b>Conformance</b>	<b>1</b>
<b>2.1</b>	Magnetic tape cartridge	<b>1</b>
<b>2.2</b>	Generating system	<b>1</b>
<b>2.3</b>	Receiving system	<b>2</b>
<b>3</b>	<b>Normative References</b>	<b>2</b>
<b>4</b>	<b>Definitions</b>	<b>2</b>
<b>4.1</b>	Absolute Frame Number (AFN)	<b>2</b>
<b>4.2</b>	a.c. erase	<b>2</b>
<b>4.3</b>	Access Point	<b>2</b>
<b>4.4</b>	Algorithm	<b>2</b>
<b>4.5</b>	Area ID	<b>2</b>
<b>4.6</b>	Automatic Track Finding (ATF)	<b>2</b>
<b>4.7</b>	Average Signal Amplitude	<b>3</b>
<b>4.8</b>	azimuth	<b>3</b>
<b>4.9</b>	back surface	<b>3</b>
<b>4.10</b>	byte	<b>3</b>
<b>4.11</b>	cartridge	<b>3</b>
<b>4.12</b>	Channel Bit	<b>3</b>
<b>4.13</b>	Codeword	<b>3</b>
<b>4.14</b>	Data Format ID	<b>3</b>
<b>4.15</b>	Early Warning Point (EWP)	<b>3</b>
<b>4.16</b>	End of Data (EOD)	<b>3</b>
<b>4.17</b>	Entity	<b>3</b>
<b>4.18</b>	Error Correcting Code (ECC)	<b>3</b>
<b>4.19</b>	flux transition position	<b>3</b>
<b>4.20</b>	flux transition spacing	<b>3</b>
<b>4.21</b>	Frame	<b>3</b>
<b>4.22</b>	Housekeeping Frame	<b>3</b>
<b>4.23</b>	Logical Beginning of Tape (LBOT)	<b>3</b>
<b>4.24</b>	magnetic tape	<b>3</b>

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**Contents**

	<b>Page</b>
<b>Section 1 - General</b>	
<b>1</b>	<b>1</b>
<b>Scope</b>	
<b>2</b>	<b>1</b>
<b>Conformance</b>	
<b>2.1</b>	<b>1</b>
Magnetic tape cartridge	
<b>2.2</b>	<b>1</b>
Generating system	
<b>2.3</b>	<b>2</b>
Receiving system	
<b>3</b>	<b>2</b>
<b>Normative References</b>	
<b>4</b>	<b>2</b>
<b>Definitions</b>	
<b>4.1</b>	<b>2</b>
Absolute Frame Number (AFN)	
<b>4.2</b>	<b>2</b>
a.c. erase	
<b>4.3</b>	<b>2</b>
Access Point	
<b>4.4</b>	<b>2</b>
Algorithm	
<b>4.5</b>	<b>2</b>
Area ID	
<b>4.6</b>	<b>2</b>
Automatic Track Finding (ATF)	
<b>4.7</b>	<b>3</b>
Average Signal Amplitude	
<b>4.8</b>	<b>3</b>
azimuth	
<b>4.9</b>	<b>3</b>
back surface	
<b>4.10</b>	<b>3</b>
byte	
<b>4.11</b>	<b>3</b>
cartridge	
<b>4.12</b>	<b>3</b>
Channel Bit	
<b>4.13</b>	<b>3</b>
Codeword	
<b>4.14</b>	<b>3</b>
Data Format ID	
<b>4.15</b>	<b>3</b>
Early Warning Point (EWP)	
<b>4.16</b>	<b>3</b>
End of Data (EOD)	
<b>4.17</b>	<b>3</b>
Entity	
<b>4.18</b>	<b>3</b>
Error Correcting Code (ECC)	
<b>4.19</b>	<b>3</b>
flux transition position	
<b>4.20</b>	<b>3</b>
flux transition spacing	
<b>4.21</b>	<b>3</b>
Frame	
<b>4.22</b>	<b>3</b>
Housekeeping Frame	
<b>4.23</b>	<b>3</b>
Logical Beginning of Tape (LBOT)	
<b>4.24</b>	<b>3</b>
magnetic tape	

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4.27	Optimum Recording Rate	4
4.28	Partition Boundary	4
4.29	Physical Beginning of Tape (PBOT)	4
4.30	Physical End of Tape (PEOT)	4
4.31	physical recording density	4
4.32	pre-recording condition	4
4.33	processing	4
4.34	processed data	4
4.35	Processed Record	4
4.36	Processed Record Sequence	4
4.37	record	4
4.38	Reference Recording Field	4
4.39	reprocessing	4
4.40	Secondary Standard Amplitude Calibration Tape	4
4.41	Secondary Standard Reference Tape	4
4.42	Separator Mark	4
4.43	Standard Reference Amplitude	4
4.44	Tape Reference Edge	5
4.45	Test Recording Current	5
4.46	track	5
4.47	unprocessed data	5
4.48	Unprocessed Record	5
4.49	Virtual End of Tape (VEOT)	5
<b>5</b>	<b>Environment and safety</b>	<b>5</b>
5.1	Testing environment	5
5.2	Operating environment	5
5.3	Storage environment	5
5.4	Transportation	5
5.5	Safety	6
5.6	Flammability	6

## Section 2 - Requirements for the case

<b>6</b>	<b>Dimensional and mechanical characteristics of the case</b>	<b>7</b>
6.1	General	7
6.2	Overall dimensions	7
6.3	Loading grip	8
6.4	Holding areas	8
6.5	Notches of the lid	8
6.6	Lid dimensions	8
6.7	Optical detection of the beginning and end of tape	9
6.8	Bottom side	9
6.8.1	Locking mechanism of the slider	10
6.8.2	Access holes	10
6.8.3	Recognition, write-inhibit and sub-datums holes	10
6.8.4	Datum holes	12
6.8.5	Access room for tape guides	12
6.8.6	Holes for accessing the hubs	12
6.8.7	Internal structure of the lower half	13
6.8.8	Light path	14
6.8.9	Support Areas	14
6.8.10	Datum Areas	14
6.8.11	Relationship between Support and Datum Areas and Reference Plane Z	14

This is a preview of "INCITS/ISO/IEC 13923...". Click here to purchase the full version from the ANSI store.

6.11	Interface between the hubs and the drive spindles	15
6.12	Opening of the lid	15
6.13	Release of the hub locking mechanism	15
6.14	Label areas	16
6.15	Requirement for autoloaders	16

### Section 3 - Requirements for the unrecorded tape

<b>7</b>	<b>Mechanical, physical and dimensional characteristics of the tape</b>	<b>28</b>
7.1	Materials	28
7.2	Tape length	28
7.2.1	Length of magnetic tape	28
7.2.2	Length of leader and trailer tapes	28
7.2.3	Length of splicing tapes	28
7.3	Tape width	28
7.3.1	Width of magnetic, leader and trailer tapes	28
7.3.2	Width and position of splicing tape	28
7.4	Discontinuities	28
7.5	Tape thickness	29
7.5.1	Thickness of magnetic tape	29
7.5.2	Thickness of leader and trailer tapes	29
7.5.3	Thickness of splicing tape	29
7.6	Longitudinal curvature	29
7.7	Cupping	29
7.8	Coating adhesion	29
7.9	Layer-to-layer adhesion	30
7.10	Tensile strength	30
7.10.1	Breaking strength	30
7.10.2	Yield strength	30
7.11	Residual elongation	30
7.12	Flexural rigidity	31
7.13	Electrical resistance of coated surfaces	31
7.14	Light transmittance of the tape	32
7.15	Media Recognition System (MRS)	32
<b>8</b>	<b>Magnetic recording characteristics</b>	<b>33</b>
8.1	Optimum Recording Field	34
8.2	Signal Amplitude	34
8.3	Resolution	34
8.4	Overwrite	34
8.4.1	Physical recording densities of 750,0 ftpmm and 2 999,9 ftpmm	34
8.4.2	Physical recording densities of 83,3 ftpmm and 1 000,0 ftpmm	34
8.5	Ease of erasure	35
8.6	Tape quality	35
8.6.1	Missing pulses	35
8.6.2	Missing pulse zone	35
8.7	Signal-to-Noise Ratio (S/N) characteristic	35

This is a preview of "INCITS/ISO/IEC 13923...". Click here to purchase the full version from the ANSI store.

<b>9</b>	<b>Format</b>	<b>36</b>
9.1	General	36
9.2	Basic Groups	36
9.2.1	Entity	37
9.2.2	Group Information Table	38
9.2.3	Block Access Table (BAT)	40
9.3	Sub-Groups	43
9.3.1	G1 Sub-Group	43
9.3.2	G2 Sub-Group (randomizing)	44
9.3.3	G3 Sub-Group	44
9.3.4	G4 Sub-Group	46
9.3.5	Main Data Block	50
9.4	Sub-Data Area	52
9.4.1	Pack Item Number 1	52
9.4.2	Pack Item Number 2	53
9.4.3	Pack Item Number 3	53
9.4.4	Pack Item Number 4	55
9.4.5	Pack Item Number 5	56
9.4.6	Pack Item Number 6	57
9.4.7	Pack Item Number 7	57
9.4.8	Pack Item Number 8	58
9.4.9	Sub Data Block	59
<b>10</b>	<b>Method of recording</b>	<b>62</b>
10.1	Physical recording density	62
10.2	Long-term average bit cell length	62
10.3	Short-term average bit cell length	62
10.4	Rate of change	62
10.5	Bit shift	62
10.6	Read signal amplitude	62
10.7	Maximum recorded levels	62
<b>11</b>	<b>Track geometry</b>	<b>62</b>
11.1	Track configuration	62
11.2	Average track pitch	63
11.3	Variations of the track pitch	63
11.4	Track width	63
11.5	Track angle	63
11.6	Track edge linearity	63
11.7	Track length	63
11.8	Ideal tape centreline	64
11.9	Azimuth angles	64
<b>12</b>	<b>Recording of blocks on the tape</b>	<b>64</b>
12.1	Recorded Main Data Block	64
12.2	Recorded Sub Data Block	64
12.3	Margin Blocks, Preamble Blocks and Postamble Blocks	64
12.4	Spacer Blocks	64

This is a preview of "INCITS/ISO/IEC 13923...". Click here to purchase the full version from the ANSI store.

13.1	Track capacity	64
13.2	Positioning accuracy	65
13.3	Tracking scheme	65
<b>14</b>	<b>Layout of a Single Data Space tape</b>	<b>68</b>
14.1	Device Area	68
14.2	Reference Area	68
14.3	Position Tolerance Band No. 1	68
14.4	System Area	69
14.4.1	System Preamble	69
14.4.2	System Log	69
14.4.3	System Postamble	69
14.4.4	Position Tolerance Band No. 2	69
14.4.5	Vendor Group Preamble	69
14.5	Data Area	69
14.5.1	Vendor Group	69
14.5.2	Recorded Data Group	69
14.5.3	ECC3	70
14.5.4	Multiple recorded instances	71
14.5.5	Repeated Frames	71
14.5.6	Appending and overwriting	71
14.6	EOD Area	73
14.7	Post-EOD Area	73
14.8	Early Warning Point - EWP	73
14.9	Initialization	73
<b>15</b>	<b>Layout of partitioned tape</b>	<b>73</b>
15.1	Overall magnetic tape layout	74
15.1.1	Device Area	74
15.1.2	Partition 1	74
15.1.3	Partition 0	75
15.2	Area ID	75
15.3	System Area Pack Items No. 3 and No. 4	76
15.4	Empty partitions	76
15.4.1	Empty partition 1	76
15.4.2	Empty partition 0	76
15.5	Initialization of partitioned tapes	76
<b>16</b>	<b>Housekeeping Frames</b>	<b>76</b>
16.1	Amble Frames	76
16.2	System Log Frames	77
16.3	Tape Management Frames	77

This is a preview of "INCITS/ISO/IEC 13923...". Click here to purchase the full version from the ANSI store.

<b>A - Measurement of the light transmittance of the prisms</b>	<b>77</b>
<b>B - Recognition Holes</b>	<b>81</b>
<b>C - Means to open the lid</b>	<b>82</b>
<b>D - Measurement of light transmittance of tape and leaders</b>	<b>83</b>
<b>E - Measurement of Signal to Noise Ratio</b>	<b>86</b>
<b>F - Method for determining the nominal and the maximum allowable recorded levels</b>	<b>87</b>
<b>G - Representation of 8-bit bytes by 10-bit patterns</b>	<b>88</b>
<b>H - Measurement of bit shift</b>	<b>94</b>
<b>J - Recommendations for transportation</b>	<b>96</b>
<b>K - Method of measuring track edge linearity</b>	<b>97</b>
<b>L - Read-After-Write</b>	<b>98</b>
<b>M - Example of the content of a Basic Group No. 0</b>	<b>99</b>

This is a preview of "INCITS/ISO/IEC 13923...". [Click here to purchase the full version from the ANSI store.](#)

## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National Bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75% of the national bodies casting a vote.

This International Standard was prepared by JISC (as Standard JIS X.6129-1993) with document support and contribution from ECMA and was adopted, under a special "fast-track procedure", by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

Annexes A, D, E, F, G, H and K form an integral part of this International Standard. Annexes B, C, J, L and M are for information only.

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## Introduction

Numerous International Standards for cassettes and cartridges containing magnetic tapes of different width and characteristics have been published. Of these, the following relate to helical scan recording.

ISO/IEC 10777:1991	<i>Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical Scan Recording - DDS format</i>
ISO/IEC 11319:1993	<i>Information technology - 8 mm wide magnetic tape cartridge for information interchange - Helical scan recording</i>
ISO/IEC 11321:1992	<i>Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical scan recording - DATA/DAT format</i>
ISO/IEC 11557:1992	<i>Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical scan recording - DDS-DC format using 60 m and 90 m length tapes</i>
ISO/IEC 12246:1993	<i>Information technology - 8 mm wide magnetic tape cartridge dual azimuth format for information interchange - Helical scan recording</i>
ISO/IEC 12247:1993	<i>Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical scan recording - DDS format using 60 m and 90 m length tapes</i>
ISO/IEC 12248:1993	<i>Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical scan recording - DATA/DAT-DC format using 60 m and 90 m length tapes</i>

ISO/IEC 10777 defines a specification for data interchange using 3,81 mm wide magnetic tape cartridges, with the DDS format.

A derivative International Standard ISO/IEC 11557 defines another data interchange specification for the same cartridges, but with a recorded format, namely DDS-DC, which enables data to be compressed by the drive before being recorded.

This International Standard defines a specification, based on the features of both of these, which offers a further increase in data capacity. The primary change to the recorded format is an increase in the track density by a factor of 1,5. This produces a corresponding increase in data capacity for a cartridge of a given tape length. Such a track density, when recorded on a cartridge tape whose tape length is 125 metres, will provide a storage capacity of 4 Gigabytes of uncompressed user data and typically 8 to 16 Gigabytes of compressed user data.

The design philosophy is one of minimum change to the track format which is common to DDS and DDS-DC. This will aid the development of drives that support this DDS-2 format by derivation from existing products. It will also ease the development of drives that are able to support both previous formats as well as this format, thus providing the backwards compatibility which the market demands. However, it is not a requirement for compliance to this International Standard that a drive also reads and writes either the DDS format or the DDS-DC format. Nor is it a requirement for compliance to this International Standard that a drive compresses data and writes it in entities on the tape, or that a drive decompresses data contained within entities on the tape. All the recording on one cartridge will be at the same track density, either that of DDS and DDS-DC, or that of DDS-2. The media coating and the track density are indicated by the combination of the states of the Recognition Holes on the cartridge case.

This International Standard also includes the specifications of the Media Recognition System, namely a striped splicing tape.

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# Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical scan recording - DDS-2 format using 120 m length tape

## Section 1 - General

### 1 Scope

This International Standard specifies the physical and magnetic characteristics of a 3,81 mm wide magnetic tape cartridge to enable physical interchangeability of such cartridges between drives. It also specifies the quality of the recorded signals, the recording method and the recorded format, thereby allowing data interchange between drives by means of such magnetic tape cartridges.

The recorded format, known as DDS-2, includes all the features of the DDS recorded format specified in ISO/IEC 12247 and of the DDS-DC recorded format specified in ISO/IEC 11557. The principal difference between this recorded format and those recorded formats is the use of a greater track density by this format.

Information interchange between systems utilising this International Standard also requires the use, as a minimum, of a labelling specification, e.g. ISO 1001:1986, *Information processing - File structure and labelling of magnetic tapes for information interchange*, and an interchange code which shall be agreed upon by the interchange parties.

Under information interchange circumstances in which a processing algorithm is applied to the host data prior to recording on the tape and a complementary reprocessing algorithm is applied after the data is read from the tape, agreement upon the algorithms employed by the interchange parties is also required. It is outside the scope of this International Standard to specify any of these.

### 2 Conformance

#### 2.1 Magnetic tape cartridge

A tape cartridge shall be in conformance with this International Standard if it meets all the mandatory requirements specified herein. The tape requirements shall be satisfied throughout the extent of the tape.

For each recorded Entity any algorithm used for Processing the data therein shall have been registered, and the registration identification shall be included, when appropriate, in Byte No. 3 of the Entity Header.

A recorded tape shall be either a Single Data Space Tape or a Partitioned Tape.

#### 2.2 Generating system

A system generating a magnetic tape cartridge for interchange shall be entitled to claim conformance with this International Standard if all recordings on the tape meet the mandatory requirements of this International Standard, and if either or both methods of appending and overwriting are implemented.

A claim of conformance shall state which of the following optional features are implemented and which are not

- the performing of a Read-After-Write check and the recording of any necessary repeated frames;
- the recording of multiple representations of the same Basic Group;
- the generation of ECC3 Frames.

In addition a claim of conformance shall state

- whether or not one, or more, registered algorithm(s) are implemented within the system and are able to process data received from the host prior to collecting the data into Basic Groups, and
- the algorithm registration identification number(s) of the implemented algorithm(s).