

ECMA

Standardizing Information and Communication Systems

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**Data Interchange on 12,7 mm  
384-Track Magnetic Tape  
Cartridges – Ultrium-1 Format**

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SONY Exhibit 1034  
SONY v. FUJI  
IPR2018-00877



Standard ECMA-319

June 2001

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**Data Interchange on 12,7 mm  
384-Track Magnetic Tape  
Cartridges – Ultrium-1 Format**

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## Brief History

Technical Committee ECMA TC17 has produced a series of ECMA Standards for magnetic tape cassettes and cartridges of different widths, e.g. 12,7 mm, 8 mm, 6,35 mm and 3,81 mm. In each series, the new standards correspond to specific types of application and different user requirements. Enhanced and new media correspond also to advancements in drive technology. The series of such cartridges with a magnetic tape of 12,7 mm width and longitudinally recorded tracks comprises the following standards.

- ECMA-120 (1993) : Data Interchange on 12,7 mm 18-Track Magnetic Tape Cartridges  
*ISO 9661*
- ECMA-152 (1993) : Data Interchange on 12,7 mm 18-Track Magnetic Tape Cartridges - Extended Format  
*ISO/IEC 11559*
- ECMA-182 (1992) : Data Interchange on 12,7 mm 48-Track Magnetic Tape Cartridges - DLT 1 Format -  
*ISO/IEC 13421*
- ECMA-196 (1993) : Data Interchange on 12,7 mm 36-Track Magnetic Tape Cartridges  
*ISO/IEC 14251*
- ECMA-197 (1993) : Data Interchange on 12,7 mm 112-Track Magnetic Tape Cartridges - DLT 2 Format -  
*ISO/IEC 13962*
- ECMA-209 (1994) : Data Interchange on 12,7 mm 128-Track Magnetic Tape Cartridges - DLT 3 Format  
*ISO/IEC 14833*
- ECMA-231 (1995) : Data Interchange on 12,7 mm 128-Track Magnetic Tape Cartridges - DLT 4 Format  
*ISO/IEC 15305*
- ECMA-258 (1997) : Data Interchange on 12,7 mm 128-Track Magnetic Tape Cartridges - DLT 3-XT Format  
*ISO/IEC 15895*
- ECMA-259 (1997) : Data Interchange on 12,7 mm 208-Track Magnetic Tape Cartridges - DLT 5 Format  
*ISO/IEC 15896*
- ECMA-278(1998) : Data Interchange on 12,7 mm 128-track Magnetic Tape Cartridges  
*ISO/IEC 17913* Parallel Serpentine Format
- ECMA-286 (1999) : Data Interchange on 12,7 mm 208-Track Magnetic Tape Cartridges - DLT 6 Format  
*ISO/IEC 16382*
- ECMA-320 (2001) : Data Interchange on 12,7 mm 448-Track Magnetic Tape Cartridges - SDLT1 Format

This ECMA Standard ECMA-319 describes a cartridge containing magnetic tape 12,65 mm wide and a recording format. This cartridge and format is the first in a family of linearly recorded 12,65 mm tape cartridges. Four types of cartridges are defined, containing tapes of different lengths.

The primary differences between this Standard and previous linearly recorded Standards are a greater number of recorded tracks, a higher linear recording density, and a timing based servo for improved track following. Together these provide the ability to achieve significant improvements in cartridge capacity. This format, when recorded on a 609-metre tape, will provide a storage capacity of 100 Gbytes of uncompressed user data, or typically 200 Gbytes of compressed user data.

All ECMA Standards listed above have been adopted by ISO/IEC as International Standards. The present ECMA Standard will also be contributed to ISO/IEC for adoption as an International Standard under the fast-track procedure.

This Standard has been adopted by the ECMA General Assembly of June 2001.

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