# INTERNATIONAL STANDARD

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## Information technology – Small computer system interface (SCSI) –

## Part 222: Fibre Channel Protocol for SCSI, Second Version (FCP-2)




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# INFORMATION TECHNOLOGY – SMALL COMPUTER SYSTEM INTERFACE –

# PART 222: Fibre Channel Protocol for SCSI, Second Version (FCP-2)

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International Standard ISO/IEC 14776-222 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

# INTRODUCTION

This International Standard defines a Fibre Channel mapping layer (FC-4) that uses the services defined by NCITS Project 1311D, Fibre Channel Framing and Signaling Interface (FC-FS) to transmit SCSI command, data and status information between a SCSI initiator and a SCSI target. The use of this standard enables the transmission of standard SCSI command formats, the transmission of standard SCSI data and parameter strings, and the receipt of SCSI status and sense information across the Fibre Channel using only the standard Fibre Channel frame and sequence formats. The Fibre Channel protocol operates with Fibre Channel Classes of Service 1, 2 and 3 and operates across Fibre Channel fabrics and arbitrated loops.

The Small Computer System Interface (SCSI) command set is widely used and applicable to a wide variety of device types. The transmission of SCSI command set information across Fibre Channel links allows the large body of SCSI application and driver software to be successfully used in the high performance Fibre Channel environment.

This standard describes the protocol for transmitting SCSI commands, data, and status using Fibre Channel FC-FS Exchanges and Information Units. Fibre Channel is a high speed serial architecture that allows either optical or electrical connections at data rates from 265 Mbits up to 4 Gbits per second. The topologies supported by Fibre Channel include point-to-point, fabric switched and arbitrated loop. All Fibre Channel connections use the same standard frame format and standard hierarchy of transmission units to transmit the Information Units that carry SCSI information.

This standard is divided into 12 clauses and comprises 6 Annexes:

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| Annex F | Mechanism to support bidirectional SCSI data transfer using SCSI commands |

Fibre channel Protocol-2 (FCP-2) is part of the SCSI family of standards developed by T10 to facilitate the use of the SCSI command sets for many different types of devices across many different types of physical interconnects. The architectural model for the family of standards is ISO/IEC 14776-412, Information technology – SCSI Architecture Model–2 (SAM-2).

# INFORMATION TECHNOLOGY – SMALL COMPUTER SYSTEM INTERFACE –

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## 1 Scope

This part of ISO/IEC 14776 defines a second version of the SCSI Fibre Channel Protocol (FCP). This part of ISO/IEC 14776 is a mapping protocol for applying the SCSI command set to Fibre Channel. It defines how the Fibre Channel services and the defined Information Units (IUs) are used to perform the services defined by the SCSI-3 Architecture Model – 2 (SAM-2). This second version includes additions and clarifications to the first version, removes information that is now contained in other standards, and describes additional error recovery capabilities for the Fibre Channel protocol.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

### 2.1 International standards

ISO/IEC 14165-122, Information technology – Fibre Channel – Part 122: Arbitrated loop-2 (FC-AL-2)[1]

ISO/IEC 14776-412, Information technology – Small Computer System Interface (SCSI) – Part 412: Architecture Model-2 (SAM-2)[1]

ISO/IEC 14776-452, Information technology – Small Computer System Interface (SCSI) – Part 452: Primary commands-2 (SPC-2)[1]

### 2.2 International Standards under development

ISO/IEC 14776-221, Information technology – Small Computer System Interface (SCSI) – Part 221: Protocol for SCSI (FCP)

ISO/IEC 14776-312, Information technology – Small Computer System Interface (SCSI) – Part 312: Primary commands-2 (SPC-2)

### 2.3 Other references

NOTE Copies of NCITS Technical Reports are available for purchase from Global Engineering Documents. For further information, contact Global Engineering Documents at ++1 800-854-7179 (telephone) or ++1 303-792-2181 (telephone) or by mail at 15 Inverness Way East, Englewood, CO 80122-5704, USA.

NCITS TR-19:1998, Fibre Channel Private Loop, SCSI Direct Attach (FC-PLDA) (Technical Report)

NCITS TR-20:1998, Fibre Channel Fabric Loop Attachment (FC-FLA) (Technical Report)

NCITS TR-24:1999, Fibre Channel – Tape Technical Report (FC-TAPE)

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[1] To be published.