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

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FOREWORD

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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:

Clause	Subject
1	Scope
2	Normative references
3	Definitions, abbreviations and conventions
4	Overview of the protocol for transmitting SCSI information over Fibre Channel
5	Information Units used to transfer SCSI commands, data and status across a Fibre Channel connection
6	Basic Link Services and Exteded Link Services used by the protocol for transmitting SCSI information over Fibre Channel
7	FC-GS-3 Name Server objects defined for FCP-2
8	FCP FC-4 Link Service definitions for the protocol for transmitting SCSI information over Fibre Channel
9	Details of the Information Unit formats
10	SCSI management features for Fibre Channel, including the SCSI mode pages used by the protocol for transmitting SCSI information over Fibre Channel
11	Timers used for FCP-2 error recovery algorithms
12	Error recovery algorithms for FCP-2
Annex A	Relationship between the services defined by SAM-2 and the corresponding functions defined by this standard
Annex B	Examples of the protocol for transmitting SCSI information over Fibre Channel
Annex C	Examples of the FCP-2 error recovery mechanisms
Annex D	Techniques for discovering SCSI device capabilities over Fibre Channel
Annex E	Examples of the content of ELSs used during FCP-2 recovery operations
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).