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TECHNICAL REPORT

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Fibre optic interconnecting devices and passive components – Study of an SC connector adaptor with safety lock mechanism

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – STUDY OF AN SC CONNECTOR ADAPTOR WITH SAFETY LOCK MECHANISM

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INTRODUCTION

Since the very beginning of fibre optic communication technologies, the use of optical connectors has been restricted to technical and professional environments by expert crews for installation, operation, and maintenance.

With the diffusion of fibre optic communication technologies in non-professional and consumer markets, the use of fibre optic communication systems has broadened to users unaware of their correct handling, particularly for the most accessible items: connector cords.

For standard SC connectors, unintentional disconnection is prevented if the pulling force applied to the plug connector is lower than 40 N. Beyond this force, a disconnection occurs, and inconveniences can arise: system optical performance can be impaired; dust can corrupt the ferrules; and radiation that can be harmful to the eye.

A shuttered adaptor is a means to avoid injury to the eyes by laser light and provides protection from dust when the plug is disconnected, but it does not protect the disconnected connector.

This document deals with a proposal that aims to solve this problem with a slight modification of the SC connector adaptor, by introducing a latching mechanism.

Once the latching mechanisms has been unlocked by means of a tool, the disconnection strength is the same as a standard plug connector.

When the latching mechanisms is locked, it withstands the force applied by a typical handling force, i.e. <150 N.

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