

Ocean Express - Regulatory Control, Operation and Maintenance Experience

海洋列車 - 規管、運作及保養經驗

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Abstract

Ocean Park has been operating two aerial cable car lines since 1977. The Park has gone through a tremendous growth in the past years. Facilities and attractions have expanded dramatically. A new funicular ropeway system was commissioned in September 2009 to enhance the Park's operation. The funicular system is named the "Ocean Express".

The entire Ocean Express journey is within a tunnel. Operation of this system is not affected by adverse weather at all. This weatherproof nature and its large carrying capacity has ensured that the Ocean Express is the most reliable and efficient way of transporting guests between the Waterfront and the Summit. (Ocean Park is geographically separated into two areas. The lowland area is called the Waterfront and the headland area is called the Summit)

Besides being an efficient transportation system, Ocean Express is designed based on a themed story line which enhances its entertaining value for the guests. The stations and vehicles are themed according to the classical "Jules Verne" deep sea adventure concepts. A multi-media show combining powerful lighting, audio & visual effects illustrating an "undersea odyssey" adventure experiences is presented on the vehicles, which provides a unique experience to the passengers throughout the whole journey.

As an underground funicular, fire safety is one of the most important elements in the Ocean Express system. Vehicles are designed to have extreme-low fire load (< 1MW / vehicle). Fire service equipments (such as smoke detectors, linear heat detectors, break glass alarms and fire hydrants) are provided inside the tunnel. Escape walkways with positive air pressure are built alongside the tunnel. Smoke extraction systems are installed along the entire tunnel. People inside the escape walkways will be directed to places of safety through the walkway exits built by the tunnel portals or in the middle of the tunnel.

This paper describes the Ocean Express system design and shares some operation & maintenance experiences during its first year of services.

摘要

自1977年起，海洋公園即營運兩線架空纜車。在過去的日子，公園邁向了高速的成長，設施及景點均有顯著的增長；在2009年九月，一個命名為海洋列車的地面纜車系統投入服務，以提昇公園的營運水平。

為免列車的運行受到惡劣天氣影響，所以整個列車的行程均置於隧道內，此全天候運作能力及特大運載量，確

認海洋列車是最可靠、最有效率的園內運輸工具，令遊客能快速地穿梭海濱樂園（山下）及高峰樂園（山上）兩個景區；雖然公園在地理上分為這兩個區域，海洋列車的營運徹底改變了這個限制。

海洋列車不祇是個高效能運輸系統，整個裝飾亦根據一個主題而設計，以增加其娛樂成分，車站及車廂的設計使用了古典科幻概念，描述深海漫遊的探險故事，車廂內的多媒體表演，結合強勁的燈光、音響及視覺效果，令乘客有如置身歷險旅程。

對於在地底行走的海洋列車來說，火警安全是其中一個最重要的課題。列車車廂具有極低的燃燒量（每列車少於1MW），在隧道內備有多種防火裝備；沿著隧道，亦建有正氣壓之逃生通道及抽煙系統，在逃生通道內，乘客可經由車站內或隧道中途之緊急出口逃生。

本文介紹海洋列車的設計，並與各位分享其營運及保養經驗。

Biography

Ir William SHUM

William SHUM is a Senior E&M Engineer of Electrical and Mechanical Services Department. He leads his sub-division to administer the enforcement of several legislations to regulate the safety of aerial ropeways, amusement rides, builders' lifts and tower working platforms. His sub-division is also responsible for investigating incidents which involved E&M equipment.

Ir George TSO

George TSO became the Executive Director of Engineering at Ocean Park, Hong Kong in 1999. He leads his Engineering Division to ensure the safe and smooth operation of all the facilities and installations of the Park, as well as to manage major development projects including the funicular railway system which was completed and opened to the public successfully in 2009.

His background is in Electrical Engineering. He graduated with BSC and MSC at University of Southampton and UMIST respectively. He began his career in the railway industry and has worked in several international railway companies including GEC Traction UK; Bombardier Canada and MTRC HK; and has over 17 years project experience. He was part of the construction team building the Hong Kong International Airport. He led a team of engineers to install multiple Passenger Terminal facilities including the Automatic People Mover and various special equipments.