24-core fiber optic cable maintenance for ASEAN ten countries



Overview

ASEAN DIGITAL MINISTERS MEETING (ADGMIN)Seek to streamline and simplify (if possible, applying exemptions to) the regulations and policies of the individua.

Key Takeaways

Maintenance of 24-core fiber optic submarine cables in ASEAN relies on regional cooperation, standardized guidelines, and specialized cable ships to ensure uninterrupted connectivity across the ten member states. Regional Guidelines and CooperationASEAN has established the Guidelines for Strengthening Resilience and Repairs of Submarine Cables, endorsed in 2019, to facilitate the maintenance and repair of undersea cables across member states. These guidelines aim to minimize permit requirements, reduce costs, and expedite repairs, referencing international best practices such as the International Cable Protection Committee (ICPC) standards.

The ASEA

N Digital Masterplan 2025 further emphasizes improving broadband infrastructure quality and coverage, including submarine cable repair and maintenance.

Operational Framework

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Maintenance operations are coordinated under agreements like the South East Asia and Indian Ocean Cable Maintenance Agreement (SEAIOCMA), which oversees cable systems spanning from Djibouti to Guam and from Taiwan to Australia. Cable operators, such as ASEAN Cableship, deploy specialized vessels to conduct repairs, including branching unit replacements and scheduled maintenance, ensuring the reliability of over 120,000 kilometers of submarine cables. These operations often involve pre-applied permits and coordination with national authorities to streamline repair processes.

Technical Standards

Maintenance of 24-core fiber optic cables follows ITU-T Recommendations, particularly ITU-T L. 25, which outlines general features for optical fiber network maintenance. While ITU-T L.

25 primarily addresses terrestrial networks, it provides guidance on network monitoring, fault detection, and repair procedures, which are adapted for submarine systems. Submarine-specific standards, such as ITU-T G. 979, cover monitoring systems for undersea optical cables.

Challenges and Geopolitical ConsiderationsASEAN cable maintenance faces regulatory and geopolitical challenges. Each member state has distinct regulations for submarine cable operations within its territorial waters, which can delay repairs. Additionally, contested maritime areas, particularly in the South China Sea, pose risks of interference or delays due to territorial claims.

Operators must navigate these complexities while maintaining uninterrupted service, often requiring coordination with multiple national authorities and adherence to international best practices. Best PracticesPre-approval of permits: Applying for necessary permits in advance reduces downtime during repairs. Dedicated cable vessels: Assigning vessels solely for cable maintenance ensures rapid response to faults.

Regional coordination: Sharing information and resources among ASEAN member states improves repair efficiency. Adherence to ITU-T standards: Following international technical standards ensures consistent maintenance quality.

Conclusion

Maintaining 24-core fiber optic submarine cables in ASEAN is a complex, multi-jurisdictional operation that relies on regional cooperation, specialized vessels, and adherence to international standards. By following ASEAN guidelines and leveraging agreements like SEAIOCMA, member states can ensure resilient and reliable undersea connectivity, which is critical for the region's digital economy and integration goals.

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Cable Repair

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Working Document 2

Analyses of datasets relating to the maintenance vessel fleet and cable investment projections were conducted to forecast how the anticipated increase of new cable kilometers and corresponding cable

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ASEAN ACADEMIC REPORTS ON SUBMARINE CABLES

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These five manufacturers collectively represent a significant portion of China''s optical fiber cable output, which underpins domestic telecom expansion and global AI data infrastructure.

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