Affordable and Reliable Broadband Optical Cable Backhaul Solution

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”DIY” Rural Broadband

Local people said; “This is the Ultimate”

http://www.thefoa.org/foanewsletter.html

Tiny village of 300 people dig SEVEN miles of trenches to install their own superfast broadband after getting fed up with their ‘terrible internet’ (and now it is fastest in Wales)

You have better solution

The idea was sparked in the village pub when villagers were complaining about their WiFi connections.
New ITU standard can help bring broadband to rural communities

ITU-T L.1700: Concept Standard
Affordability First, Best Reliability follows

Lightweight Robust Optical Cable with Fibres in a Welded Steel Core Tube

Draft ITU-T L.cci: Cable Laying Standard
Low-Cost Installation from Land to Air to Water in a DIY Manner

For details: Please search the Google; “ITU standard help” “Everest Optical Cable”
DIY construction by local communities
Land to Air to Water
Affordability First with Best Reliability

SERIES L: ENVIRONMENT AND ICTS, CLIMATE CHANGE, E-WASTE, ENERGY EFFICIENCY; CONSTRUCTION, INSTALLATION AND PROTECTION OF CABLES AND OTHER ELEMENTS OF OUTSIDE PLANT

Requirements and framework for low-cost sustainable telecommunications infrastructure for rural communications in developing countries
Innovative lightweight cable with a stainless-steel tube

Series L: Environment and ICTs, Climate Change, E-Waste, Energy Efficiency; Construction, Installation and Protection of Cables and Other Elements of Outside Plant

Optical fibre cables for direct surface application
L.110 puts advanced optical technology in the hands of rural communities.

This new ITU standard specifies lightweight optical cable that provides a lower-cost, “do-it-yourself” solution helping better connect people even in the world’s most remote areas.

For details: Please Google “Everest Optical Cable”
A Light-Weight, Thin, Long and Robust Optical Cable for Direct Surface Application
Three Cable Types
Commercially available, Japan

20 Years, 20,000km

11 mm
180-200 kg/km

8 mm
85 kg/km

3.5 mm
20 kg/km
Cross section of the cable core tube

- 11 mm Ø cable
  - ≤ 48 loose fibre

- 8 mm Ø cable
  - ≤ 24 loose fibre

- 3.5 mm Ø cable
  - ≤ 8 loose fibre

Welded region (moisture/waterproof)

Stainless-steel tube
Rodent Proof Test (Rats)

After 6 days with
4 Brown Rats
4 Roof Rats

Steel-tube Cable
Fibers protected

Conventional
Cable broken
Fire Proof Test at 1180 °C

Optical Loss Increase, dB

\[ \lambda = 1550 \text{nm} \]

minutes
Lateral-pressure proof test

Optical loss increase, dB

Loss Increase Allowance

Fiber #

200kg/100mm

Steel-pipe Cable, 3.5 mmΦ

kg/100 mm

0

1000

2000
Transmission Equipment (Outdoor)

- Anti-corrosion film
- Moisture absorber

Optical Cable
Govt mulls setting up free wi-fi zones at Everest, Annapurna regions

Nepal Telecommunication Authority (NTA) Chairman Digambar Jha informed that free wi-fi zones will be set up in the Lukla-Everest Base Camp area and Annapurna Trekking trail.

The Chairman further informed that the service will operate on the Okamura Model that uses lightweight robust optical cable for high-speed internet.
L.110 Optical-Cable Route being planned in Everest region
L.110 Optical-Cable to be installed, together with connected e-Health Kits, in Dullu Municipality, Nepal

APT ICT Pilot Project for Rural Areas (Category-II)

Dullu Municipality Office

Dhiyatid (Start point)

Chiudi t (End Point)

L.110 Cable ~10 km

Nepal

Kathmandu

Dullu Municipality

Broadband Connectivity planned within 2018

Hospital, Health Centers, Municipality Office, Ward Offices, School, Wi-Fi base stations
It says “happy to see @ITU-standard lightweight optical cable as low-cost DIY solution to connect the remote”

Google “very happy to see ITU-standard”
Summary for closing the digital divide

- Affordable and Reliable Optical Cable Solution standardized @ ITU-T

ITU-T L.1700 2016
L.1700 Supplement 21 2016
ITU-T L. 110 2017
Draft ITU-T L. cci ~2018

- Nepal Telecomm Authority announced Feb. 2017 to lay the solution in Himalayas: the Projects are ongoing.

- The solution is well applicable to rural and urban areas