

TRANSCELESTIAL CENTAURI 10 Gbps



AKSES FEMTO
INDONESIA

Wireless Fiber in the Sky
Solution

Telkom
Indonesia





About Akses Femto Indonesia PT.

- PT. Akses Femto Indonesia (AFI) – one of TRG Investama subsidiary, established on October 2012, we offer services that will help our customer to focus on their core business.

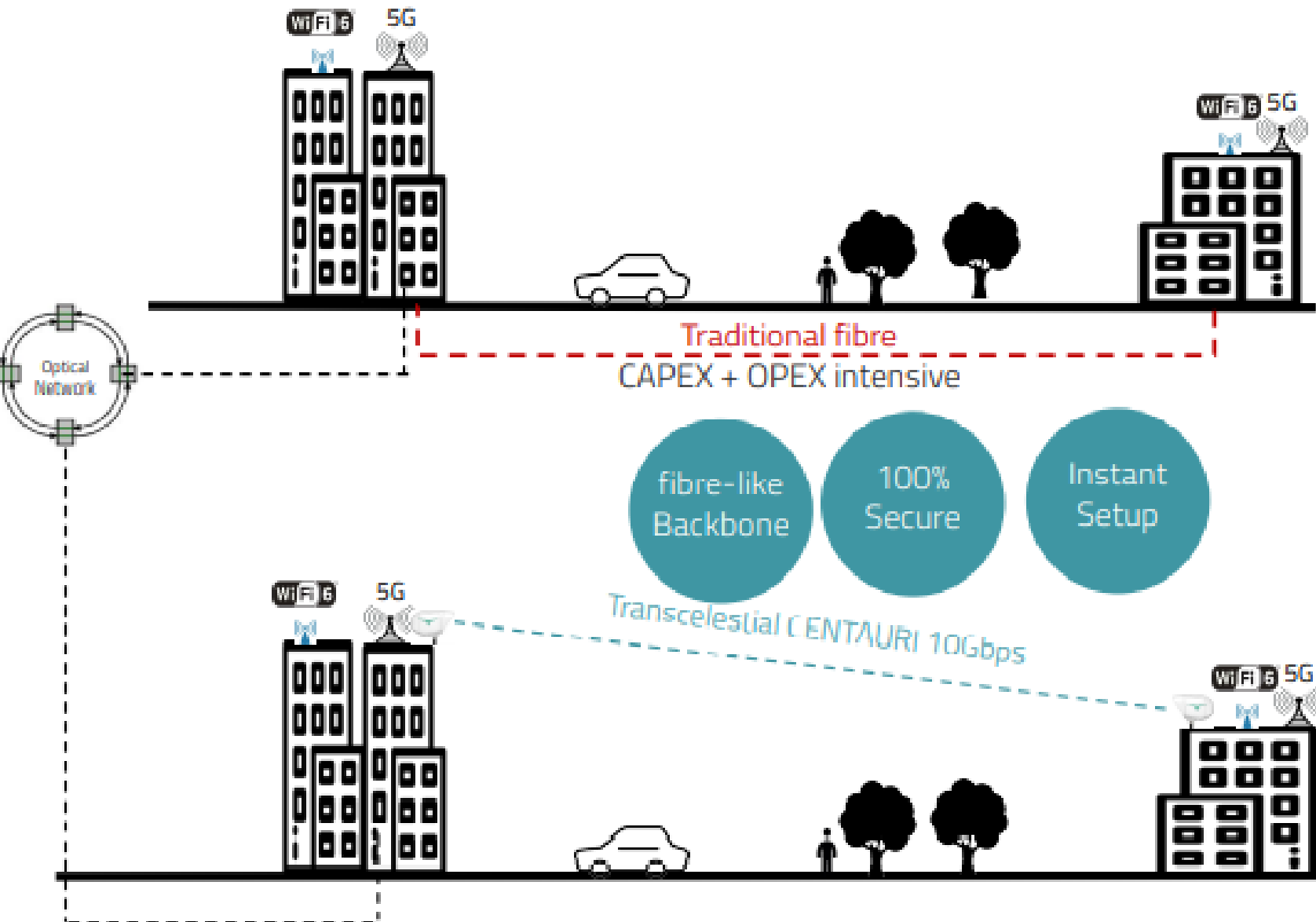
We valued our expertise to design, build, operate and maintain broad of ICT project.

Our Services

- ACCESS TRANSPORT : Build and integrate end to end Access infrastructure
- ICT HARDWARE INTEGRATION : Smooth setup and integration of your ICT infrastructure



Why should you use FSO instead of Fiber?



Effective and efficient way to use FSO :

1. *Dense Urban (office area)*
2. *Private Area (special permit), unknown approval cost and time (PIK, BSD)*
3. *Special Event Link, (accidental big event)*
4. *High Bandwidth requirement (5G)*



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Free Space Optics or FSO

Speed of Fiber & Ease of Wireless





Leverages our Wireless Laser Communication technology to create a wireless distribution network between street-level poles and traditional cell towers a.k.a.
LAST MILE CONNECTIVITY

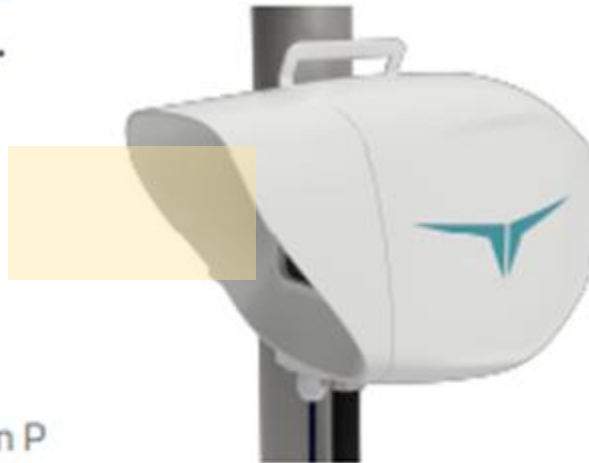
CENTAURI delivers fibre-like speeds to customers at fraction of the cost.

10Gbps

Full Duplex Consistent
Data Rate

<3 km

Reliably under
Equatorial Region P
rain conditions



- Auto-tracking and installation software enables **fast installation in <10 min.**
- **2.7kg** enable one person installation
- **Low power consumption** at less than 20 to 32W enable the use of solar power
- **Auto-tracking enable correction of pole/tower movement** due to heat expansion, vibration cause by wind and rain



SPESIFIKASI PERANGKAT



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COMMUNICATION SYSTEM	
Models	CENTAURI 10G
Max. Throughput	10 Gbps Full Duplex
Data Interface	SFP+
Typical RTD at 3km	< 25 μ s
Operating Range	200m to 3km+ 99% to 99.999% dep. on Rain Zone
Wavelength	1550nm
Automatic Power Control	Up to 23dBm
Automated Pointing & Tracking	Proprietary Realtime Laser Stabilization Range: Horizontal: $\pm 2^\circ$, Vertical: $\pm 2^\circ$
Management Interface	100 BASE-T (RJ-45)
Network Monitoring & Configuration	- Outband - Transcelestial NMS - SNMP (v3)
Installation Environment	Outdoor (unaffected by sunlight, ambient light and low visibility haze)
Communication Protocol	Layer 1 System: Supports 1G, 10G Ethernet, OTU, OBSAI, Fiber Channel, CPRI, STM, SONET, eCPRI
Synchronisation	Pass-Through Bridge

COMPLIANCE & SAFETY	
General Safety	IEC 62368-1:2014+A11:2017
Laser Safety	IEC/EN 60825-1 Compliant
EMI/EMC Interference	FCC 15B, EN55011, EN 55032/35/24
Quality Standards	ISO 9001, ISO 14001

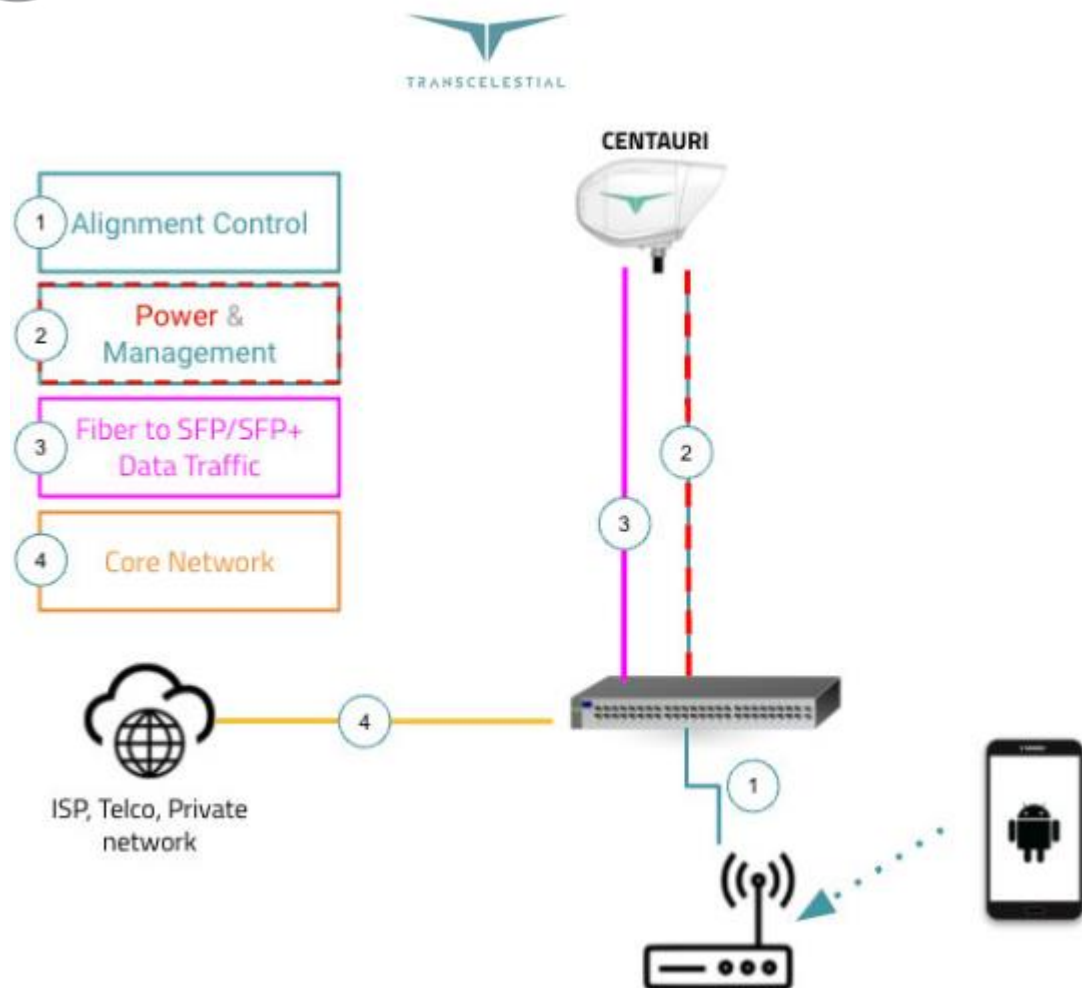
PHYSICAL SPECIFICATIONS	
Dimensions	32 (L) x 18 (W) x 20(H) cm
Device Weight	2.7kg
Mount Weight	1.1kg
Power Supply	20W POE 802.3at (Heater OFF) or 32W POE 802.3bt (Heater ON) or 48V DC
Pole Mount	Pole Diameter within 3 - 4 inches +/- 3° vertical adjustment
Operating Temperature	-40 to 50° C (-40 to 122° F)
Weatherproofing	IP65 Rated



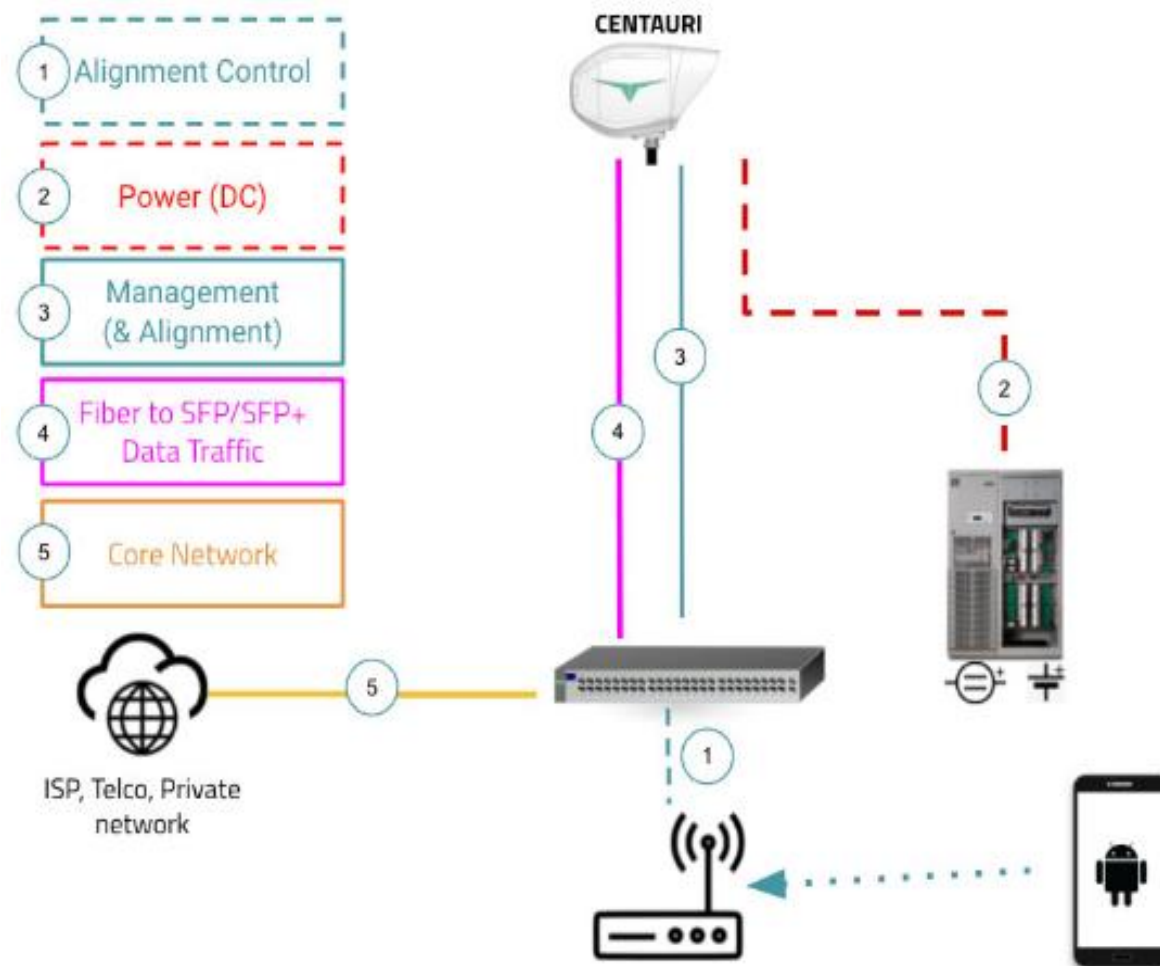
Power Connection



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AC Power Supply via POE Injector



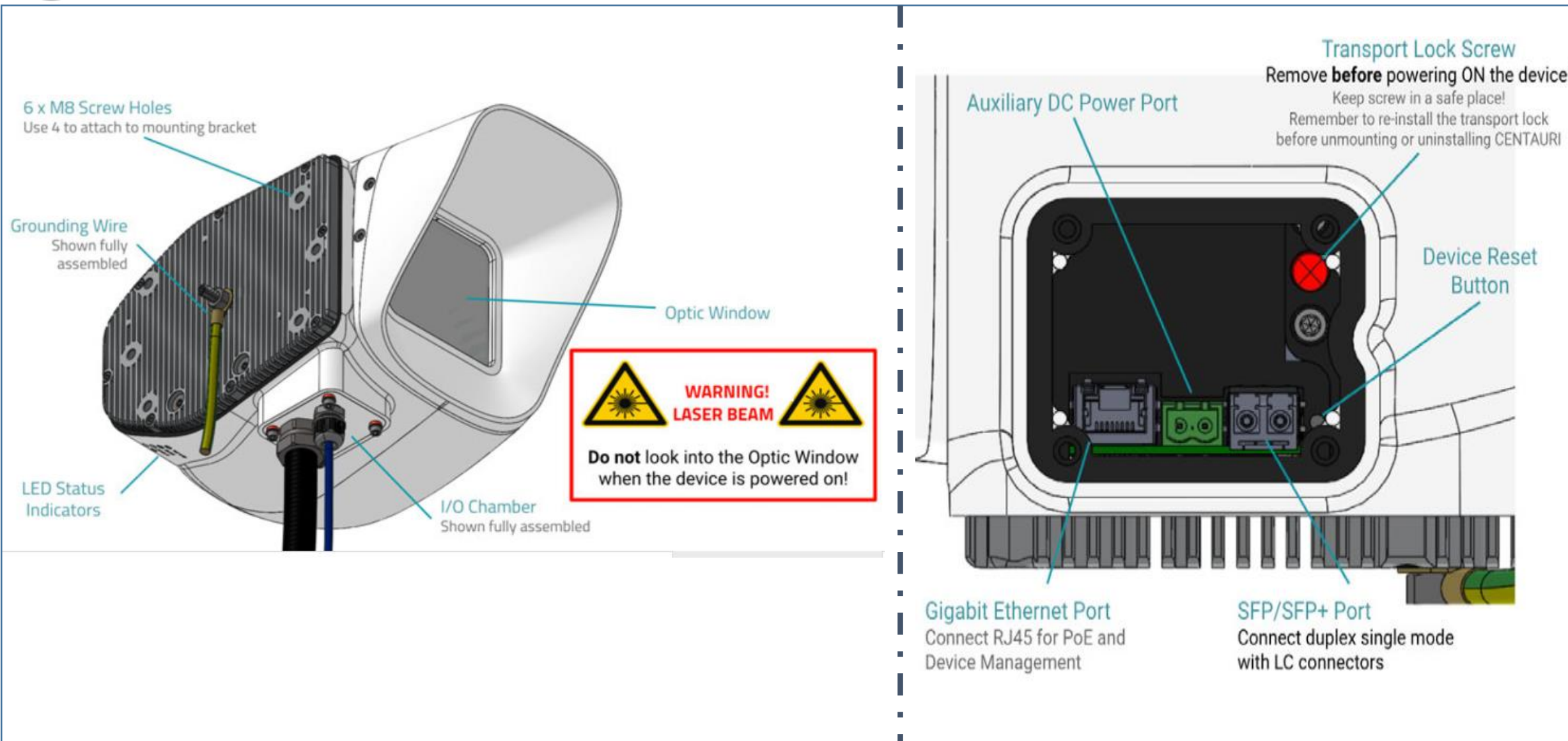
DC Power Supply via Rectifier



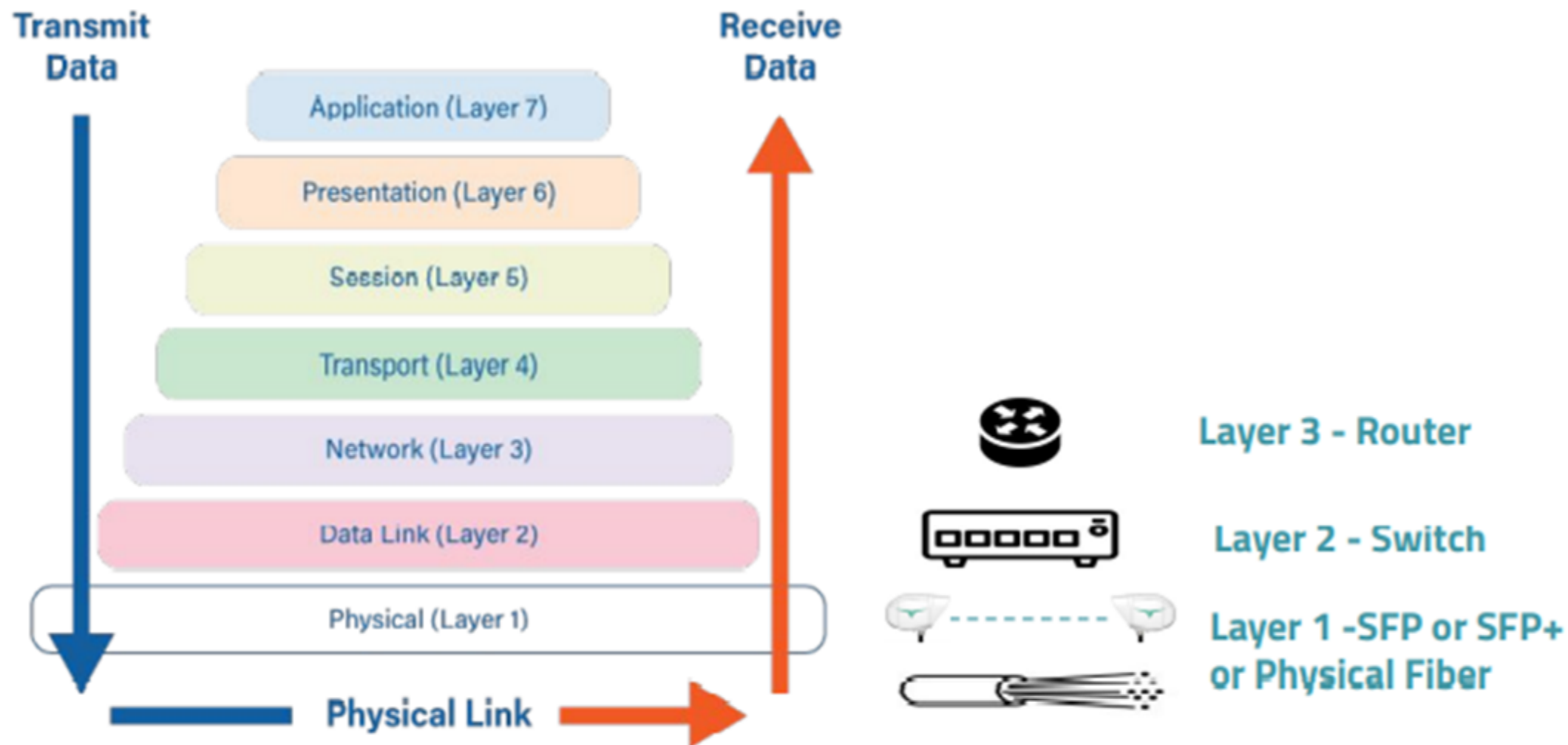
Device Overview



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The 7 Layers of OSI



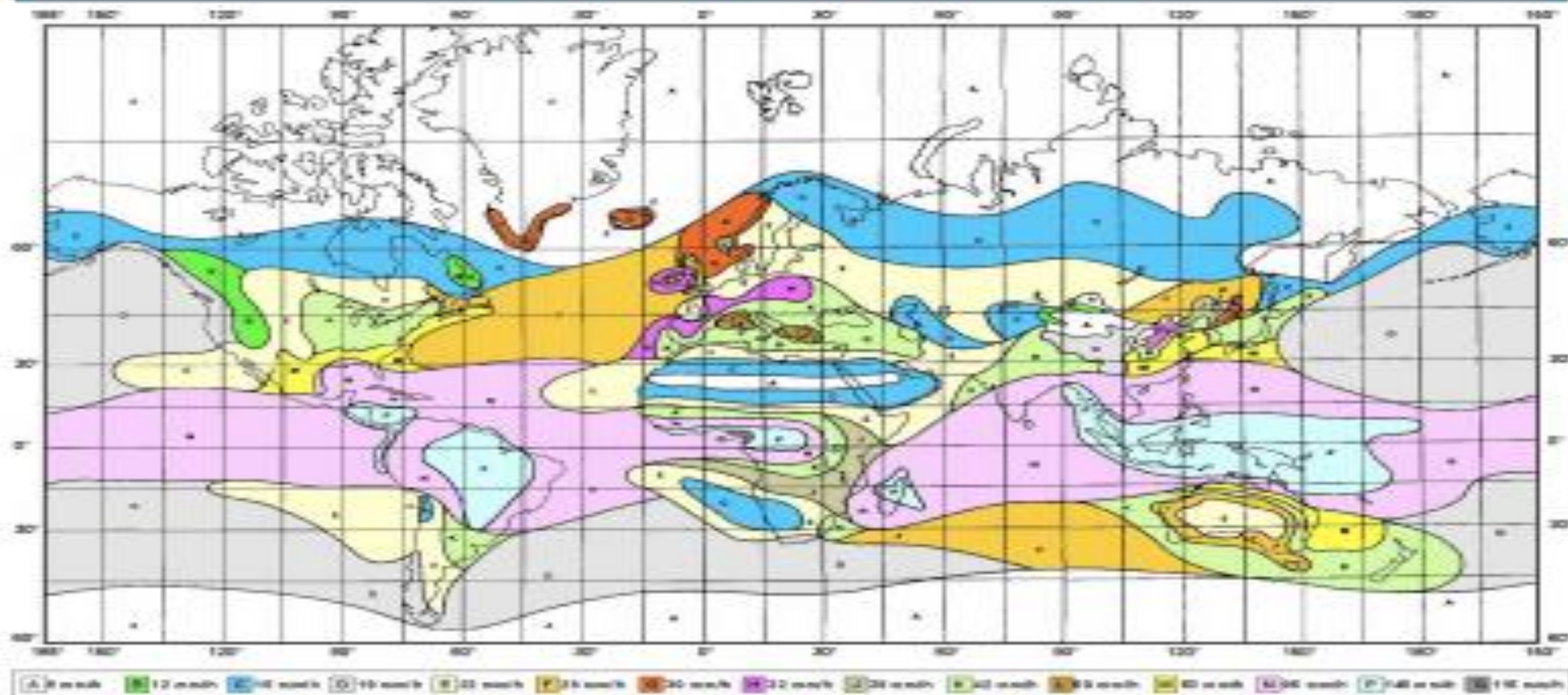
10G Availability vs Distance(km) for each Rain Zone Rec.ITU-R PN.837-1							
Availability	99.0%	99.7%	99.9%	99.97%	99.99%	99.997%	99.999%
Annual Downtime	3d 15h	1d 2h	8h 45m	2h 37m	52m 35s	15m 46s	5m 15s
Rain Zone	km	km	km	km	km	km	km
P	2.45	1.60	1.20	0.95	0.85	0.70	0.65

‘P’ are Indonesia’s rain zone area based on Rec. ITU-R PN.837-1

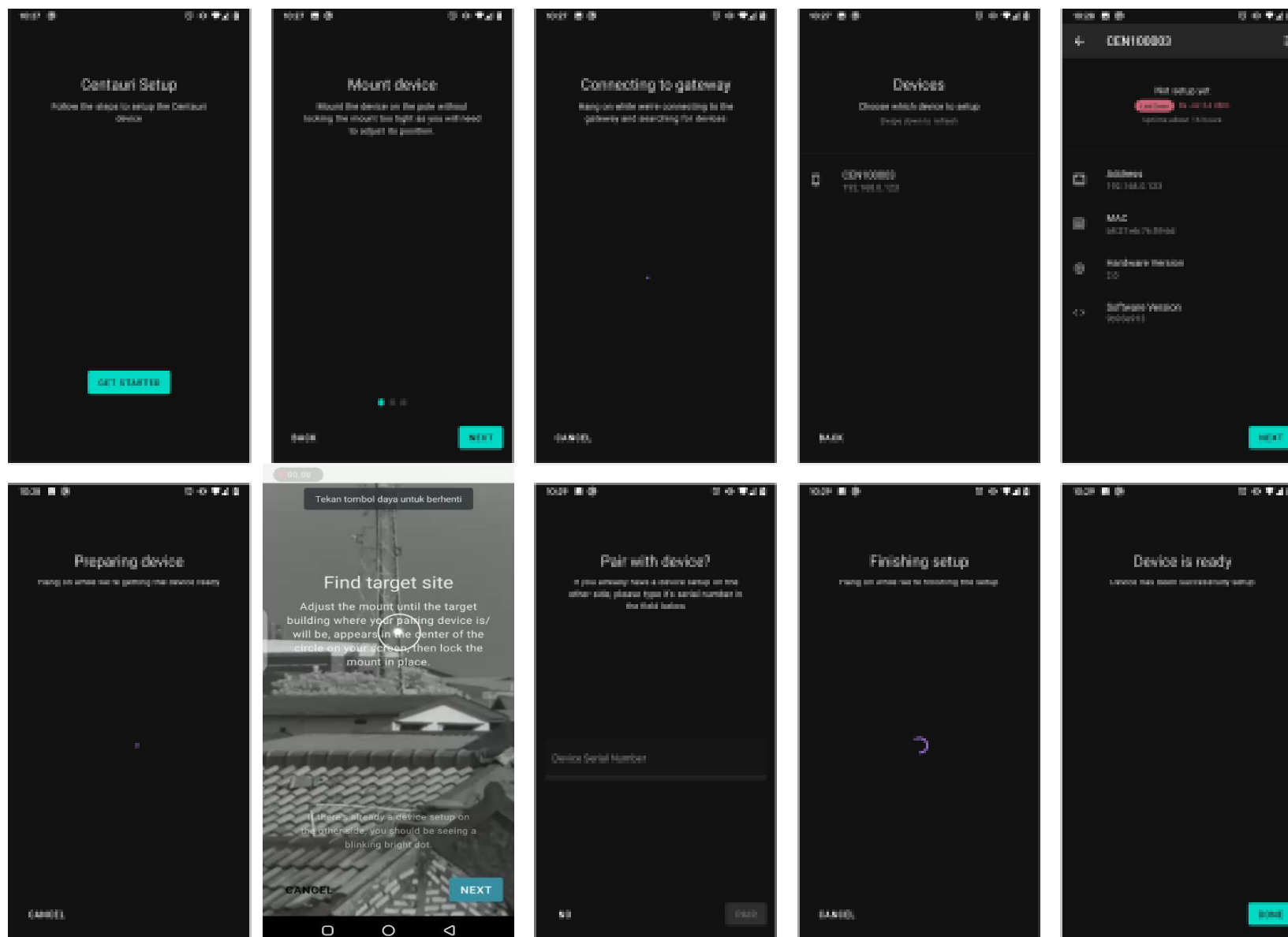
Example Link availability calculation need 99.0 % with downtime max. 3 days 15 hours yearly
Have effective connection distance with range 2.45 KM.



Rain Zone Rec.ITU-R PN.837-1

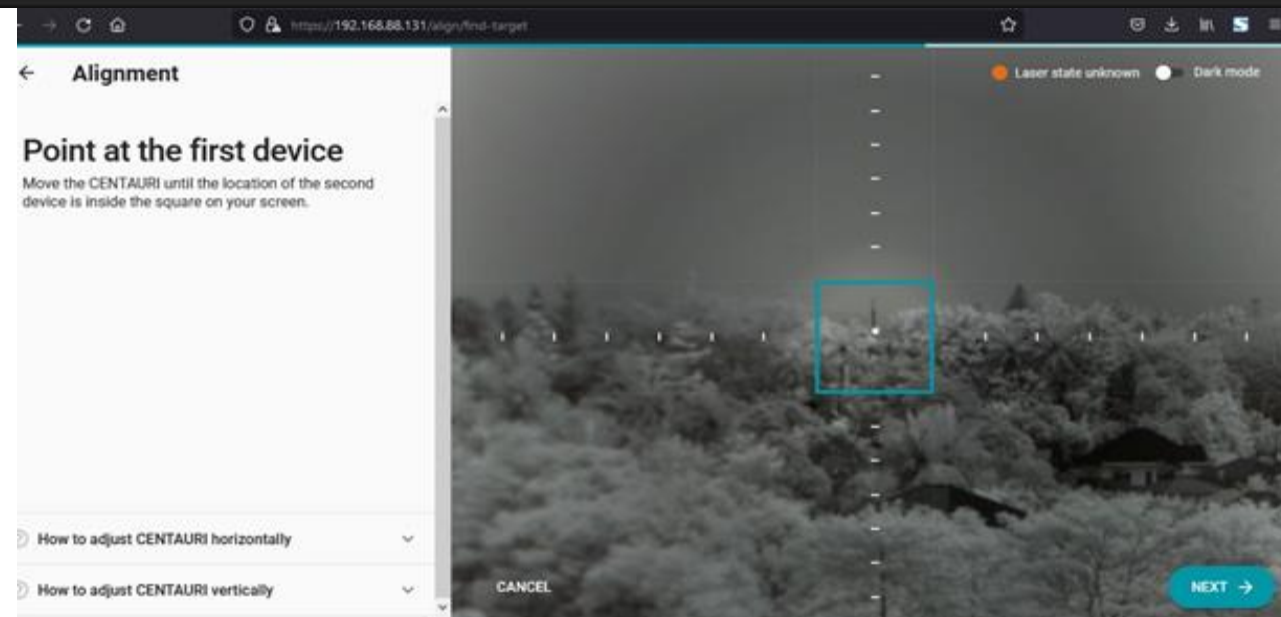
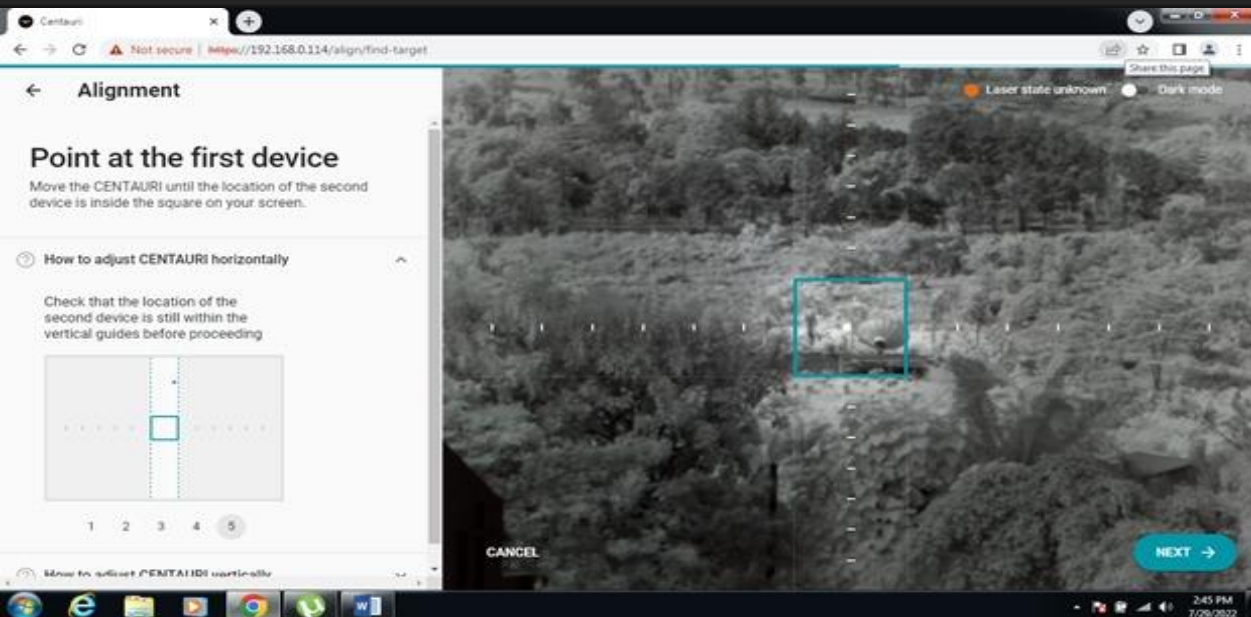


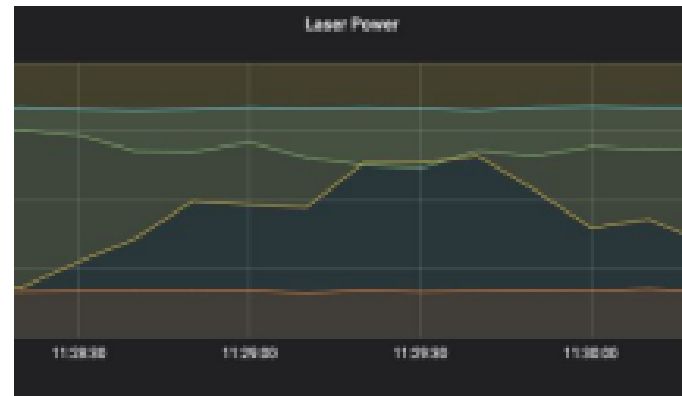
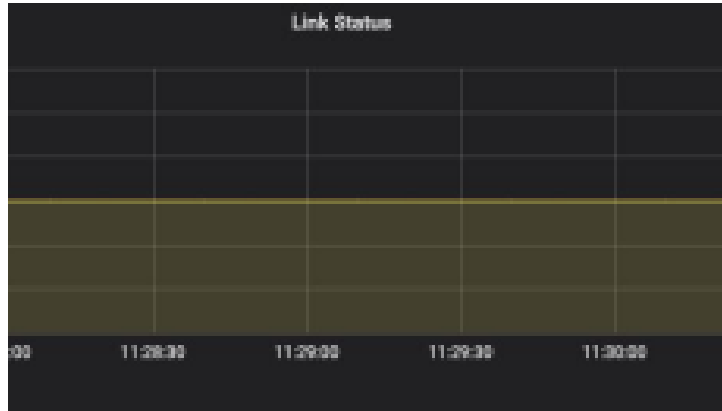
Source: Based on [ITU Rec. PN.837](#)



Web App to guide the operator through the installation of the product

Entire link installation time take less than **10 mins** (end-to-end) compared to a **2-day** installation period for existing microwave OR a **few months** compared to fibre

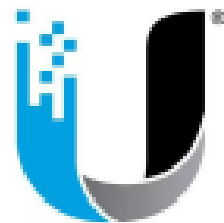




Support for following external NMS via SNMP

solarwinds 

openNMS[®]



LibreNMS

SNMP-based network monitoring (supported) is long overdue for an upgrade.

It was designed for legacy implementations, with poor scaling for today's high-density platforms, and very limited extensibility.

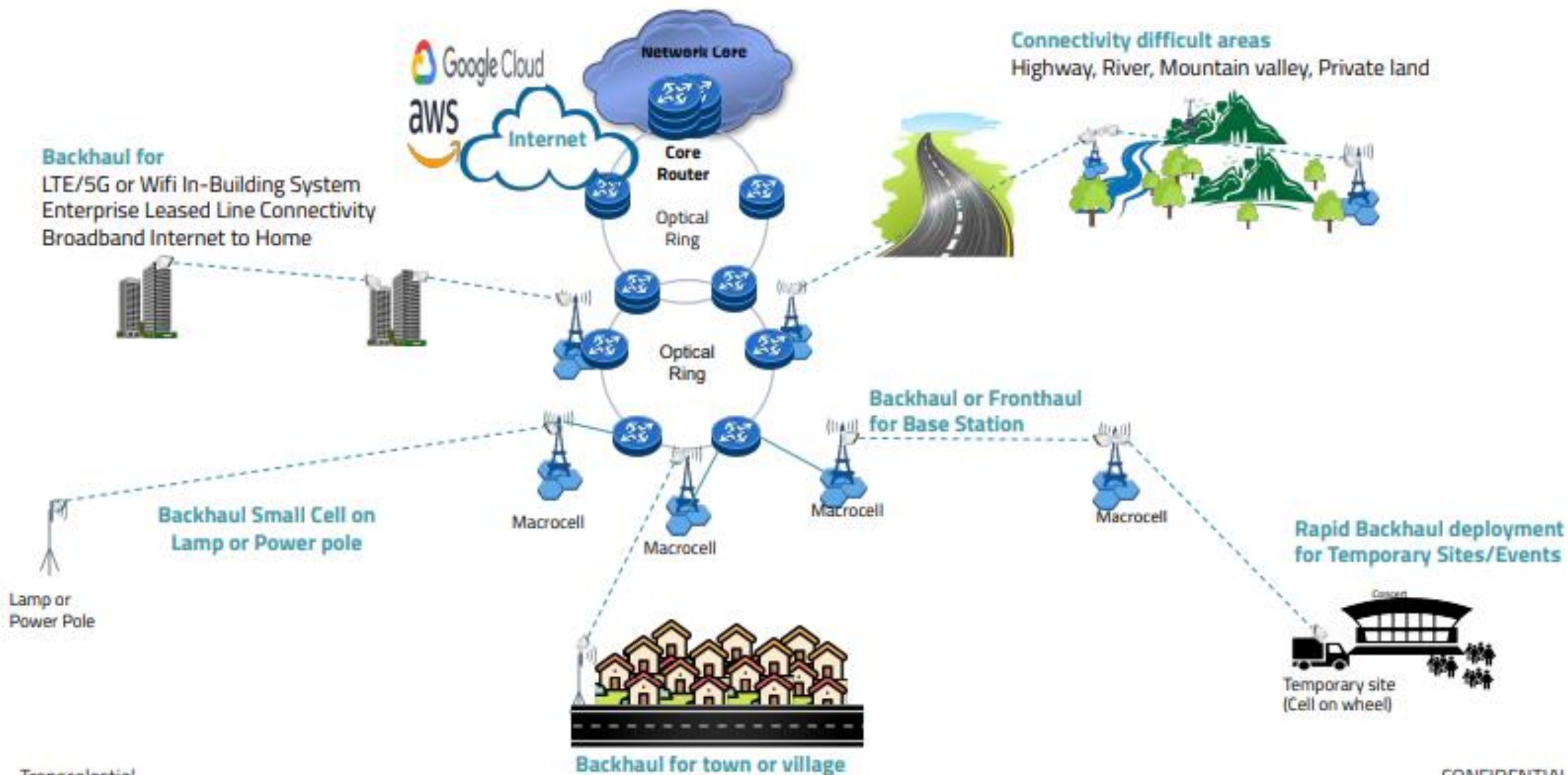
Streaming telemetry is a new approach for network monitoring in which **data is streamed from devices continuously with efficient, incremental updates.**

Operators can subscribe to the specific data items they need.



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TELCOS & ISP USE CASE



Simulation Comparisson



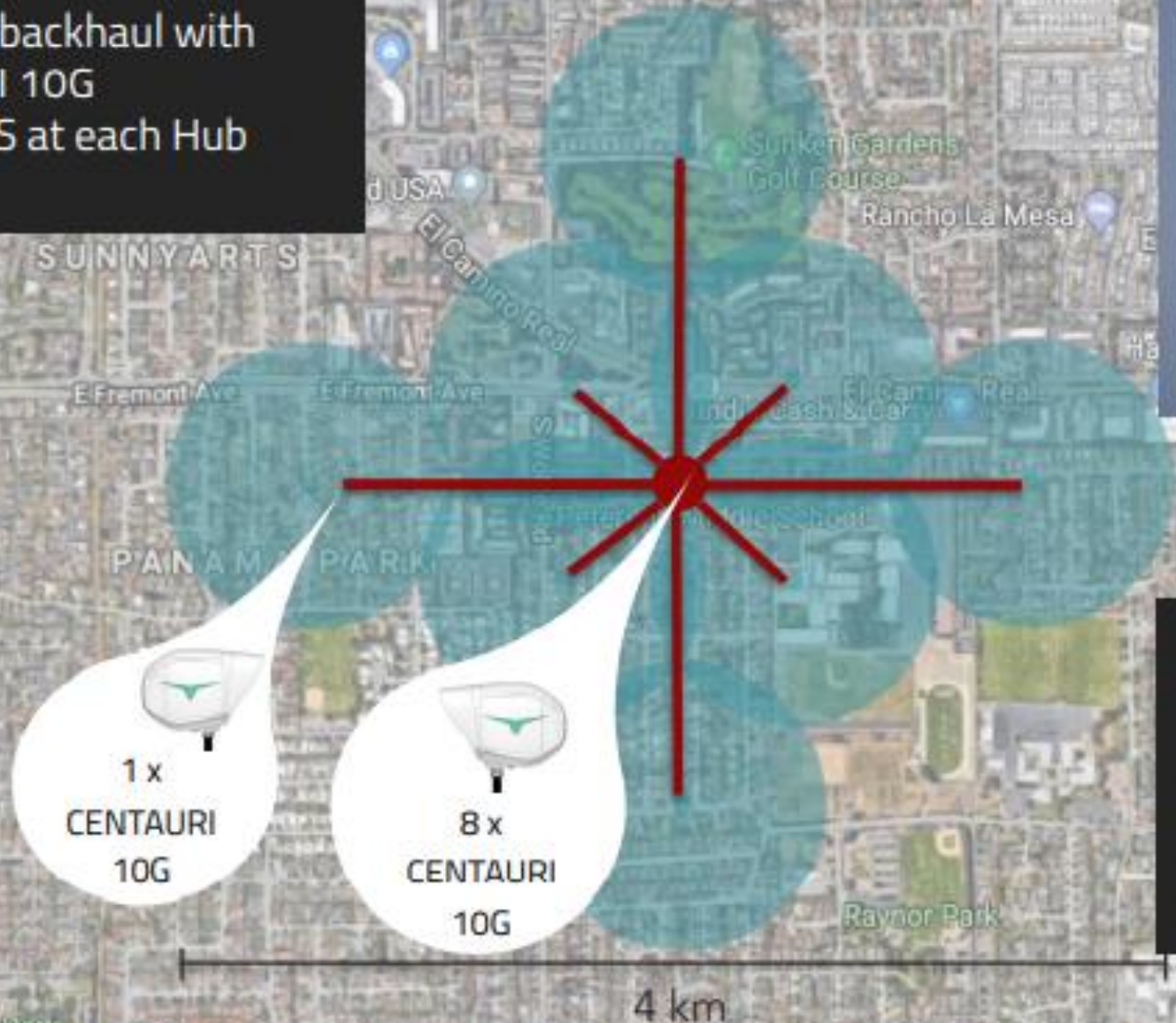
Distance 1,200 meter
SLA 99.95%
Capacity 10G
Benchmark Underground Fibre

Description	Underground Fibre	E Band (70/80 GHz)	FSO (Laser)
Cost Equipment	Low	High	Medium
Installation Cost	High	Medium	Low
Approval Permit	Slow	Fast	Very Fast
Right of Way	Unknown	Not Applicable	Not Applicable
Permit Cost	High	Low	Low
Installation Duration	Very Long 10 days	Medium 2 days	Short 1 day
Licenses capacity per year (Mbps)	No Regulation	per year	No Regulation
trouble Shoot	Slow	Fast	Very Fast
Cost per year (link down 3X per year))	High	Low	Low
Power Compsumption	Low 20 watts	Very High 79 watts	Low 20 watts
Freq License	No	High	No
Rain Attenuation	No	High	Low



HUB SITE DEPLOYMENT IN A CITY

- 5G Base Station backhaul with 10Gbps CENTAURI 10G
- 8 or more 5G BTS at each Hub
- fibre fed Hub



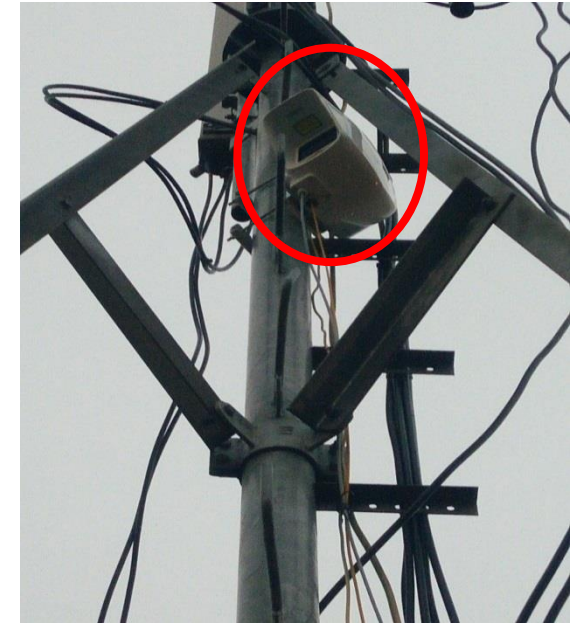


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CENTAURI DEPLOYMENT

Centauri Deployment Sentul Area

Range PTP 1.72 km with SLA 99.7 %



Centauri Deployment (Sentul Area 1.72 Km)

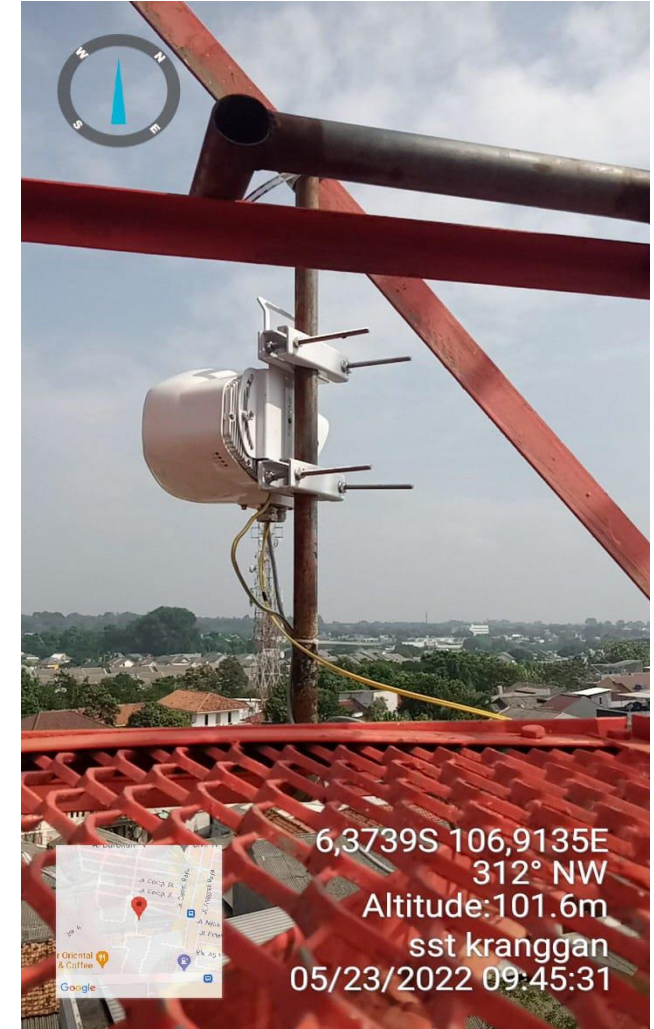
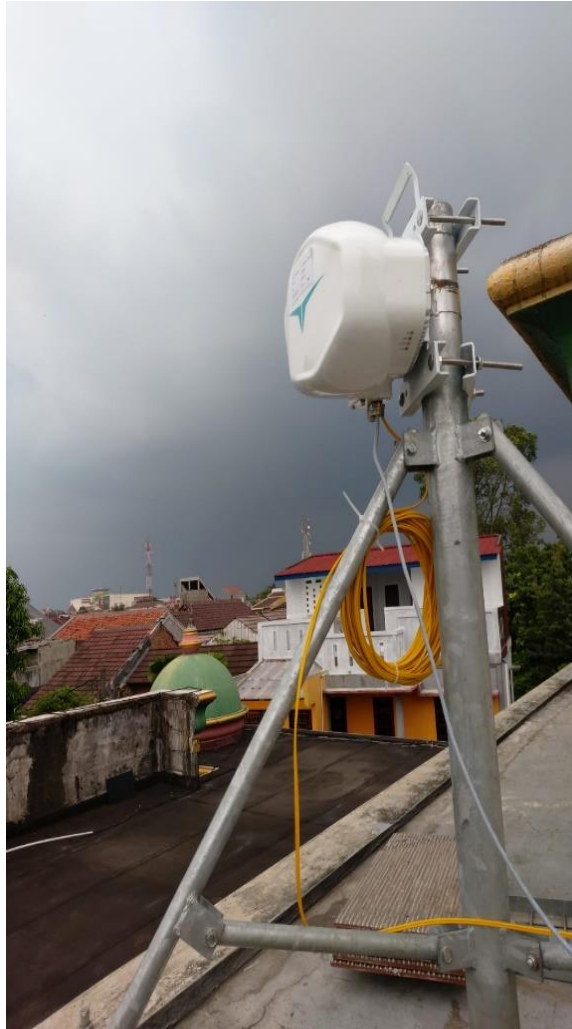


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Centauri Deployment (Kranggan-Cibubur Area)

range PTP : 600 mtr with SLA :99.999%



1. Sertifikasi SDPPI Postel N0. 82848/ SDPPI/ 2022
2. EMC Compliance Completed including FCC-15 (EN 55032/CISPR 32 & EN 55035/CISPR 35
3. Safety Compliance IEC 60825-1



KEMENTERIAN KOMUNIKASI DAN INFORMATIKA
DIREKTORAT JENDERAL SUMBERDAYA DAN
PERANGKAT POS DAN INFORMATIKA
REPUBLIK INDONESIA



MINISTRY OF COMMUNICATIONS AND INFORMATION TECHNOLOGY
DIRECTORATE GENERAL OF RESOURCES AND EQUIPMENT
FOR POST AND INFORMATION TECHNOLOGY
THE REPUBLIC OF INDONESIA

SERTIFIKAT | CERTIFICATE

NOMOR : 82848/SDPPI/2022

KEPMEN KOMINFO NOMOR 59 TAHUN 2022.	
Referensi : Reference	PLG ID : 4701 Client's ID
Jenis Perangkat : Free Space Optical Name of Equipment	Diajukan Oleh : AKSES FEMTO INDONESIA, PT. Applied by
Buatan : UNITED STATES Country of Origin	Alamat : Menara MTH 12 th Floor Jl. Letjen MT Address Haryono, Kav. 23 Jakarta - Indonesia, 12820, Jakarta
Merek : CENTAURI Trade Mark	Tanggal Terbit : 27 Juni 2022 Date of Issue
Model/Type : CENTAURI 10G	

Prosedur Kerja
Working Procedure

Report on the EMC Testing of:

WIRELESS OPTICAL COMMUNICATION
DEVICE

Model(s): Centauri 1G & Centauri 10G

In accordance with
EN IEC 61000-3-2: 2019
EN 61000-3-3: 2013 + A1: 2019
EN 55032: 2015 + A1: 2020
EN 55035: 2017

Prepared for:
Transcelestial Technologies Pte Ltd
101 Eunus Ave 3 #06-03/04/05 TSL Building
Singapore 409835

COMMERCIAL-IN-CONFIDENCE

Document Number: 7191253983-EEC21/01 | Issue: 01

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Project Management	Chua Choon Meng	22 Mar 2021	
Authorised Signatory	Quek Keng Huat	19 Mar 2021	

Signatures in this approval box have checked this document in line with the requirements of TUV SUD PSB document control rules.

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with the mentioned standard(s).



The results reported herein have been performed in accordance with the terms of accreditation under the Singapore Accreditation Council.
Inspections/Calibrations/Tests marked "Not SAC-SINGLAS Accredited" in this Report are not included in the SAC-SINGLAS Accreditation Schedule for our inspection body/laboratory.

Laboratory:
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Singapore 629537

Phone : +65-6778 7777
E-mail: info.sg@tuv.sud.com
https://www.tuv.sud.com.sg
Co. Reg : 19900267R

Regional Head Office:
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15 International Business Park
TUV SUD @ BP
Singapore 629537
TUV

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Add value.
Inspire trust.

Report on the EMC Testing of:

WIRELESS OPTICAL COMMUNICATION
DEVICE

Model(s): Centauri 1G & Centauri 10G

In accordance with
EN IEC 61000-3-2: 2019
EN 61000-3-3: 2013 + A1: 2019
EN 55011: 2016 + A1: 2017

Prepared for:
Transcelestial Technologies Pte Ltd
101 Eunus Ave 3 #06-03/04/05 TSL Building
Singapore 409835

COMMERCIAL-IN-CONFIDENCE

Document Number: 7191253983-EEC21/02 | Issue: 01

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Singapore 629537
TUV

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Report on the EMC Testing of:

WIRELESS OPTICAL COMMUNICATION
DEVICE



Model(s): Centauri 1G & Centauri 10G

In accordance with
ICES-003 Issue 6: 2019

Prepared for:
Transcelestial Technologies Pte Ltd
101 Eunus Ave 3 #06-03/04/05 TSL Building
Singapore 409835

COMMERCIAL-IN-CONFIDENCE

Document Number: 7191253983-EEC21/04 | Issue: 01

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This certificate has been digitally approved

MULYADI





SERTIFIKASI POSTEL FSO AFI



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<https://sertifikasi.postel.go.id/sertifikat/publish?key=nomor&value=82848>

← → ↺ 🔒 sertifikasi.postel.go.id/sertifikat/publish?key=nomor&value=82848

📧 Gmail 📺 YouTube 📍 Maps 🎮 Roundcube Webma... 📡 Dfun with Remote... 📺 3 MAGIC Indicators... 🌐 silva main control... 📡 VERONA - Vendor... 📡 Vendor Profile Man... 📺 7.83 Hz Schumann...

DITJEN SDPPI | e-Sertifikasi Selasa, 6-Desember-2022 11:14:20

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📁 Daftar Sertifikat ▾

» Sertifikat Terbit

📁 Sertifikat Pencabutan

📁 Daftar Acuan

Sertifikat Terbit

Nomor Sertifikat ▾ 82848 **CARI 🔍**

NOMOR SERTIFIKAT ▾	PLG ID ▾	NAMA PEMOHON ▾	NAMA PERANGKAT ▾	MERK ▾	MODEL ▾	BRAND ▾	RESERTIFIKASI ▾
82848/SDPPI/2022	4701	AKSES FEMTO INDONESIA, PT.	Free Space Optical	CENTAURI	CENTAURI 10G	CENTAURI	2025.06.27

First Previous (1 - 1 of 1) Next Last

Thanks



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