



PPDR deployables

For Luxembourg

2025

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RENITA - Deployables



Réseau National Intégré de radiocommunication
pour les services de sécurité et de secours luxembourgeois



What is RENITA

RENITA is Luxembourg's nationwide public safety TETRA network, dedicated to security and emergency services.

- High redundancy and availability across all components
- Core infrastructure hosted in TIER IV data centers
- ~90 base station sites (+ repeaters), including:
 - 1 site AGA
 - 2 Mobile Base Stations (MBS)
- Site sharing with mobile operators
- Fully encrypted transmission lines
- 19 control rooms (standalone and integrated)
- Motorola DIMETRA rel9.2 with full IP-based system
- Free access for public safety organizations





RENITA Mobile Base Stations

MBS1



MBS2





MBS Specifications

MBS1:

- Vehicle: Mercedes Unimog U5023
- Deployment SLA: <4h within Luxembourg
- Mast: 12m with Omni antenna
- Power Autonomy: 48h
- Connectivity: Fiber, Satcom, 4G/5G
- Operator: RENITA (Connectcom-POST)

MBS2:

- Vehicle: Schwan (SPIE) Tailer MRT-XX
- Mast: 20m with Omni/Panel antennas
- Power Autonomy: 48h
- Connectivity: Fiber, Satcom, 4G/5G
- Operator: CGDIS (Fire Department)

2 Carriers on GovSat-1 X-Band

1/1 Mbps

Modulation: QPSK | 1000 Kb/s

Direct core connection via anchor station
in Betzdorf

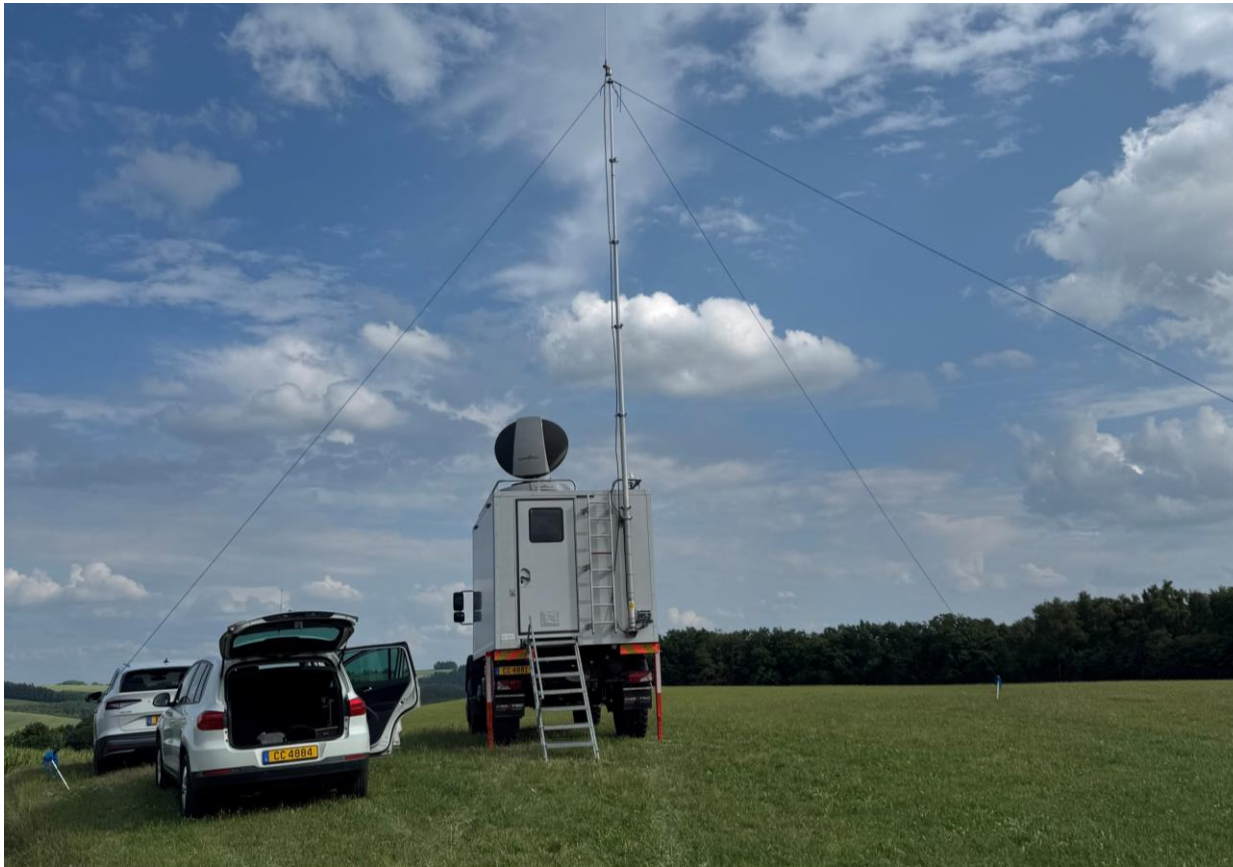
Antennas:

- Primary: CCT120 Drive-Away Datapath
- Backup: TP150 Holkirk



In filed example

Illegal Rave Party in the zone protégée Natura 2000





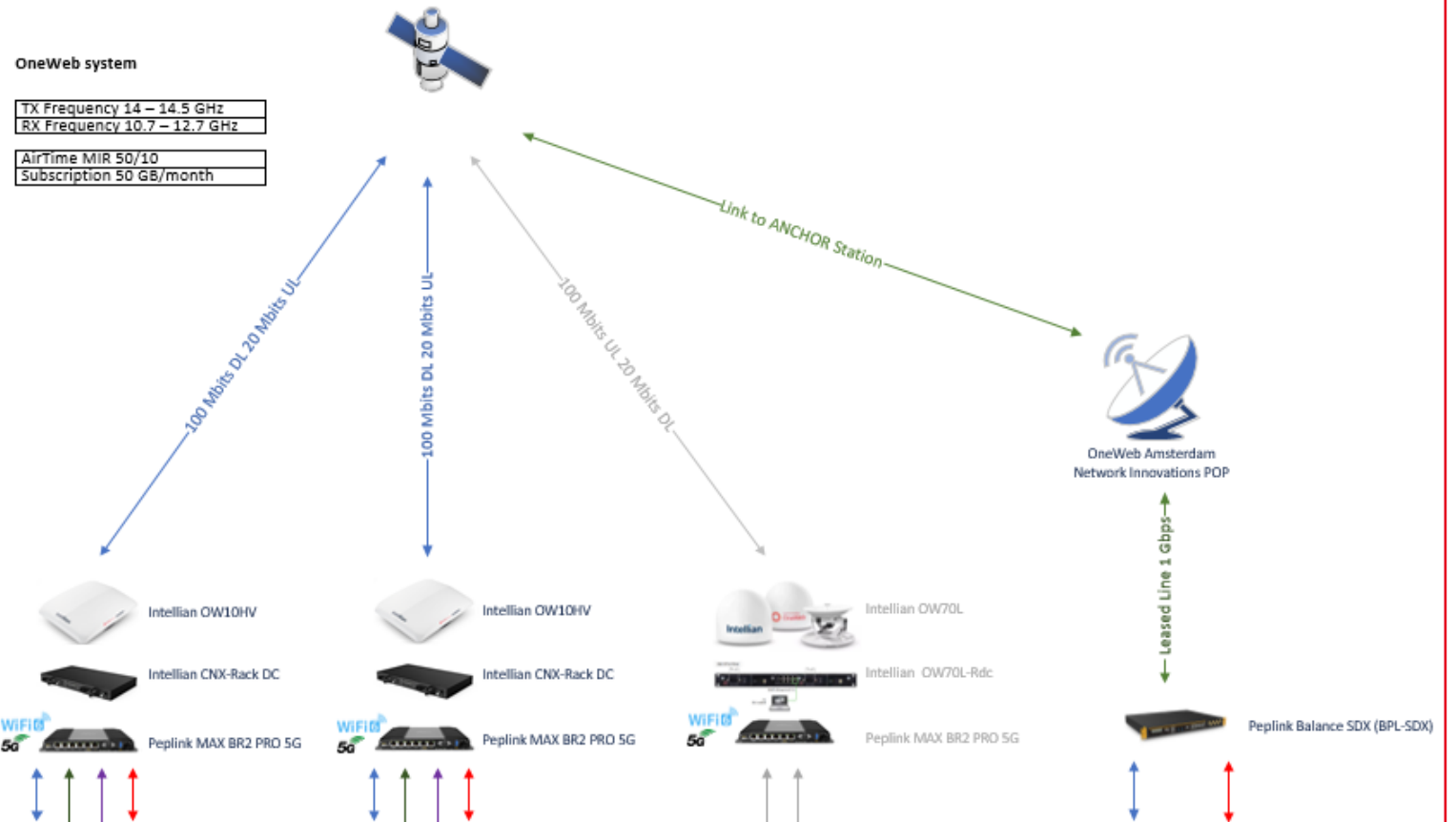
Secure Satcom



Secure Satcom

Goal:
deliver connectivity for
command and control
for joint remote operations

Users:
Police, CGDIS
and Crisis Management





LUMICC - future Rapid Deployables





Rapid Deployables or other Solutions for Resilience and Coverage

Cell on Wheels

→ Remote 5G Base station, need backhauling to LUMICC Core

Autonomous solution 5G system

→ Standalone System with 5G Core and dedicated MCX service

→ Option to connect with “dedicated roaming” to LUMICC

Device to Device (User to User)

→ 5G Sidelink, existing in 3GPP specification only

3GPP's NTN (5G over Satellite)





Cell on Wheel

In the case of LUMICC Cell on Wheel

Peak throughput for 5 MHz bandwidth (B28, B68 Option PPDR)
(assuming 2x2 MIMO and high spectral efficiency):
≈ 50–150 Mbps per sector.

- **Backhaul requirement:**

Minimum: ~100 Mbps

Recommended: 200–300 Mbps to account for overhead, signaling, and peak traffic bursts.



Autonomous solution 5G system

Designed for isolated scenarios without national control room connectivity

Backhaul Requirements (for interconnection):

- **Basic operation: ~100 Mbps**
- **Recommended: 200-300 Mbps to support:**
 - Control plane traffic
 - Roaming signaling (e.g., N9/N6/N2 interfaces)
 - QoS enforcement
 - Buffering and retransmissions





LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère d'État

Service connectivités radio critiques

