

# A novel combination of mast and lidar enabling 300m reference measurements

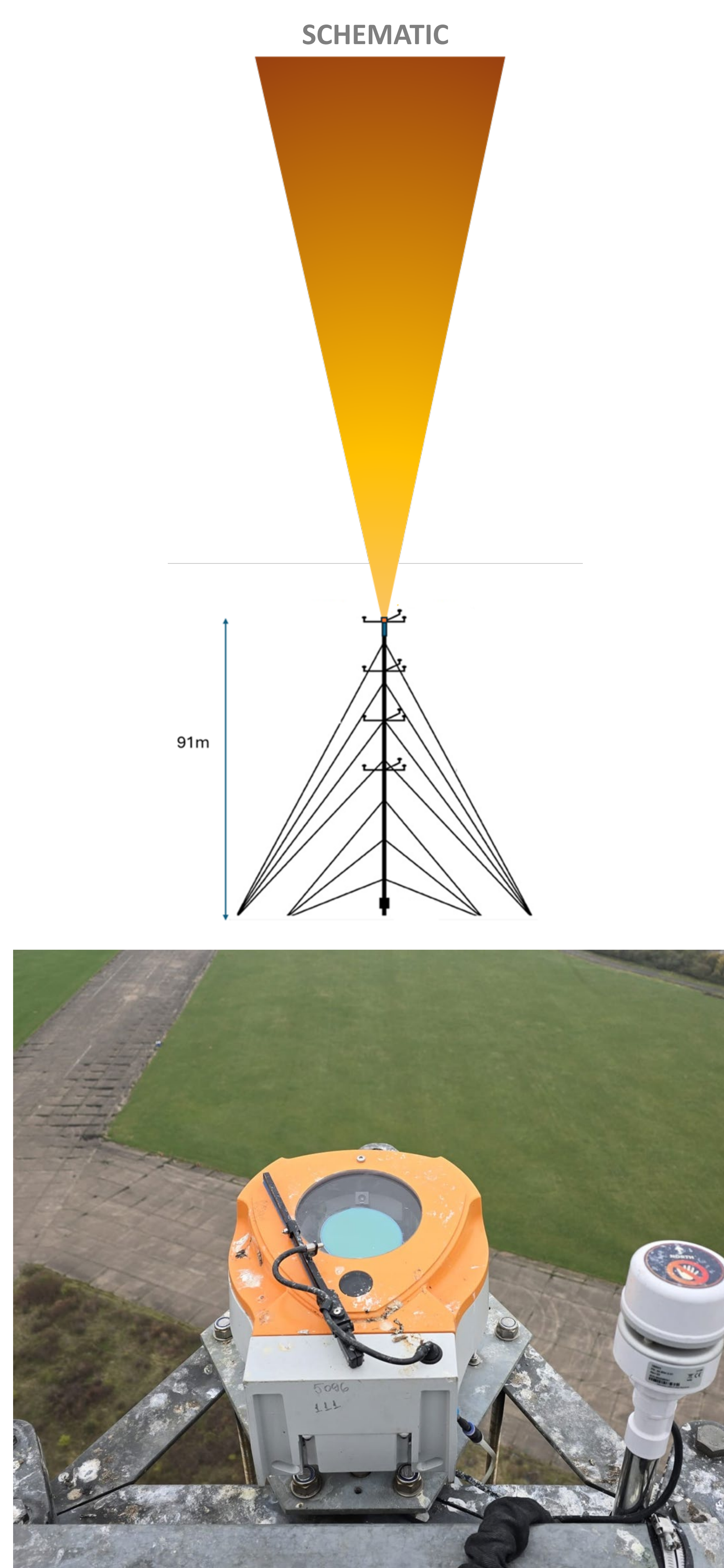
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ZX Lidars

By mounting a verified lidar on top of a 91m mast, the normal mast reference measurement heights were extended to above 200m.

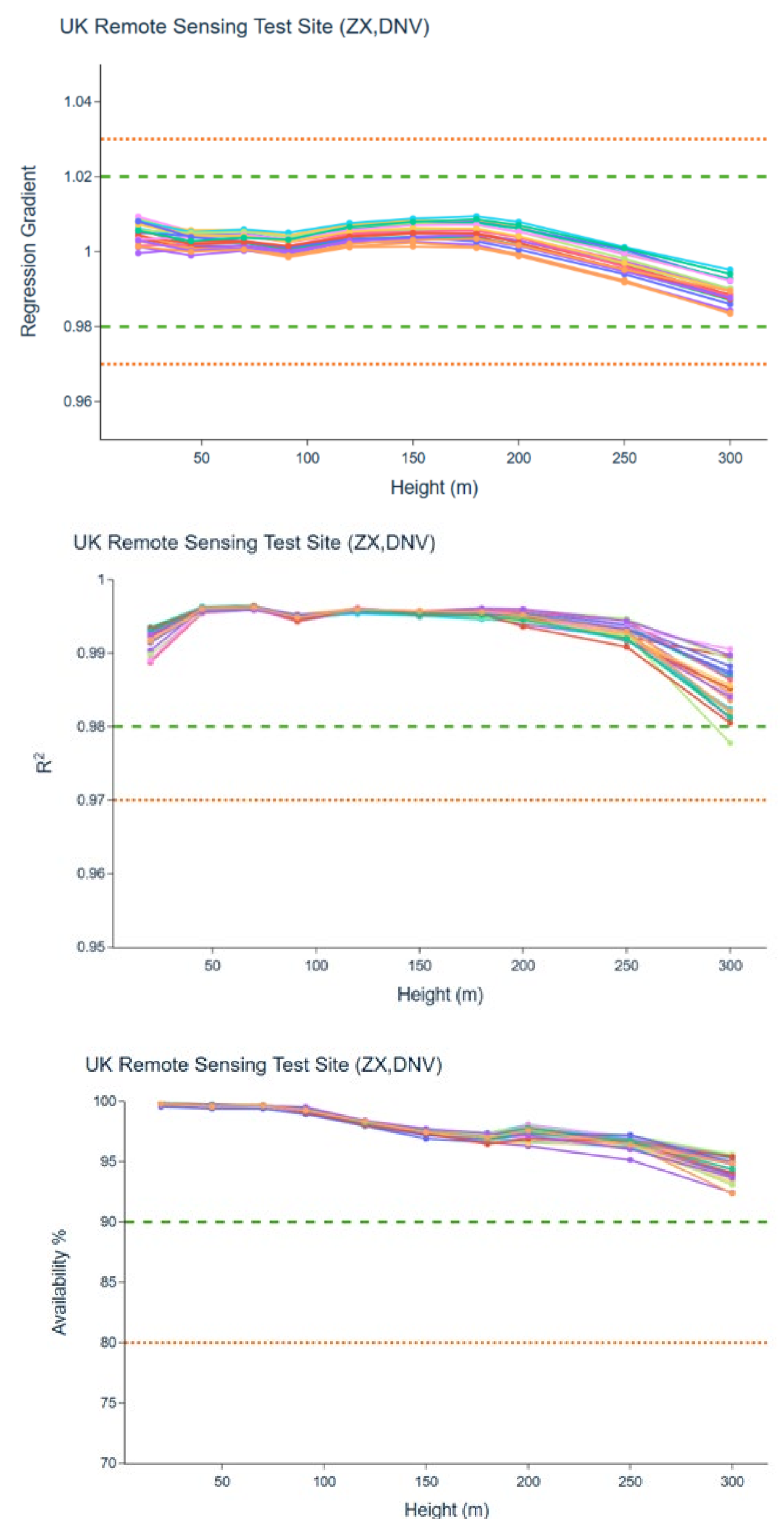
This configuration is called the Midar ('Mast' + 'Lidar') and was validated successfully against a 200m classified ground-based lidar.

This demonstrates the operational capability of the Midar as a reference for wind speeds and a fleet of lidars were verified against it up to 300m.

- The Midar consists of a verified continuous-wave lidar mounted at the top of a 91 m meteorological mast, extending reference measurement heights to above 200 m.
- The system employs a 30-degree scanning wedge and is operated at the UK Remote Sensing Test Site jointly managed by ZX and DNV.
- The unit belongs to the ZX300 series which is classified up to 100m and was verified against the mast at the UK Remote Sensing Test Site from the 1<sup>st</sup> of October to the 1<sup>st</sup> of December 2021. At all heights, the DNV/IEC verification requirements were met with gradients within +/- 1% of unity and coefficients of determination ( $R^2$ ) greater than 0.99.
- A verified ZX 300e unit, which is classified up to 200m, was then used to verify the Midar up to 200m. The gradients and  $R^2$  met the DNV/IEC best-practice acceptance criteria.
- A fleet of 25 ZX 300e units was deployed at the UK Remote Sensing Test Site with measurement heights configured up to 300 m, exceeding the height range of existing tall-mast reference infrastructure.
- Across the full fleet and at all measurement heights up to and including 300 m, the average correlation gradients were found to be within  $\pm 2\%$  of unity, meeting DNV best-practice acceptance criteria. The average coefficients of determination exceeded 0.985 at all heights, with data availability greater than 94% [1].



## KPIs AGAINST THE MIDAR UP TO 300m



[1] ZX 300e Introduction and Performance Credentials, 24 Sept. 2025