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## PRESS RELEASE

*For immediate release*

### REMOTE SENSING SENSITIVITIES WORKSHOP BUILDS MOMENTUM TOWARDS TRANSITION FROM SCALAR TO VECTOR WIND RECONSTRUCTION

*Paris, France, 18<sup>th</sup> June 2018.* **As part of an event organised in Vilnius last month by WindEurope, Deutsche WindGuard and Leosphere held a joint workshop to explore remote sensing sensitivities and showed ways to reduce them.**

At the event, Deutsche WindGuard presented the results of the third independent classification campaign it recently conducted to assess the Windcube ground-based lidar sensitivities to environmental conditions following the IEC 61400-12-1 ed2 2017 standard. An in-depth explanation of the results was presented by Leosphere, as well as a way to reduce sensitivities further by using vector averaging. It is expected that the findings will be beneficial for most remote sensors.

#### Workshop highlights

Key points covered at the workshop included:

- the sensitivity of Windcube RSDs in certain environmental conditions. Deutsche WindGuard's tests indicated deviations from cup anemometers of around 4% at low wind speeds in specific conditions. This sensitivity was found to be primarily the result of uncorrelated turbulence on RSDs based on lidar-pulsed technology using scalar averaging for the reconstruction of wind speed.
- the use of a vector definition of the wind to remove the discrepancy between this data and figures obtained via cup scalar averaging, resulting in a close match between RSD and cup across a large span of turbulence intensity<sup>1</sup>.
- the observation that exploratory work for wind speed calculated via velocity azimuth display (VAD) shows sensitivity to turbulence intensity in the opposite direction. It was noted that further study is needed to confirm this observation.

Axel Albers, managing director of Deutsche WindGuard, said, "Scalar averaging has been identified as a key driver of the relatively high sensitivities of the wind speed measurement by monostatic RSDs on environmental variables. By the implementation of vector averaging, the measurement uncertainty due to the sensitivities is reduced significantly. As a consequence, it is expected that scalar averaging will be replaced by vector averaging in the standard operating software of most RSDs."

"Before this event I would never countenance using a lidar without a hub height met mast," said Ioannis Antoniou, Senior Key Expert Advisory Engineer at Siemens Gamesa. "Now we are one step closer to being able to use remote sensing data on its own."

"To the best of our knowledge, Windcube is the only lidar in the market so far to have achieved full IEC 61400-12-1 ed2 2017 compliance via an independent third party recognized worldwide," said Peter Spencer, Chief Marketing Officer (CMO) for Leosphere. "This workshop was a great opportunity for us to share details of the findings and to discuss operating parameters with international organisations for whom the accuracy of wind speed testing is a major requirement. The

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<sup>1</sup> The vector averaging of the RSD does not modify the application of standards, since the RSD using it is calibrated against a cup, which thus ensures traceability to national standards.

presentations were very well received, and we're delighted to have received validation not only from this classification but also positive feedback for the transition to vector averaging from so many significant players."

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**NOTE TO EDITORS:**

**About LEOSPHERE**

LEOSPHERE, founded in 2004, is the world leader in ground-based and nacelle-mounted LIDAR (Light Detection and Ranging) for atmospheric observation. The company designs, develops, manufactures, sells and services remote-sensing instruments for precise accurate wind measurement and aerosol characterization. LEOSPHERE has deployed over a thousand LIDARs throughout the world. [www.leosphere.com](http://www.leosphere.com)

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