88/945/NP

NEW WORK ITEM PROPOSAL (NP)

PROPOSER:	DATE OF PROPOSAL:
Secretariat	**2023-03-15**
DATE OF CIRCULATION:	CLOSING DATE FOR VOTING:
2023-03-17	**2023-06-09**

IEC TC 88 : WIND ENERGY GENERATION SYSTEMS

SECRETARIAT:	SECRETARY:
Denmark	Mrs Christine Weibøl Bertelsen
NEED FOR IEC COORDINATION:	PROPOSED HORIZONTAL STANDARD ☐ Other TC/SCs are requested to indicate their interest, if any, in this NP to the TC/SC secretary

FUNCTIONS CONCERNED:

☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY

TITLE OF PROPOSAL:

Wind energy generation systems – Part 50-5:Use of scanning doppler lidars for wind measurements

☐ STANDARD ☒ **TECHNICAL SPECIFICATION**

PROPOSED PROJECT NUMBER: 61400-50-5

SCOPE
(AS DEFINED IN ISO/IEC DIRECTIVES, PART 2, 14):

The purpose of the proposed technical specification is to provide general requirements and guidelines to ensure that scanning Doppler Lidar wind measurements meet the level of quality and reliability required for each use case.

This technical specification includes use cases such as pre-construction wind resource assessment and site suitability assessment, with a primary focus on wind measurements with scanning Doppler Lidar.

The technical specification includes guidance on:

- Lidar technology requirements
- Calibration and classification process
- Calculation of intermediate measurement uncertainty
- Lidar installation
- Data filtering and analysis
- Calculation of final measurement uncertainty
- Reporting format

The main challenge is to define requirements specific enough to ensure measurement consistency, repeatability and accuracy.

This proposal is not limited to onshore-to-offshore method, and includes all offshore and onshore cases in its scope. However, since it may not be applicable on onshore, the applicable conditions are described in the text.

PURPOSE AND JUSTIFICATION

INCLUDING THE MARKET RELEVANCE AND WHETHER IT IS PROPOSED TO BE A HORIZONTAL STANDARD.

MARKET RELEVANCE SHOULD BE ADDRESSED BY INDICATING THE NEED FOR THE CORRESPONDING STANDARDS WORK AND ITS GLOBAL RELEVANCE (SEE ISO/IEC DIRECTIVES, PART 1 ANNEX C)

IF PROPOSED AS A HORIZONTAL STANDARD, IDENTIFY AS POSSIBLE, THE CORRESPONDING APPLICABLE GUIDE(S) AND ASSOCIATED ADVISORY COMMITTEE(S) (SEE GUIDE 108).

The existing IEC61400-50 series describes wind speed measurements using meteorological mast and remote sensing devices (RSD) such as Doppler Lidar, as shown below.

- IEC 61400-50-1 deals with guidance for meteorological mast measurements.
- IEC 61400-50-2 provides guidance for ground-based RSD measurements.
- IEC 61400-50-3 deals with guidance on the use of nacelle-mounted Lidar.
- IEC 61400-50-4 deals with guidance on the use of floating Lidars.

On the other hand, in the development of offshore wind farms with relatively short offshore distances, there is a need to accurately evaluate offshore wind speed and turbulence intensity for resource and site suitability assessments, especially in areas with complicated coastal topography. Recent studies have shown that onshore installed scanning Doppler Lidar(s) can measure offshore wind speed accurately. It has been also shown that turbulence can be measured by using multiple scanning Doppler Lidars. These technologies have been used in some offshore projects and are expected to be widely deployed in future projects. Therefore, standardization of these technologies is required.

PLEASE SELECT ANY UN SUSTAINABLE DEVELOPMENT GOALS (SDGS) THAT THIS DOCUMENT WILL SUPPORT. FOR MORE INFORMATION ON SDGS, PLEASE VISIT OUR WEBSITE AT HTTPS://WWW.IEC.CH/SDG/

☐ GOAL 1: No Poverty	☐ GOAL 10: Reduced Inequalities
☐ GOAL 2: Zero Hunger	☐ GOAL 11: Sustainable Cities and Communities
☐ GOAL 3: Good Health and Well-being	☐ GOAL 12: Responsible Consumption and Production
☐ GOAL 4: Quality Education	☒ GOAL 13: Climate Action
☐ GOAL 5: Gender Equality	☐ GOAL 14: Life Below Water
☐ GOAL 6: Clean Water and Sanitation	☐ GOAL 15: Life on Land
☒ GOAL 7: Affordable and Clean Energy	☐ GOAL 16: Peace, Justice and Strong Institutions
☐ GOAL 8: Decent Work and Economic Growth	☐ GOAL 17: Partnerships for the Goals
☐ GOAL 9: Industry, Innovation and Infrastructure	

TARGET DATE(S)	FOR FIRST CD: 2025-01-15	FOR TS: 2026-06-30	
ESTIMATED NUMBER OF MEETINGS:	FREQUENCY OF MEETINGS:	DATE OF FIRST MEETING:	PLACE OF FIRST MEETING:
10	6 per year	2023-10-15	Place and precise date TBD

RELEVANT DOCUMENTS TO BE CONSIDERED:

IEA Wind TCP Task52, IEC61400-50 series

RELATIONSHIP OF PROJECT TO ACTIVITIES OF OTHER INTERNATIONAL BODIES:

TC88 MT 50

LIAISONS WITH INTERNATIONAL BODIES:	NEED FOR ISO COORDINATION:
IEA	

DOCUMENT MATURITY:

☐ A DRAFT IS ATTACHED FOR COMMENT* ☒ AN OUTLINE IS ATTACHED

* Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

CONCERNS KNOWN PATENTED ITEMS (SEE ISO/IEC DIRECTIVES, PART 1) ☐ YES ☒ NO

PATENT DESCRIPTION:

WE NOMINATE A PROJECT LEADER IN ACCORDANCE WITH ISO/IEC DIRECTIVES, PART 1

LAST NAME:	FIRST NAME:	E-MAIL:	COUNTRY:
Yamaguchi	Atsushi	yamaguchi.atsushi@g.ashikaga.ac.jp	Japan

COMMENTS AND RECOMMENDATIONS FROM TC/SC OFFICERS:

WORK ALLOCATION:

☒ NEW PROJECT TEAM ☐ NEW WORKING GROUP ☐ EXISTING WORKING GROUP:

IF APPROVED, THE NEXT STAGE SHOULD BE:

☒ CD ☐ DTS

REMARKS FROM TC/SC OFFICERS:

IEC national committees with P-membership status wishing to participate in the development of this new project are invited to appoint experts.

APPROVAL CRITERIA

- Approval of the new work item proposal by a 2/3 majority of the P-members voting;
- At least 4 P-members in the case of a committee with 16 or fewer P-members, or at least 5 P-members in the case of committees with more than 17 P-members, have nominated or confirmed the name of an expert and approved the new work item proposal.

Outline NP TS 61400-50-5