

ISO 10816-21:2015-05 (E)

Mechanical vibration - Evaluation of machine vibration by measurements on non-rotating parts - Part 21: Horizontal axis wind turbines with gearbox

| Contents | | Page |
|--|--|-------------|
| Foreword | | iv |
| Introduction | | v |
| 1 | Scope | 1 |
| 2 | Normative references | 2 |
| 3 | Terms and definitions | 2 |
| 4 | Basic principles | 2 |
| 4.1 | Measurement and characteristic quantities | 2 |
| 4.2 | Averaging methods and evaluation quantities for wind turbine vibration | 3 |
| 4.3 | Evaluation period | 3 |
| 5 | Instructions on measurement and interpretation | 4 |
| 5.1 | General | 4 |
| 5.2 | Nacelle and tower | 4 |
| 5.3 | Rotor bearing | 5 |
| 5.4 | Gearbox | 5 |
| 5.5 | Generator | 6 |
| 5.6 | Requirements for the measurement equipment | 6 |
| 5.7 | Mounting and connection of the vibration transducers | 7 |
| 5.8 | Operating conditions during measurements | 7 |
| 6 | Evaluation criteria | 8 |
| 6.1 | General | 8 |
| 6.2 | Evaluation zones | 8 |
| 6.3 | Change in vibration magnitude | 9 |
| 7 | Evaluation zone boundaries | 9 |
| 8 | Setting of operational limits | 9 |
| 8.1 | General | 9 |
| 8.2 | ALERT limits | 10 |
| 8.3 | ALARM limits | 10 |
| 8.4 | TRIP limits | 10 |
| 9 | Information on vibration monitoring | 10 |
| 9.1 | Monitoring broad-band vibration | 10 |
| 9.2 | Condition monitoring | 10 |
| Annex A (informative) Evaluation zone boundaries | | 12 |
| Annex B (informative) Schematic diagrams of two typical wind turbine designs with gearbox | | 13 |
| Bibliography | | 15 |