



Minutes of COST TU1402 WG 5 Workshop

Objective

The objective of WG 5 Workshop is the preparation of outlines for the central WG5 deliverables and the coordination of the standardisation activities.

Deliverables

The workshop outcomes are factsheets encompassing an outline and plan for the WG5 deliverables according to the TU1402 Memorandum of Understanding and for documenting standardisation organisations, including contact persons and options for standardisation work according to the TU1402 Strategy 2017 and 2018. The deliverables of WG5 are:

1. A chapter to the Probabilistic Model Code of the JCSS covering the theoretical and methodological aspects of the quantification of the value of SHM.
2. A guideline on the quantification of the value and optimization of SHM with detailed examples aimed specifically at practising engineers.

Date, Time and Venue

17.10.2017, 08:30 to 16:00

ARISTO AMSTERDAM, Teleportboulevard 100, Amsterdam, Netherlands (Train station Amsterdam Sloterdijk; 15 min by train from Schiphol Airport)

Local Organiser

Sebastian Thöns

Attendees

Ton Vrouwenvelder, Michael H. Faber, Jochen Köhler (part time via Skype), Robby Caspeelee, Raphael Steenbergen, John D. Sørensen, Dimitris Diamantidis, Miroslav Sykora, Sebastian Thöns



Agenda

<p>Welcome and Introduction</p> <ul style="list-style-type: none">▪ Introduction of WG5 objectives according to the MoU by Sebastian Thöns▪ Presentation by Michael H. Faber on “Aspects of Standardization of Vol in SHM”▪ Presentation by Dimitris Diamantidis and Miroslav Sykora on “Background ideas related to SHM guidelines”
<p>Joint work on an outline and plan for deliverables of WG 5 (all)</p> <p>A table of contents for two documents, namely (1) a JCSS background document and (2) a guideline for practising engineers have been jointly created (Appendix 1).</p>
<p>Plan for the involvement in standardisation organisations (all)</p> <p>A list of standardisation committees and organisation for action result dissemination have been document in Appendix 2.</p>
<p>Work plan</p> <p>A WG 5 internal work plan has been created which is documented in Appendix 3.</p>



Appendix 1

Table of Contents for a JCSS Background Document on Quantifying the Value SHM Information

1. General framework
2. SHM decision situations/decision-event tree modelling
3. Principal probabilistic SHM indicator modelling
4. Decision rules relating observations/indicators to actions
5. Strategies of SHM (indicators/techniques/timing/ placement)
6. Principle example

Table of contents for a guideline for practising engineers

1. General scope
2. Decision objectives
3. Normative references
4. Definitions and notations
5. Asset and portfolio information
6. Structural performance modelling
 - a. Function, failures, deterioration, loading
7. Monitoring strategies
 - a. Monitoring systems and indicators
 - b. Relation between indicators and performance
8. Intervention actions / structural integrity management options
9. Life cycle cost modelling
10. Decision and Value of SHM Information analysis
 - a. Updating of the structural performance
 - b. Evaluation of alternatives
 - c. Optimization
 - d. Documentation of the decision
11. Examples
 - a. WG4 Case studies selection and discussion



Appendix 2

European and International Standardisation

- Fib commission 3, TG 3.3 (headed by Alfred Strauss and Jose Matos) focus on monitoring: dissemination of TU1402 results for consideration in fib MC 2020
- ISO 13824 risk assessment (Tsuyoshi Takada) under small revision
- Eurocodes:
 - EN 1990, SC10: Commenting to include a clause (coordinated by John, Michael)
 - TC250, WG2: Dissemination of TU1402 results and suggestion of an action point
 - IEC 61400: Proposal for a standard for assessment of existing wind turbines, to be followed up by John D. Sørensen
 - DNV/GL: Option of dissemination of TU1402 results



Appendix 3

WG5 Organisation and Work Plan

Responsible for JCSS Background Document: Sebastian Thöns and Michael H. Faber

Responsible for the guideline: Dimitris Diamantidis and Jochen Köhler for the part of the examples

Working process

- JCSS Background document with extended table of contents, mid November 2017 by Michael H. Faber
- Extended table of contents of the guideline (Dimitris, Raphael, Robby (chapter 10), Jochen) by mid-January 2018
- Next meetings
 - Coordination after the JCSS meeting on the 18th of January 2018
 - Next physical WG5 meeting 12.03.2018, in Berlin
 - Skype meetings will be organised for coordination in between