

Report on Working Progress in WG29 (and Relevant Meetings in Berlin April 23-27 2007) ISO/TC108 Mechanical Vibration and Shock

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Topics in ISO/TC108 WG 29

**18312: Measurement of vibration power flow from machines into connected support structures
(1 Direct and 2 Indirect method)**



Working Progress of WG29

- **When?:** Preliminary survey on NWI
- **Aug. 12 2003:** N860 Rev.1
 - Result of voting on new work item proposal prepared by Mr. C. B. Popkov, Russia
 - Measurement of vibration power flow from machine into connected support structures – **Part 2:** Indirect method
 - Total number of points awarded by voting P-members - 116
 - Total of P-members voting - 7 (Minimum **5**)
 - Average points per P-member voting - 16.57 (Minimum=**15**)



- Project number 18312-2 registered by the central secretariat
- New working group 29 established by 5 experts from 5 countries (Ca, Fr, Kr, Rs, Us)
- Target date of finishing of work: Aug. 2006
- Dec. 10 2003: First draft circulated
- Jan. 20 2004: Comments including those by kj circulated
- Feb. 10 2004: First WG29 meeting held during ISO/TC108 meeting in Adelaide, convened by secretary of SC6, Mr. Igor Szajniak, instead of Mr. Popkov; two resolutions made

Two Resolutions in the First WG29 Meeting

- TC 108 requests the Secretariat to circulate WD 18312-1 *Mechanical vibration and shock – Measurement of vibration power flow from machines into connected support structures – Part 1: Indirect method*, to the member bodies as a CD for vote and comment **when the revised text of N 1 is received** from the Convenor of WG 29.
- Same as above for – *Part 2: Direct method*.

- Nov. 18 and Dec. 15 2004: 2nd Working Drafts circulated
- Jan. 31 2005: Comments by kj submitted
- March 23 2005: Comments on the 2nd WD 18312-1 and 2 circulated
- April 7 2005: (N913 & 914) CD 18312-1 and 2 (The order of 'Direct' and 'Indirect' interchanged proposed by kj) circulated on Feb. 7 2005 for voting.
- July 13 2005: (N922) So many comments on the CD 18312-1 and 2 circulated.

- **Sept. 2 2005: Resolution 6 in Toronto ISO/TC108 meeting where, the convener was not present, In view of the time constraints imposed by ISO, difficulties with the English text and the large number of comments, TC108 decides that **both work items revert to the classification of "Preliminary work item."** **TC 108 appreciates the work of Mr Popkov (Russia) and asks that he develops the documents further. Messrs Andrey Smirnov (Russia) and Kwang-Joon Kim (Korea) are asked to continue to **liaise with the convener** to improve the work item.****

- **Jan. 10 2007:** New drafts on ISO 18312-1&2 received by kjkim from Mr. Popkov
- **Feb. 5 2007:** Drafts revised by kj sent to Mr. Popkov
- **March 18 2007:** Strong responses received by kj from Mr. Popkov
- **March 22 2007:** kj's responses sent to Mr. Popkov
- **April 24 2007:** Members will meet at WG29 meeting in Berlin
- **May 10 or 11 2007:** More reports to KSNVE on results of Berlin meeting



Some of Mr. Popkov's responses on March 18 2007

- **No one can dictate to Russian side** about who should be attracted to working on one or another standard. Each TC 108 member decides it himself. **Mr. Szajniak and Mr. Smirnov exceeded their commission delegated for WG 29 working.** Mr. Szajniak and especially Mr. Smirnov will not take part in ISO 18312 working.
- **At the moment I can't use your(kj's) materials for making the compiled comments,** as they are not composed in ISO frame but in form of new ISO standard edition

- The thesis about that the measured power allows comparing machines, equipments and pipelines as a vibration sources and the thesis that information about the power allows determining the vibration control extend and its place is **based on my 45-years experience** of measurements and usage of information about power flow of hundreds and hundreds machines, equipments and pipelines in shipbuilding, aviation and railway transport.
- You can become acquainted with materials, confirming these recommendations, in the following **(14) literatures**.
- **On what experience is based your opinion, that the information about power flows should not be used for abovementioned goals?**

- The given (kj's) research results give rise to doubt. More over, the **research object is too small**. As seen from article, the measurements scheme is not accurately organized, that is the reason of such an unacceptable result.
- You(kj) propose to use in ISO 18312 **the vibration power spectral density, emitted by machine, as a measured parameter**. You presented the obvious formulas for cross-spectrum density of forces and velocities for the case of harmonic oscillations. In other words, the power cross-spectrum is derived in frequency band. The discrete index choice allows measuring the cross-spectrum with various bands of frequency resolution.

kj's responses

- I have **never insisted** on getting anybody into ISO 18312. Further, Mr. Szajniak was not present at the WG29 meeting in Toronto.
- I thought that **my draft to you was not a formal comment but useful to you**. Another reason I wrote the draft is that your draft needs revision beyond word by word.
- **It's up to you whether you utilize my draft**. I revised your draft that way just because it is efficient.
- I agree with you that **the method can be applied to various problems**. Thank you for your kind literature information below. I assume that **you should be one of great scholars inside Russia as well as over the world**.

- I have never said that the power flows should not be used for the goals you mentioned.
- Yes, our research results might be a peanut. Yet, I think I can do something for you to make your draft go forward.
- Nowadays, few people use analogue instruments as you know. ‘Spectrum’ and ‘spectral density function’ are interchangeable used. As long as signal analyzer based on FFT is used, the point requiring a great care is the dimension or physical unit of the calculated results. For more clarity, however, your draft may be better. Note that the commercial analyzers don’t distinguish harmonic signals from random signal automatically. They can present the results, in discrete frequency domain, either in V^2 per Hz or V^2 .