

ASA S12 Committee on Noise
Working Group (WG) 47 – Underwater Noise Measurement of Ships

Second *WebEx* Meeting February 12, 2009

MINUTES

Here is a very brief set of minutes from the WebEx meeting.

1. Review Table 1 from Revision 05

Review table and made changes as noted on the attached page. If anything was forgotten by the Chair please let him know.

2. Definition Changes

See attached list which shows definition status. Need definition of Sea State 2 and Sea State 3 and Overall Ship Length from naval architects (Ben Racine and David Bonney). Need Sound Velocity Profile definition from

3. Need Volunteers to write following Sections:

- a. Section 8 – Basis of Acceptability: Section to be removed.
- b. Section 9 – Reporting/Example: Bob Myers and Kevin O’Neill to provide “laundry list of items to record and put into reports. Val Schmidt to prepare example MATLAB code for computation of overall underwater noise. Assume inputs are process 1/3 octave band values and output is 1/3 octave band results.
- c. Section 10 – Application Guidance General Notes: Section to be removed.

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Table 1 – Summary of measurement grades

Grade	A	B	C
Grade name	Precision Method	Engineering Method	Survey Method
Measurement uncertainty	± 2 dB	± 3 dB	± 4 dB
Measurement repeatability	± 1 dB	± 2 dB	± 3 dB
Broadband resolution	One-third octave band	One-third octave band	One-third octave band
Broadband frequency response	10 to 50,000 Hz	20 to 25,000 Hz	50 to 10,000 Hz
Narrowband measurements	Required	As Needed	As Needed
Number of Hydrophones	Three	Three	One
Hydrophone geometry	Figure 1	Figure 1	Figure 2
Hydrophone Depth(s)	15°, 30°, 45° angle	15°, 30°, 45° angle	15° angle
Minimum water depth	Greater of 200 m or 2x overall ship length	Greater of 150 m or 1.5x overall ship length	Greater of 50 m or 0.5x overall ship length
<u>Minimum</u> distance at Closest Point of Approach (CPA)	Greater of 100 m or 1x overall ship length		
Distance ranging accuracy (at CPA)	2%	2%	5%
CPA position	Acoustic center	Ship center to propeller (user selectable)	Ship center
CPA position	Acoustic center		
CPA position	Acoustic center		
Data window averaging time	≤ 1 seconds	≤ 2 seconds	One overall sample
Minimum Number of Runs per Condition	4 Total 2 Port 2 Starboard	4 Total 2 Port 2 Starboard	4 Total, at least one starboard and one port
Recommended weather/sea conditions	None, but shall achieve requirements of 6.2	≤ Sea State 3	
Auxiliary measurements	Engine (shaft) speed, wind speed and direction, sound velocity profile	Engine (shaft) speed, wind speed and direction	Engine (shaft) speed, wind speed and direction
Hydrophone laboratory calibration	Yes	Yes	Yes
System insert voltage calibration	Required over full frequency range	Single frequency and optional to field calibration.	Single frequency and optional to field calibration.
System field calibration	Optional	Single frequency and optional to insert voltage calibration	Single frequency and optional to insert voltage calibration

Deleted: Data window angle (± CPA)

Deleted: ±30°
±30°
±30°

Deleted: Data Window Time, seconds
Data Window Length, meters

Deleted: Figure 3

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WG-47 DEFINITIONS REQUIRING WORK

NEED FROM ACOUSTICS PROFESSIONALS

Sound Velocity Profile

NEED FROM NAVAL ARCHITECTS

Overall Ship Length

Sea State 2

Sea State 3

DEFINITIONS REMOVED AS NOT USED IN STANDARD

CPA Reference

Broadband Frequency Resolution

Narrowband Frequency Response

Narrowband Frequency Resolution

Spherical Spreading

DEFINITIONS REMOVED AS IN TERMINOLOGY STANDARD ANSI S1.1

none

DEFINITIONS REMOVED AS NOT NEEDED DUE TO COMMON USE

Grade A Measurement

Grade B Measurement

Grade C Measurement

Distance Ranging Accuracy

Range

Vessel Under Test

Water Depth

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WEBEX CHAT

February 12, 2009 10:31:06 AM from Noise Control Engineering
to All Participants: Getting on phone now.

February 12, 2009 10:50:56 AM from John Diebold to All Participants: Bowditch
Appendix R = Beaufort Scale with corresponding sea state codes

February 12, 2009 11:00:29 AM from John Diebold
to All Participants: from www.fas.org/man/dod-101/navy/docs/es310/SNR_PROP/snr_prop.htm - A
plot of propagation speed (velocity) as a function of depth, is called the sound velocity profile (SVP), and it
is the fundamental tool for predicting how sound will travel. Neglecting

February 12, 2009 11:01:09 AM from John Diebold
to All Participants: salinity, the SVP can be obtained from sampling the ambient temperature at
various depths (the pressure contribution never varies). An inexpensive probe to do this is called an
expendable bathythermograph (XBT).

February 12, 2009 11:04:33 AM from Val Schmidt
to All Participants: John, what version of Bowditch do you have?

February 12, 2009 11:04:52 AM from Val Schmidt
to All Participants: There's a 2002 edition online here:
http://www.nga.mil/portal/site/maritime/?epi_menuItemID=c56aa099e2bff9525b2a7fbd3227a759&epi_menuID=35ad5b8aabcefa1a0fc133443927a759&epi_baseMenuID=e106a3b5e50edce1fec24fd73927a759

February 12, 2009 11:05:06 AM from Val Schmidt
to All Participants: But I'm not able to find Appendix R.

February 12, 2009 11:17:12 AM from John Diebold
to All Participants: good source - it's in Chap. 37 p. 537 - 543 but in pictures, no longer a table.

February 12, 2009 11:18:57 AM from John Diebold
to All Participants: my paper copy is H.O. Pub. #9, 1966

February 12, 2009 11:43:05 AM from Val Schmidt
to All Participants: I apologize everyone - I have to drop off. I'll be in touch.

February 12, 2009 12:09:18 PM from Bob Myers
to All Participants: Have to drop off - another webex!!

February 12, 2009 12:10:14 PM from Mike Jech
to All Participants: need to go

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AGENDA

4. Review Table 1 from Revision 05
5. Definition Changes
6. Need Volunteers to write following Sections:
 - a. Section 8 – Basis of Acceptability
 - b. Section 9 – Reporting/Example
 - c. Section 10 – Application Guidance General Notes
7. Next Meetings:
 - a. February 23 to 25th, 2009, Florida Atlantic University (Ft Lauderdale, FL)
 - 2/23, 2-5pm: Review notes from Woods Hole Meeting and go over changes from Rev 3 to 4.
 - 2/24, 9am- 5pm: Full day of specification Review, Sections 1-6
 - 2/25, 9am to 5pm: Finish any business from previous day, plan for next meeting, and/or next revision.
 - b. May 20, 2009, 1:30 to 3:30pm, Portland, OR ASA Meeting