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Memo

Microphone windbubbles measurements

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Title Microphone windbubbles measurements

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Summary DELTA has carried out frequency response and shield effect measurements on windbubbles' s from Bubblebee Industries.

The results show negligible influence on the microphone frequency response, and a remarkably positive effect in reduction of wind noise by 30-35 dB.

See memo for further details.



Gert Ravn
Laboratory Manager

DELTA
Danish Electronic, Light & Acoustics
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Microphone windbubbles measurements

DELTA - Danish Electronics, Lights and Acoustics is a knowledge centre which among other topics specializes in electro-acoustic, psychoacoustics and technical audiology relating to human hearing e.g. test methods, hearing instrument technology and audiometric equipment.

DELTA has carried out measurements on windbubbles from BUBBLEBEE INDUSTRIES. The measurements comprises of two part's to characterize the effect:

- Frequency response measurement in anechoic chamber to discover eventual degrading of microphone response due to the placement of the windbubbles.
- Shield effect in wind tunnel to show the efficiency of the windbubbles to suppress wind noise in the microphone.

Frequency response measurements are carried out at DELTA, Edisonsvej 24, Odense on July 28th 2011. Shield effect measurements are carried out at FORCE Technology, Hjortekærvej 99, Kgs. Lyngby on September 6th 2011.

All measurements were carried out using Sanken COS -11 and Sanken CUB01 microphones

Comments – Frequency response

Frequency response measurements show that the effects of attaching the windbubbles on the microphone are negligible.

Very small influence is seen around the 5 kHz resonance peak of the microphone which is slightly increased, and followed by a slightly steeper roll-off when compared to the reference situation without the windbubbles.

The effects are estimated to be very minor and inaudible during use of the microphone with the windbubbles.

Comments – Shield effect

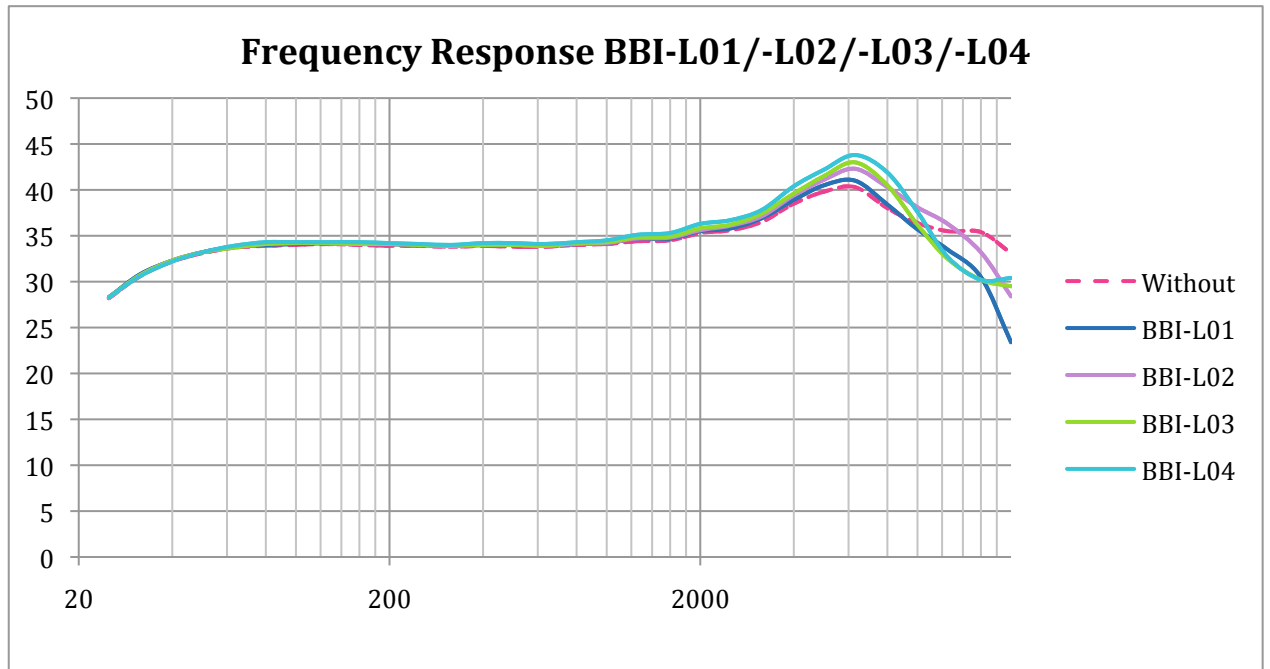
Shield effect in wind tunnel to show a notable positive effect of the windbubbles. Low frequency noise in the area 20-200 Hz is reduced up to 35 dB. All measurements are made in direct turbulent air, as it occurs in nature.

Use of the microphone without windbubbles is estimated to be impossible in wind speed from 5 meters per second and upwards. The shielding effect of the windbubbles reduces low frequency noise sufficiently to make use of the microphone possible in wind speed's ranging from 5 to 15 meters per second or even higher dependent of program material.

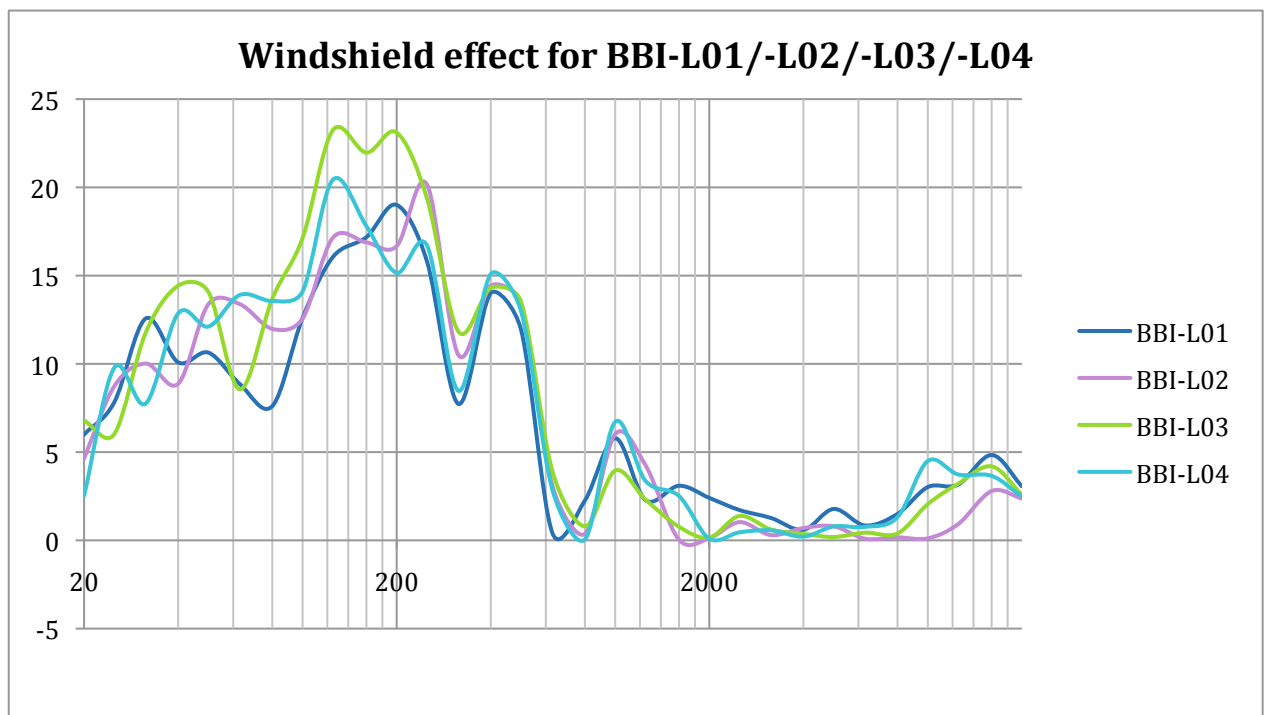
Measurement results made with

BBI-L01 Sanken COS-11 (without metal windscreen) **BBI-L02** Sanken COS-11 (with metal windscreen)
BBI-L03 Sanken COS-11 (with metal windscreen) **BBI-L04** Sanken COS-11 (with large metal windscreen)

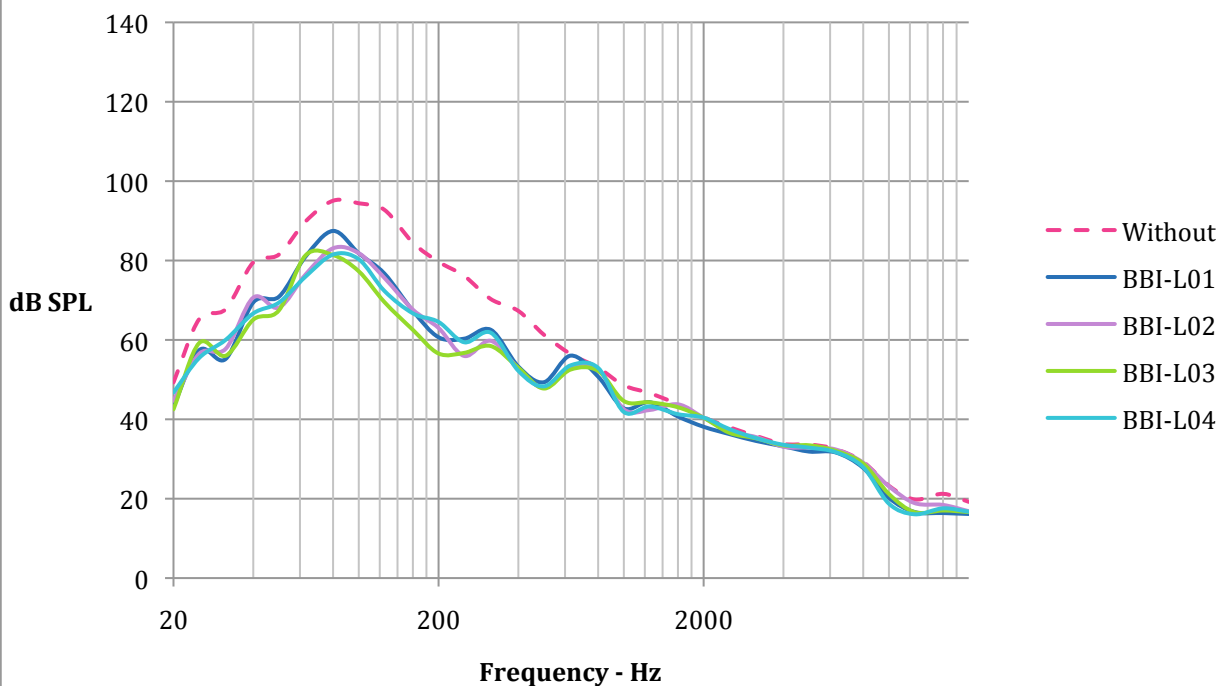
Frequency response



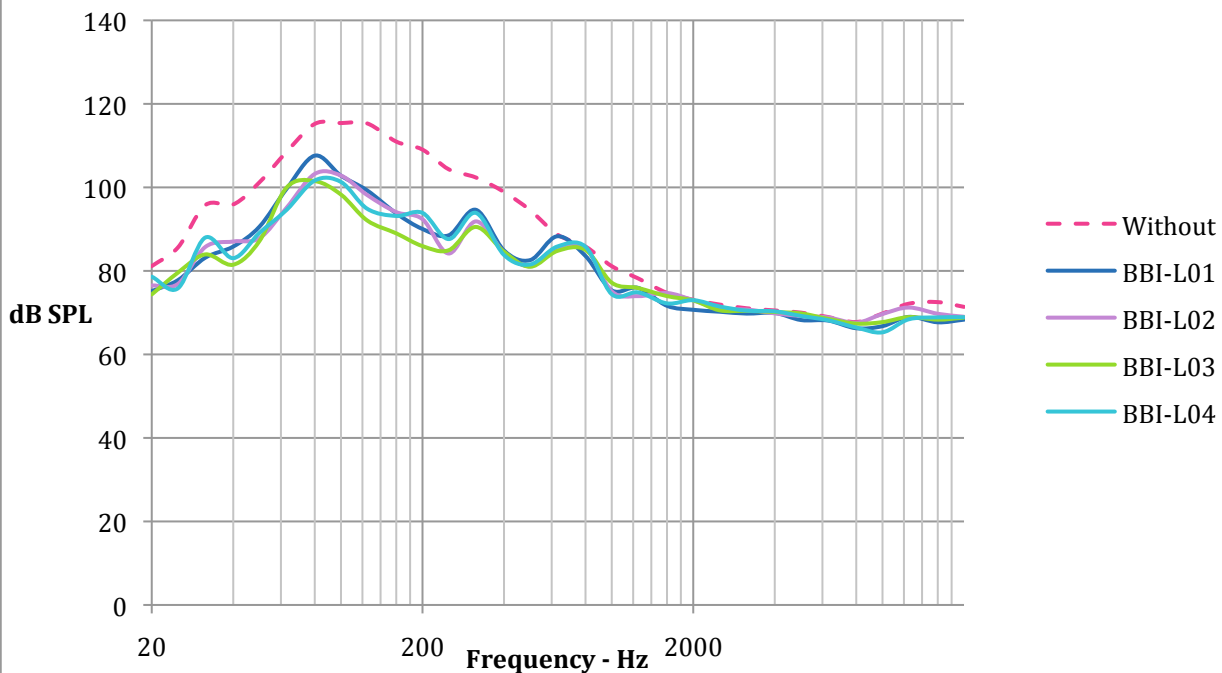
Windshield results

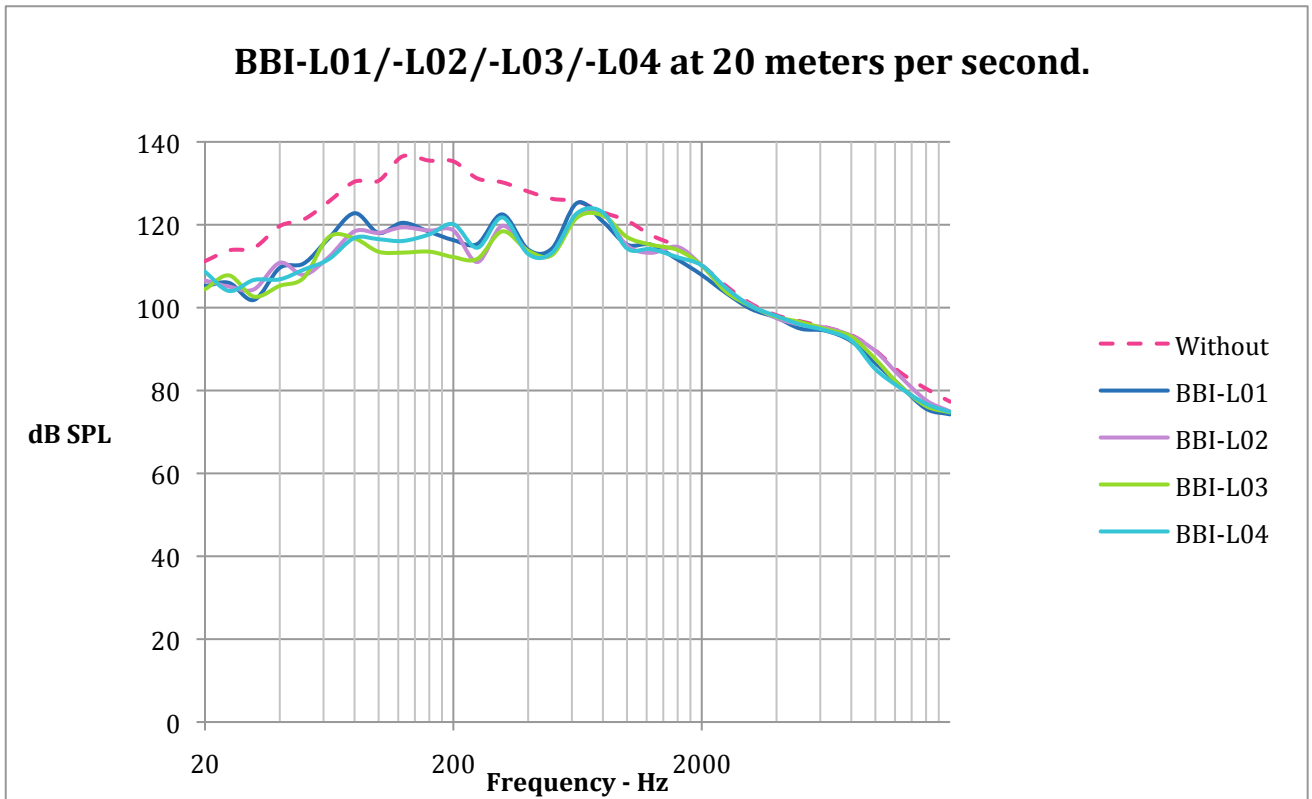
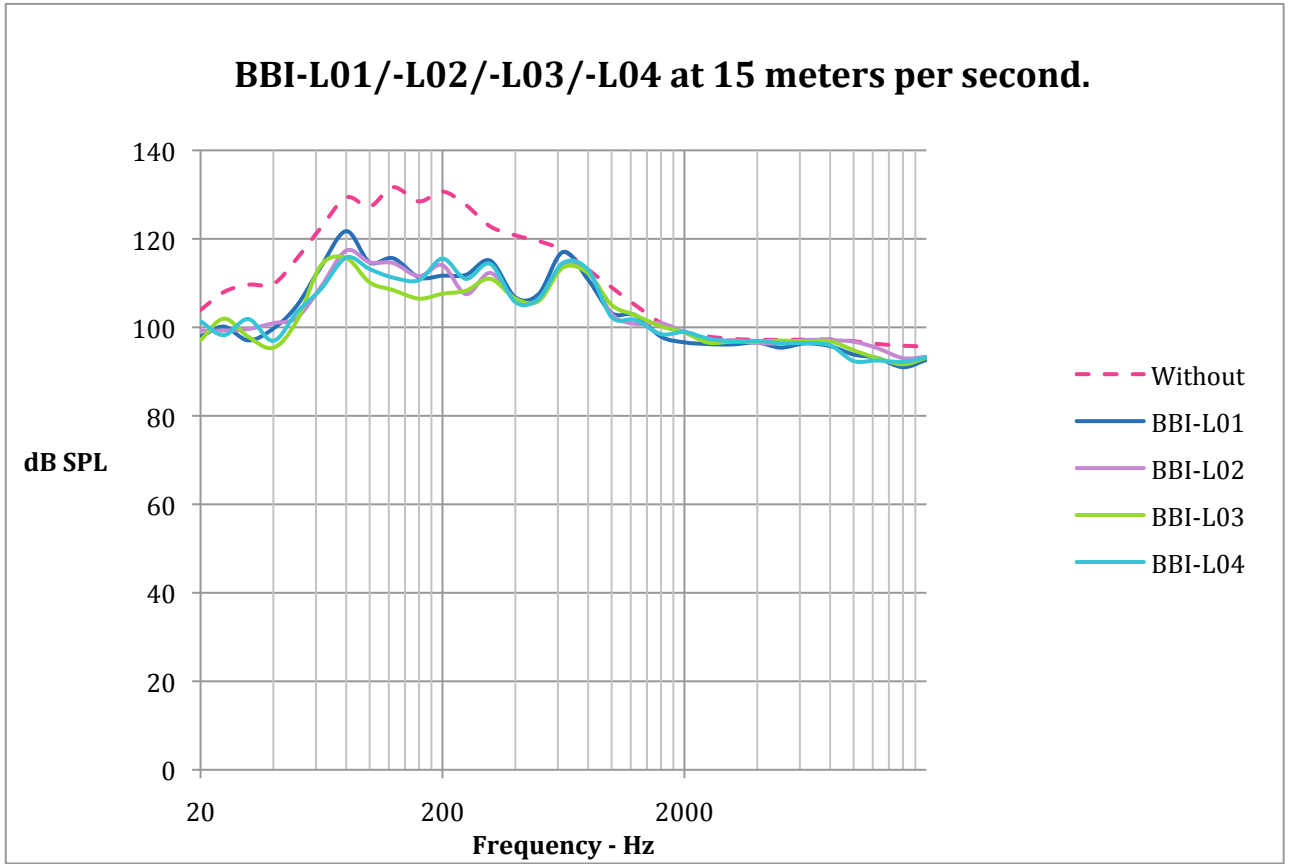


BBI-L01/-L02/-L03/-L04 at 5 meters per second.



BBI-L01/-L02/-L03/-L04 at 10 meters per second.





Measurement results BBI-CUB01

Windshield effect

