 SINTEF SINTEF Telecom and Informatics Address: NO-7465 Trondheim NORWAY Location Trondheim: S.P. Andersens v 15 Location Oslo: Forskningsveien 1 Telephone: +47 73 59 30 00 Fax: +47 73 59 43 02 Enterprise No.: NO 948 007 029 MVA		MEMO						
		MEMO CONCERNS Simulated Lateral Attenuation			FOR YOUR ATTENTION	COMMENTS ARE INVITED	FOR YOUR INFORMATION	AS AGREED
		DISTRIBUTION Kåre H. Liasjø, Luftfartsverket Knut Holen, Oslo Lufthavn A/S Nils Ivar Nilsen, Forsvarsbygg Odd Kr. Ø. Pettersen Svein Ådne Storeheier Herold Olsen Idar L. N. Granøien Asbjørn Ustad			X X X		X X X X X	
FILE CODE	CLASSIFICATION							
40-NO 020044	Unclassified							
ELECTRONIC FILE CODE								
40-NO 020044.doc								
PROJECT NO.	DATE	PERSON RESPONSIBLE / AUTHOR		NUMBER OF PAGES				
403129.07	2002-05-02	Herold Olsen		6				

1 Introduction

Noise data from 155 flights have been measured at Gardermoen airport. The measurement procedures and subsequent data processing are described in the main report.

This memo present simulated data based on source directivity, and the Nord 2000 propagation model, described in the project memo "Aircraft directivity".

2 Simulations

The noise resulting from horizontal straight line flights are simulated. The sound emission of the source is modelled by the spectra and directivities described in the project memo "Aircraft directivity". Flight speed is fixed to 160 knots, while flight height is variable.

Sound levels are calculated at different points 1.5 meters above the ground, using Nord 2000 algorithms to calculate the noise propagation from points along the flight line to the receiver point. The propagation conditions are set to:

- The ground is horizontal with a flow resistance = 250 kPa s/m²
- Temperature = 15° Celsius
- Relative humidity = 70%
- Wind speed = 0
- Temperature gradient = -1°C/100m
- Wind turbulence parameter = 0.5

The noise levels at the receiver points are accumulated to resulting SEL values for the whole flight.

3 Lateral Attenuation

Figure 1 shows the difference between SEL below the flight line, and SEL different points to the side of new flight lines at the same distance from the point. The results are plotted as function of elevation angle for MD82 and B737 600. To indicate distance dependence, the curves are given at both 300 and 1200 meters.

The curves are influenced by the spectral source directivity and the ground attenuation. The difference between the two aircraft is dominated by the source directivity.

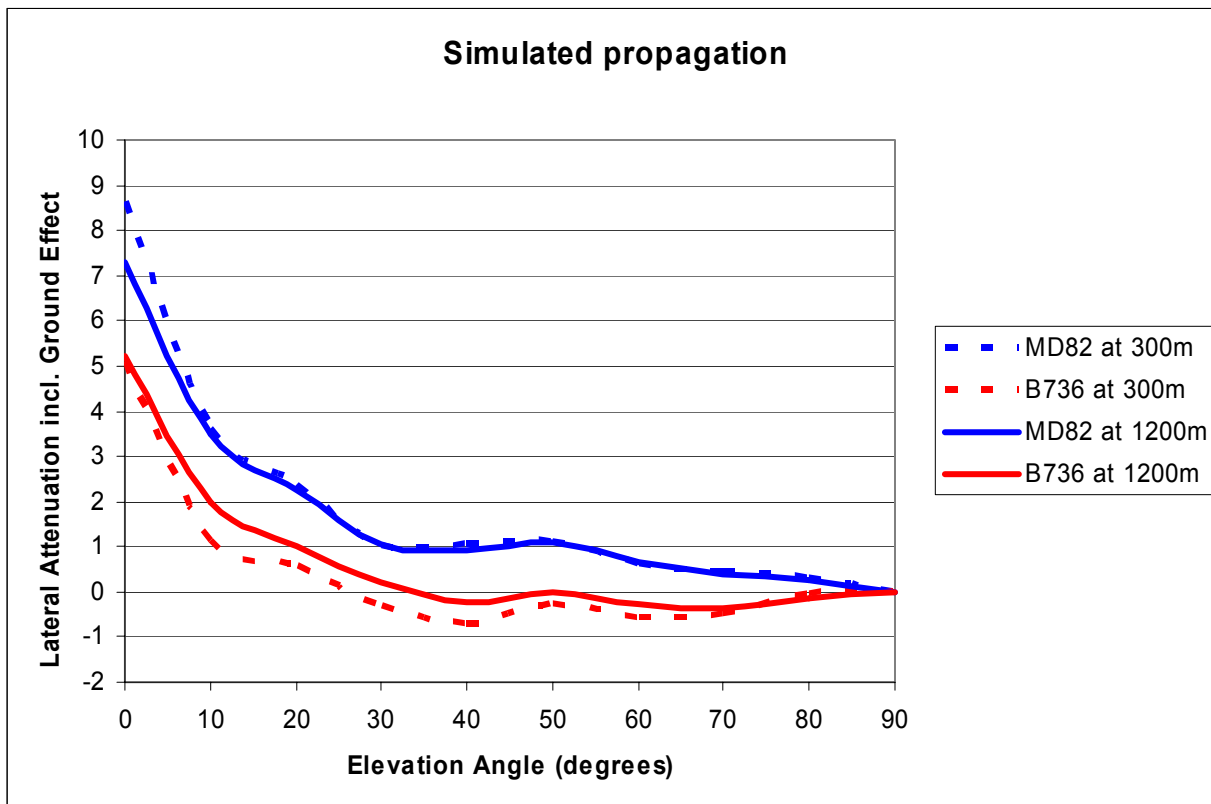
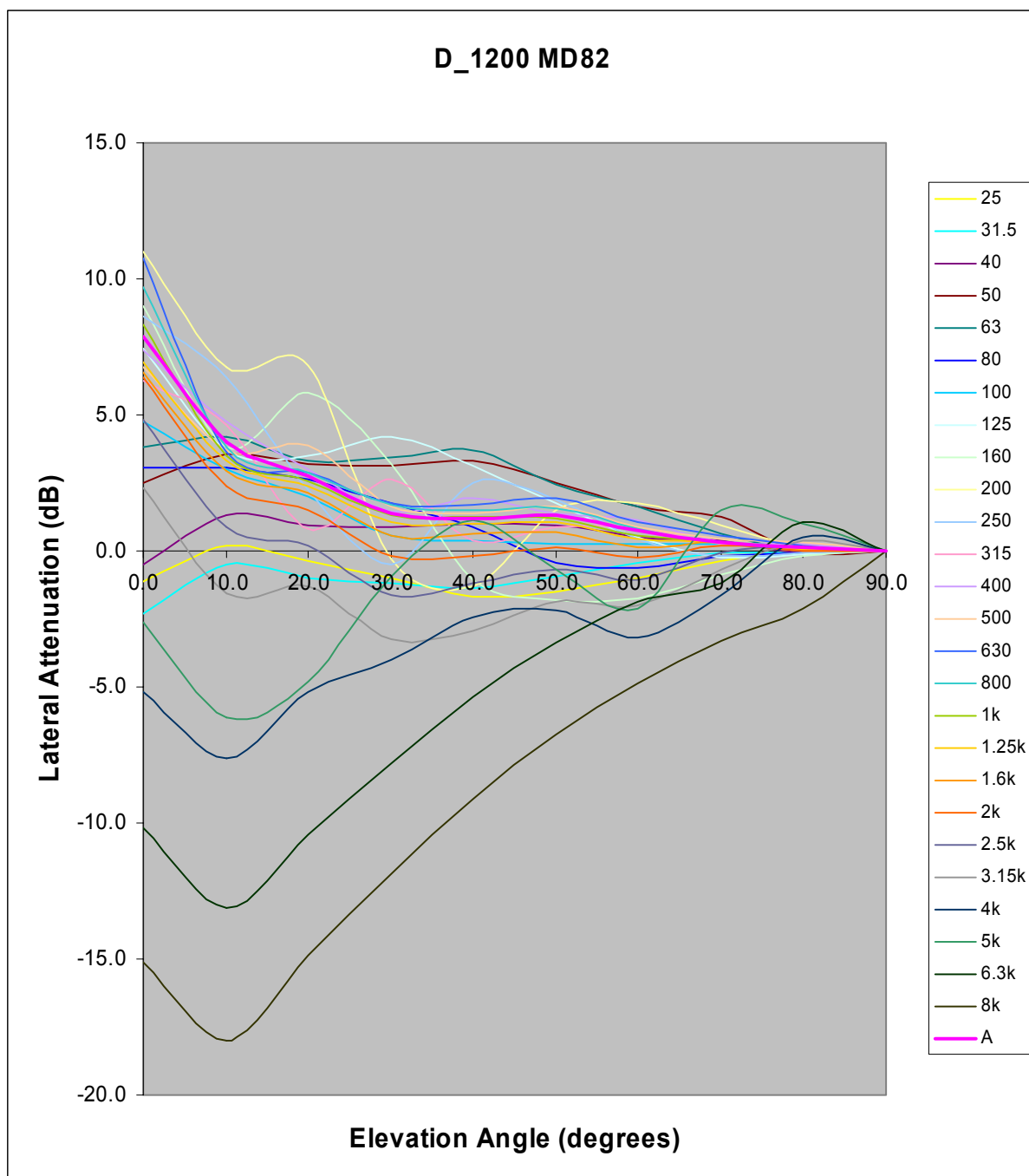
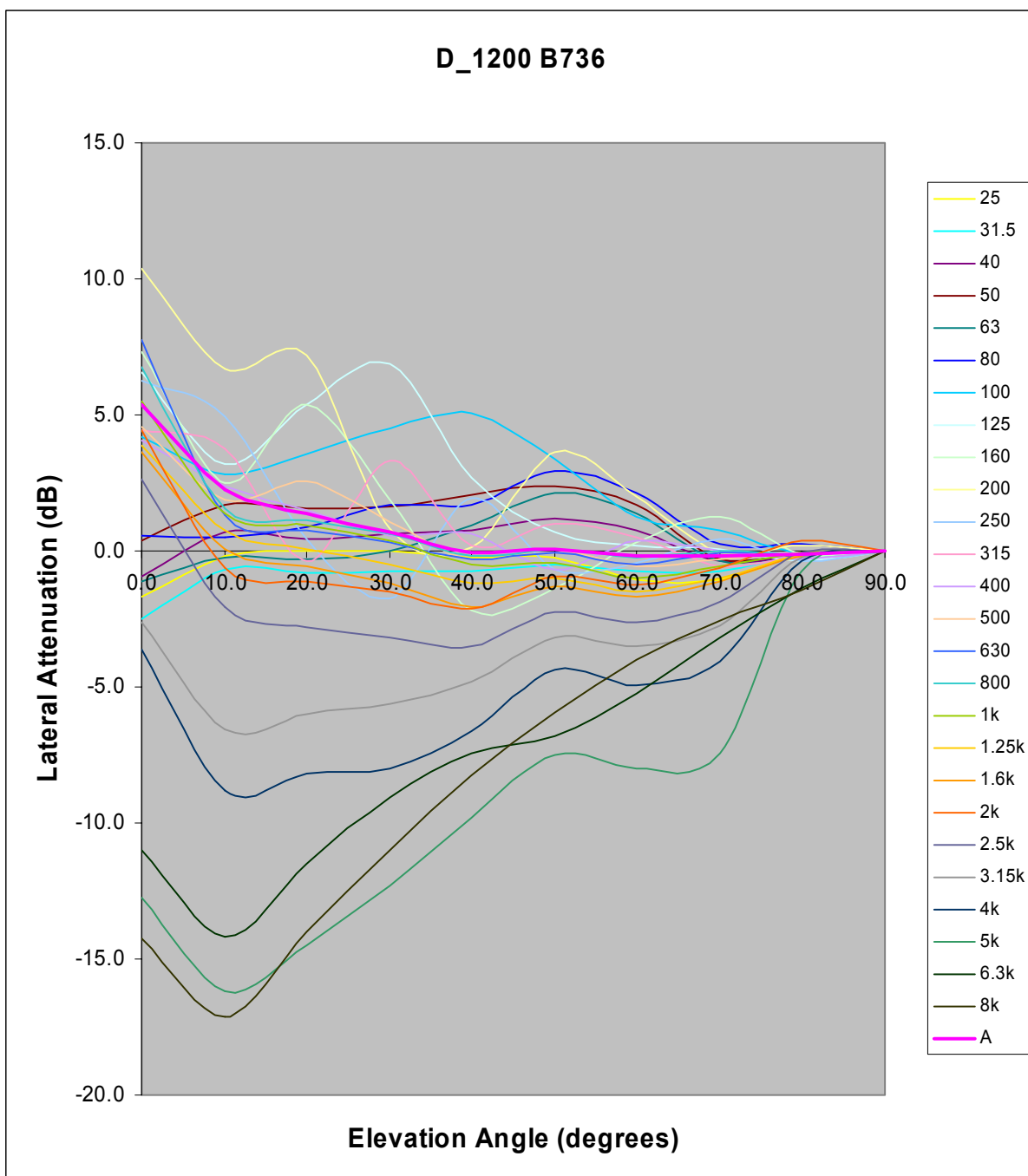


Figure 1: Simulated lateral attenuation

Figure 2 and 3 illustrate how the simulated lateral attenuation depends on frequency, for MD82 and B737 600 respectively.





4 Noise Power Distance

