

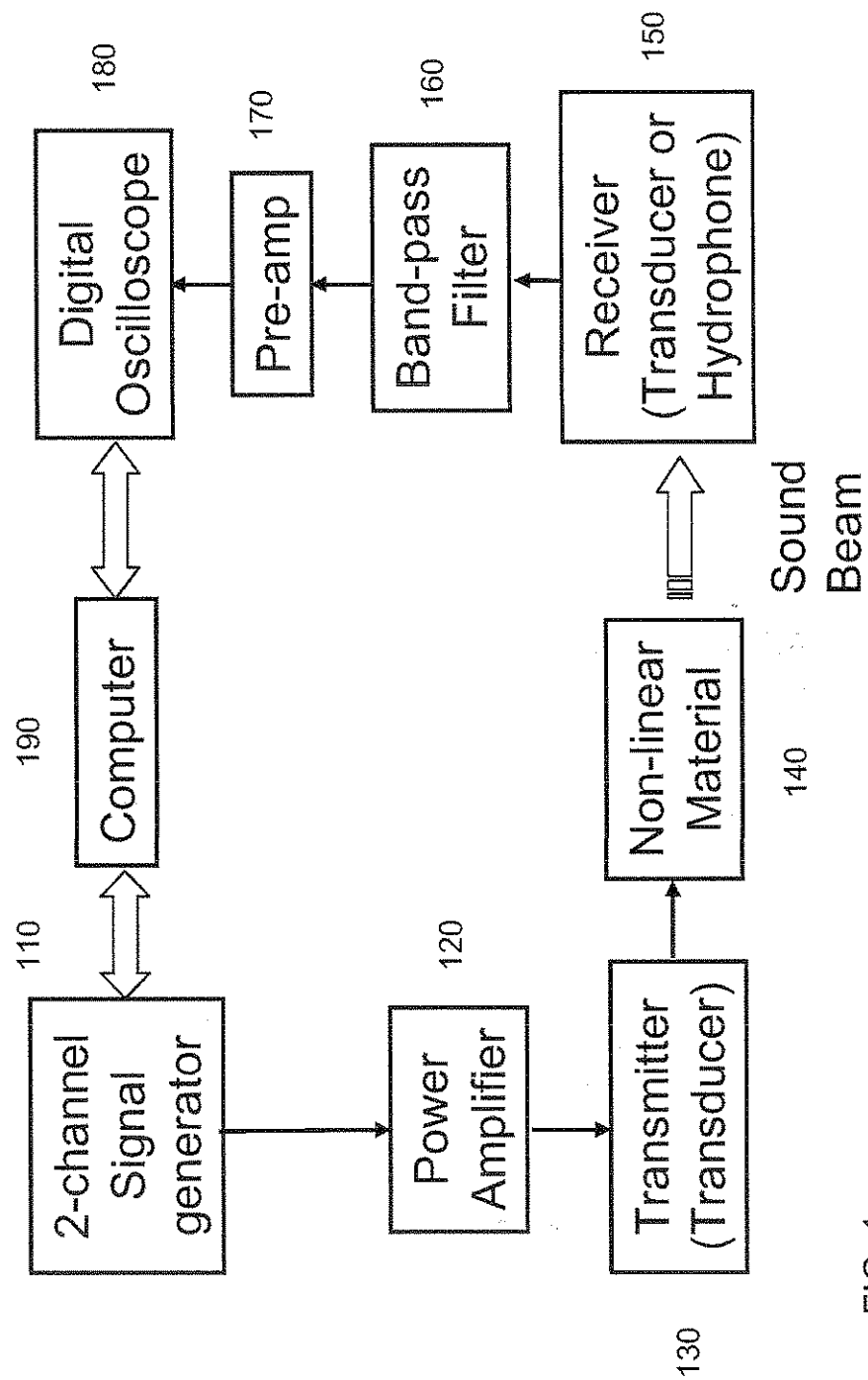


FIG. 1

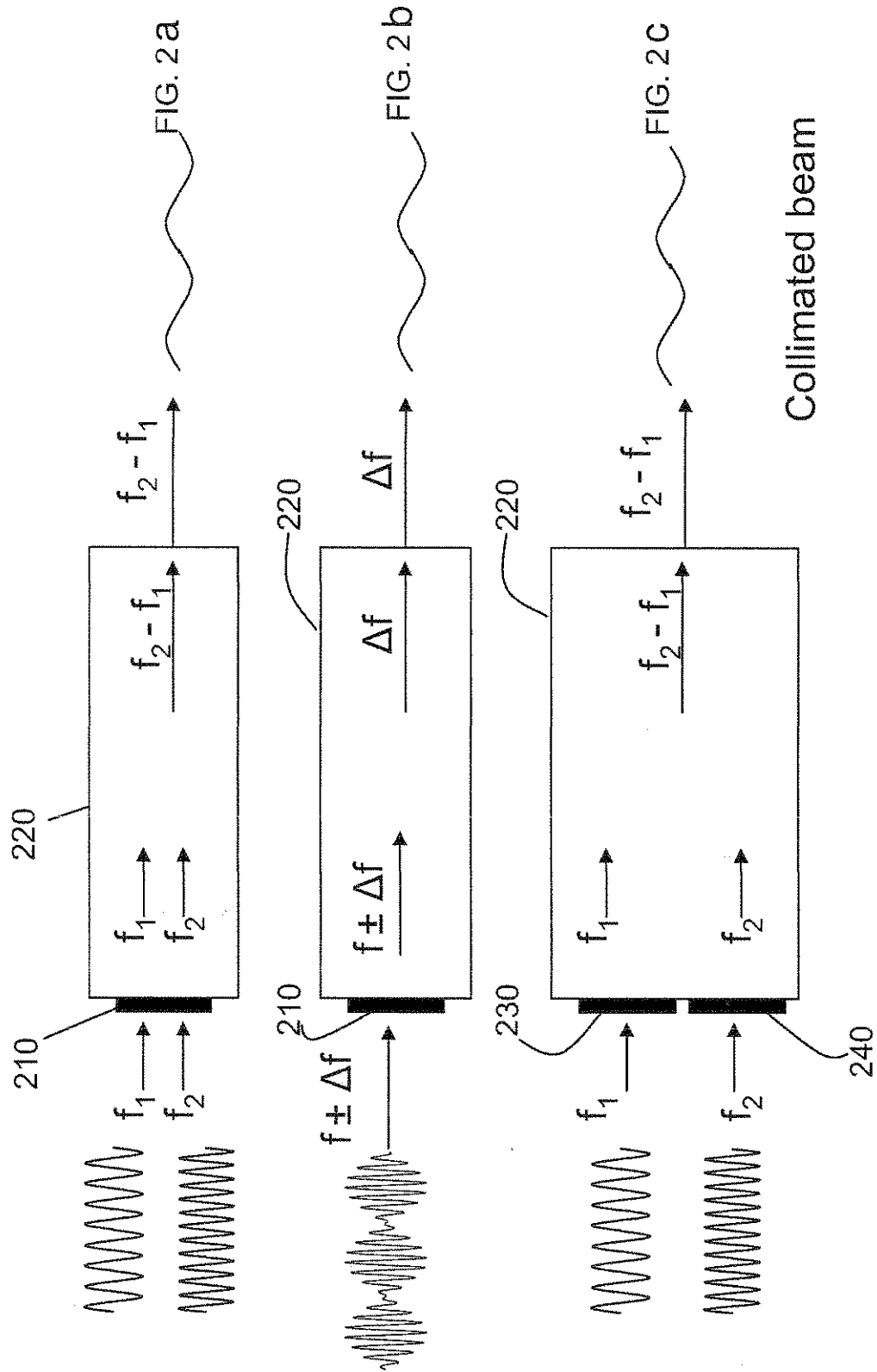
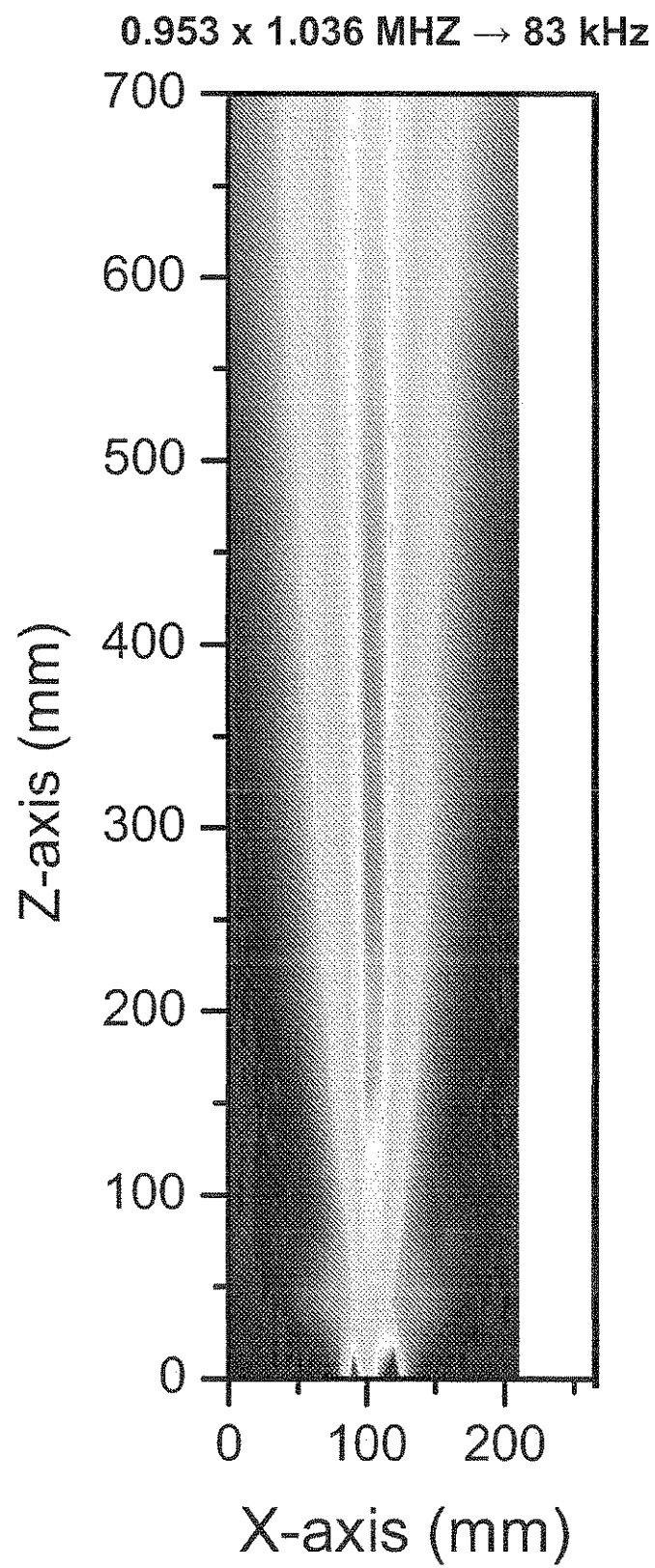


Fig. 3a



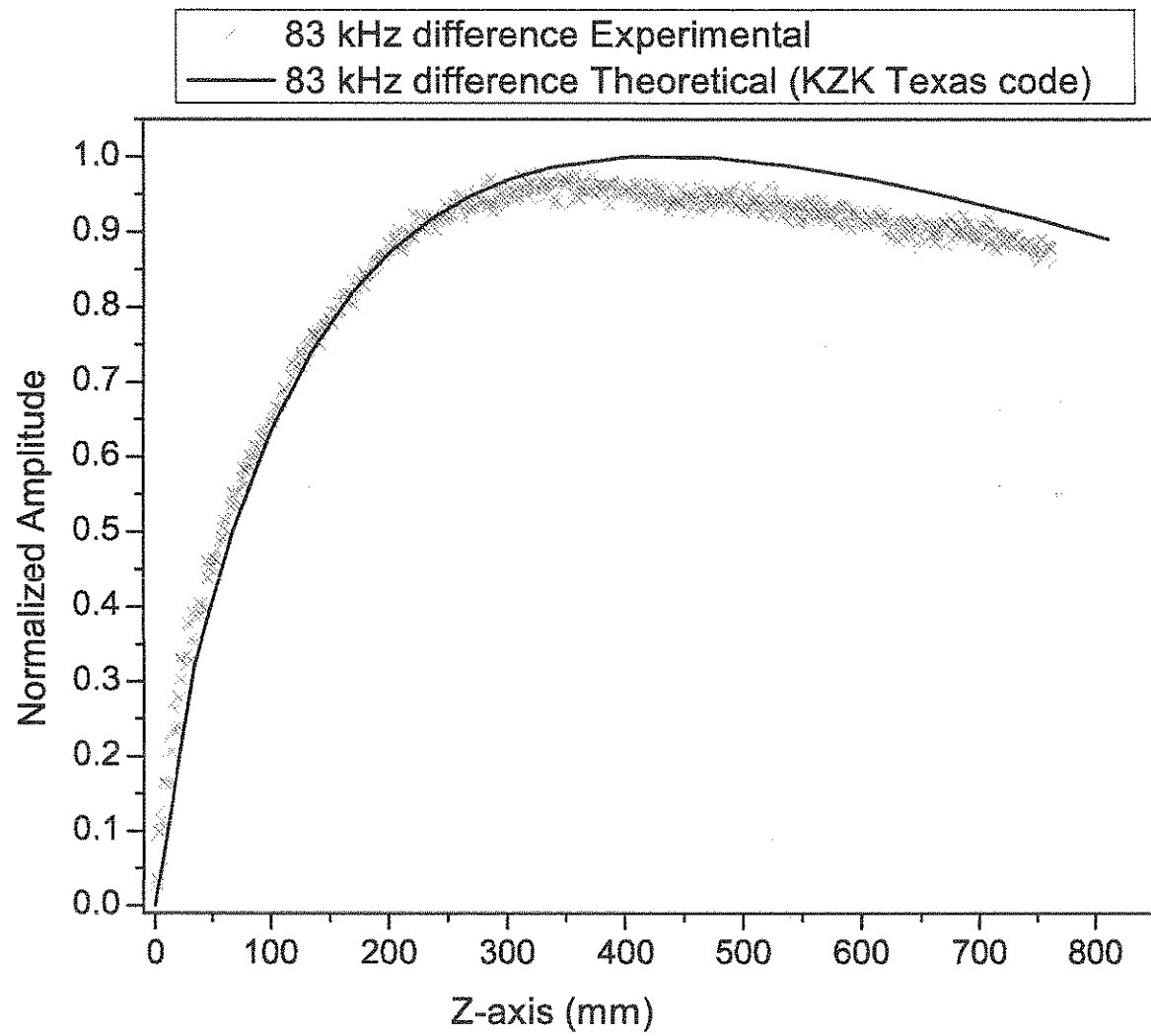


Fig. 3B

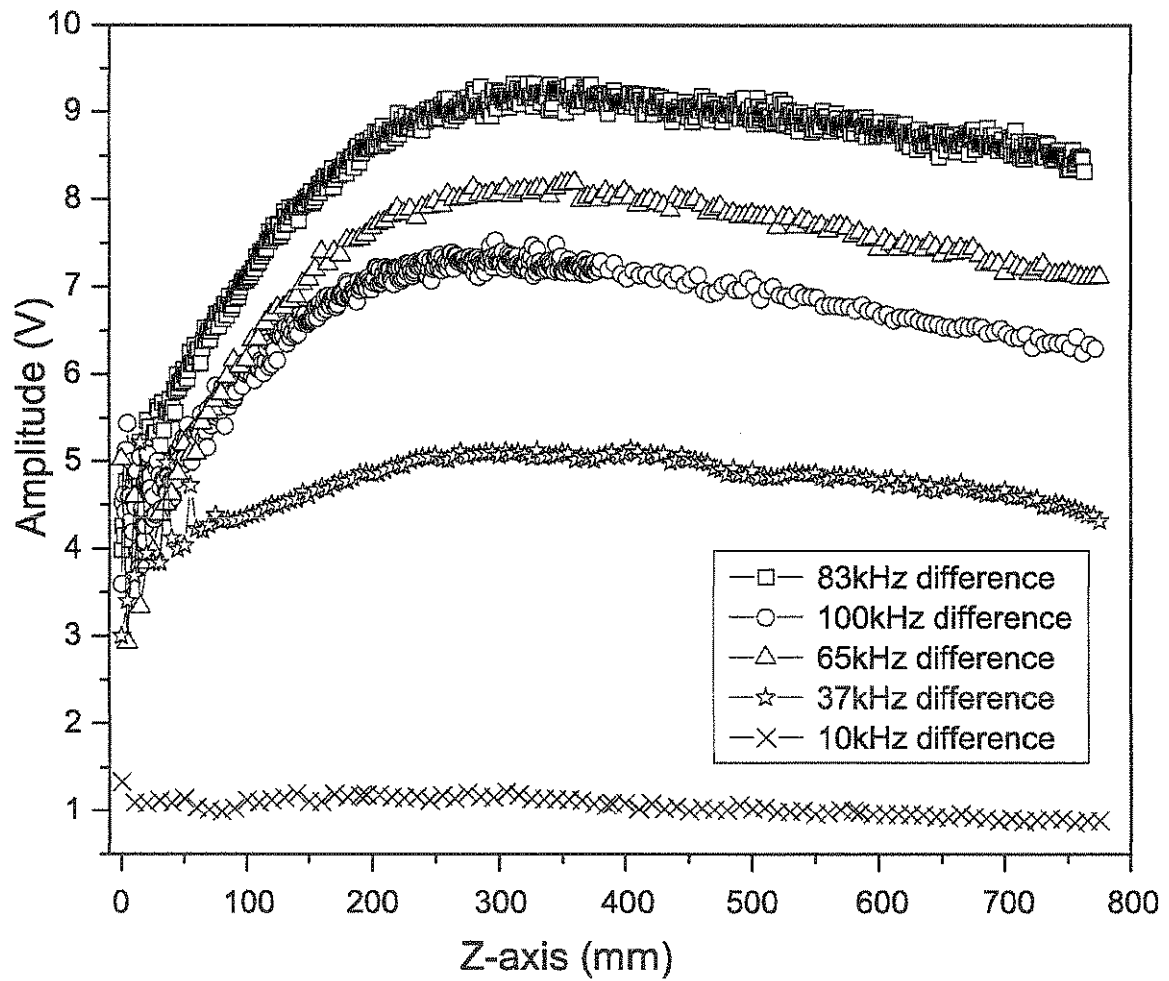


Fig. 4A

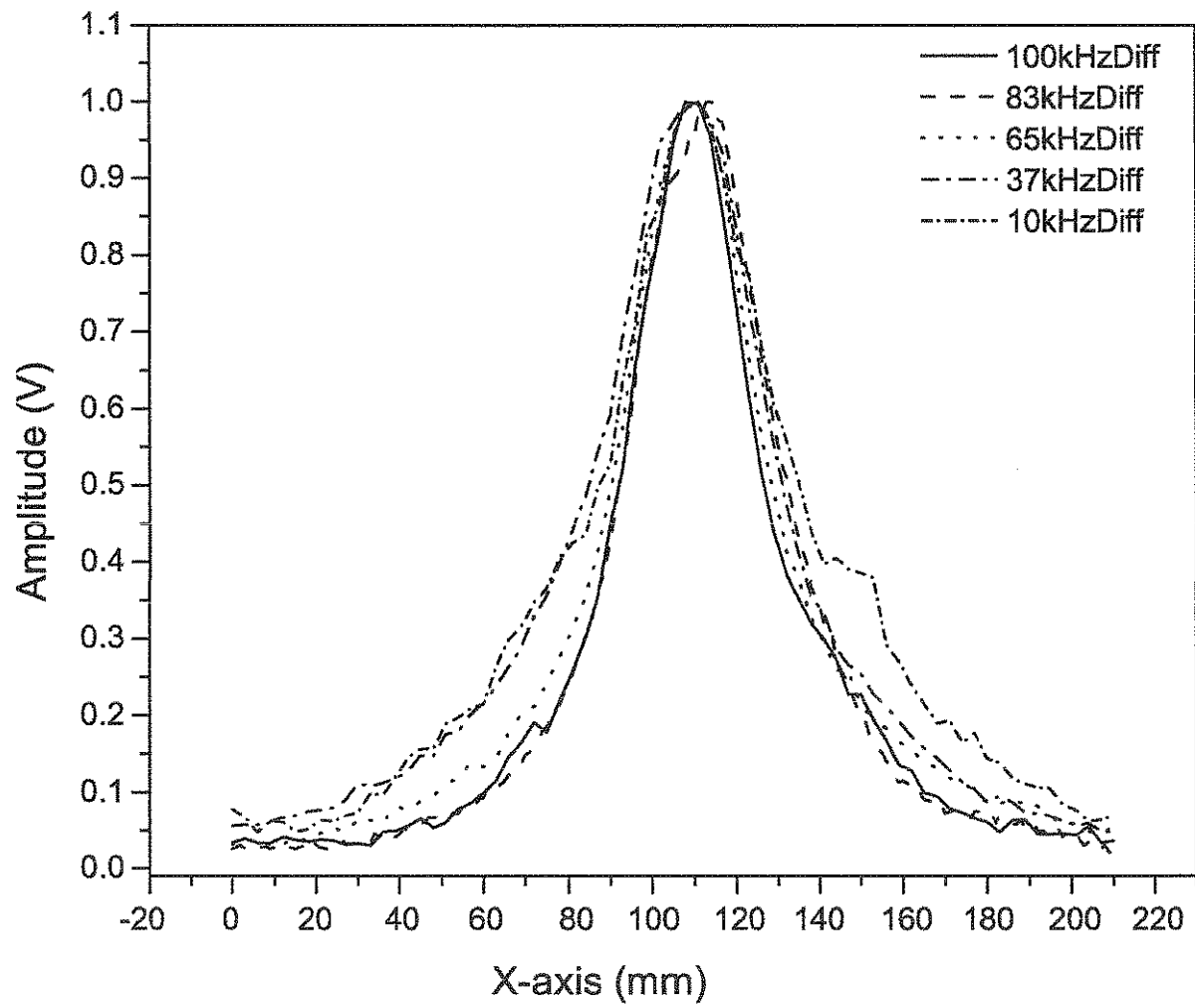


Fig. 4B

Fig. 5a

Single frequency burst

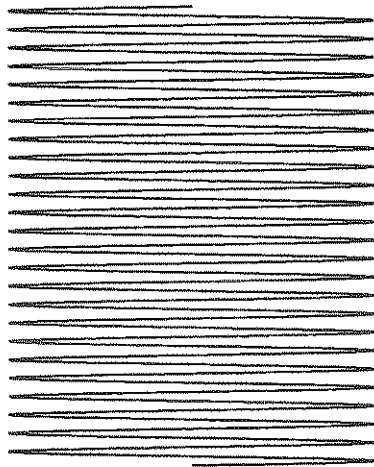
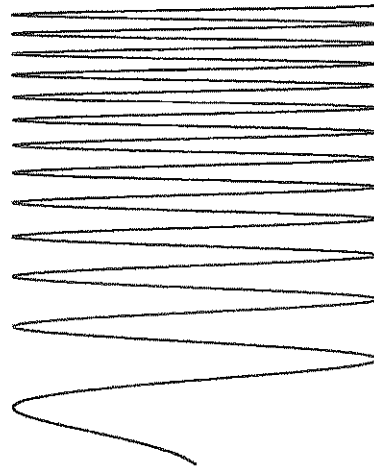
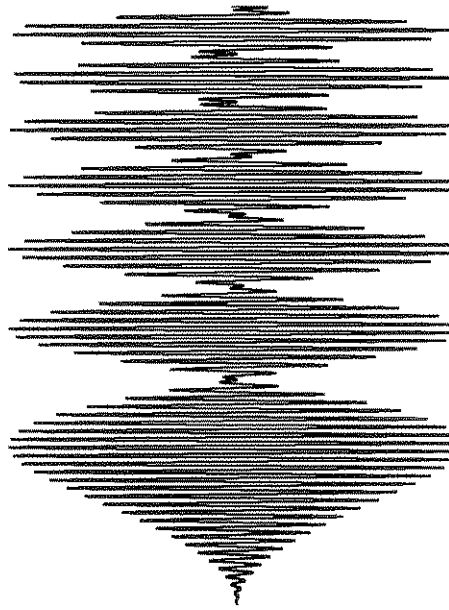


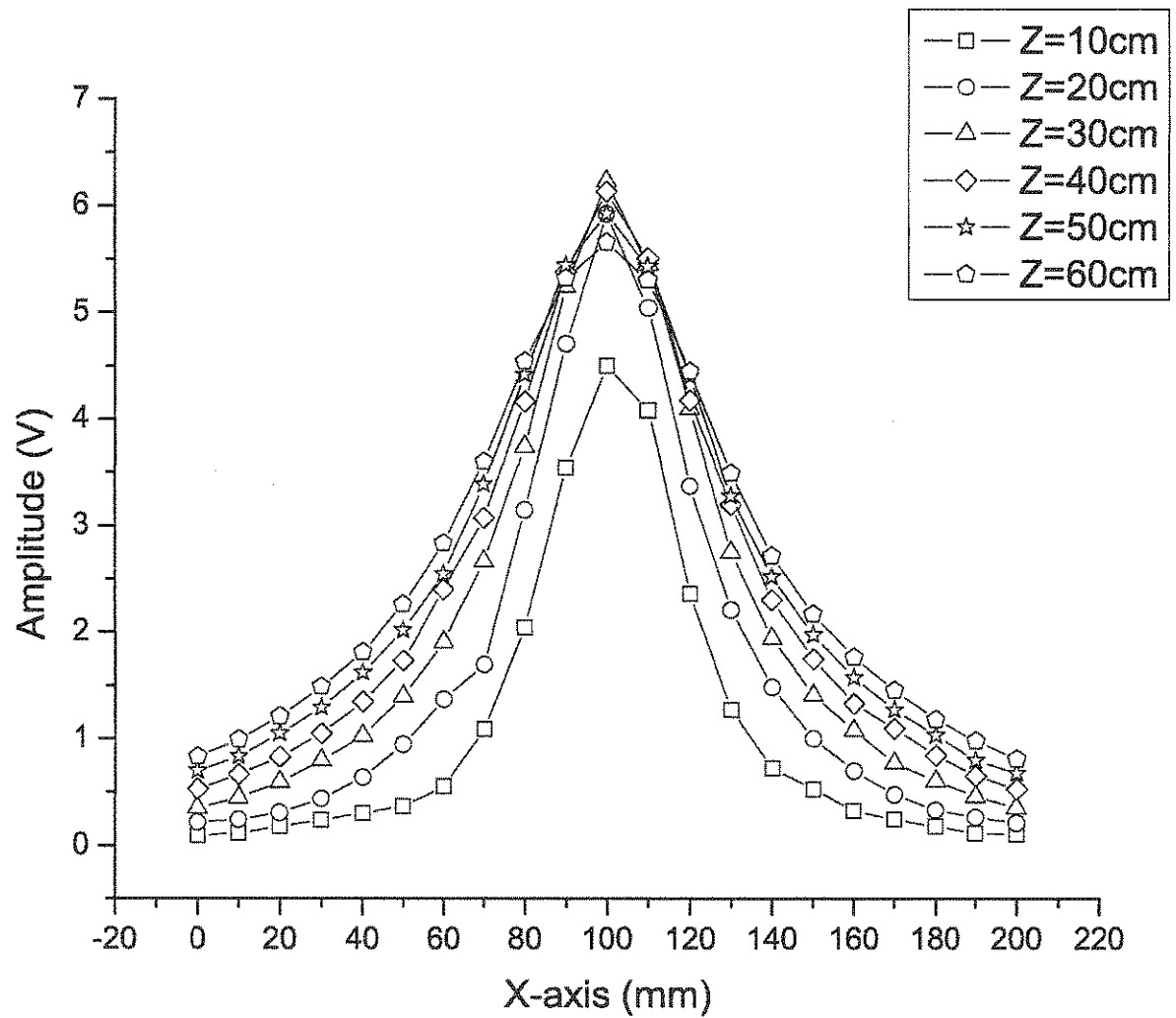
Fig. 5b

Combined signal to transducer



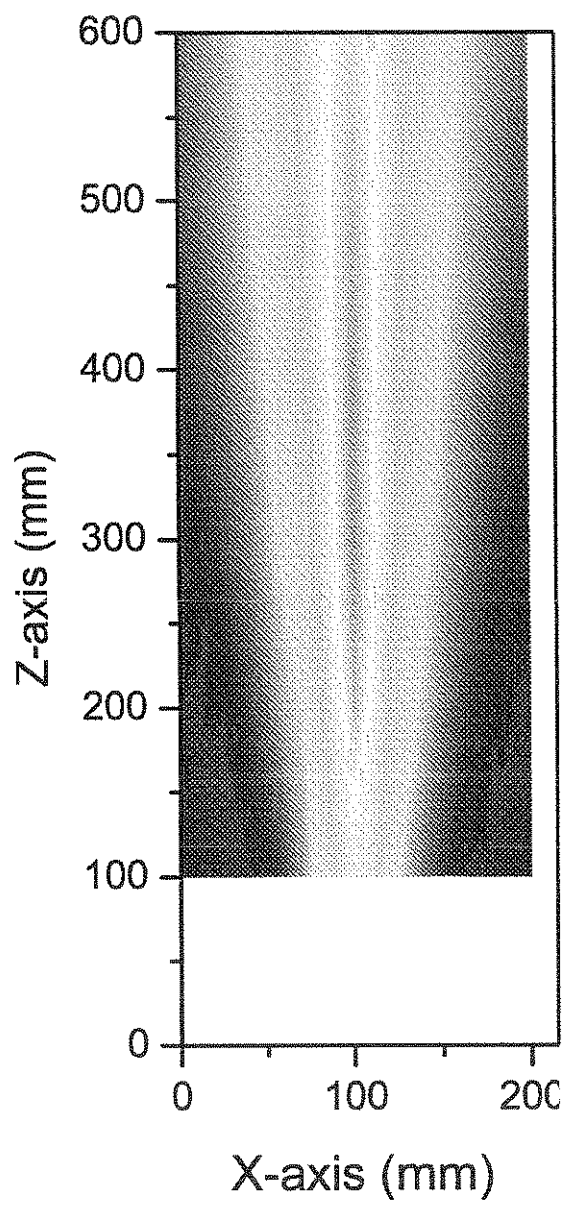
Frequency chirp (broadband)

Fig. 6A



9/34

Fig. 6B



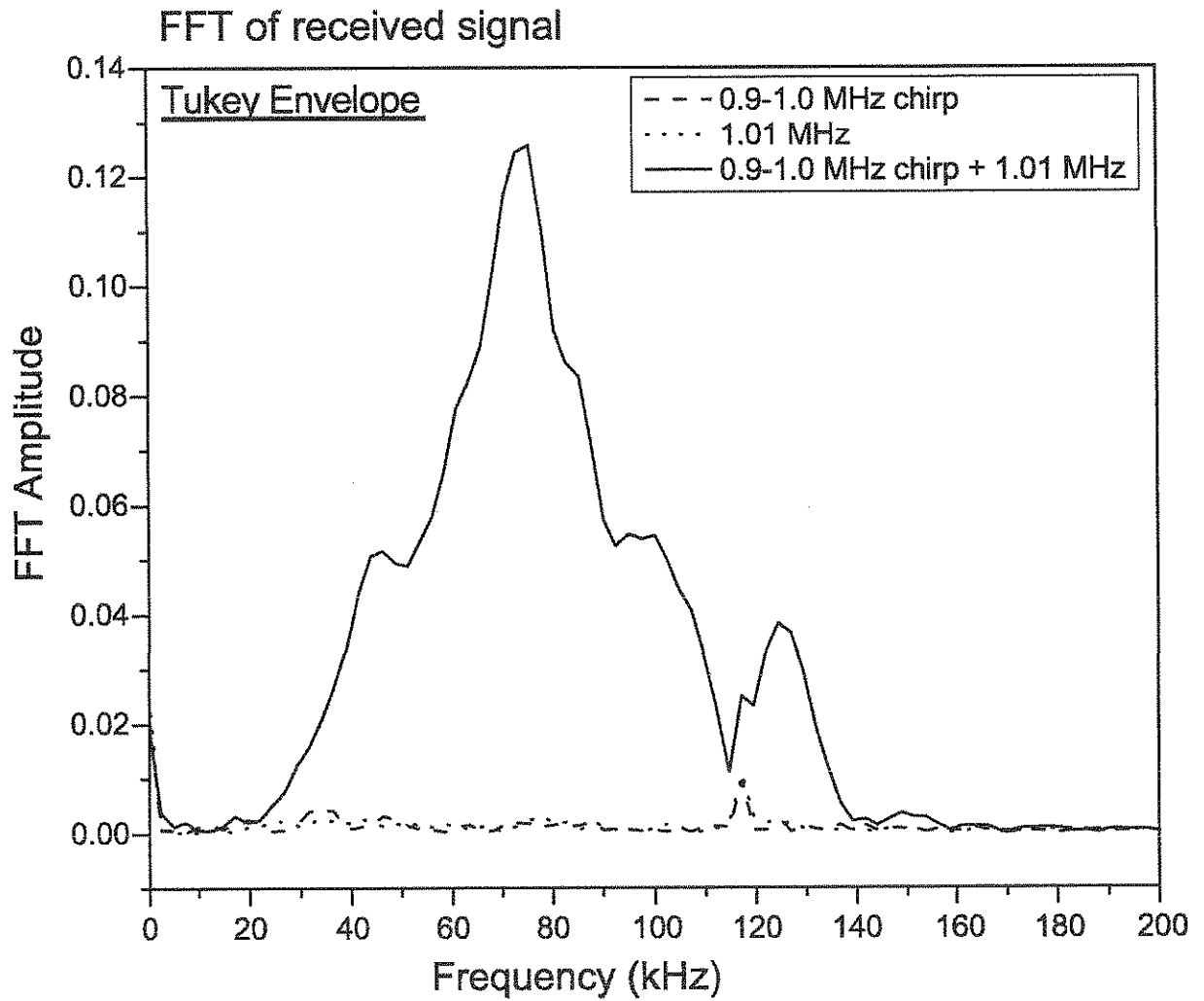
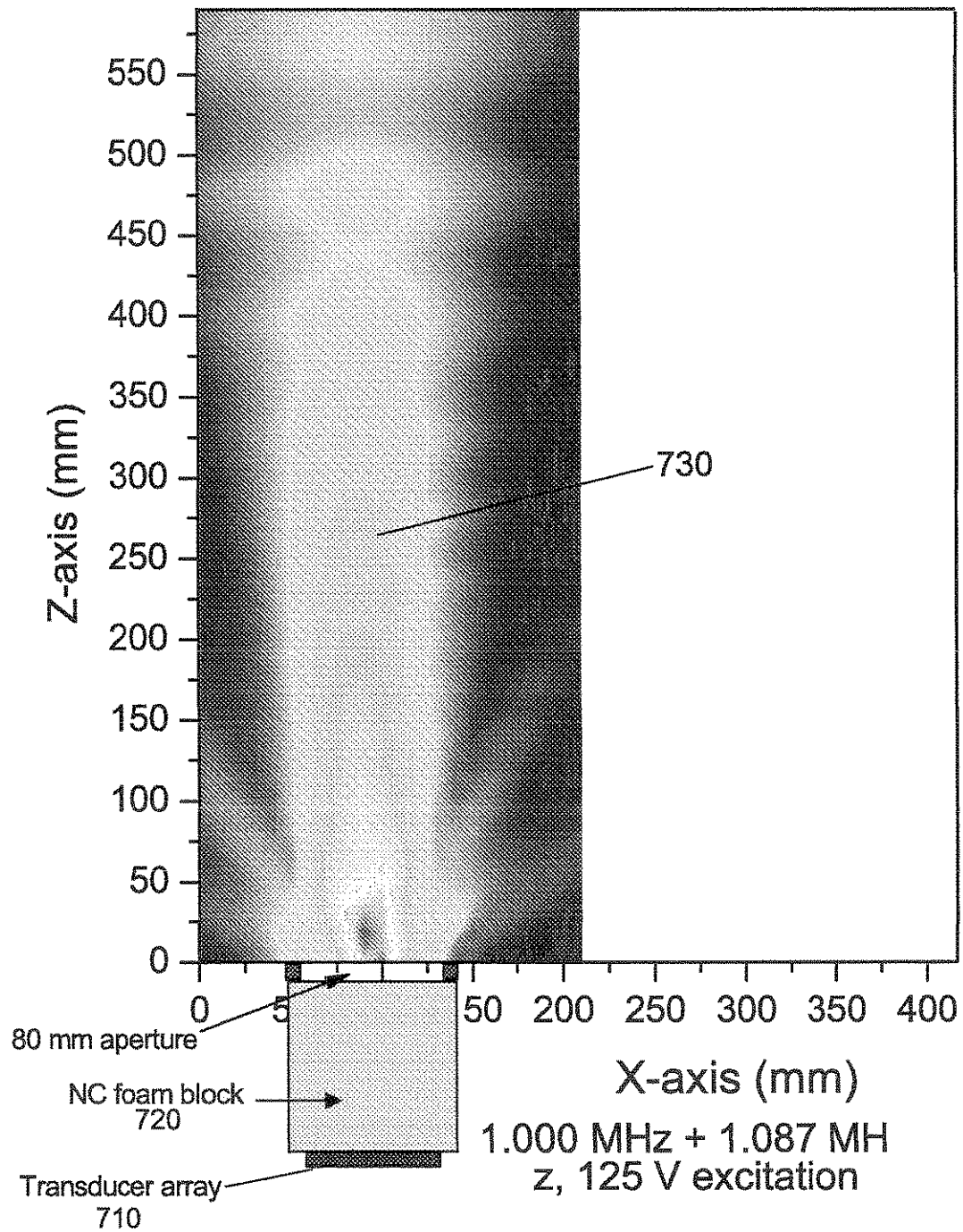


Fig. 6C

Fig. 7A



12/34

Fig. 7B
Difference signal

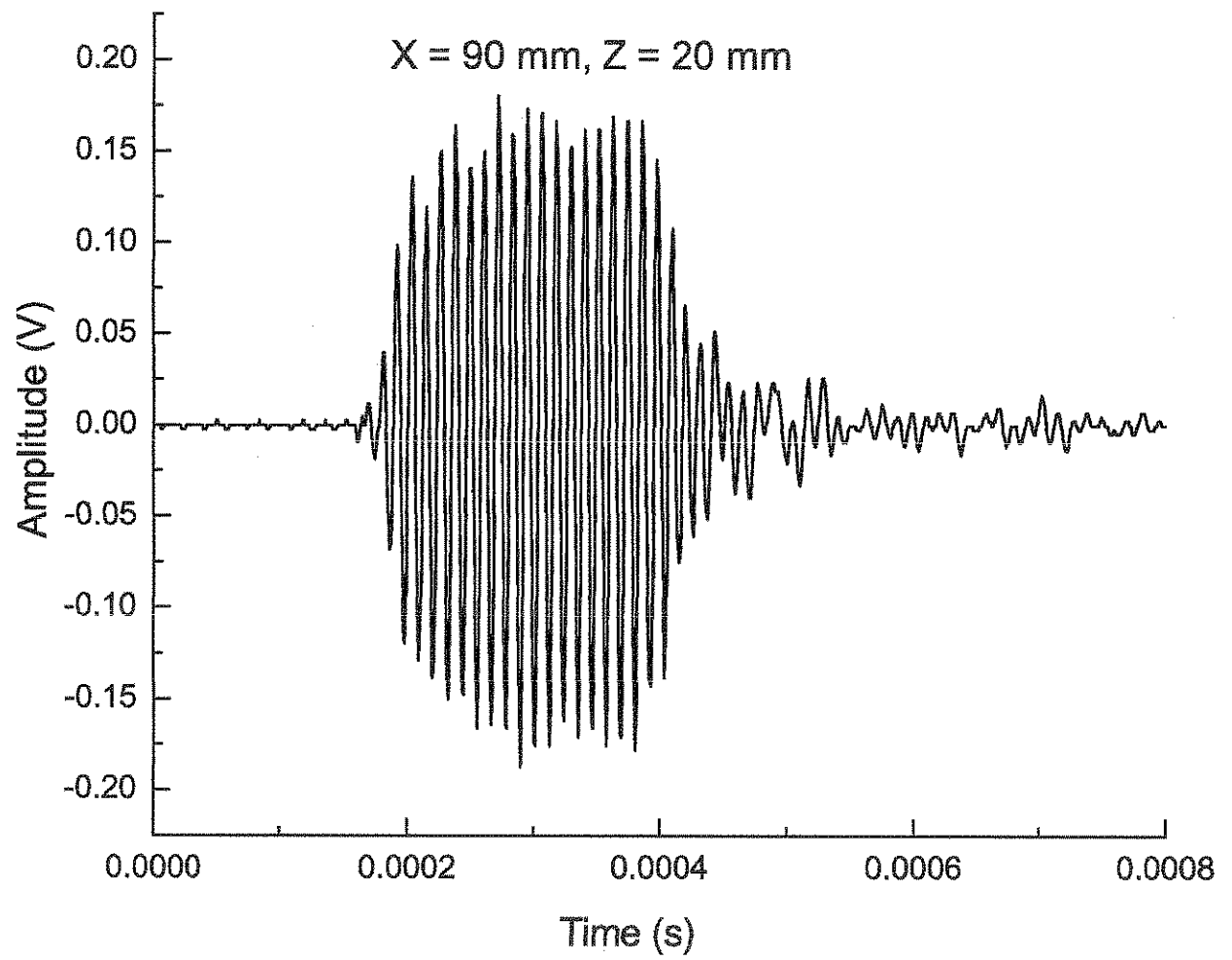
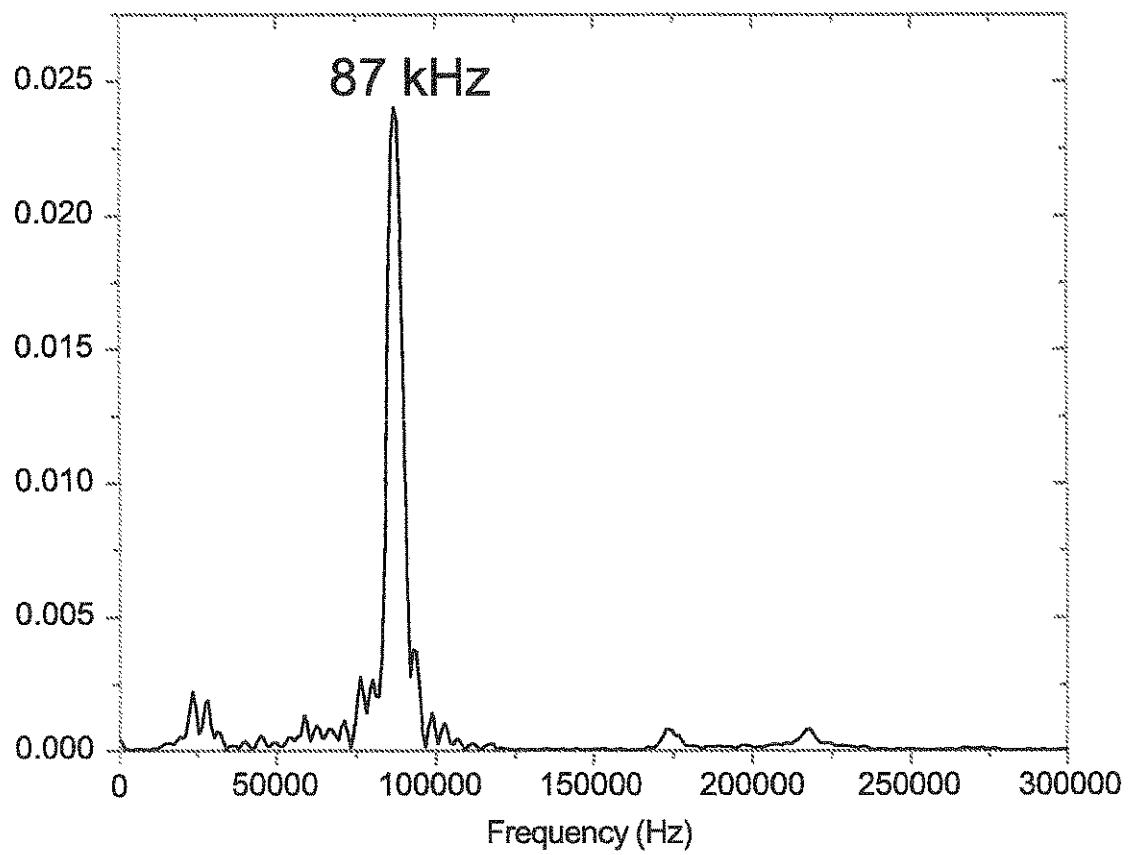


Fig. 7C
FFT of difference signal



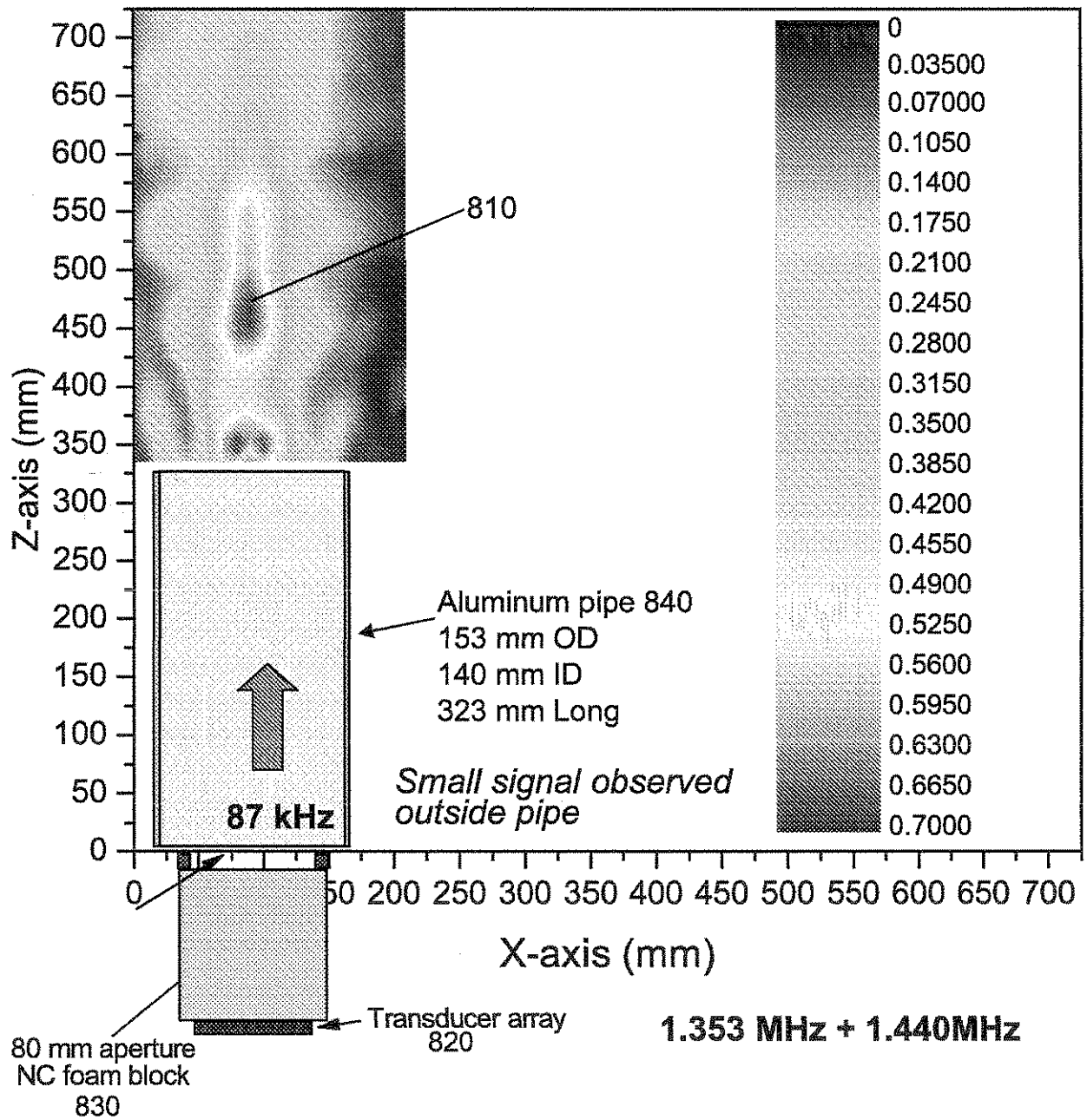
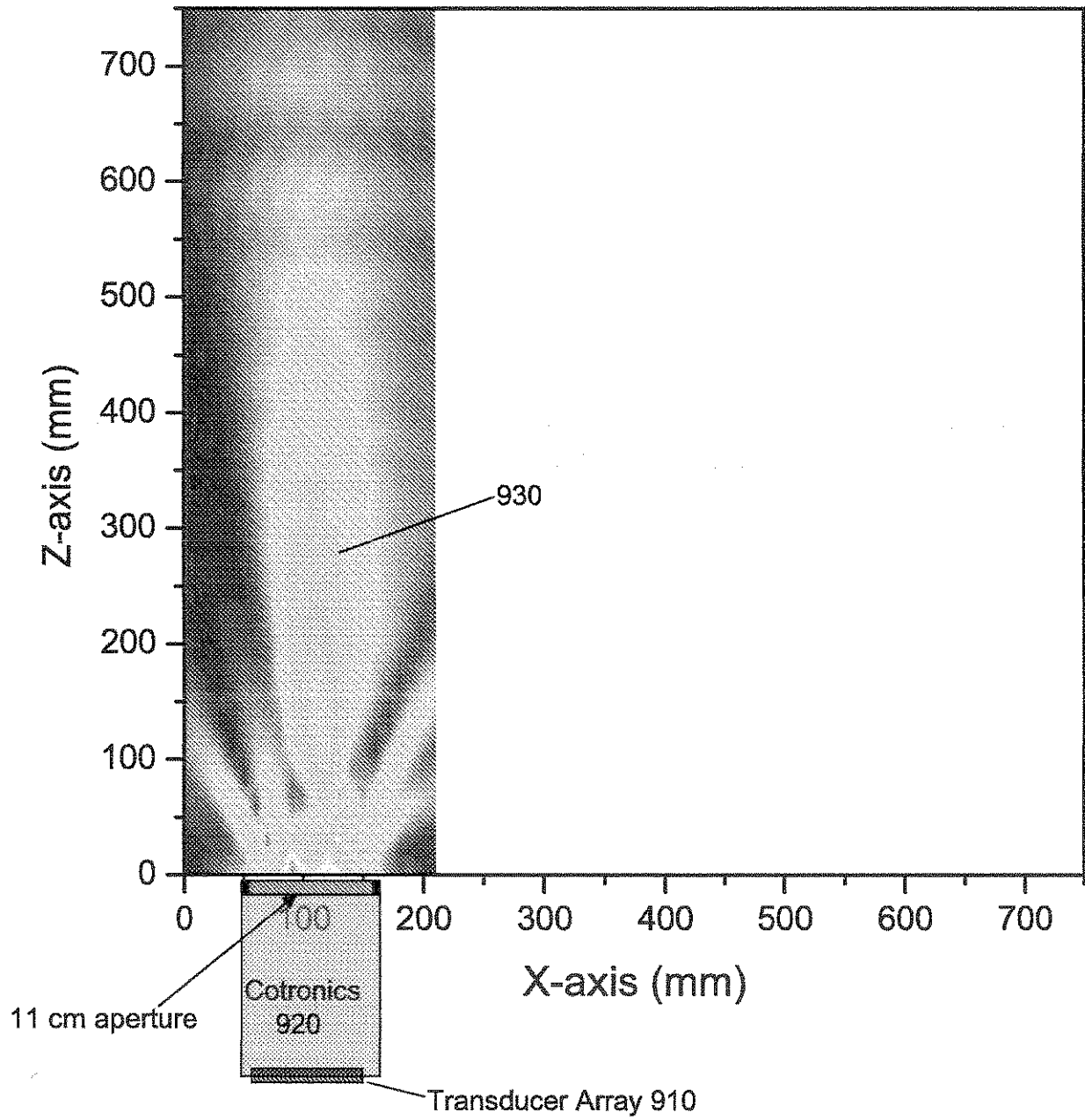


Fig. 8

Fig. 9



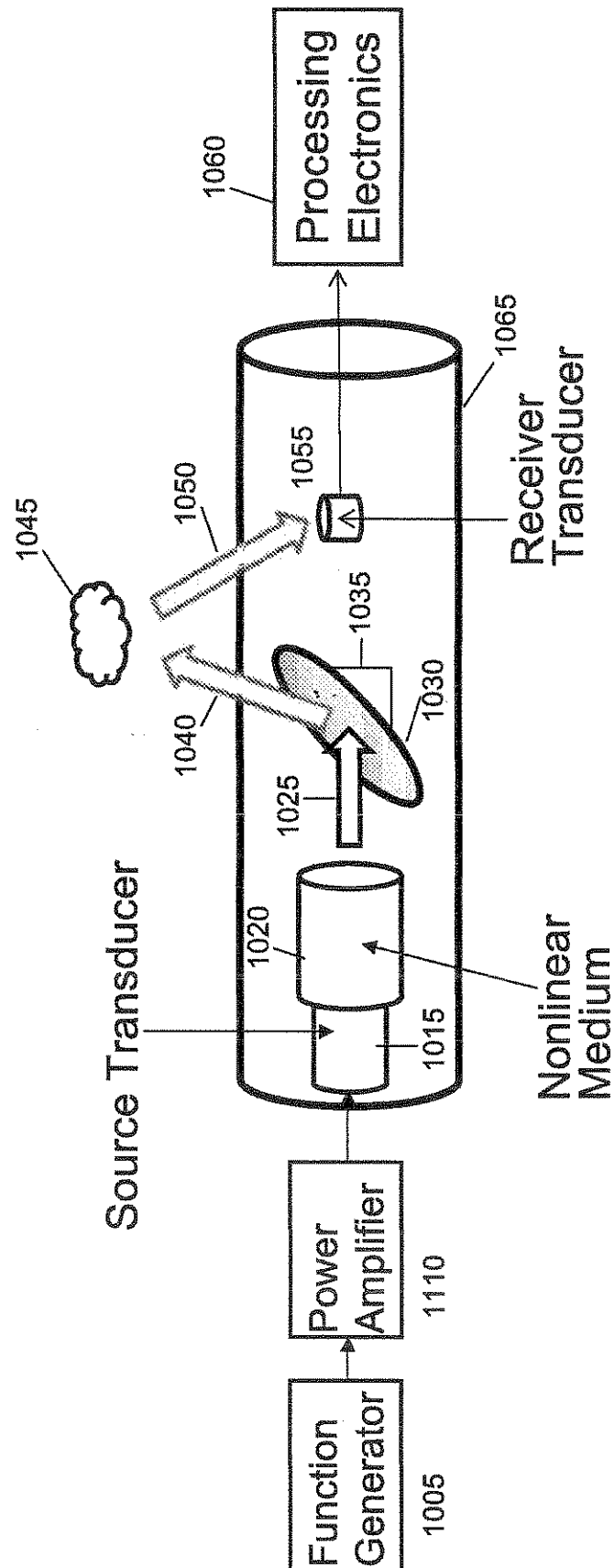
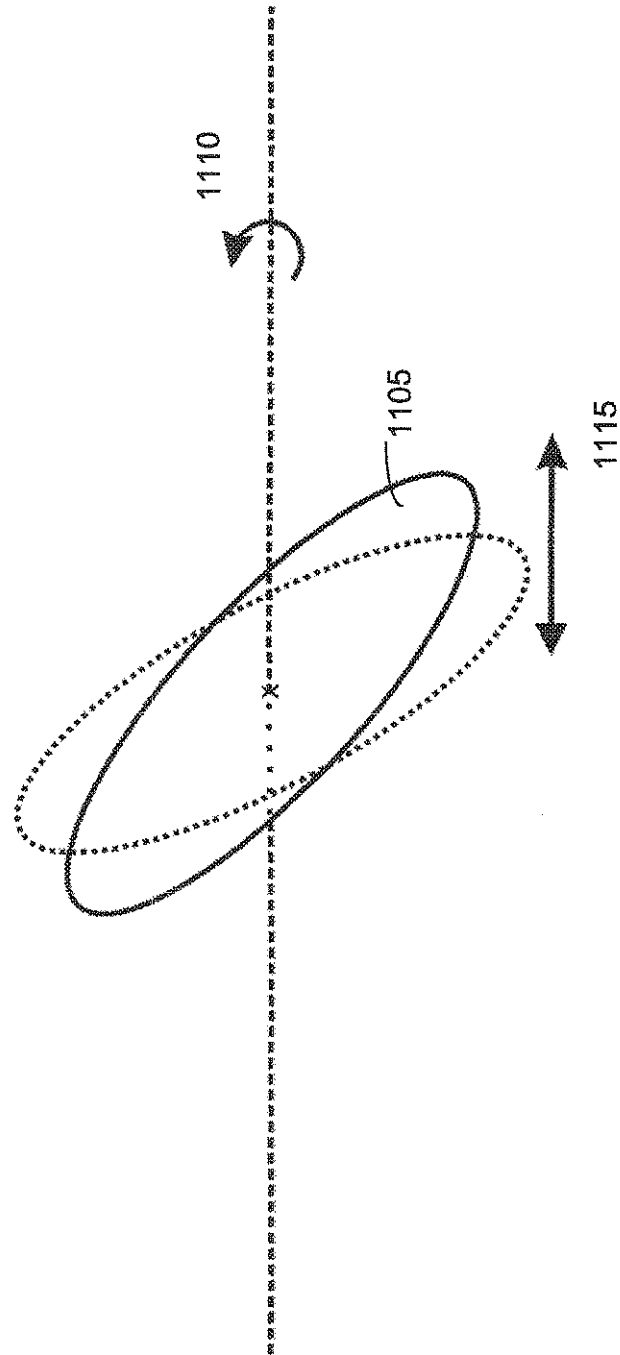


Fig. 11



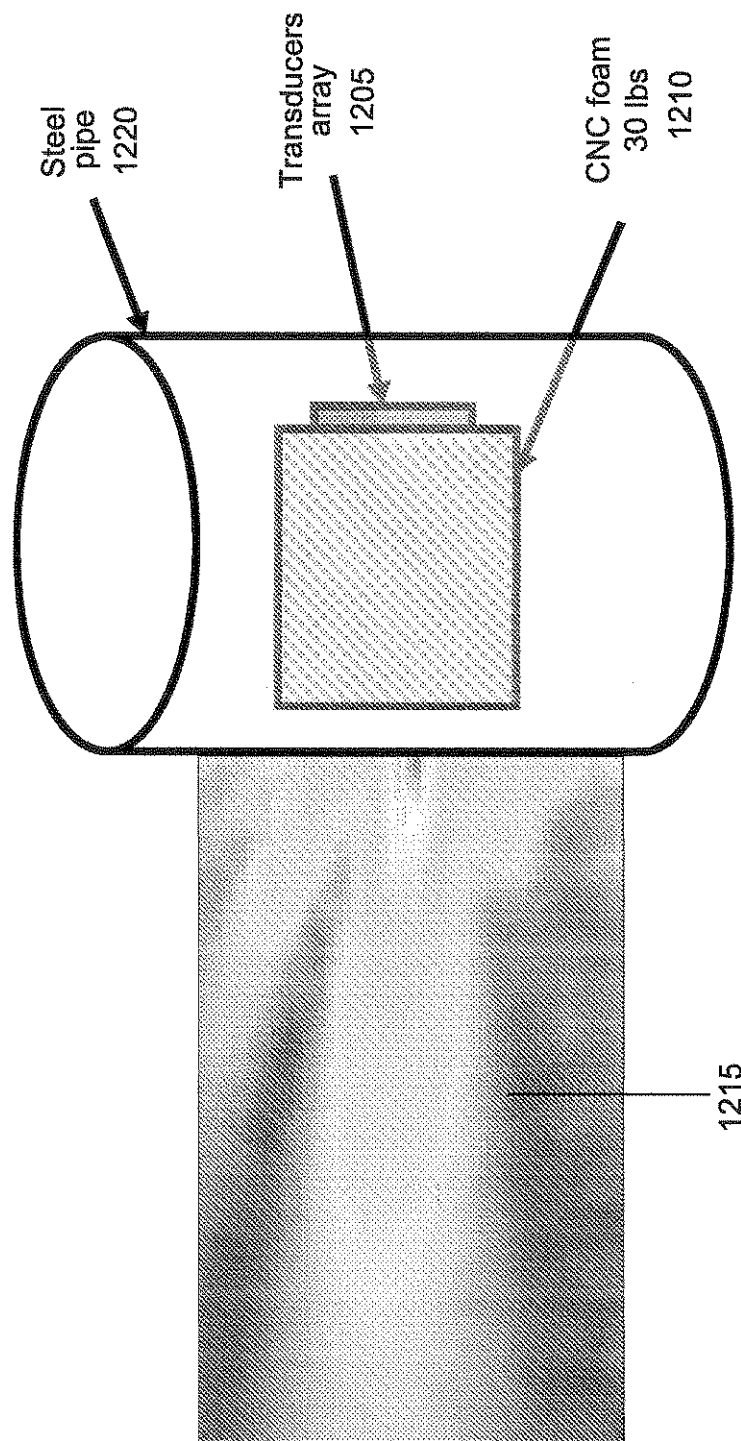


Fig. 12

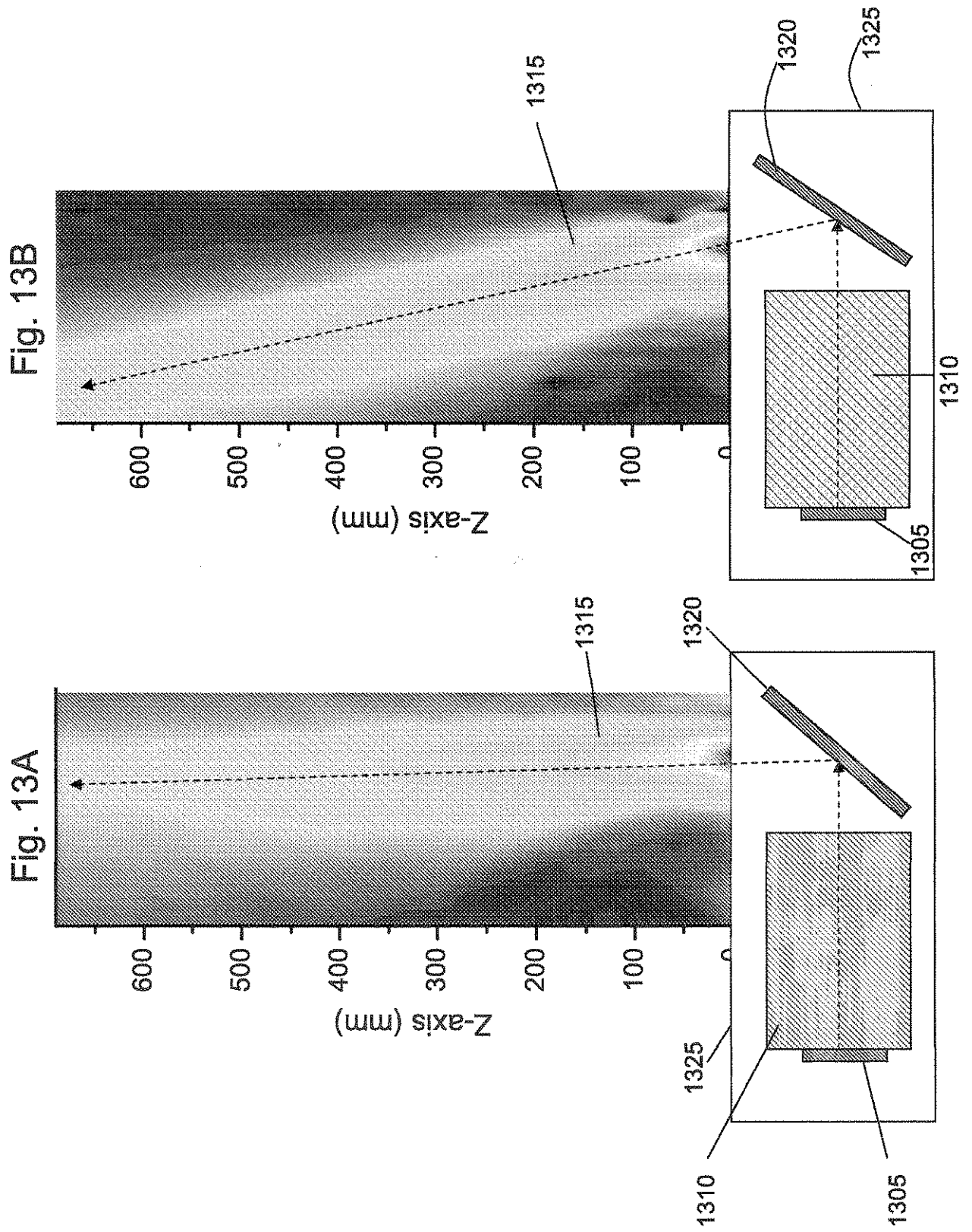
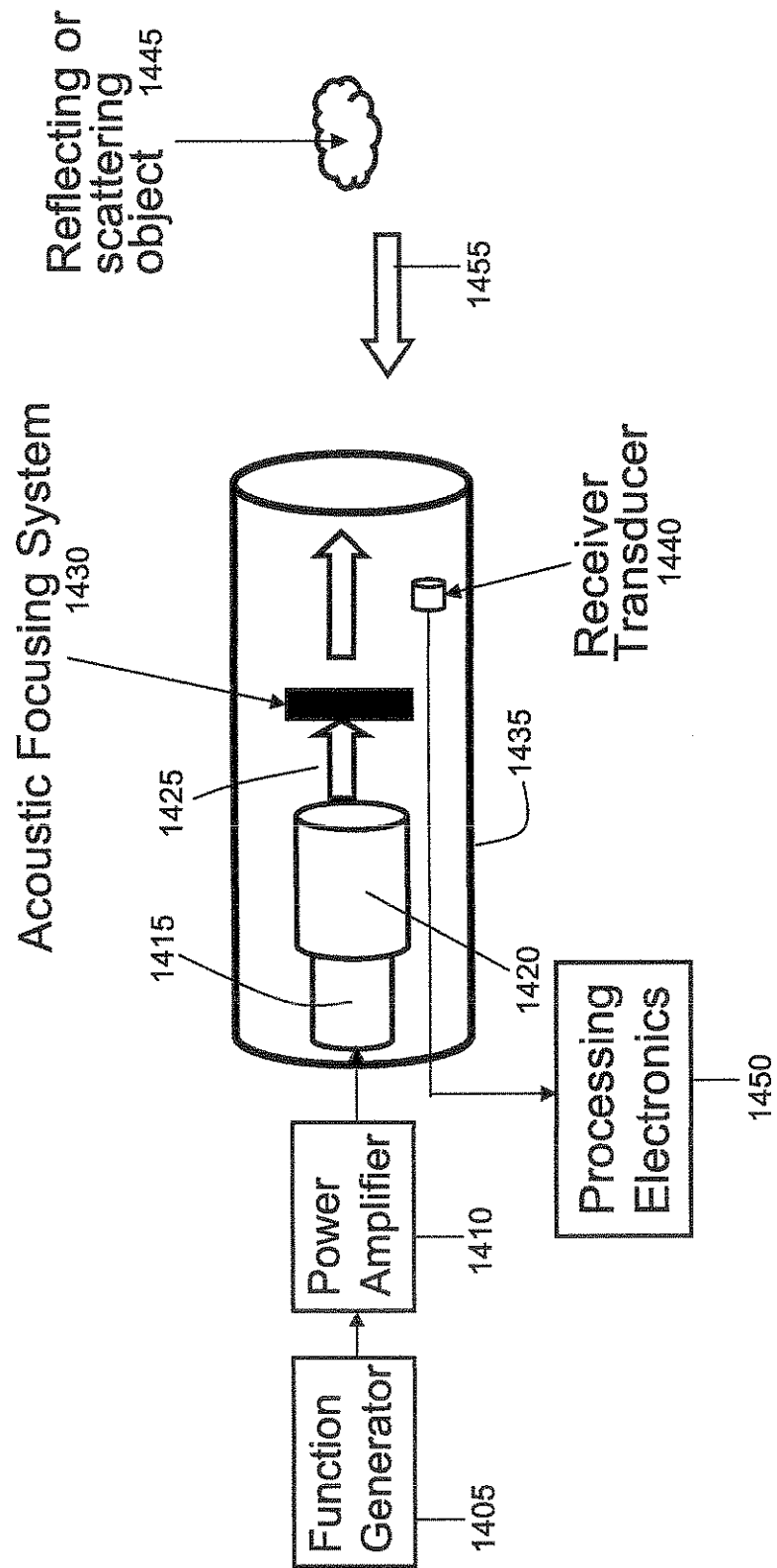


Fig. 14



Imaging of Object Outside Pipe

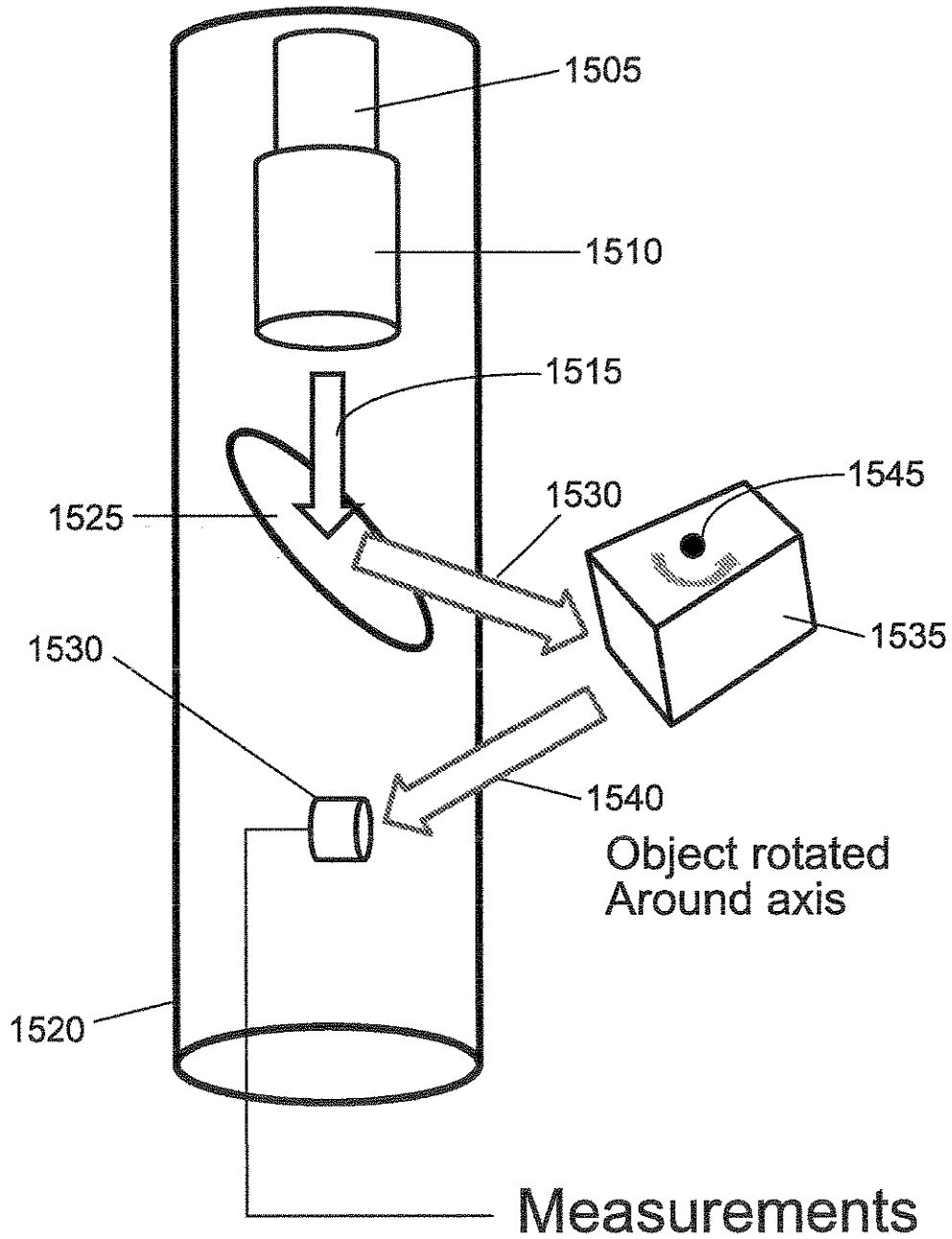
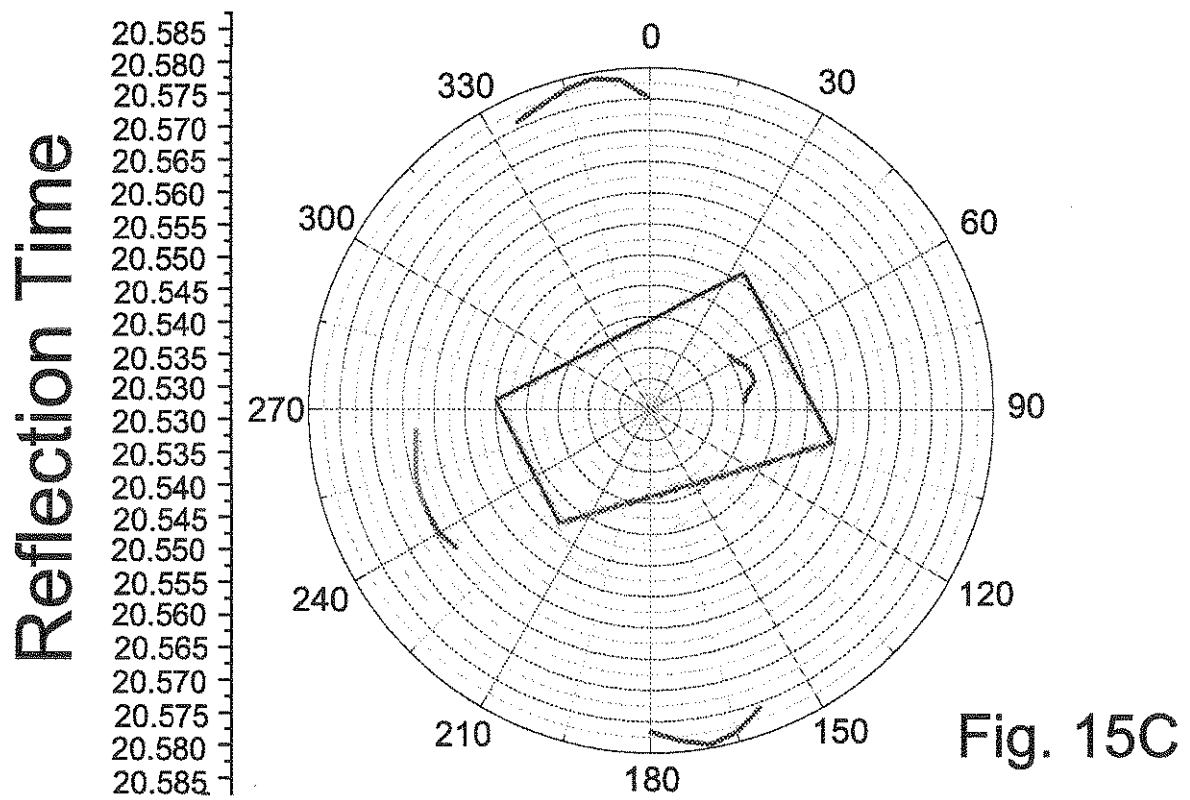
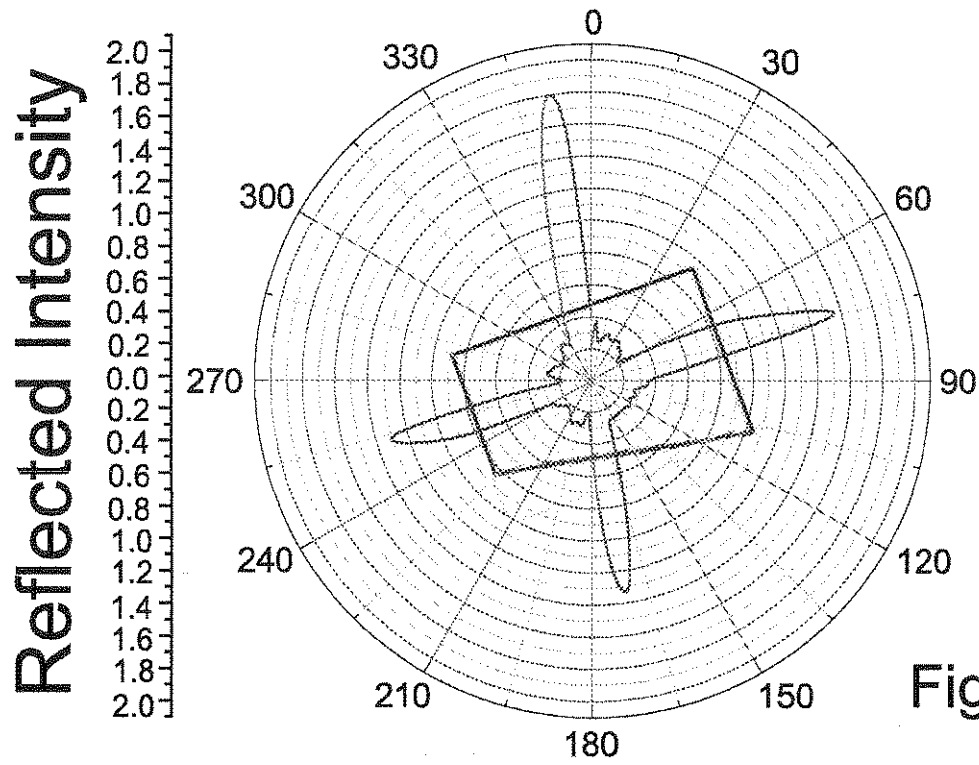


Fig. 15A



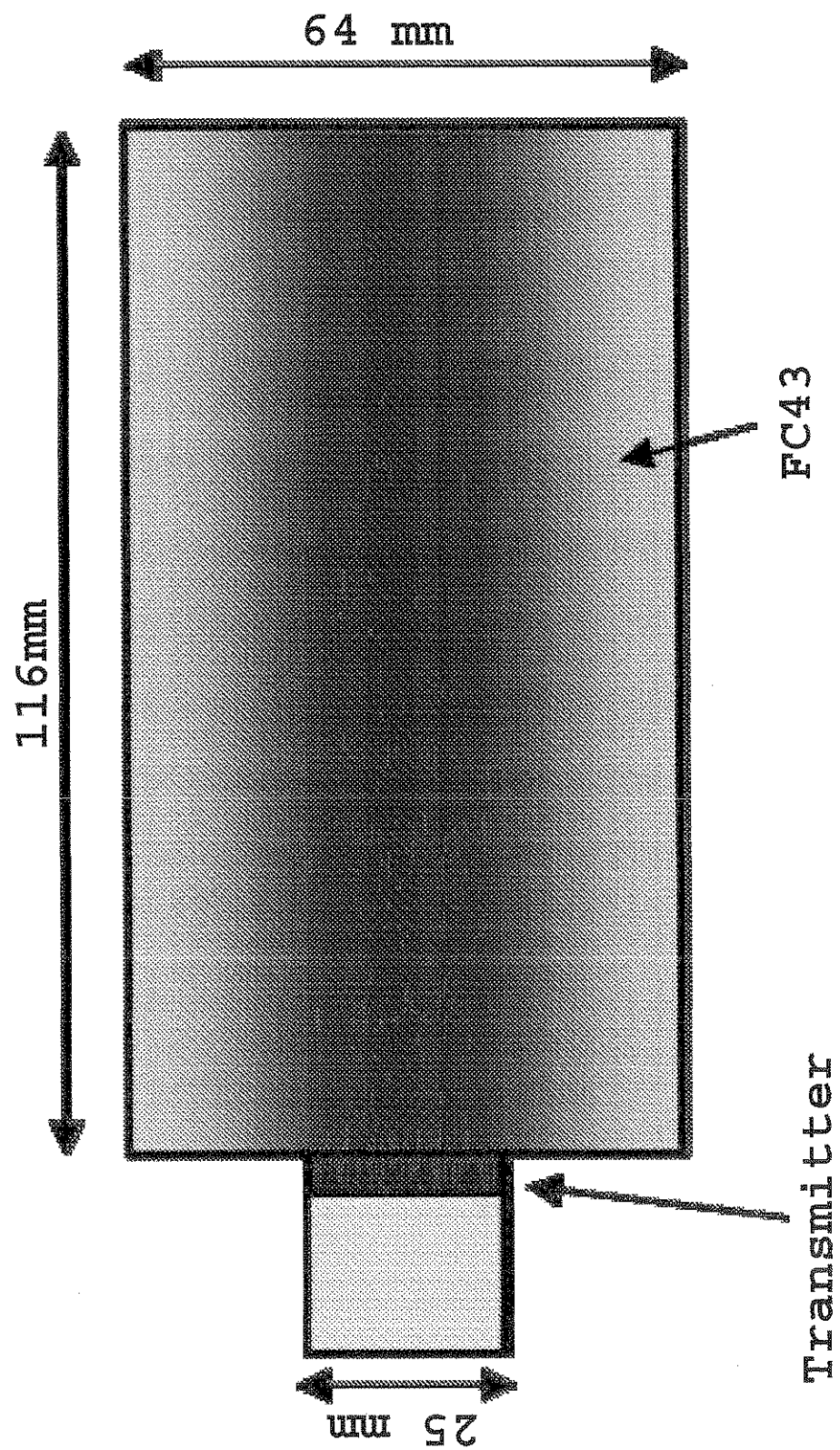


Figure 16

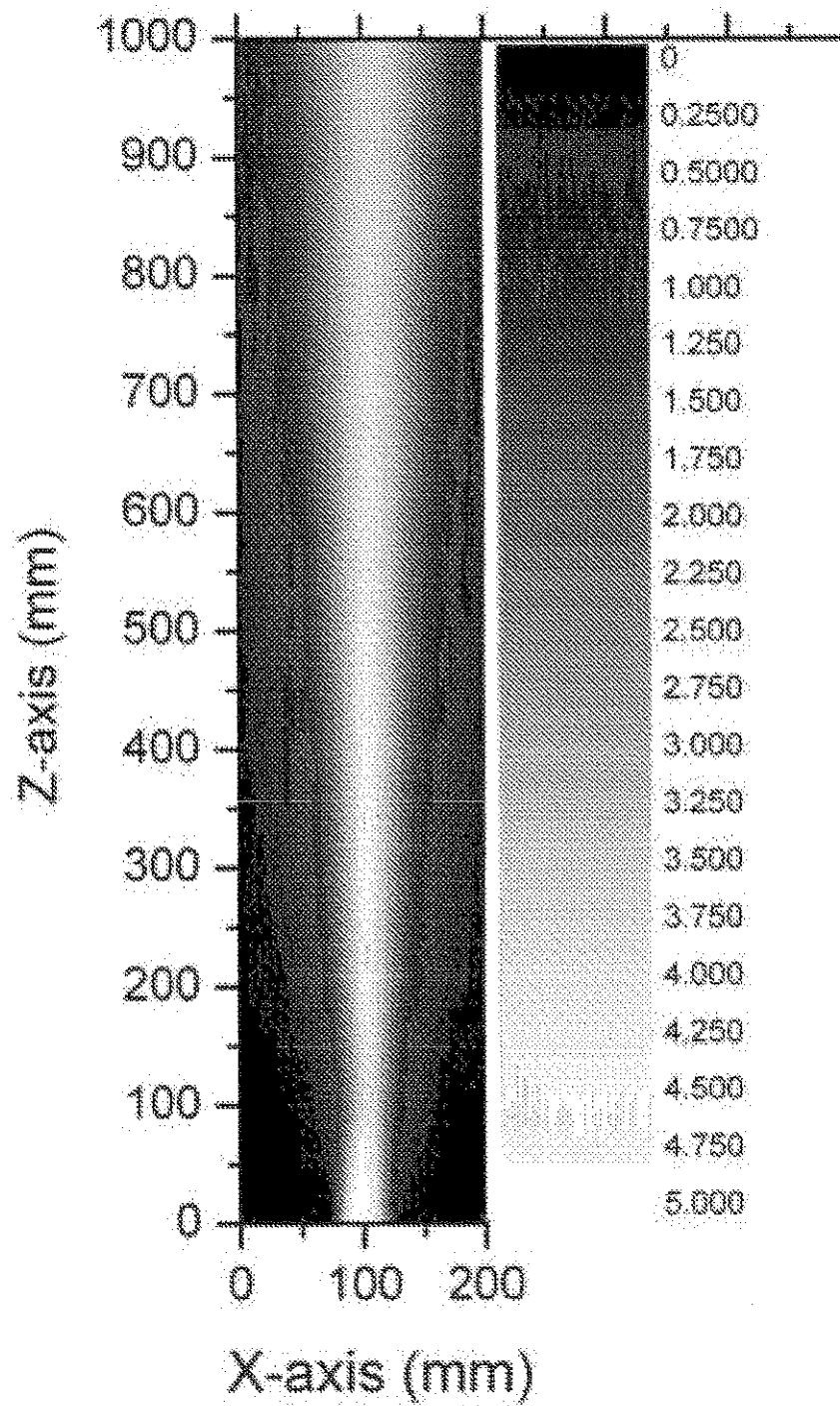


Figure 17

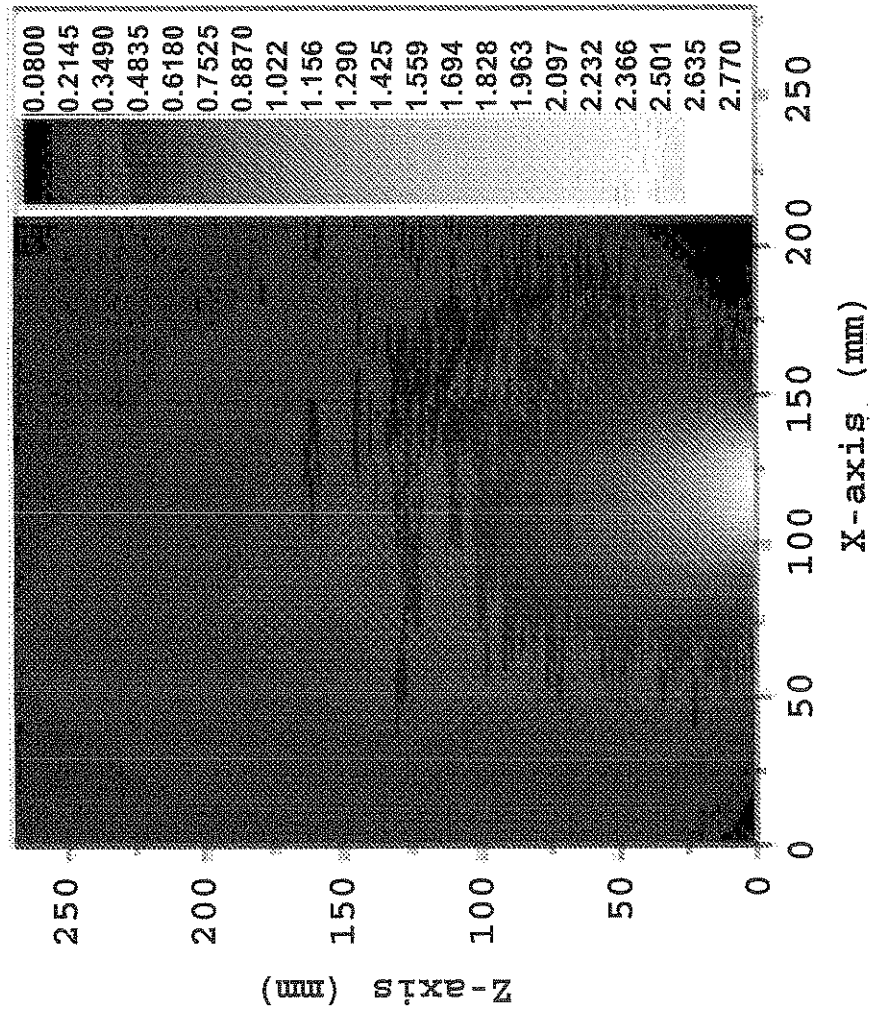


Figure 17 cont'd

26/34

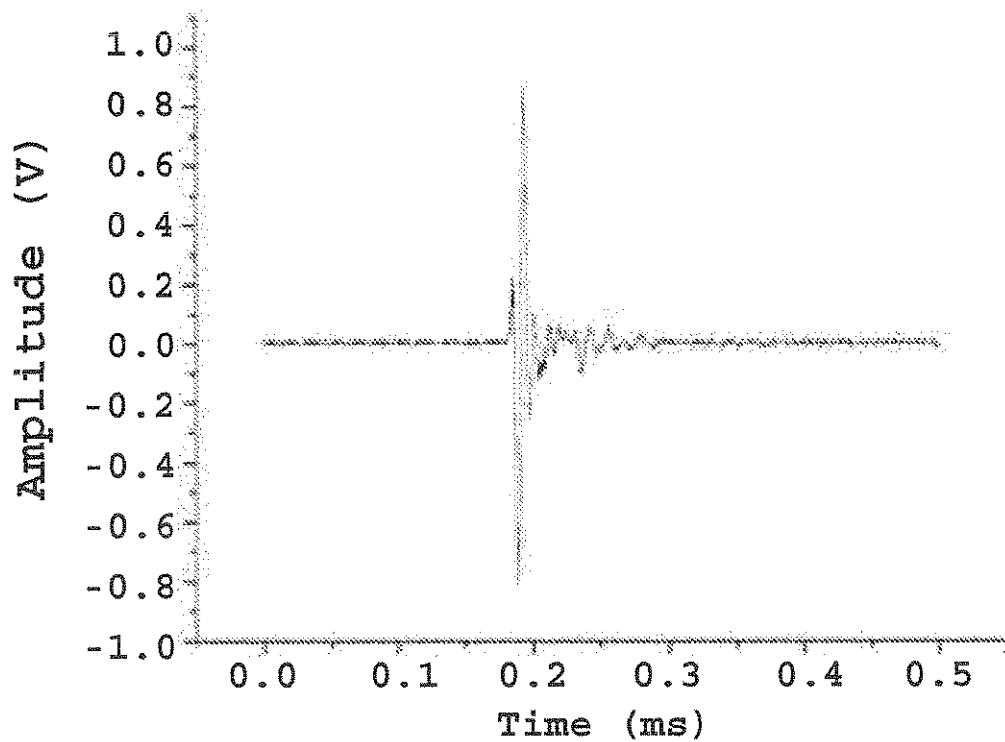
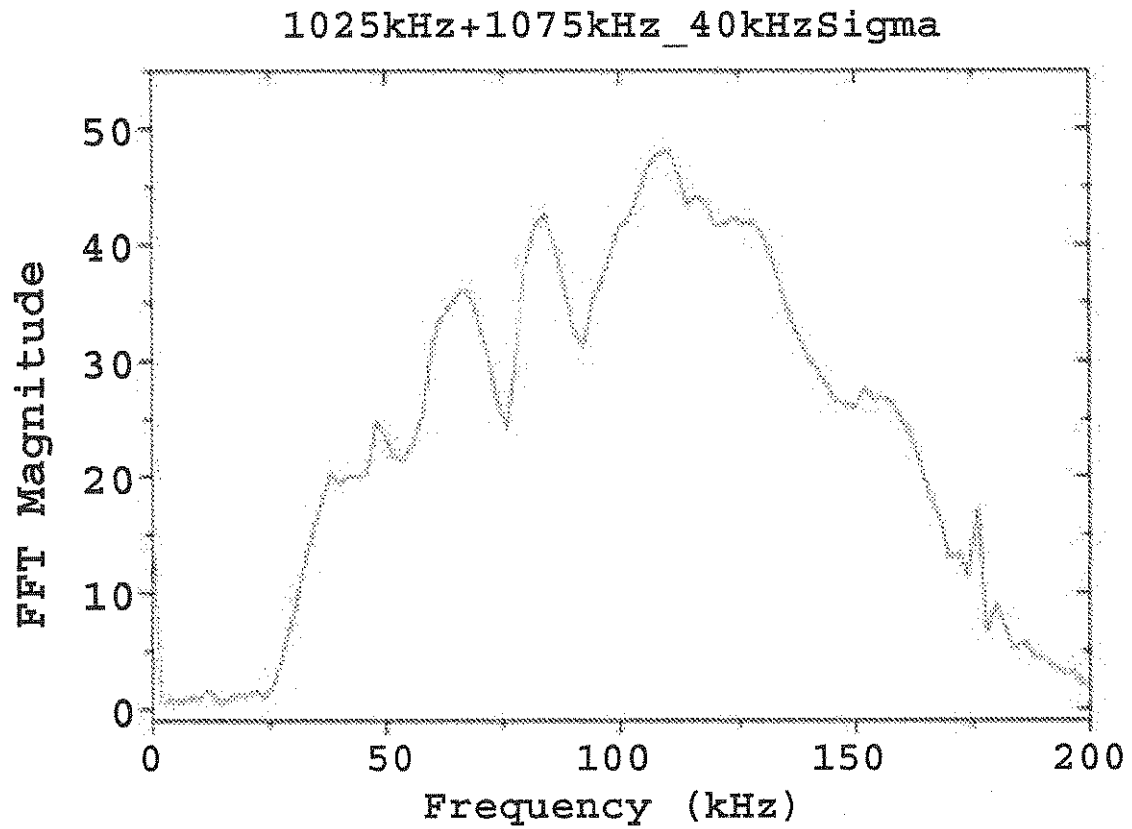


Figure 18

27/34

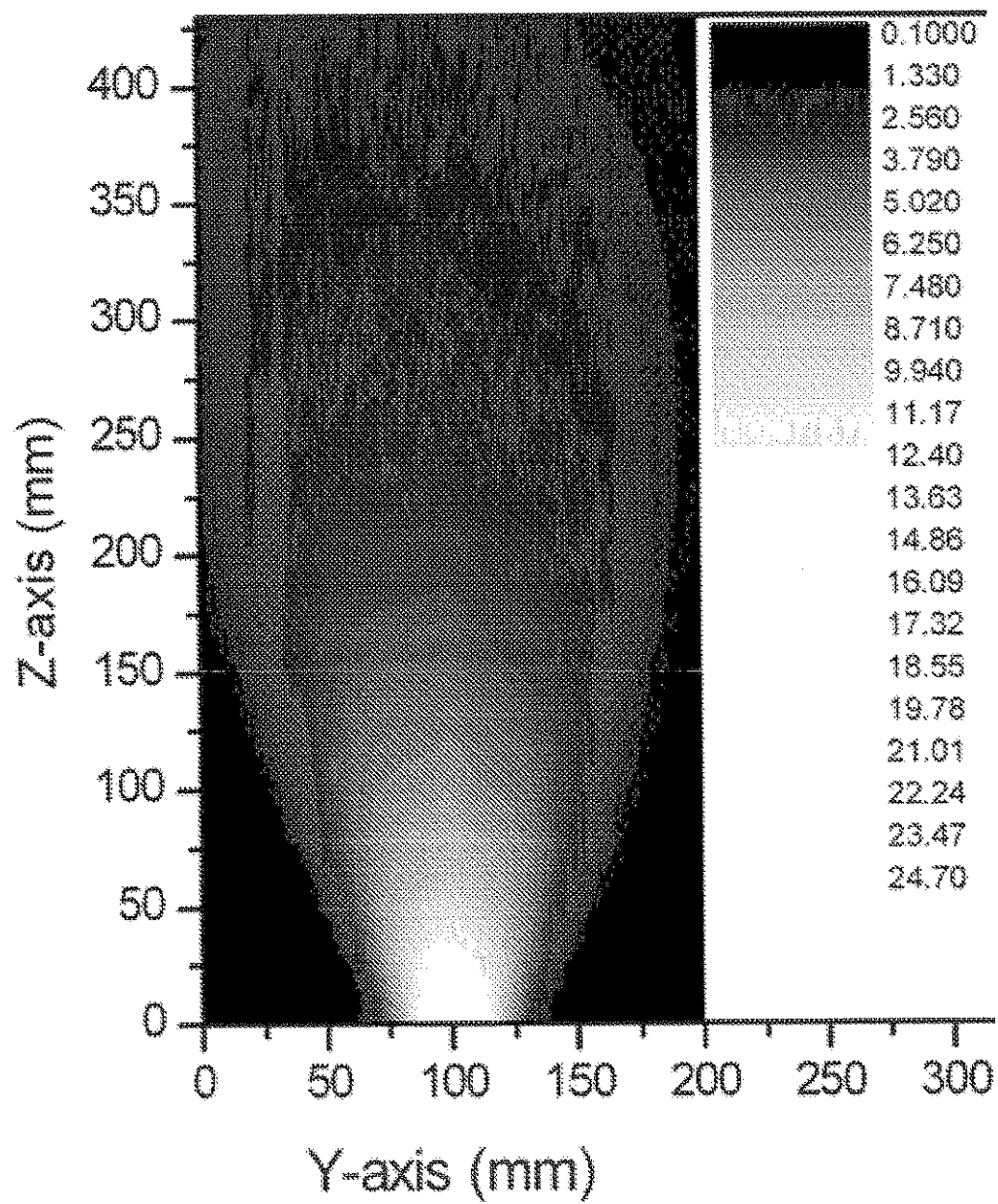


Figure 18 cont'd

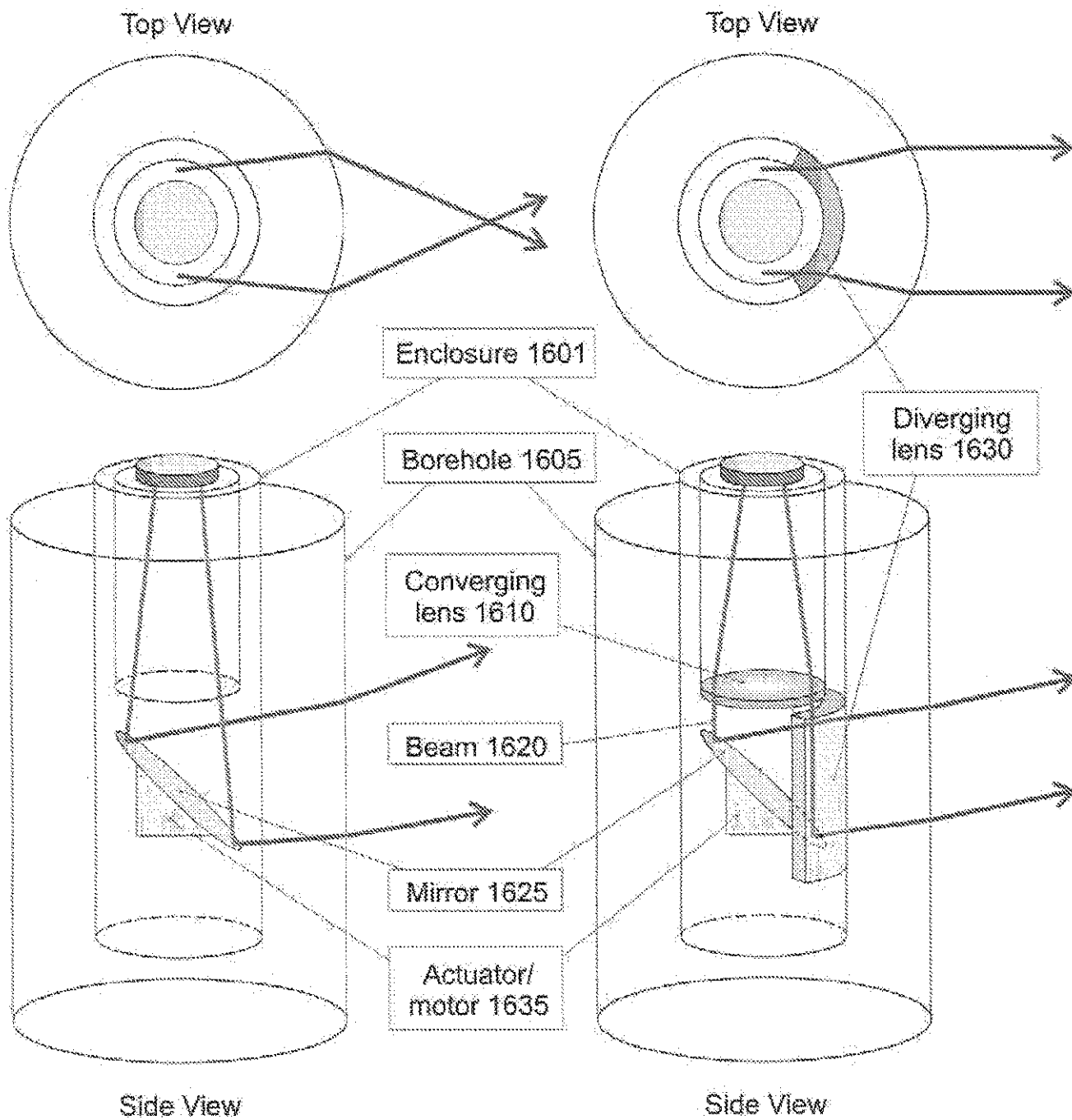


Figure 19a

Figure 19b

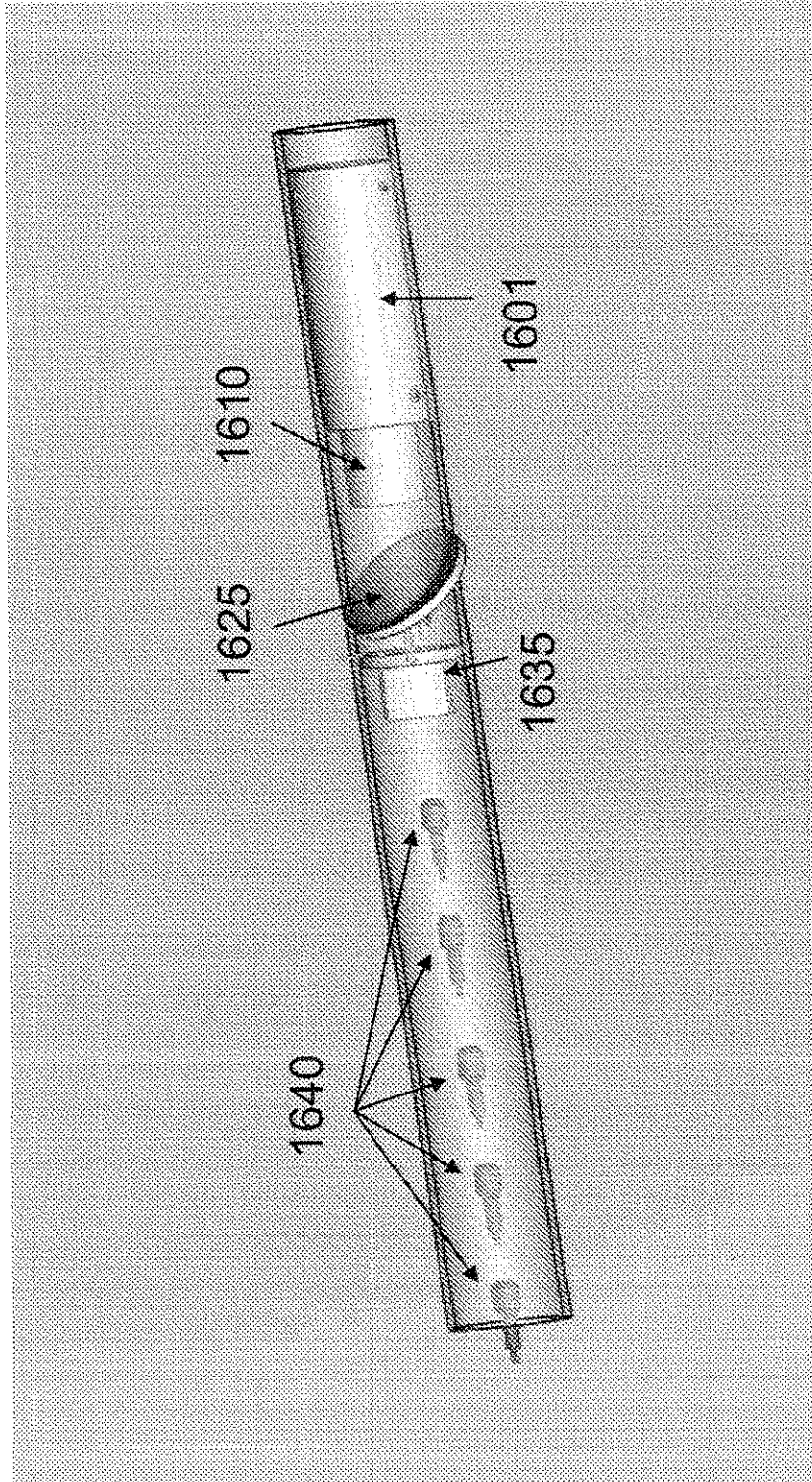
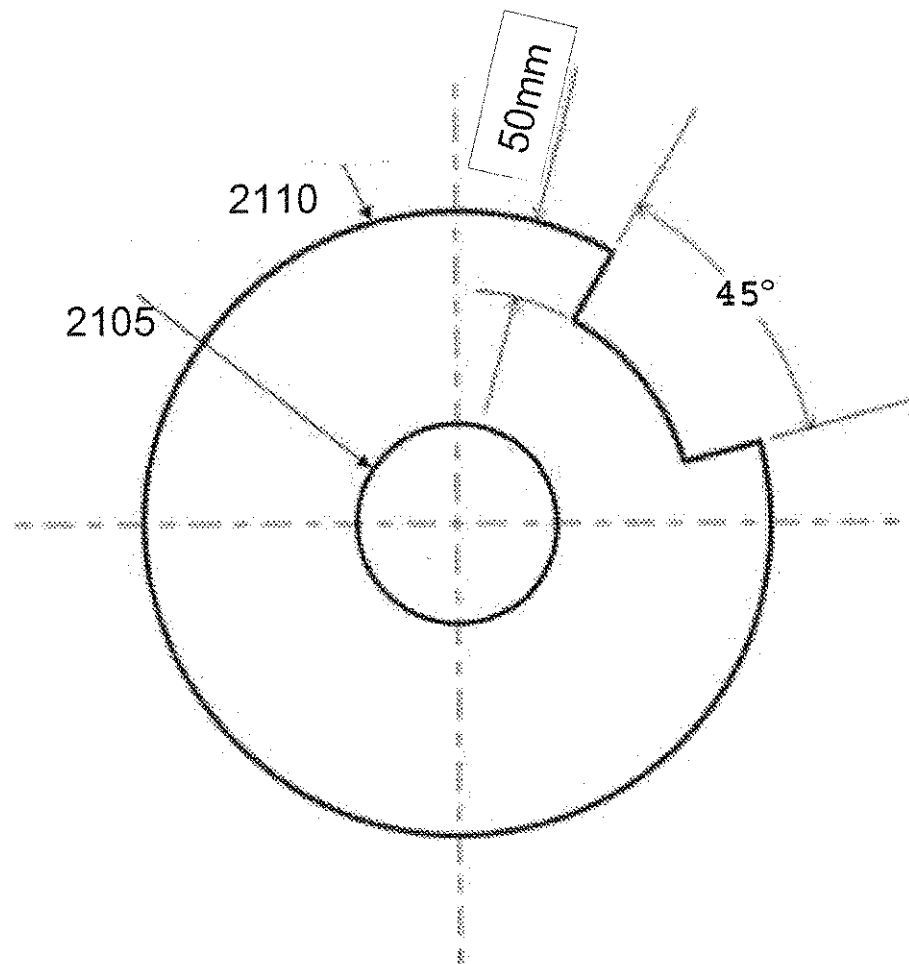


Figure 20



Plan view of proposed vertical cut in barrel

Figure 21a

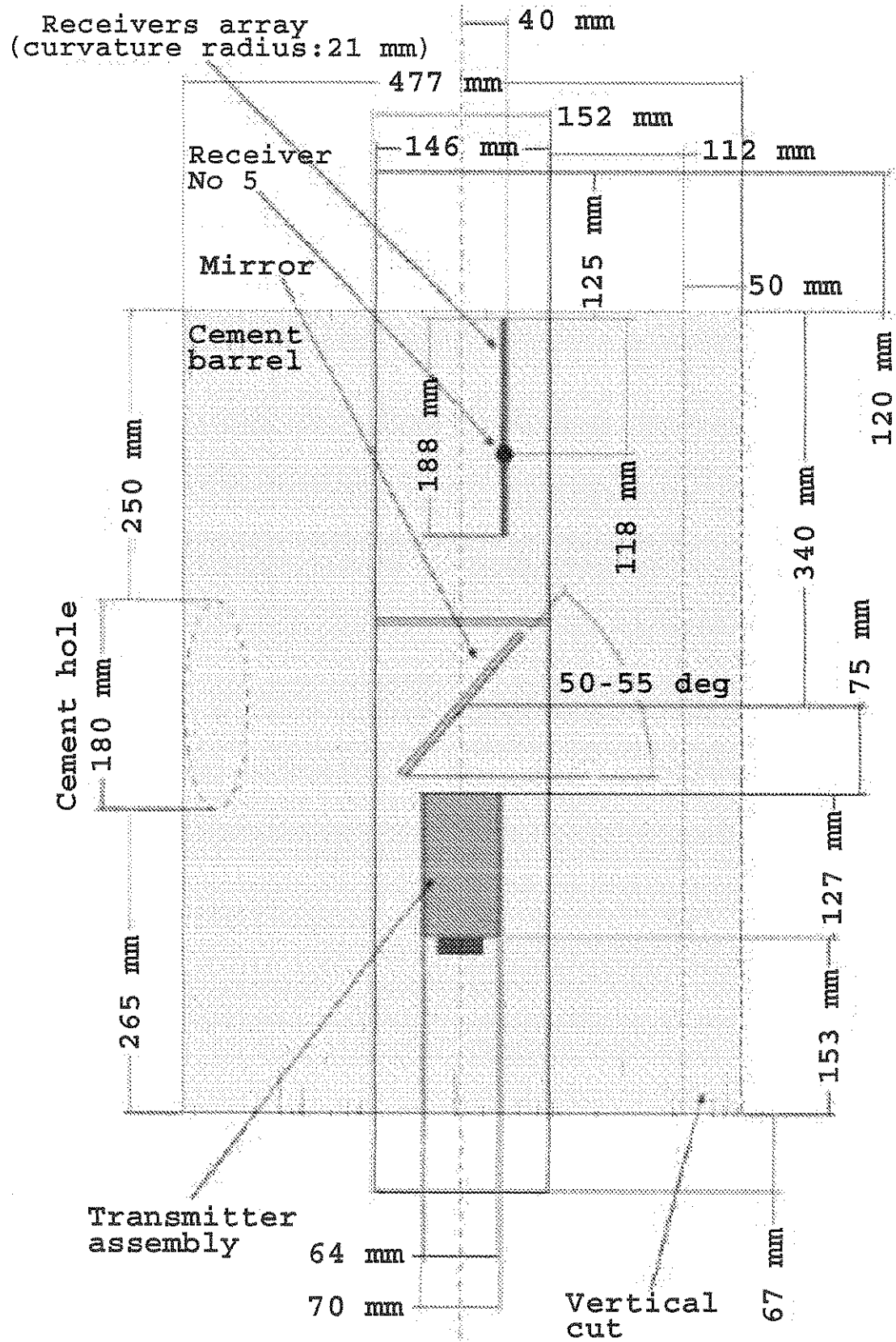
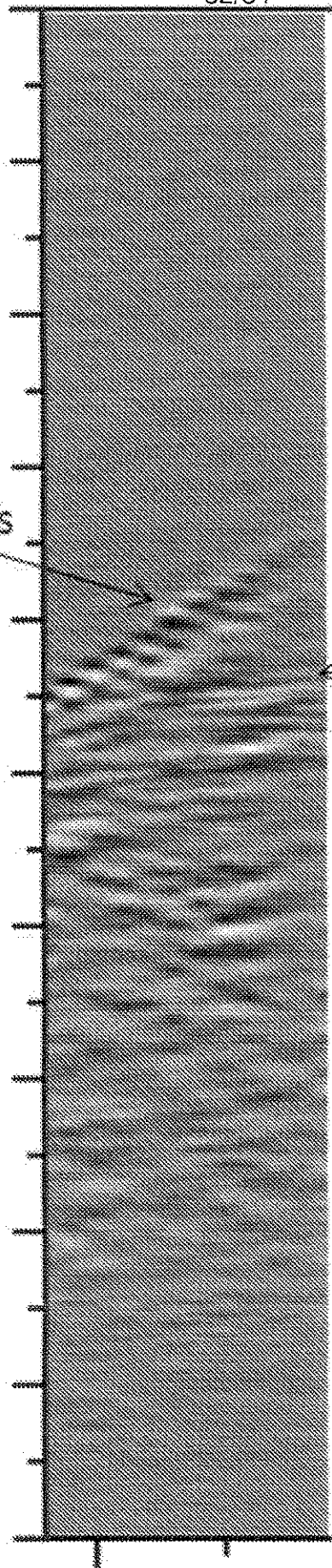


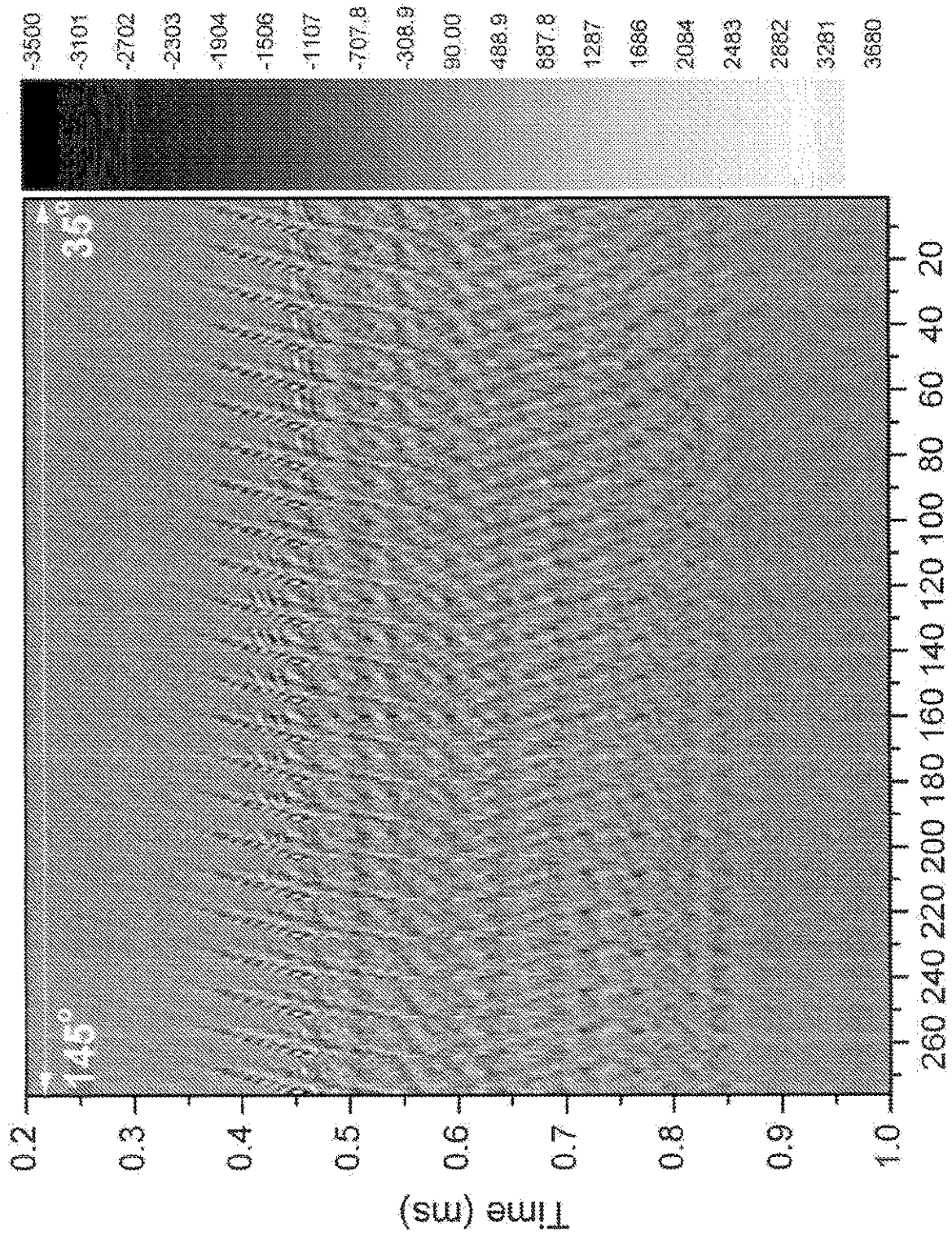
Figure 21b

32/34

Figure 22

Linear Arrivals

Reflection Arrivals
from outer walls



Waveform No.

Figure 23

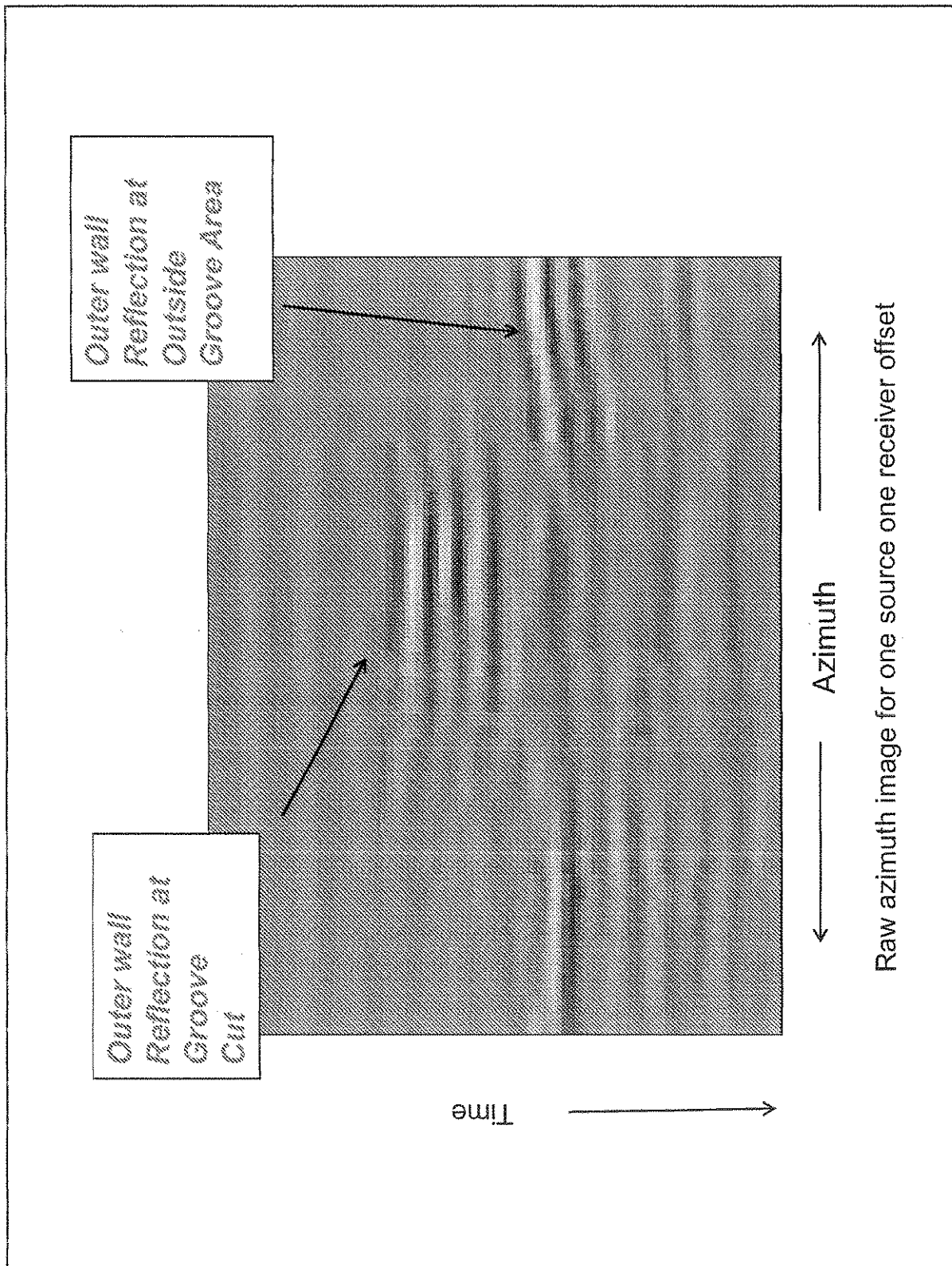


Figure 24