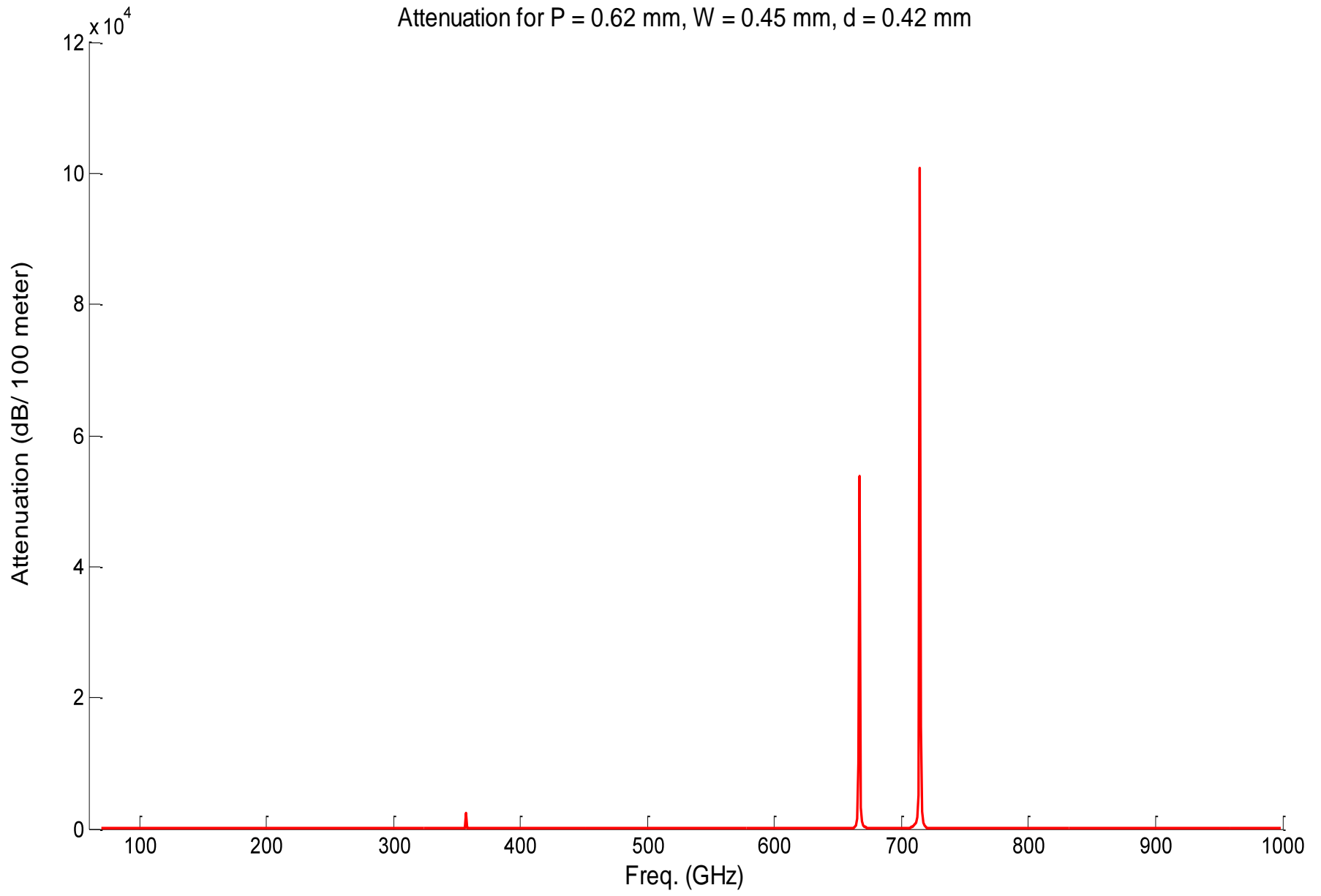


Transmission line for ITER ECE diagnostic

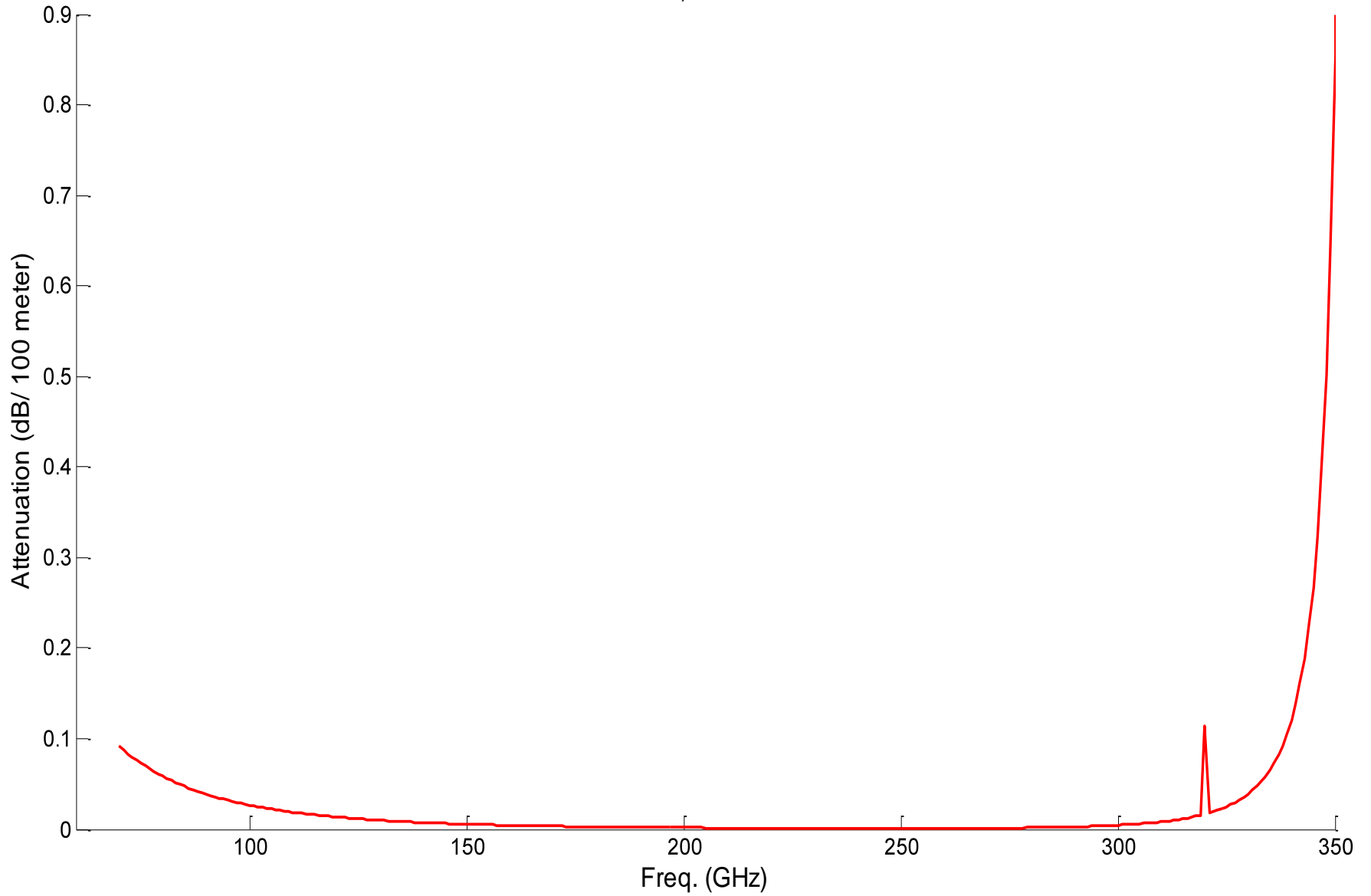
- ❖ Ultra Wide band (70 – 1000 GHz) transmission line is challenge for the ITER ECE diagnostics
- ❖ Corrugated waveguide attenuation in wideband 70 – 1000 GHz
- ❖ Calculated ohmic attenuation for this wide band by using Clarricoats [1] theory

[1] P. J. B. CLARRICOATS and A. D. OLVER, *Corrugated Horns for Microwave Antennas, Appendix, Peter Peregrinus Ltd., London ~1984*

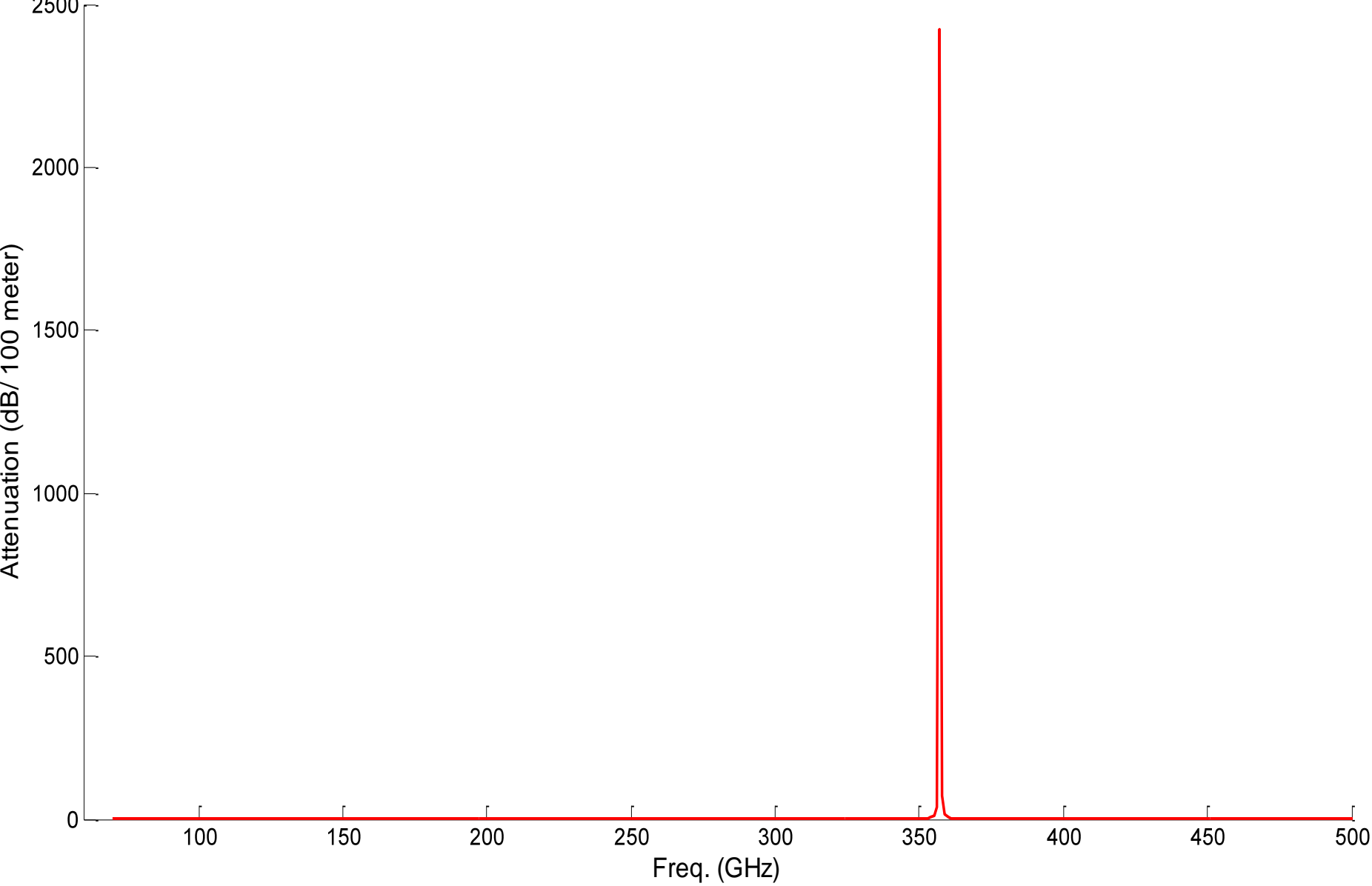
Attenuation for P = 0.62 mm, W = 0.45 mm, d = 0.42 mm

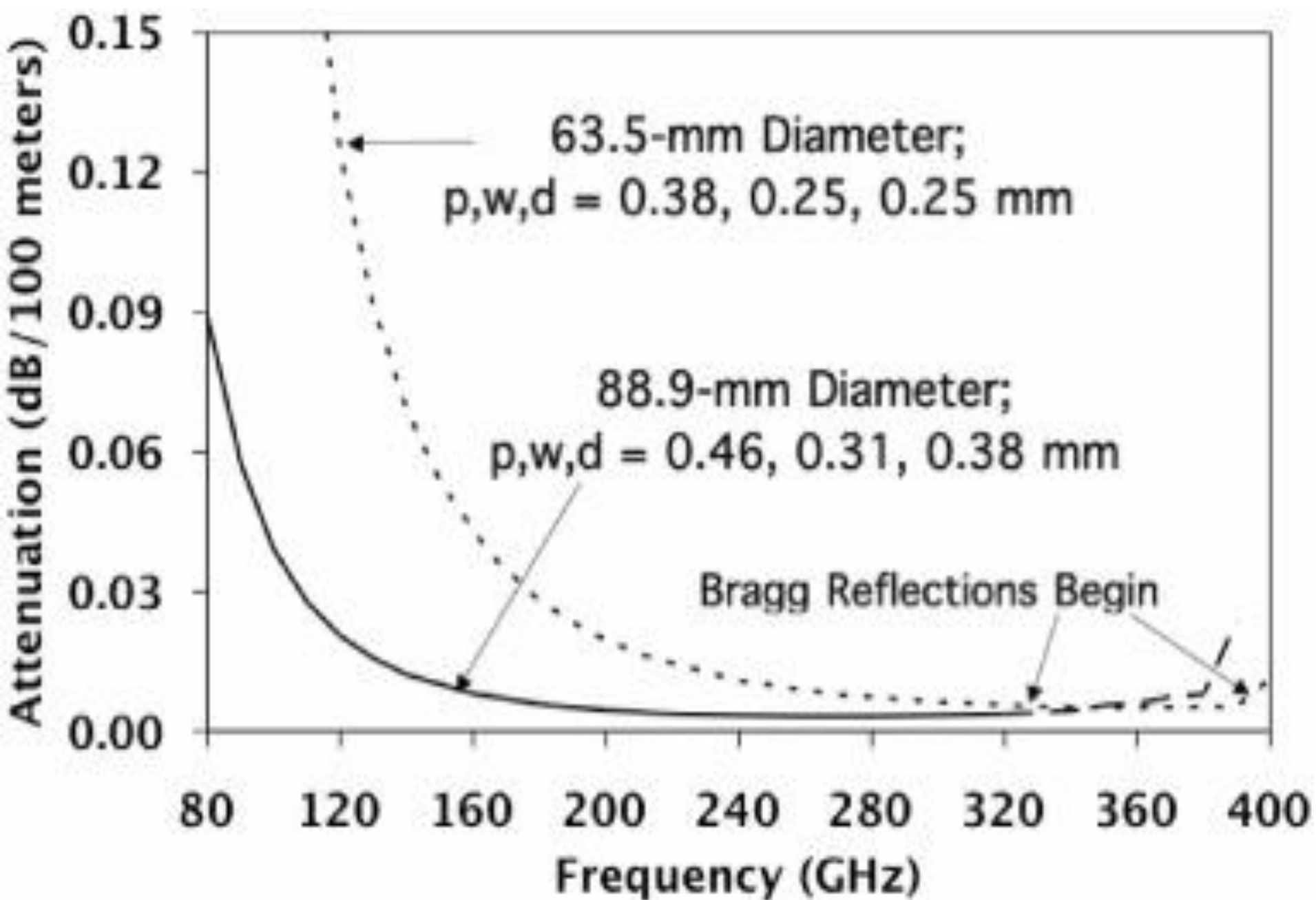


Attenuation for $P = 0.62$ mm, $W = 0.45$ mm and $d = 0.42$ mm

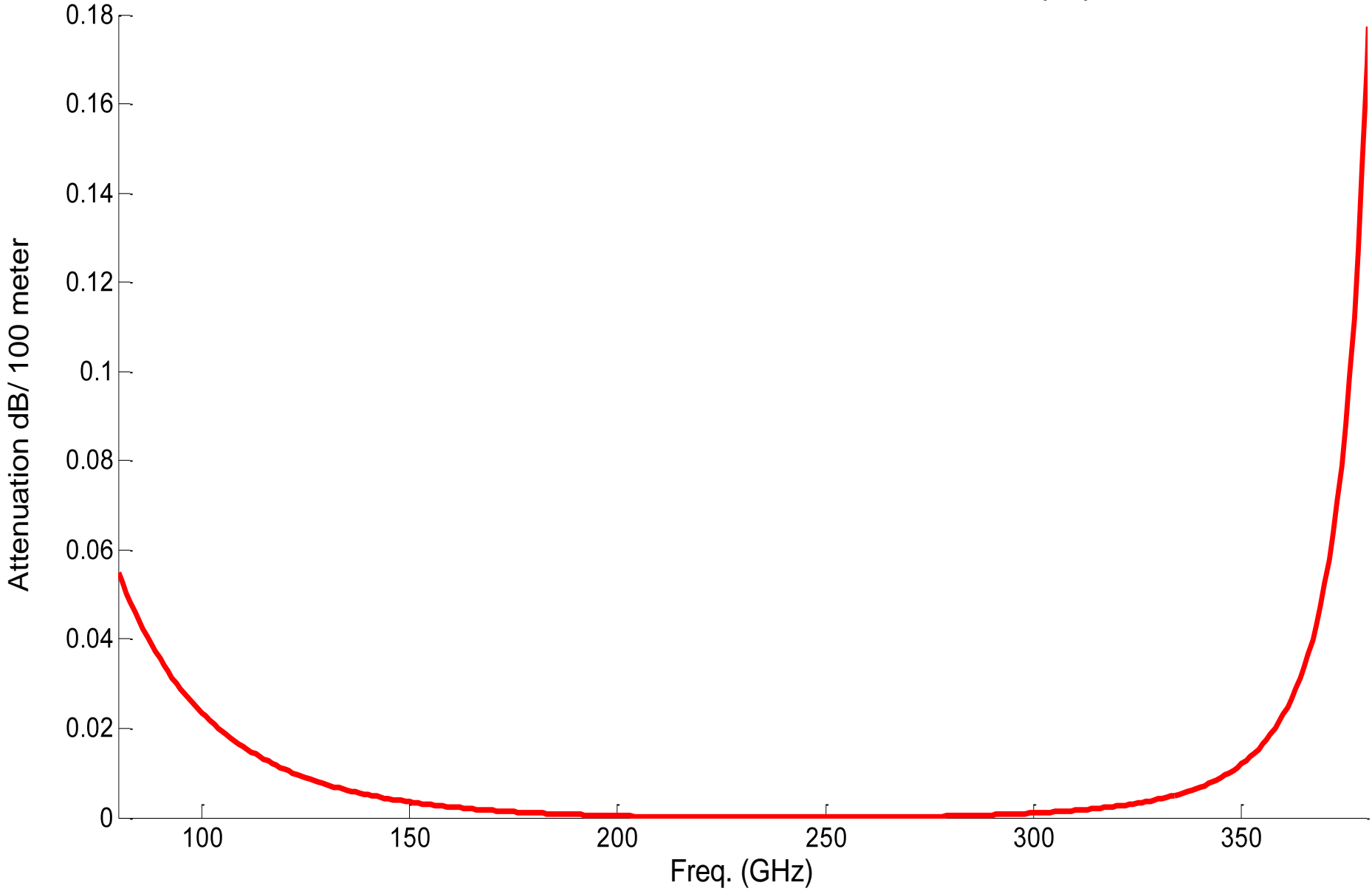


Attenuation for $P = 0.62$ mm, $W = 0.45$ mm, $d = 0.42$ mm





Attenuation for P = 0.46 mm, W = 0.31, d = 0.38 General Atomic proposed W/G



- ❖ Our calculation reasonably match with Doane [2] (GA) calculation that is on space harmonic analysis

[2] J. L. Doane, FUSION SCIENCE AND TECHNOLOGY VOL. 53 (JAN. 2008)

- ❖ Mode scrambling (X- mode to O-mode or vise versa) during W/G propagation
- ❖ Your opinions for this