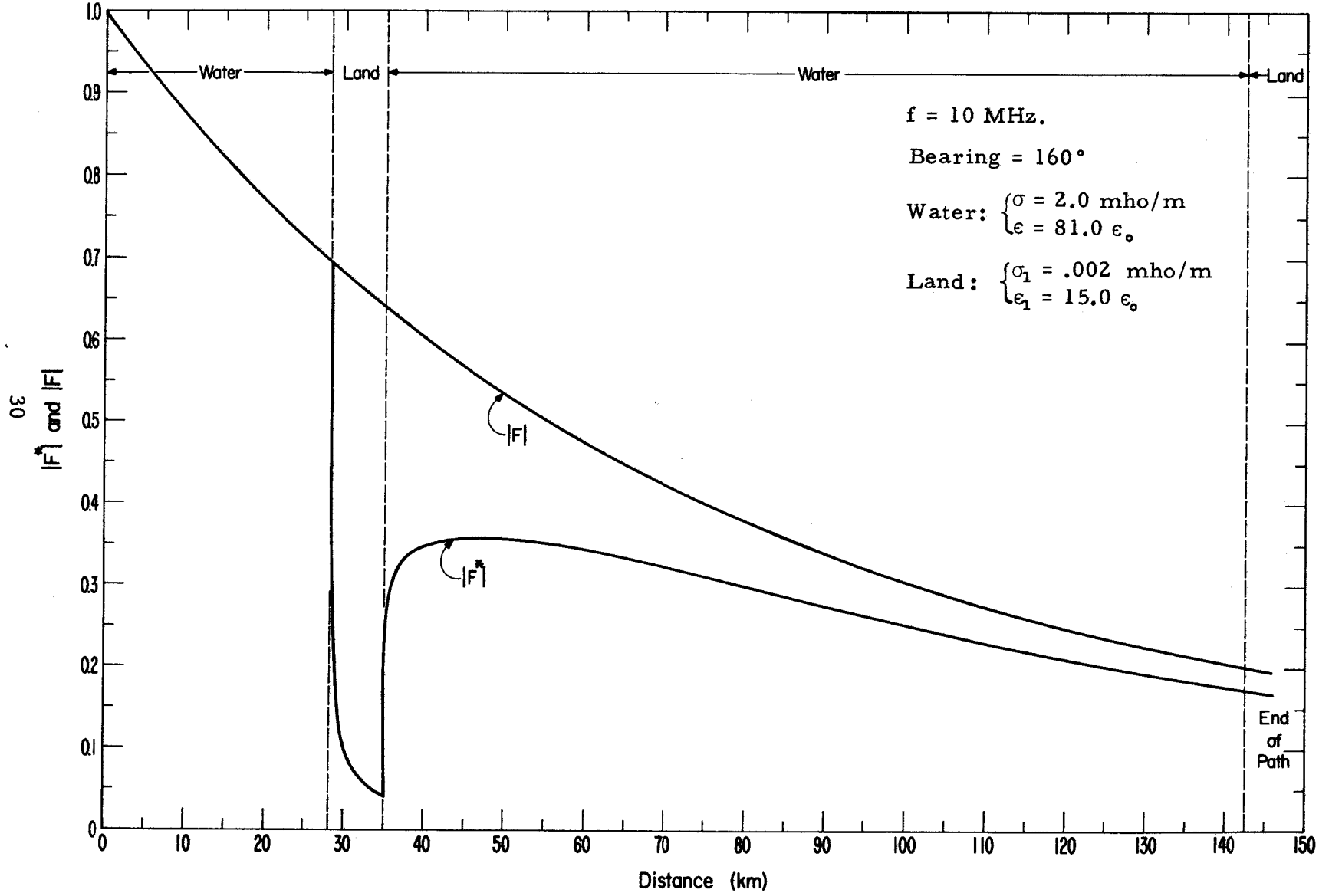
7. GRAPHS AND TABLES

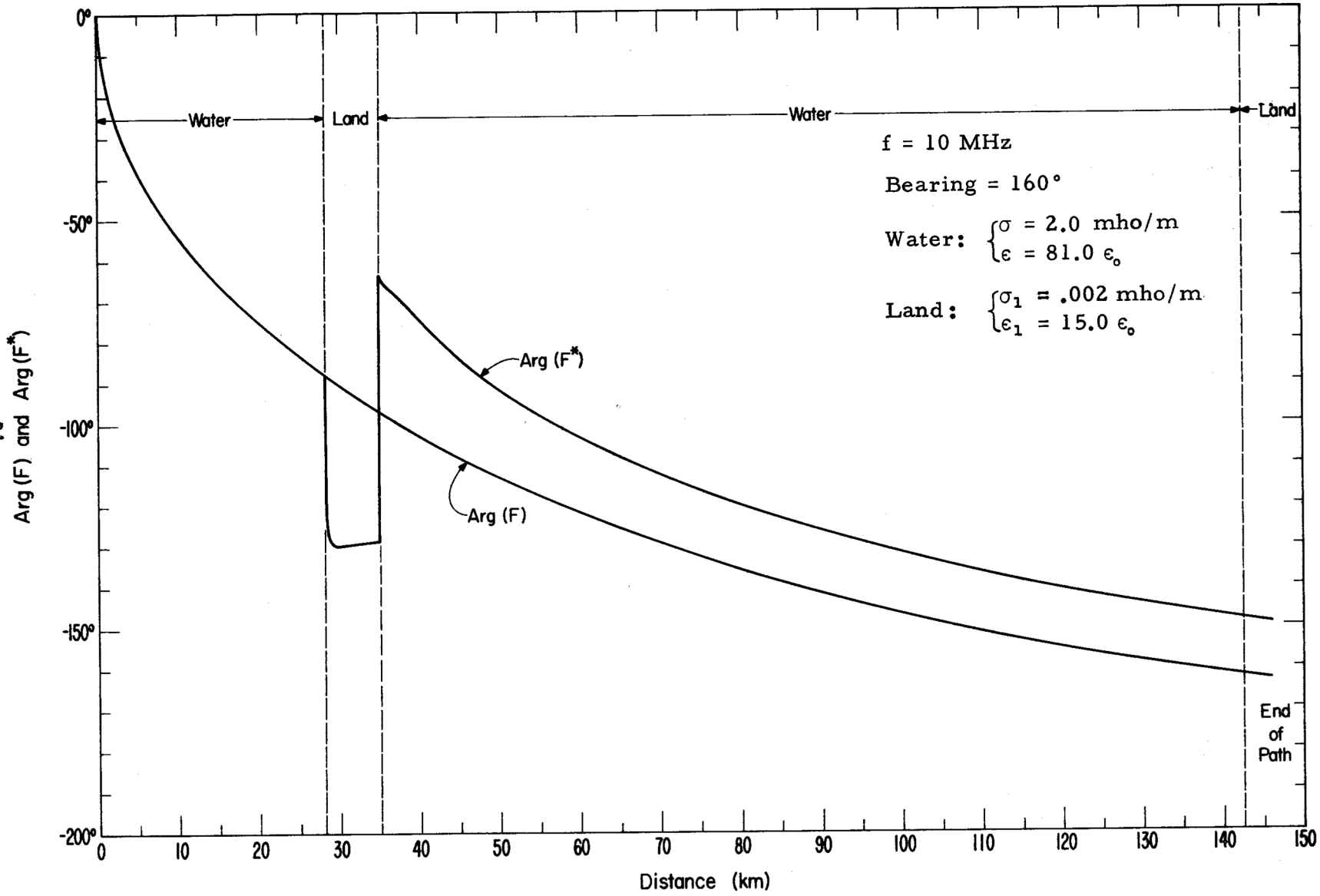
In this section are collected the graphs and tables which present the results of the calculations and comparisons discussed earlier in this report. The graphs are fairly self-explanatory, contain the pertinent parameter values, and have been discussed earlier in the text. Some description of the contents and organization of the tables is in order, however. This can be best accomplished by a brief description of the table headings and columns. In the table headings Line 1 contains the title. Line 2 contains the bearing of the path in degrees E of N, and the geographic latitude and longitude of the transmitter. Line 3 contains the values of the dielectric constant (ϵ/ϵ_0), the conductivity σ in mhos/meter, and the real and imaginary parts of the complex dielectric constant ϵ_c (see sec. 2, eq. 5), in that order, for the surface S_e' Line 4 contains, similarly, the values of (ϵ_1/ϵ_0), σ_1, and the real and imaginary parts of ϵ_{1c}, in that order, for the surface S_e''. Line 5 contains the real and imaginary parts of the impedance Z of S_e', and similarly, Z_1 for S_e''. Line 6 contains the parameters that specify the position of the "island" with respect to the transmitter location and the path of propagation (see fig. 3). Line 7 contains the frequency and the wavelength of the radiation. The column headings are as follows: D is the distance along the path from the transmitter; LAT and LONG are the latitude and longitude of this point; F(D, Z) and ARG F(D, Z) represent the amplitude and the phase of the attenuation function (Sommerfeld) in the homogeneous case (if the "island" S_e'' were absent); F*(D, Z, Z_1) and ARG F*(D, Z, Z_1), similarly, represent the inhomogeneous case. The gaps and breaks in the tables indicate the boundaries of the media and the numeric notation is as follows:

1.19917-002 means 1.19917×10^{-002}.

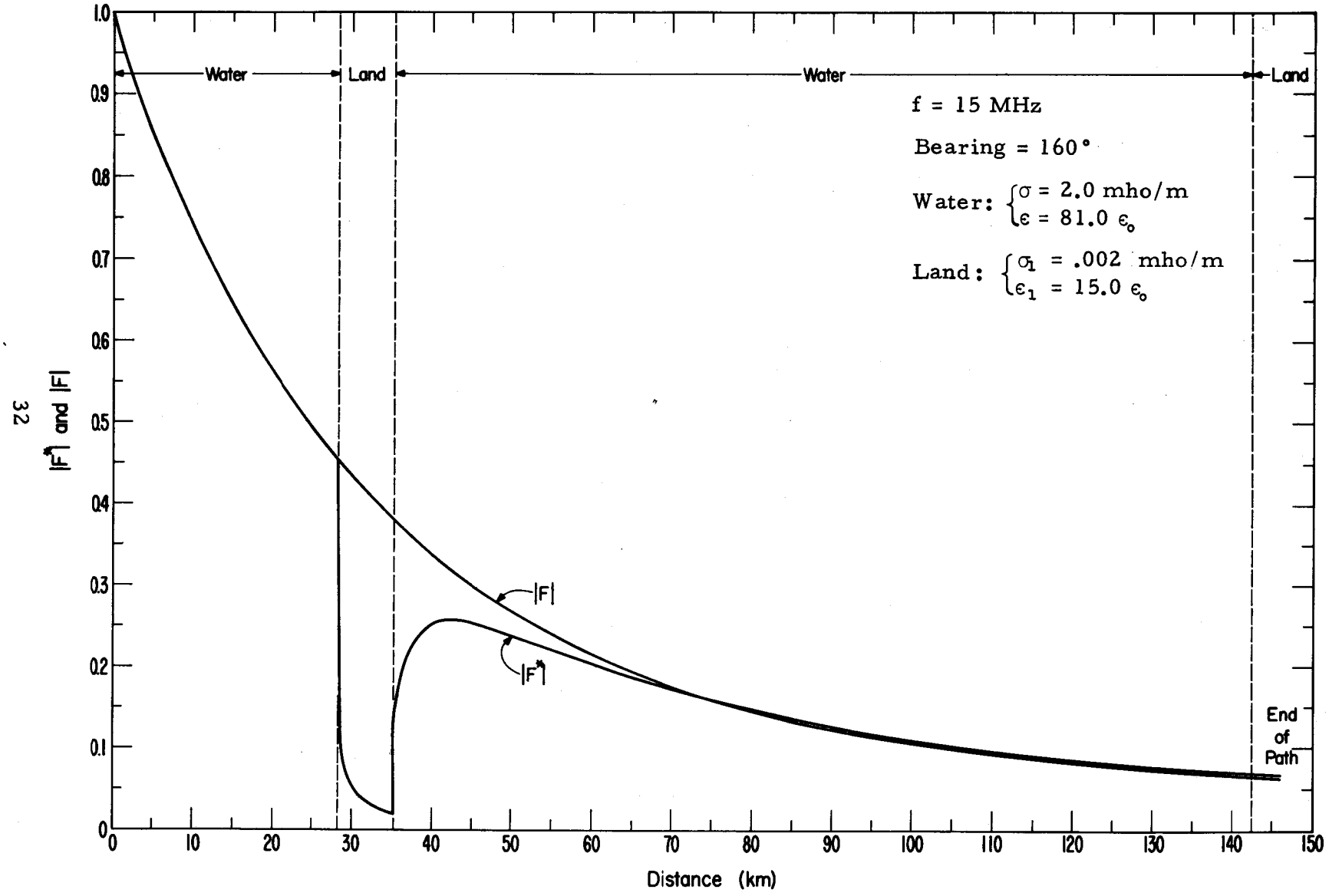
One should note that the tables give six significant figures. While the calculations are accurate to this level, the model is probably only good to about three digits (see graph 31) at best. The six digits were given only to permit accurate comparison of different models and in no way are meant to imply that the model is that accurate a representation of reality.



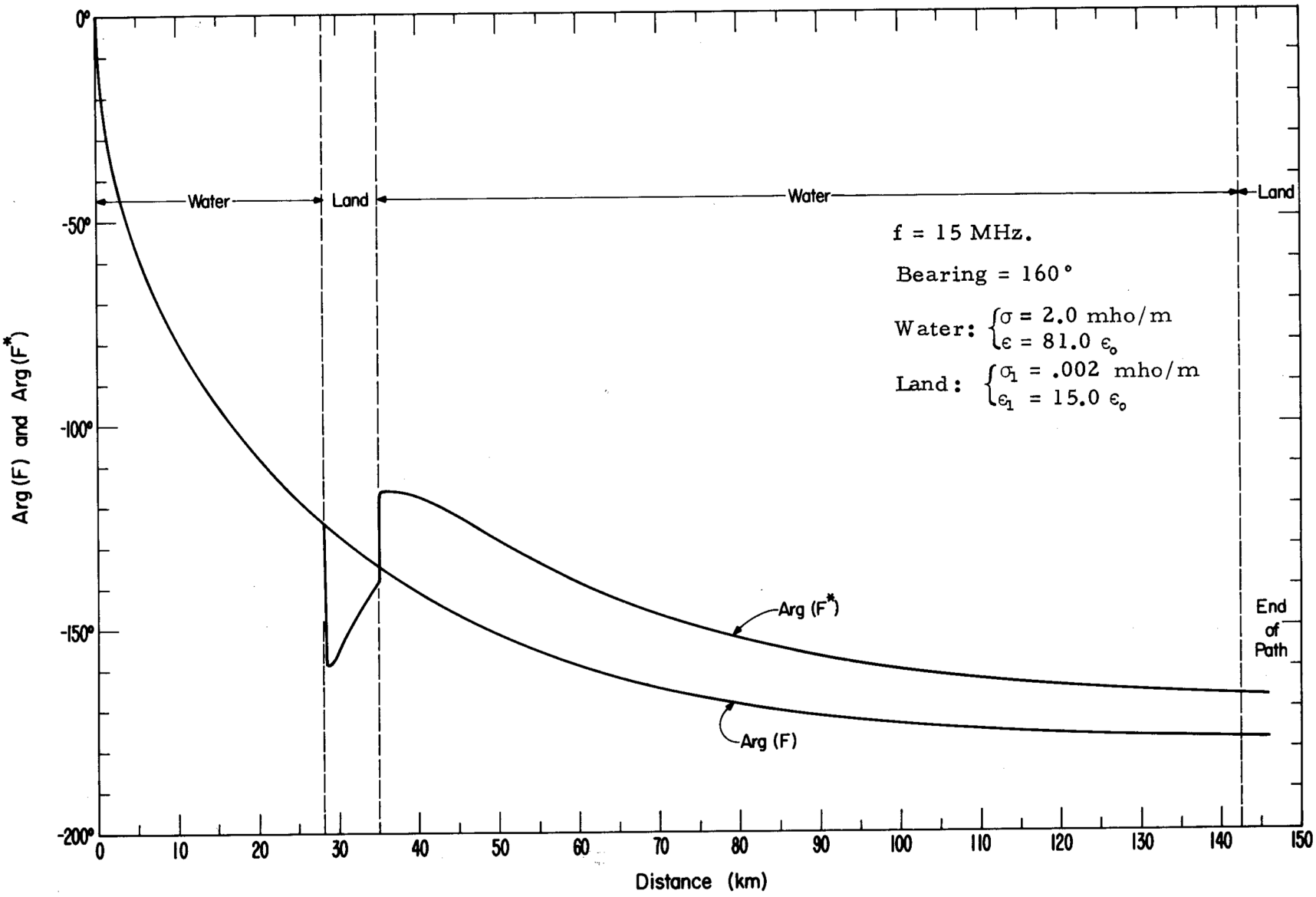
Graph 1. Amplitude versus distance for path 1, 10 MHz (see table 1).



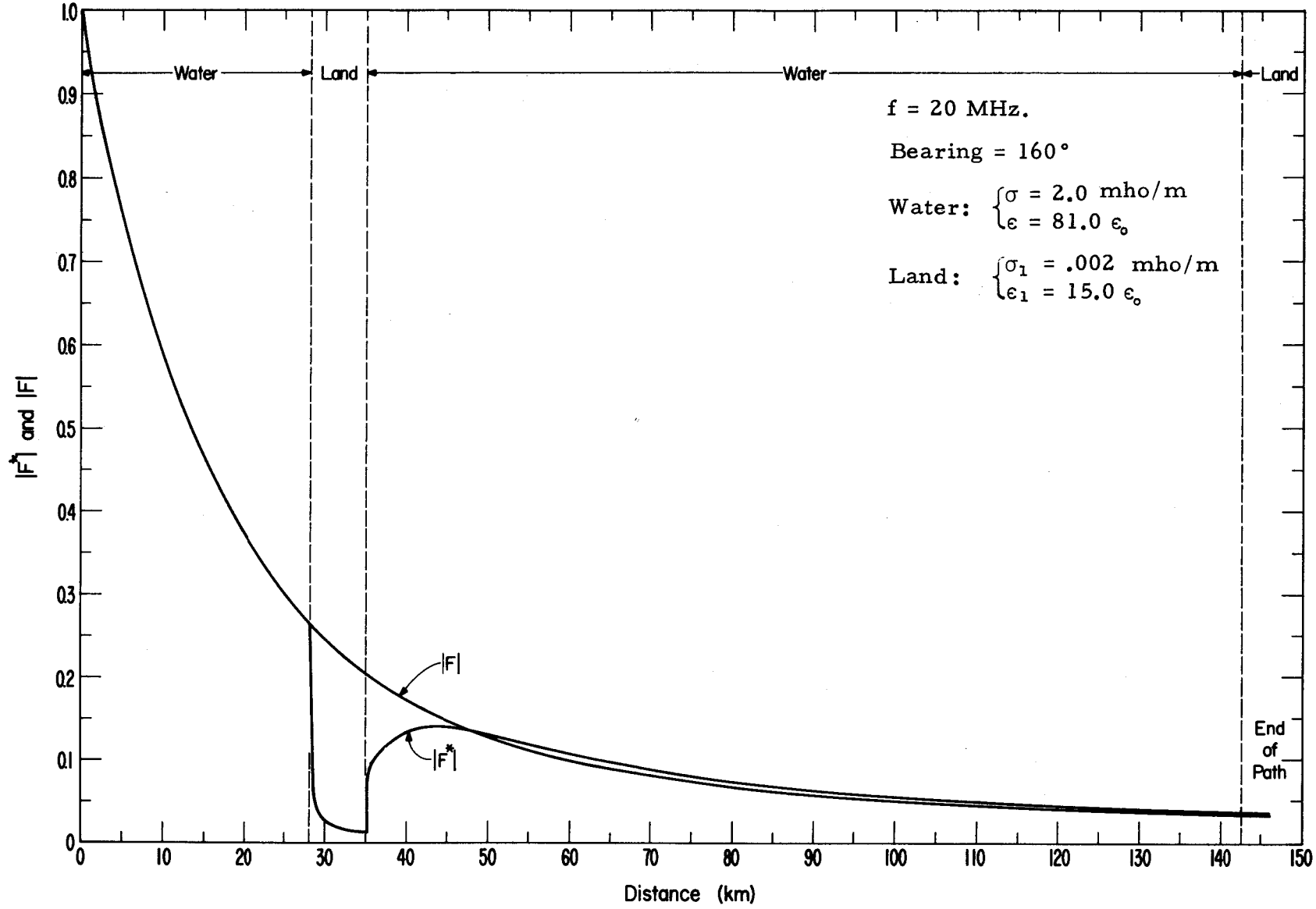
Graph 2. Phase versus distance for path 1, 10 MHz (see table 1).



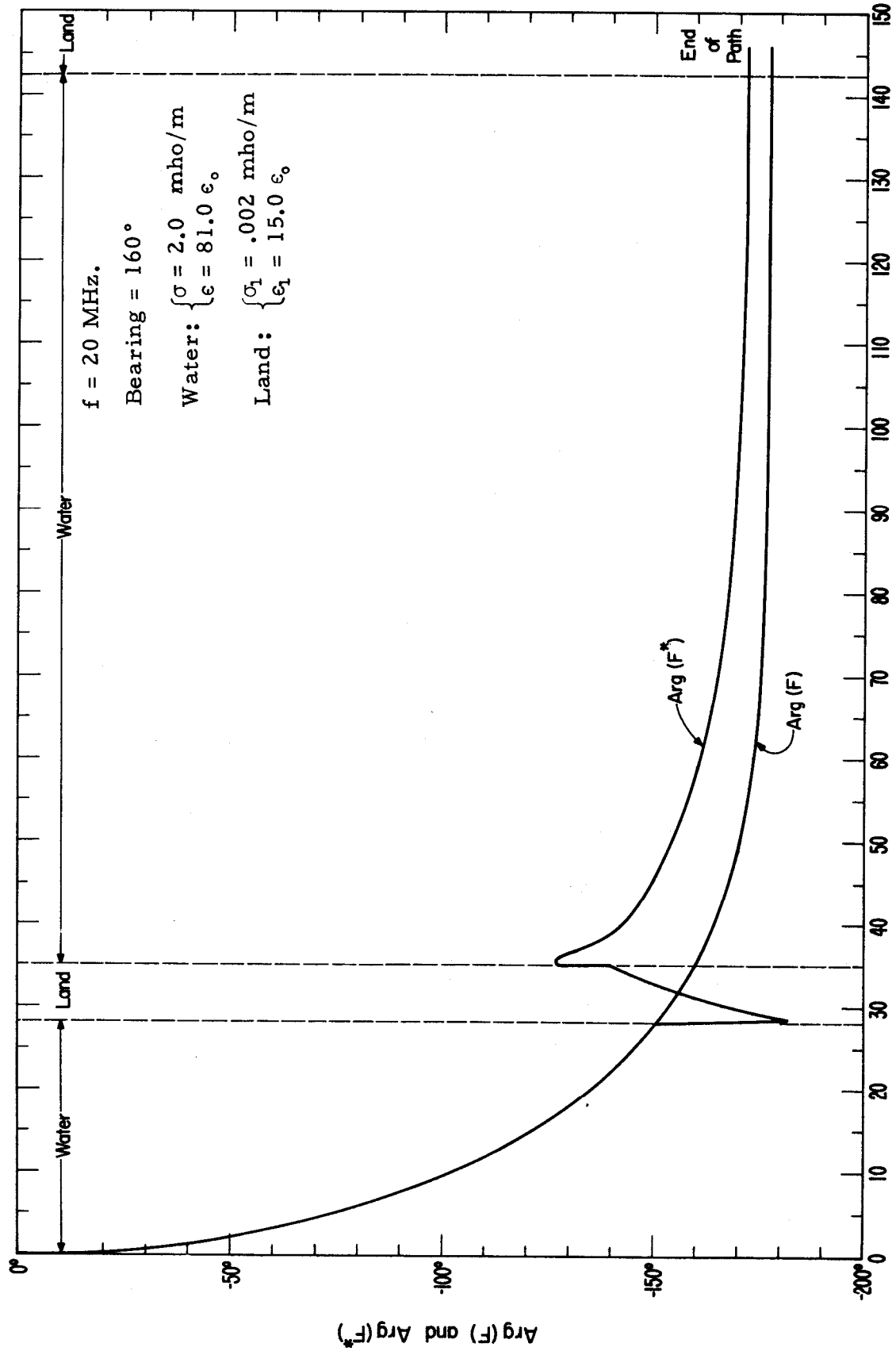
Graph 3. Amplitude versus distance for path 1, 15 MHz (see table 2).



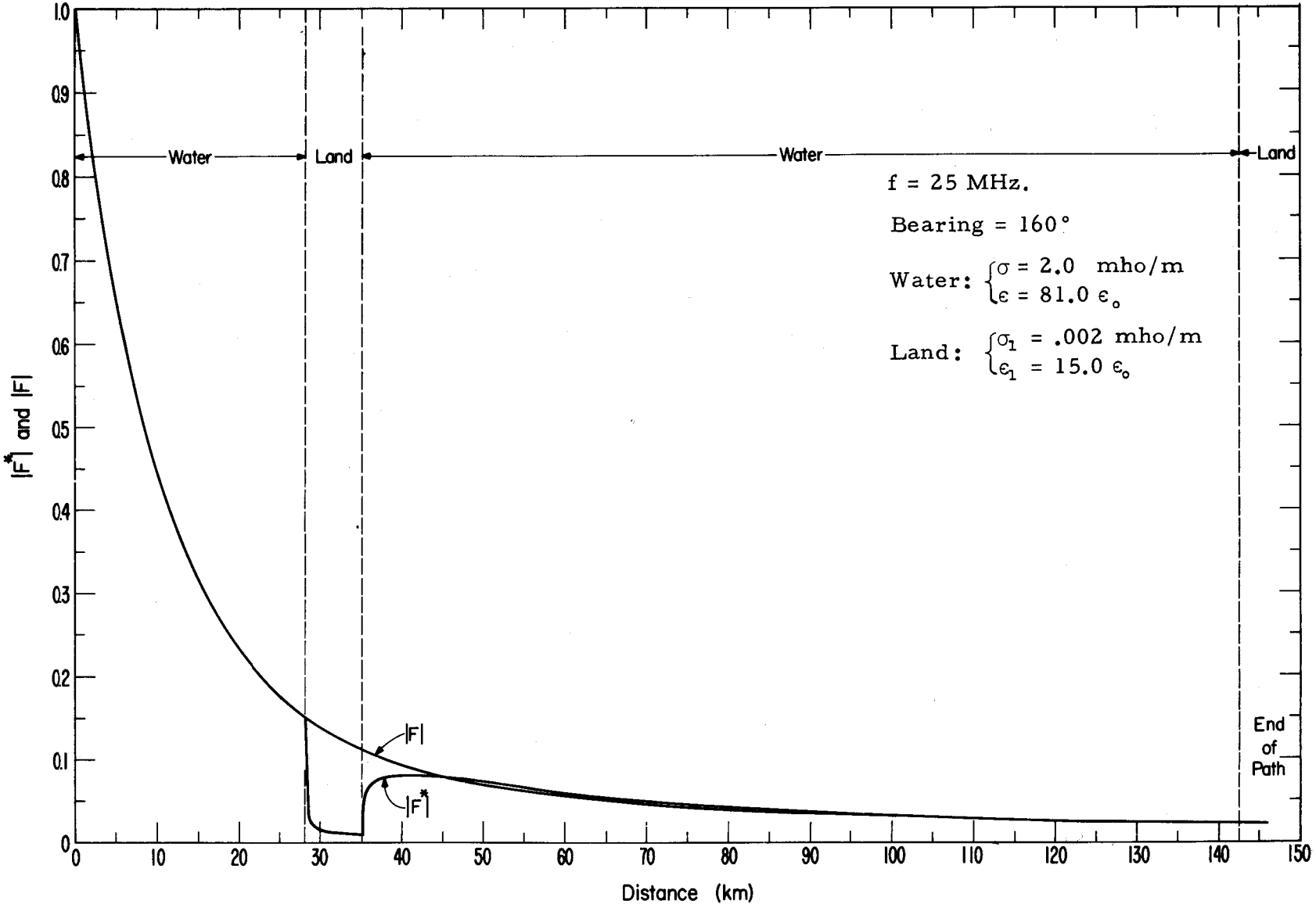
Graph 4. Phase versus distance for path 1, 15 MHz (see table 2).



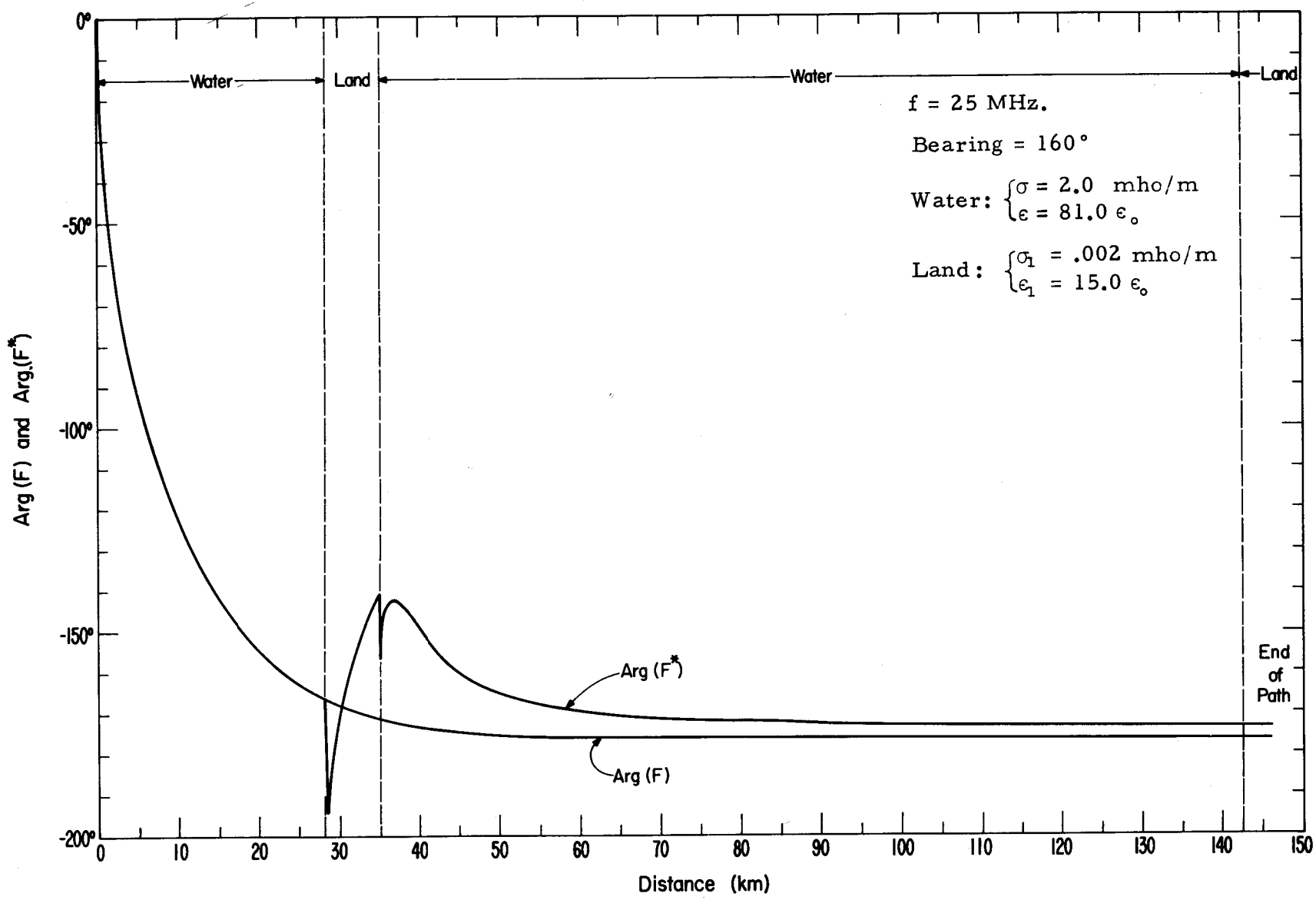
Graph 5. Amplitude versus distance for path 1, 20 MHz. (see table 3).



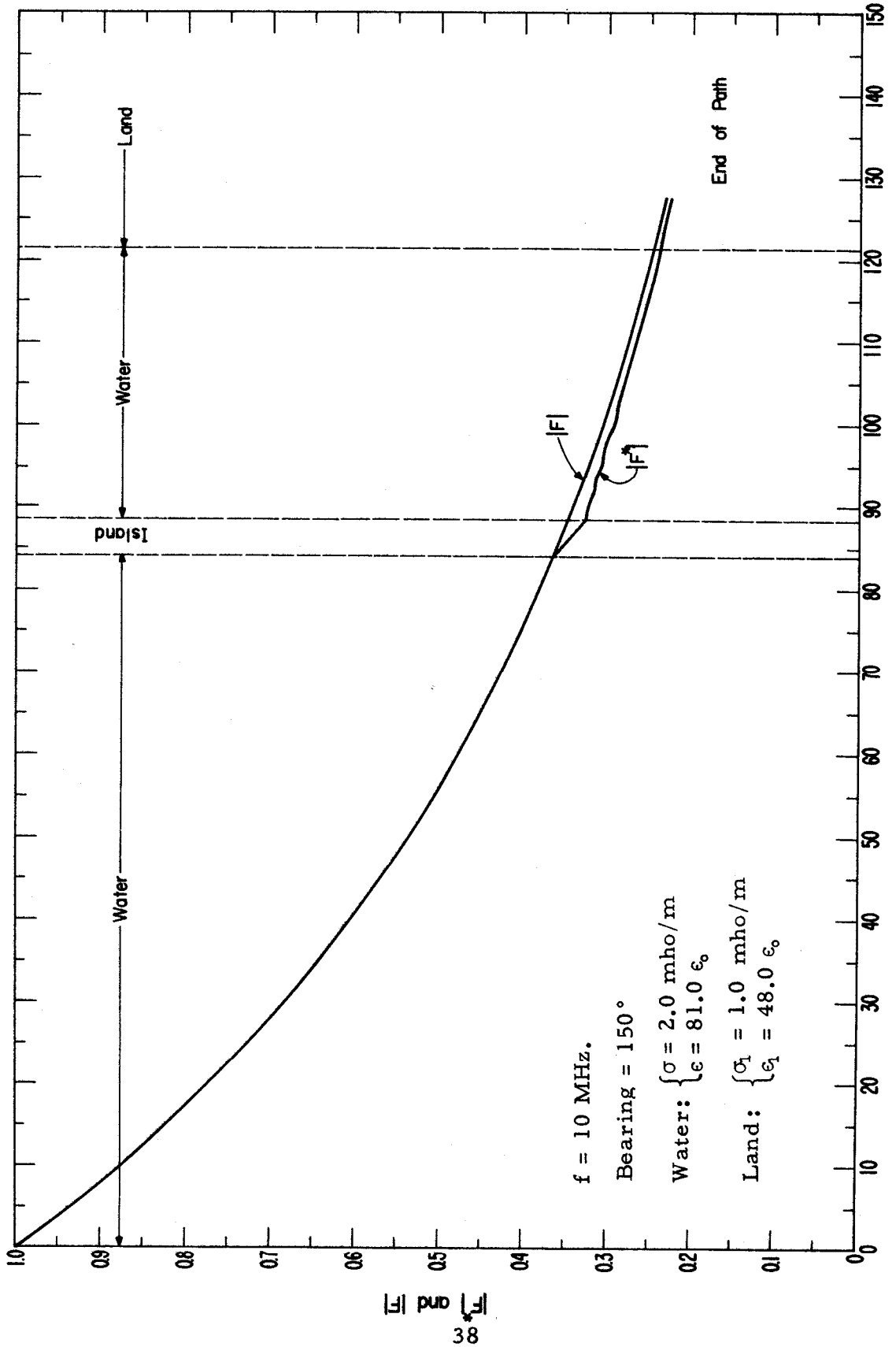
Graph 6. Phase versus distance for path 1, 20 MHz. (see table 3).



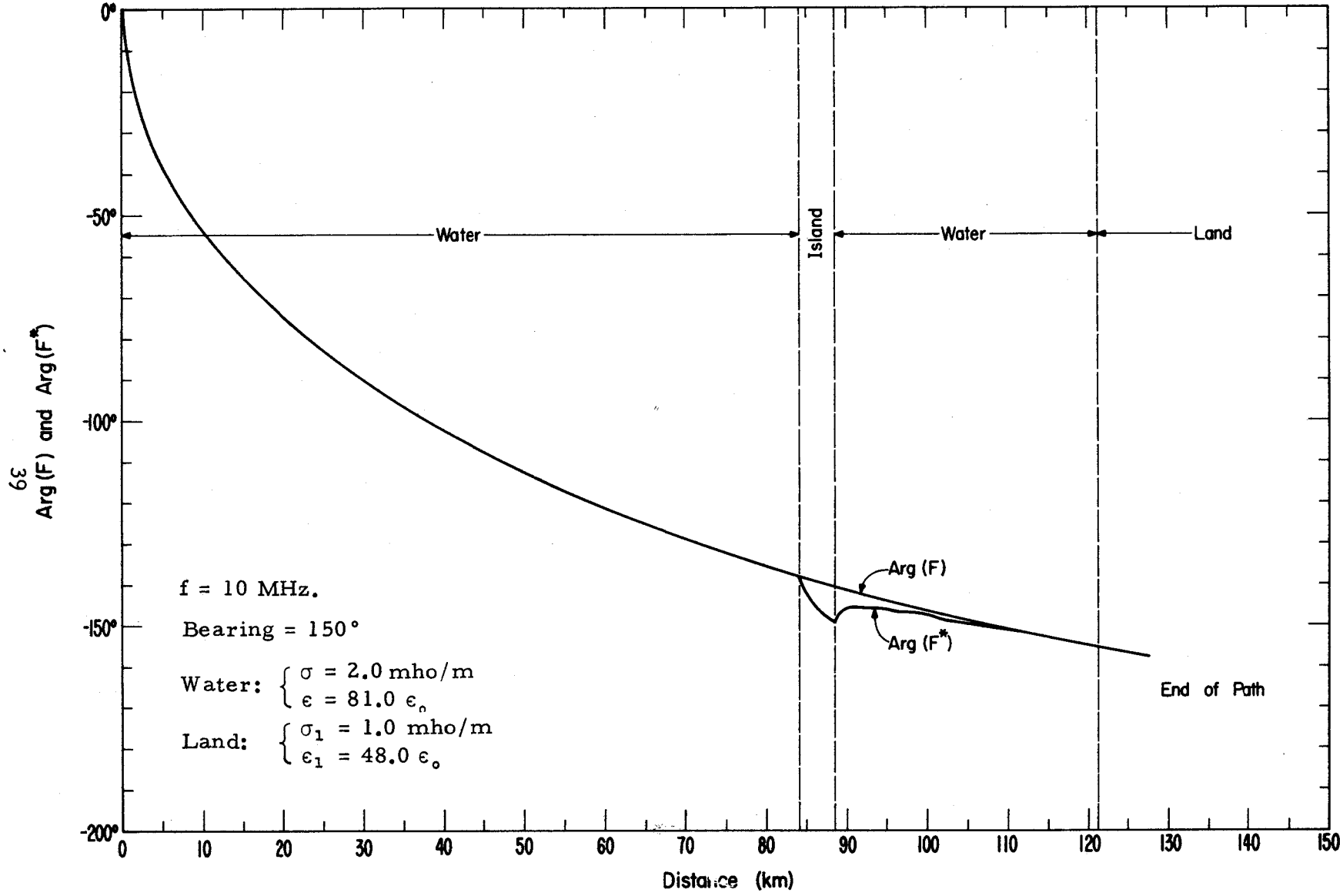
Graph 7. Amplitude versus distance for path 1, 25 MHz (see table 4).



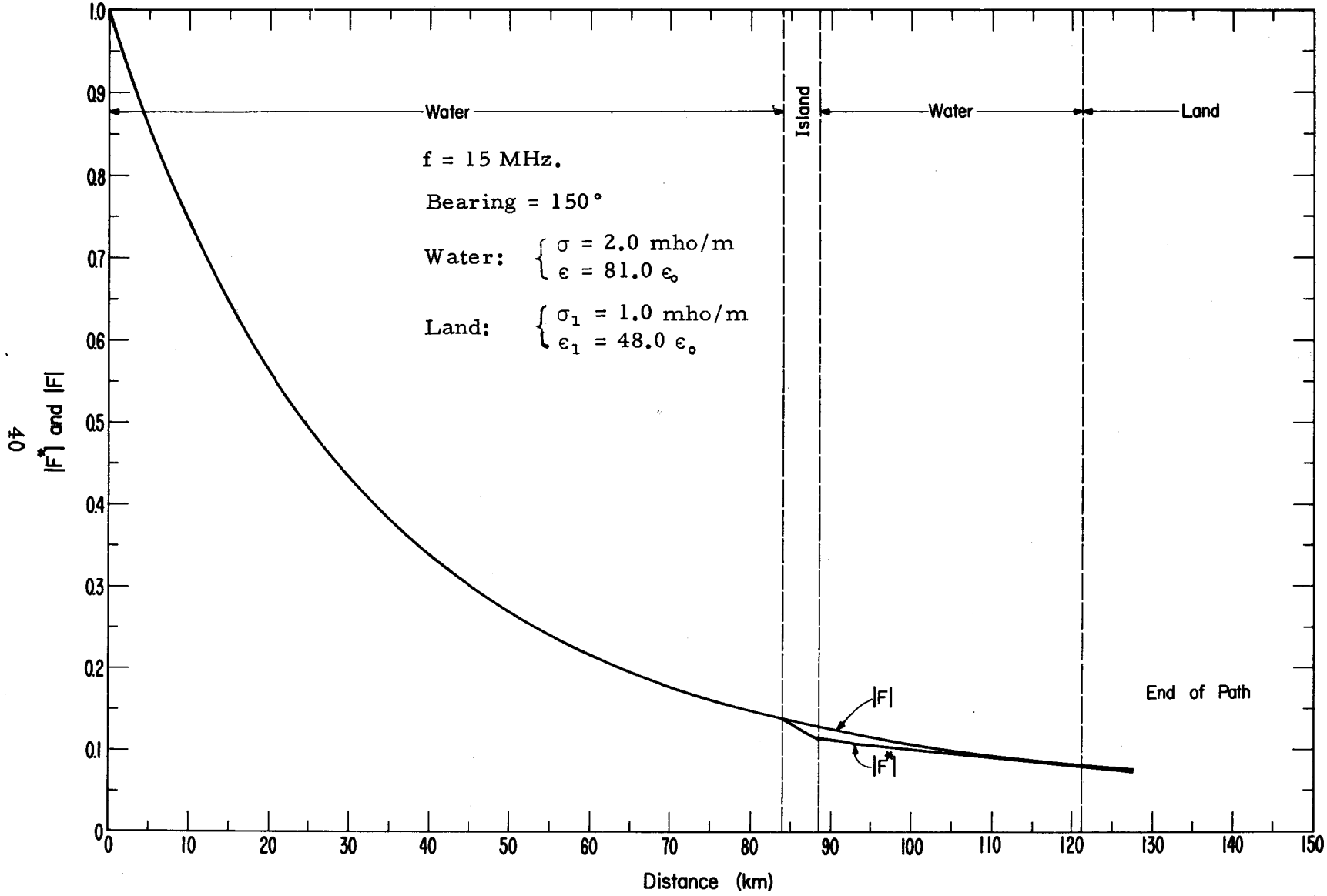
Graph 8. Phase versus distance for path 1, 25 MHz (see table 4).



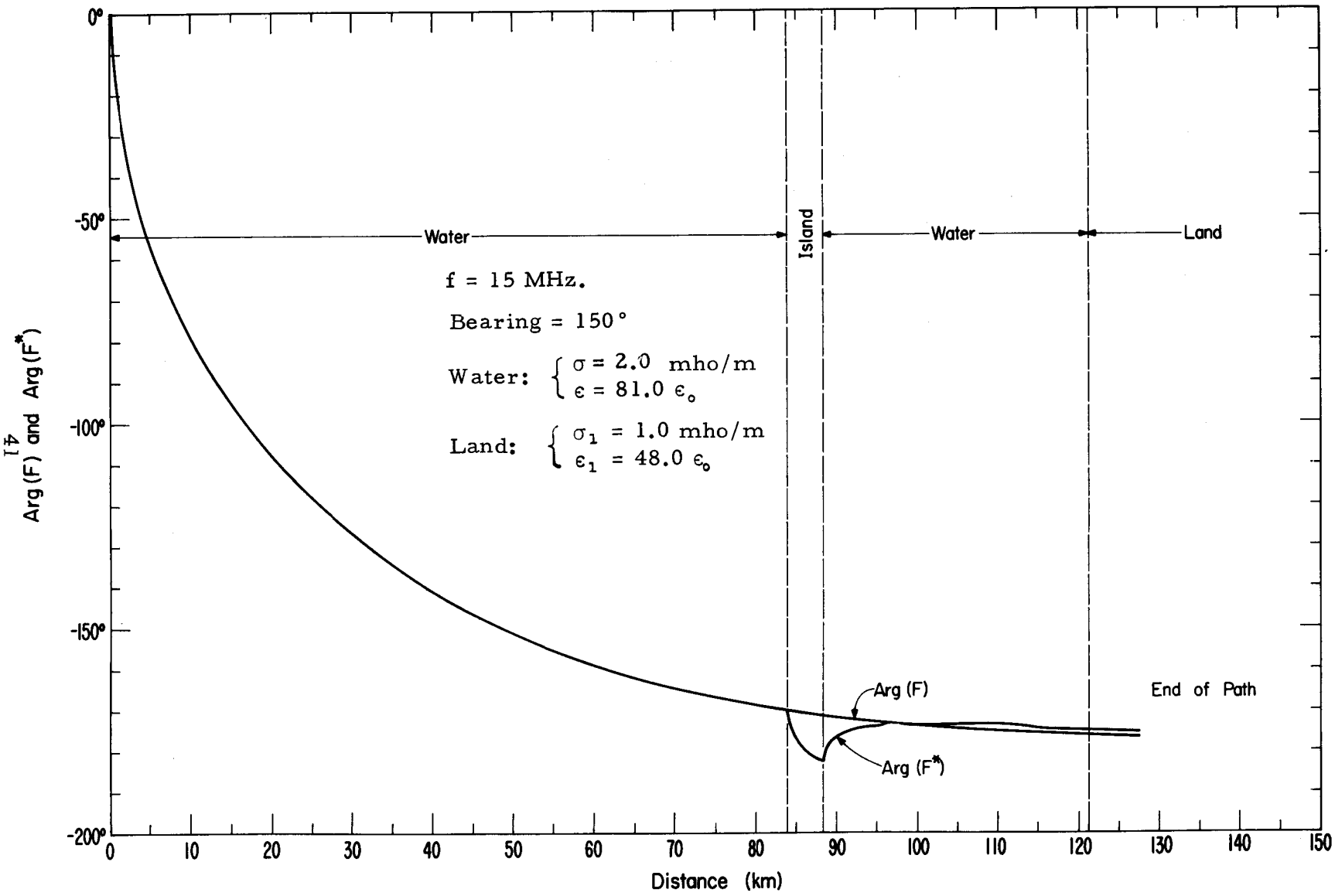
Graph 9. Amplitude versus distance for path 2, 10 MHz (see table 5).



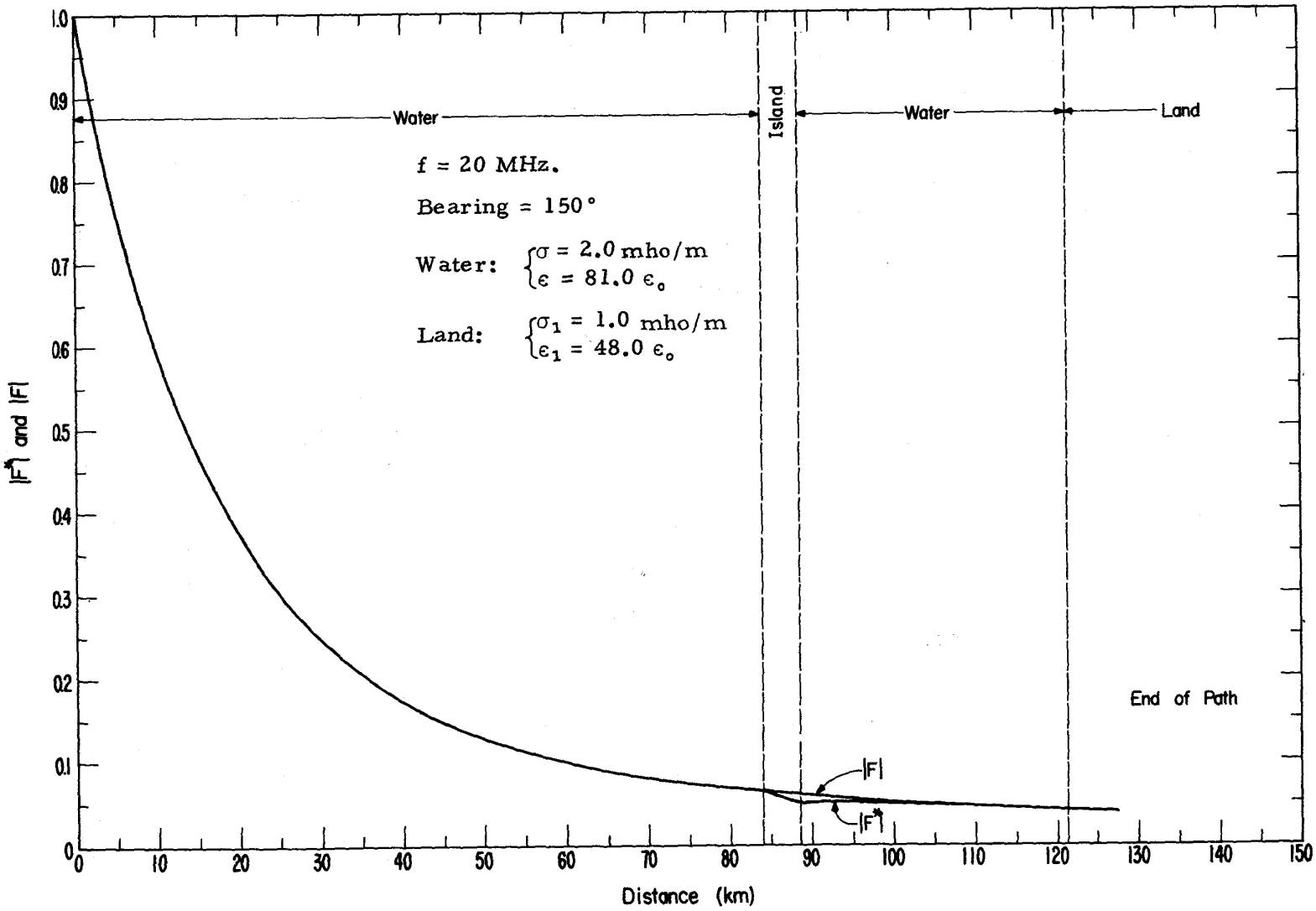
Graph 10. Phase versus distance for path 2, 10 MHz (see table 5).



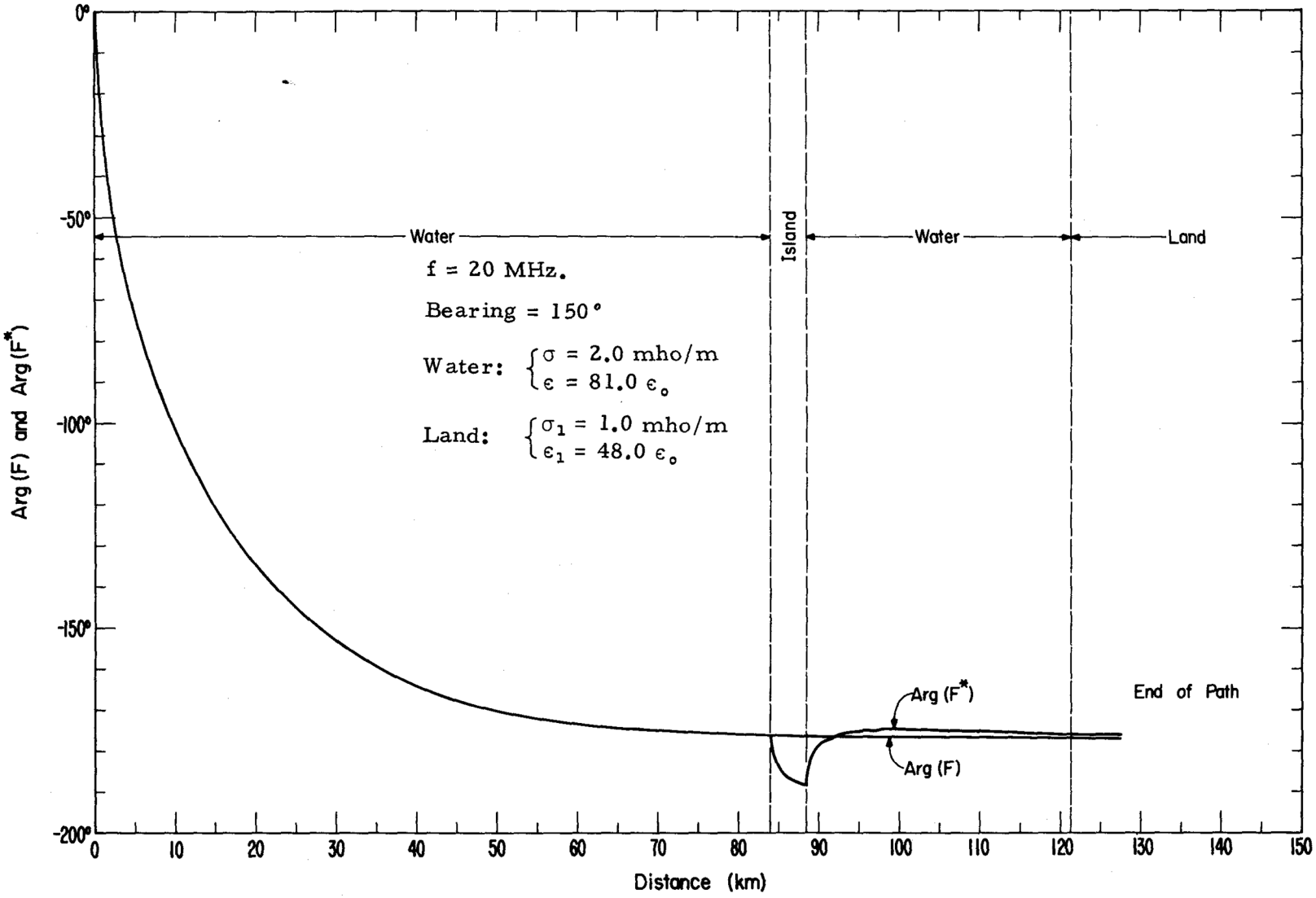
Graph 11. Amplitude versus distance for path 2, 15 MHz (see table 6).



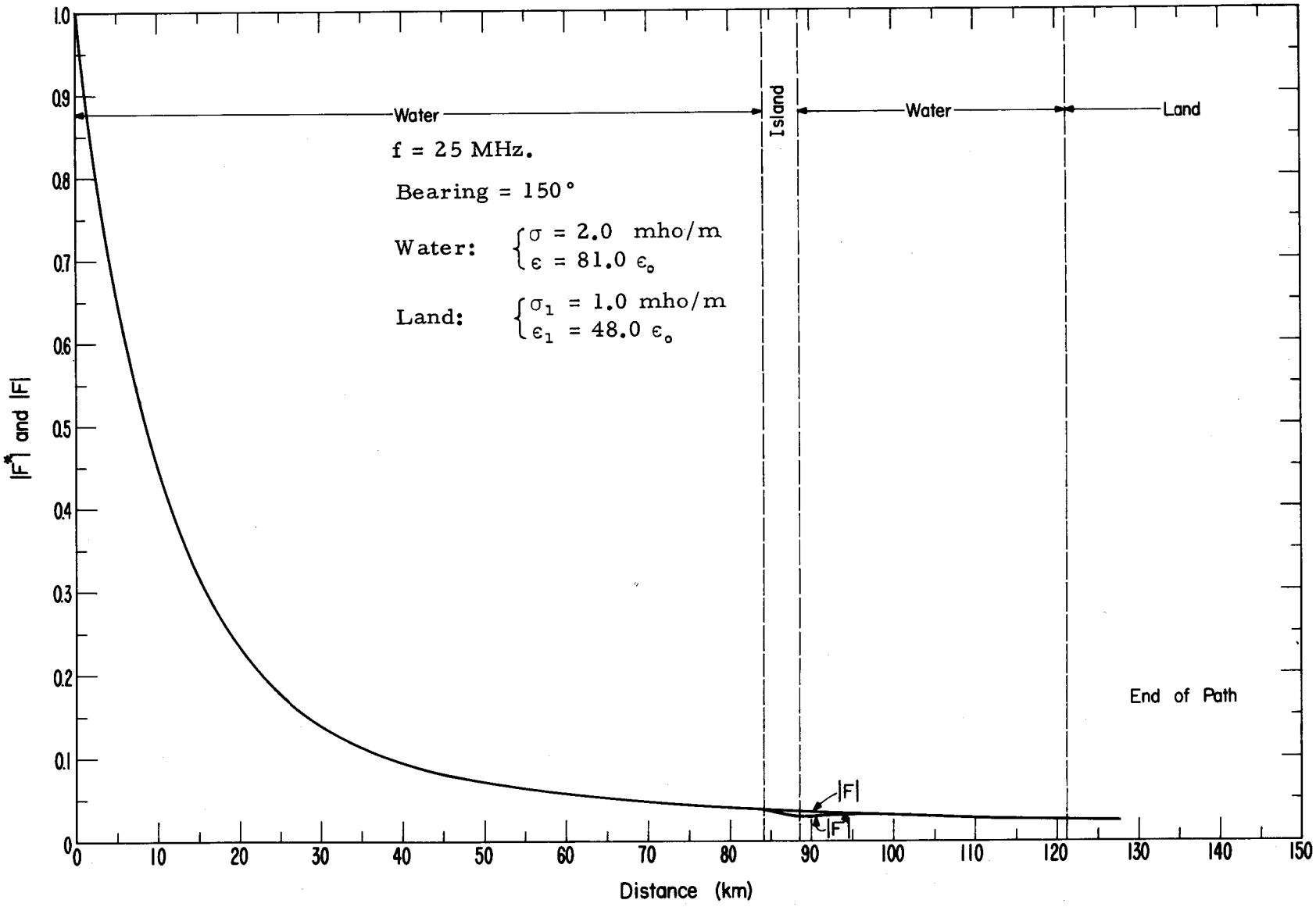
Graph 12. Phase versus distance for path 2, 15 MHz (see table 6).



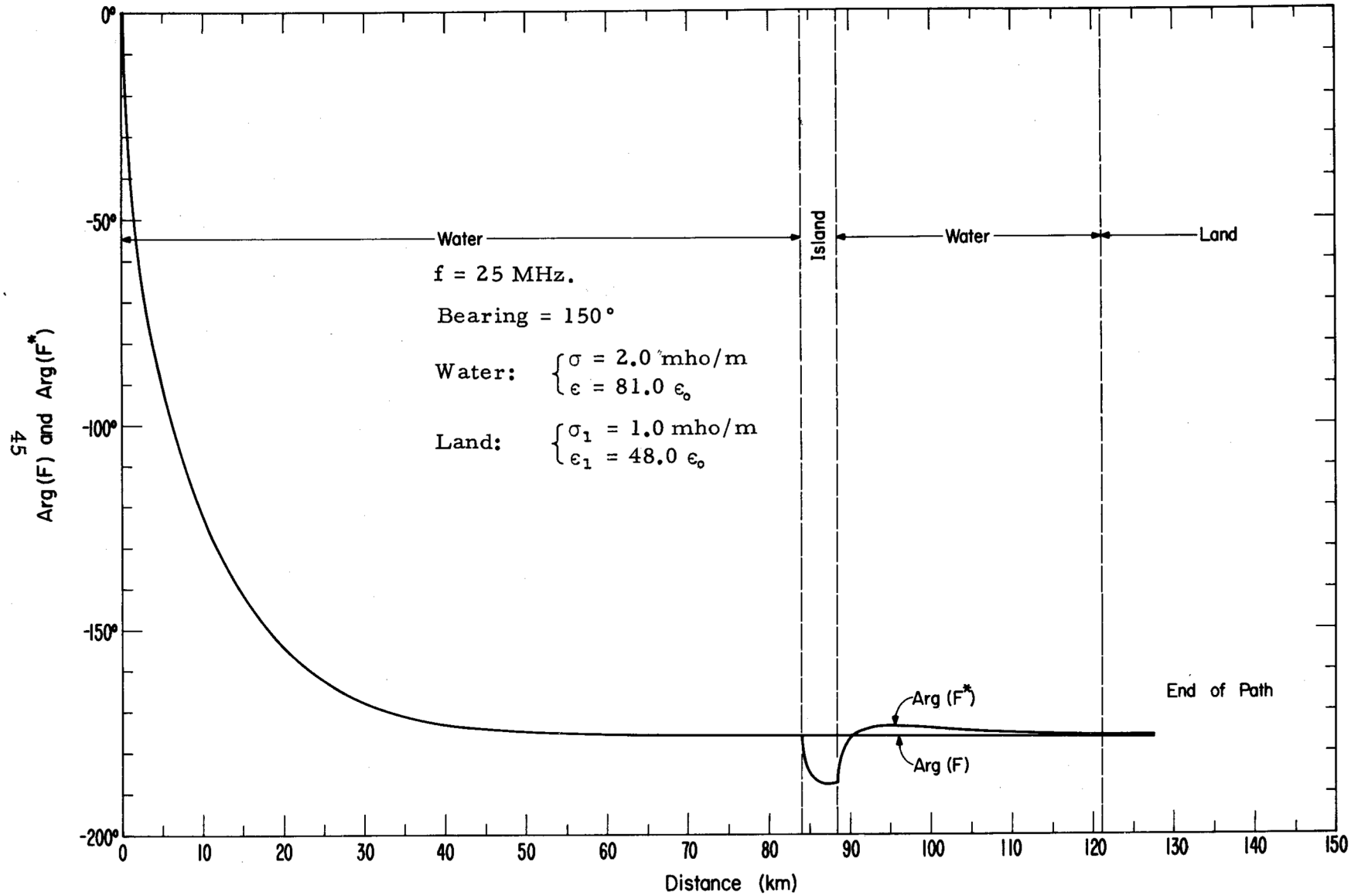
Graph 13. Amplitude versus distance for path 2, 20 MHz (see table 7).



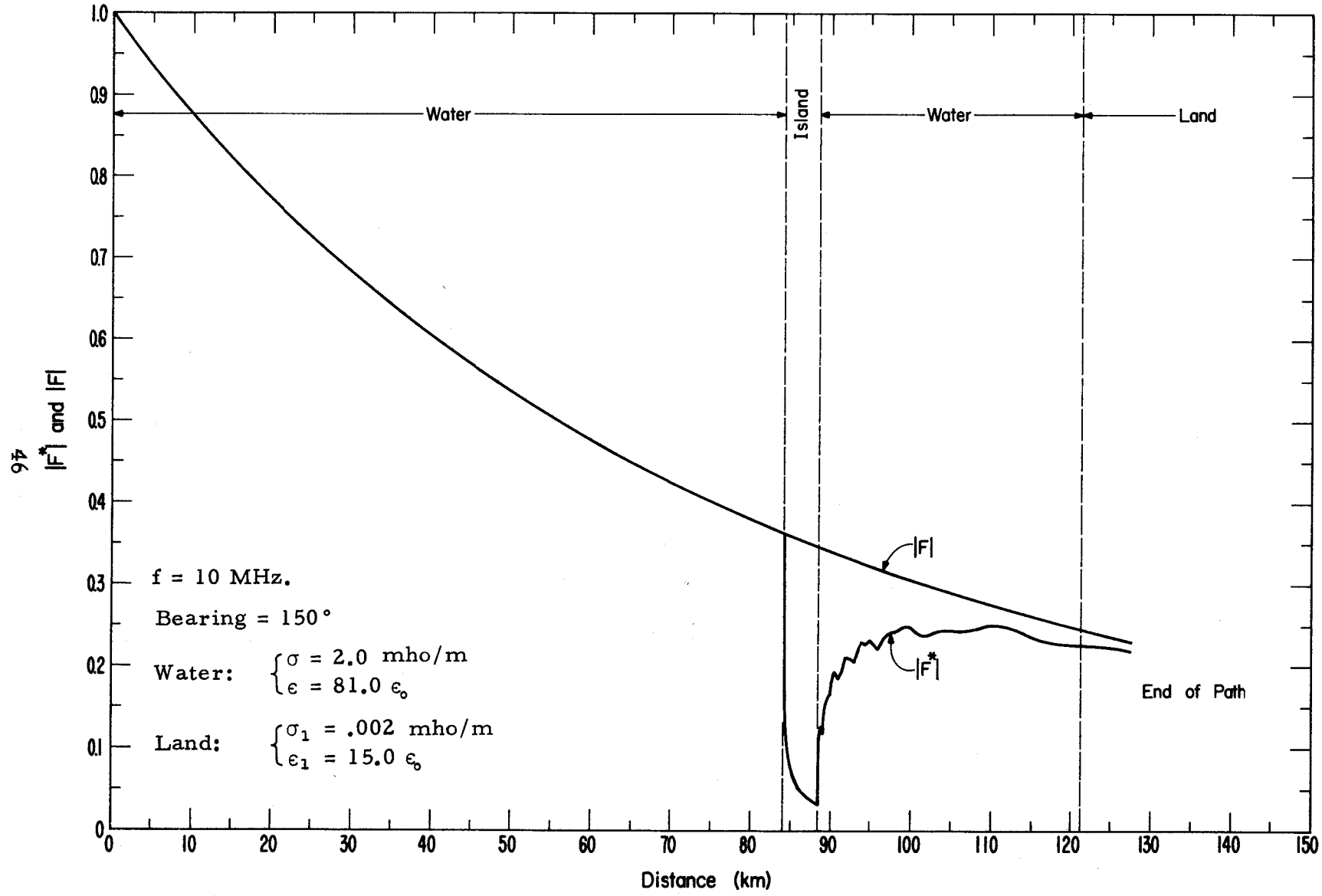
Graph 14. Phase versus distance for path 2, 20 MHz. (see table 7).



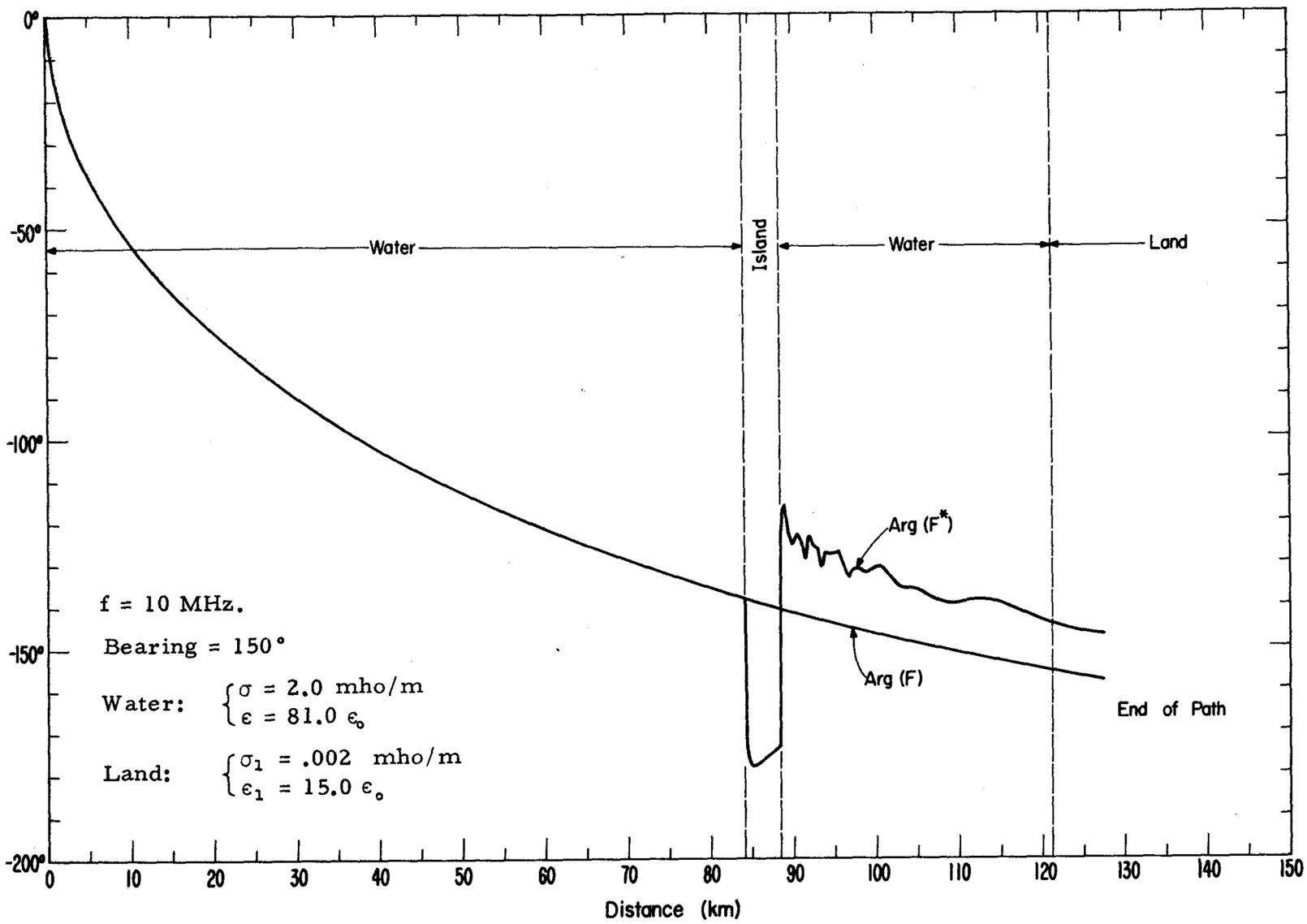
Graph 15. Amplitude versus distance for path 2, 25 MHz (see table 8).



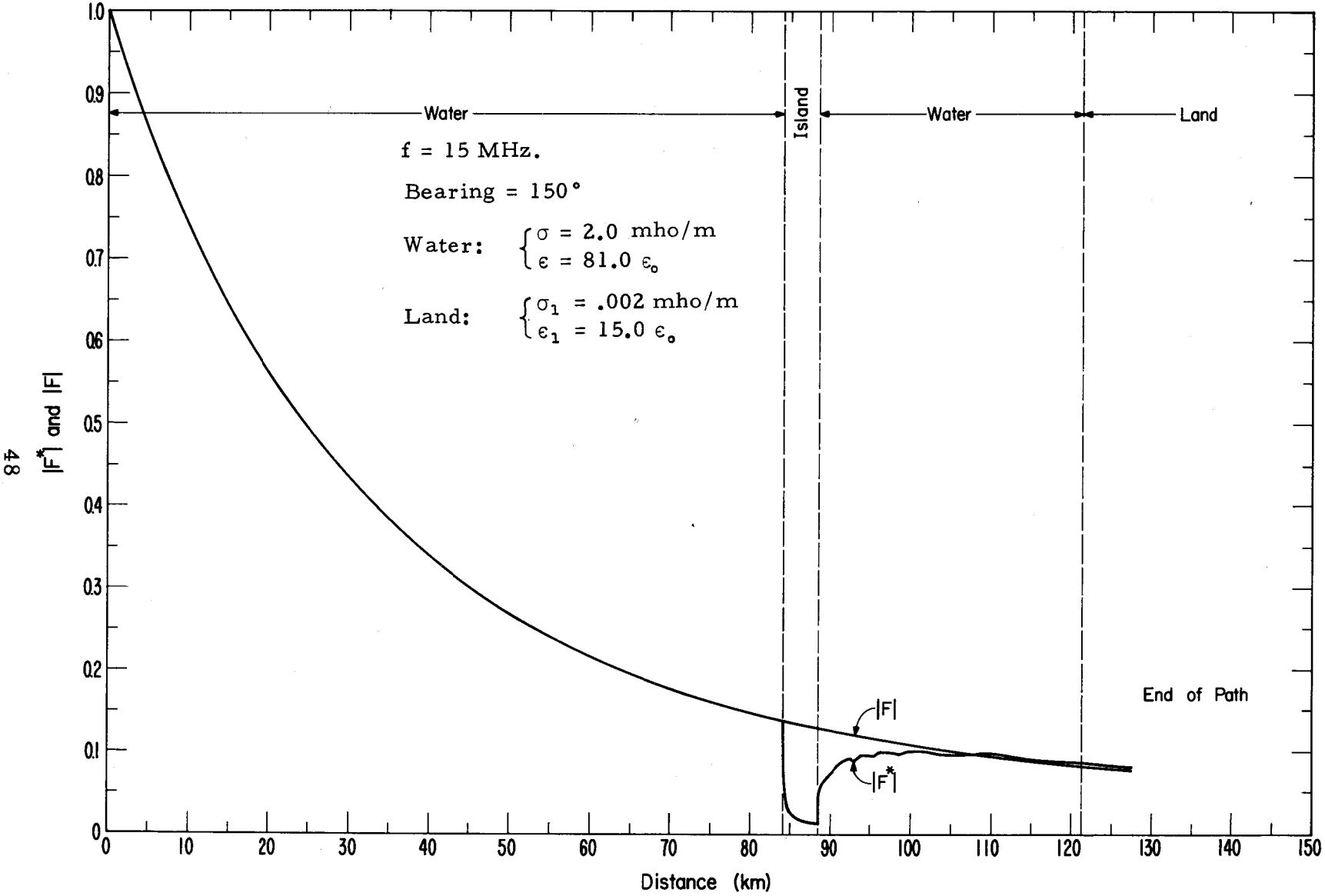
Graph 16. Phase versus distance for path 2, 25 MHz (see table 8).



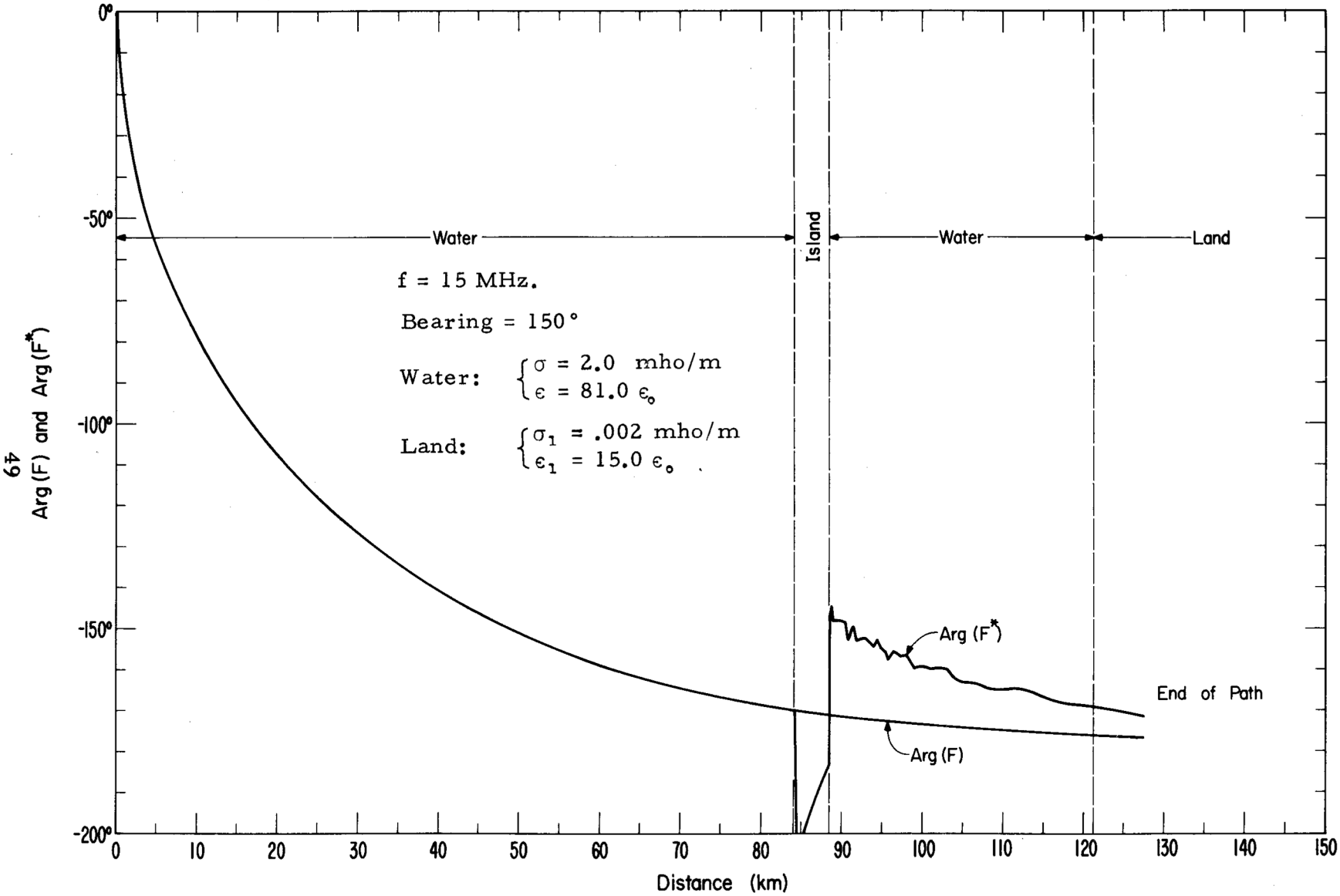
Graph 17. Amplitude versus distance for path 3, 10 MHz (see table 9).



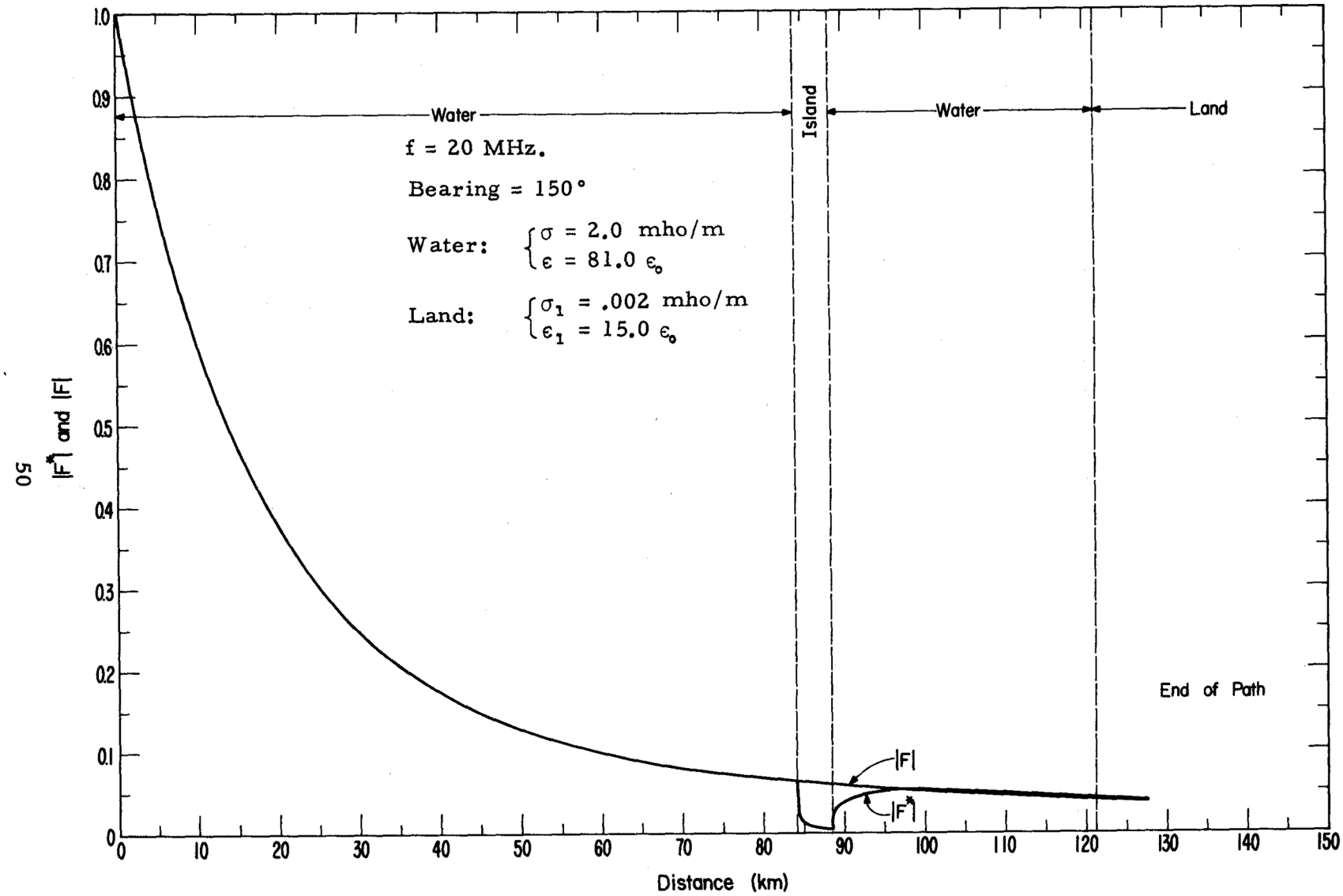
Graph 18. Phase versus distance for path 3, 10 MHz (see table 9).



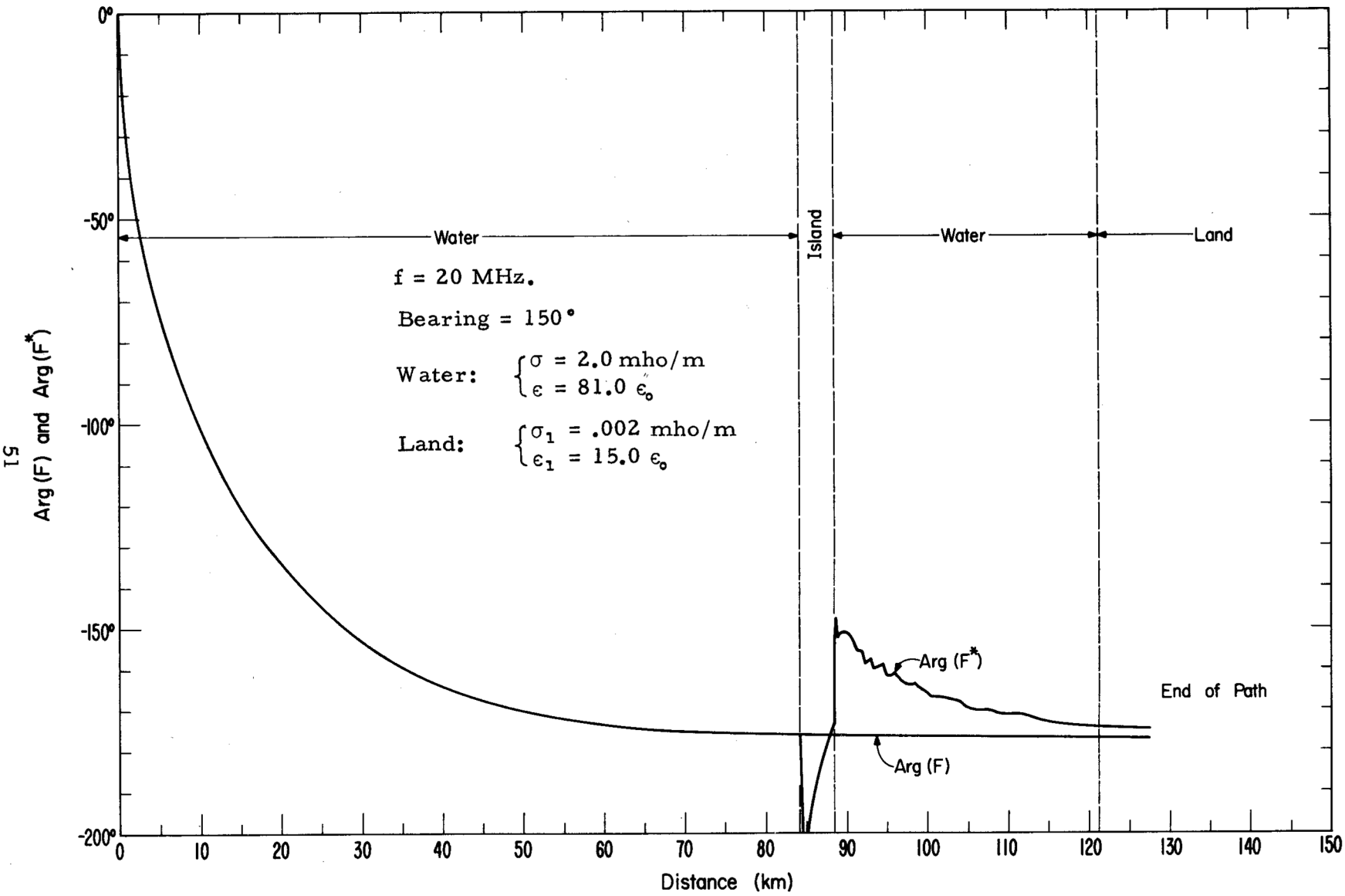
Graph 19. Amplitude versus distance for path 3, 15 MHz (see table 10).



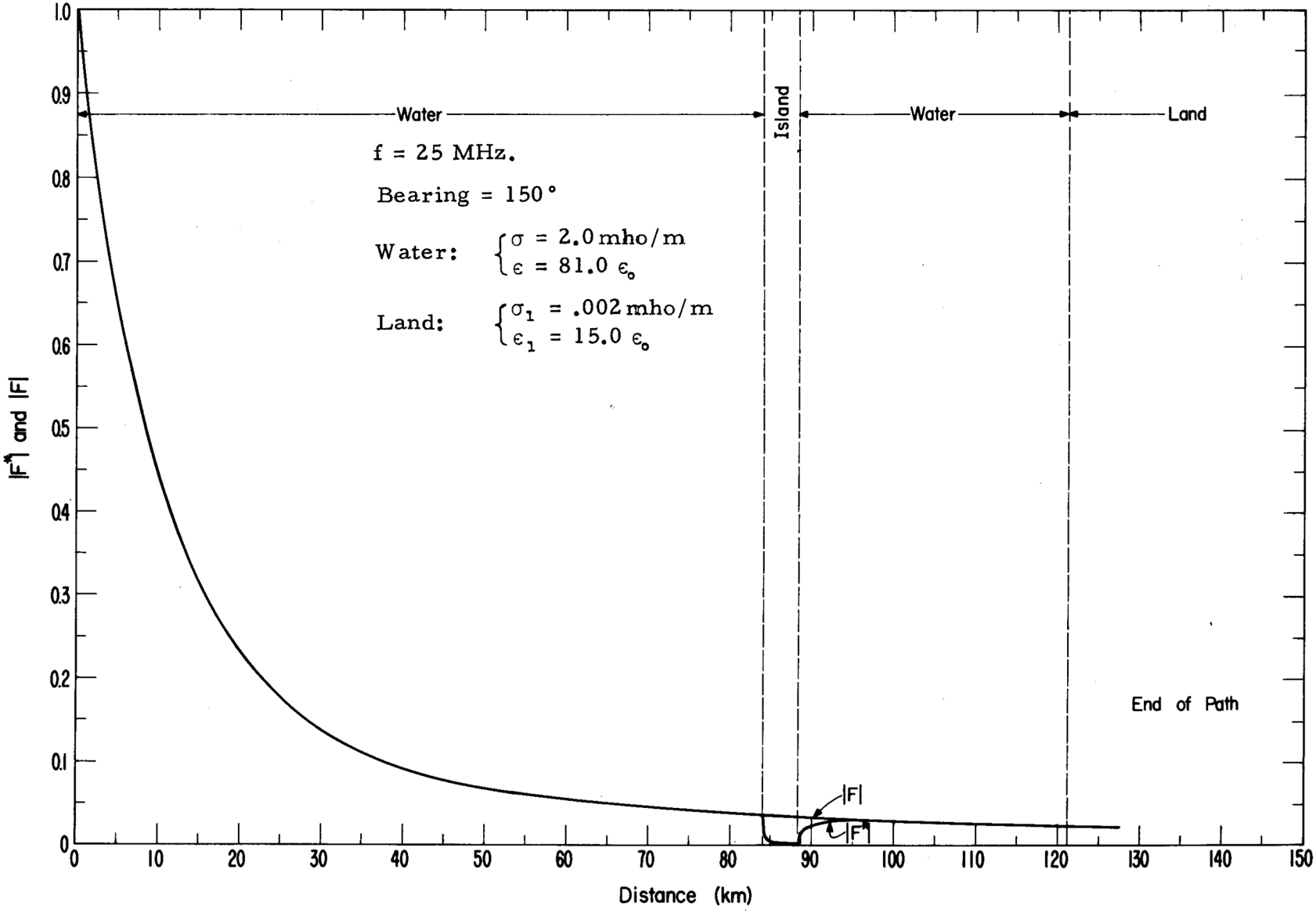
Graph 20. Phase versus distance for path 3, 15 MHz (see table 10).



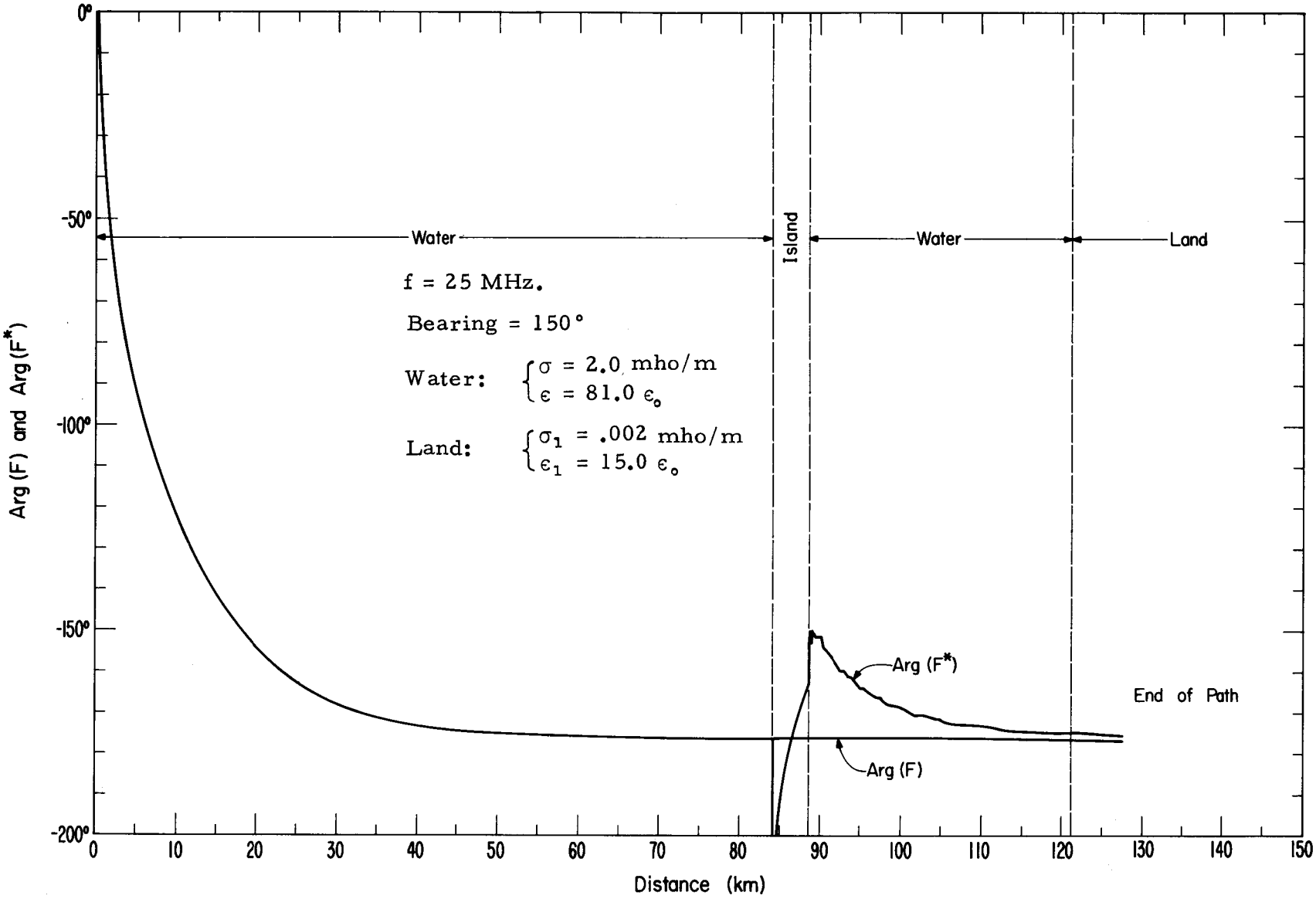
Graph 21. Amplitude versus distance for path 3, 20 MHz (see table 11).



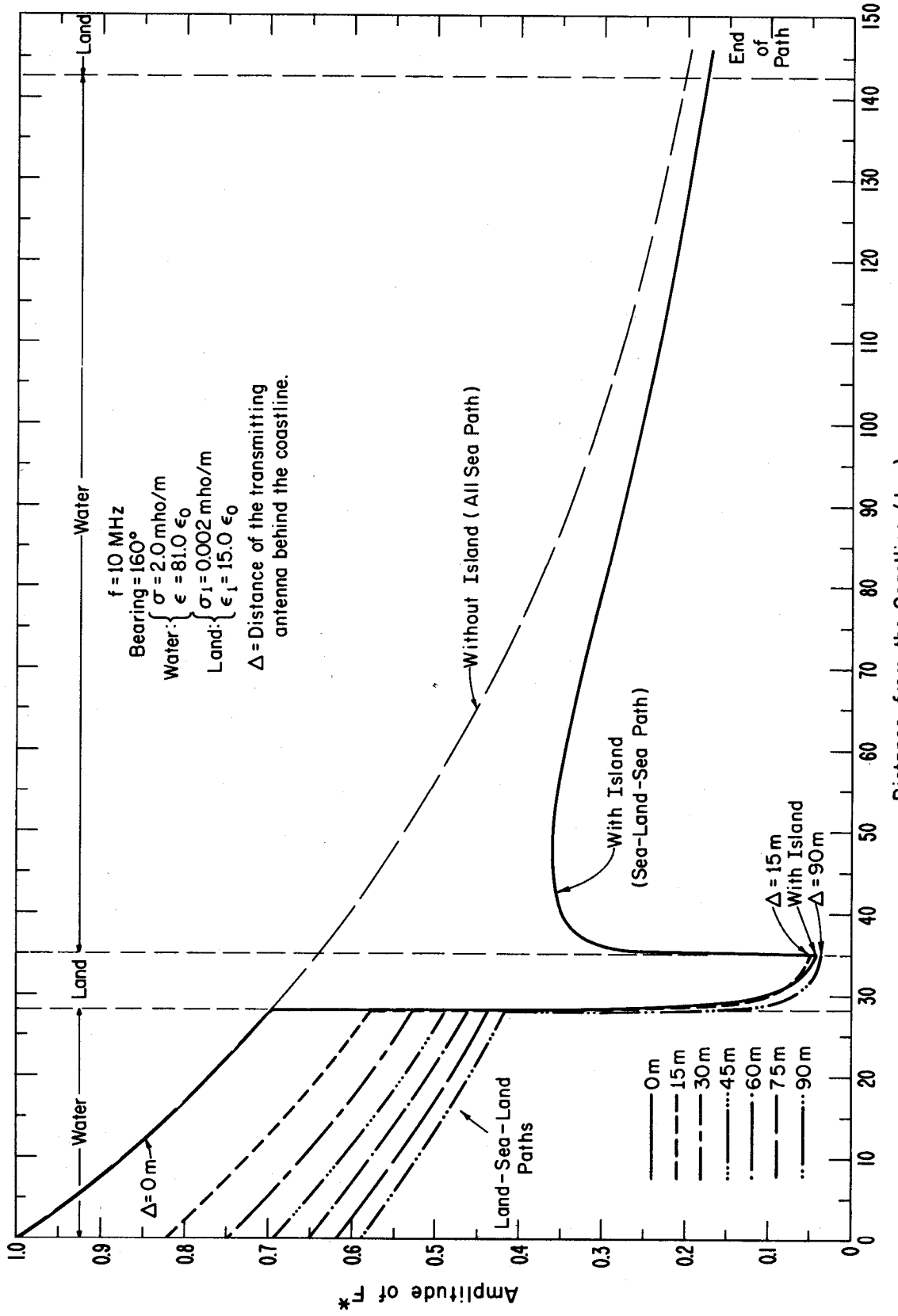
Graph 22. Phase versus distance for path 3, 20 MHz (see table 11).



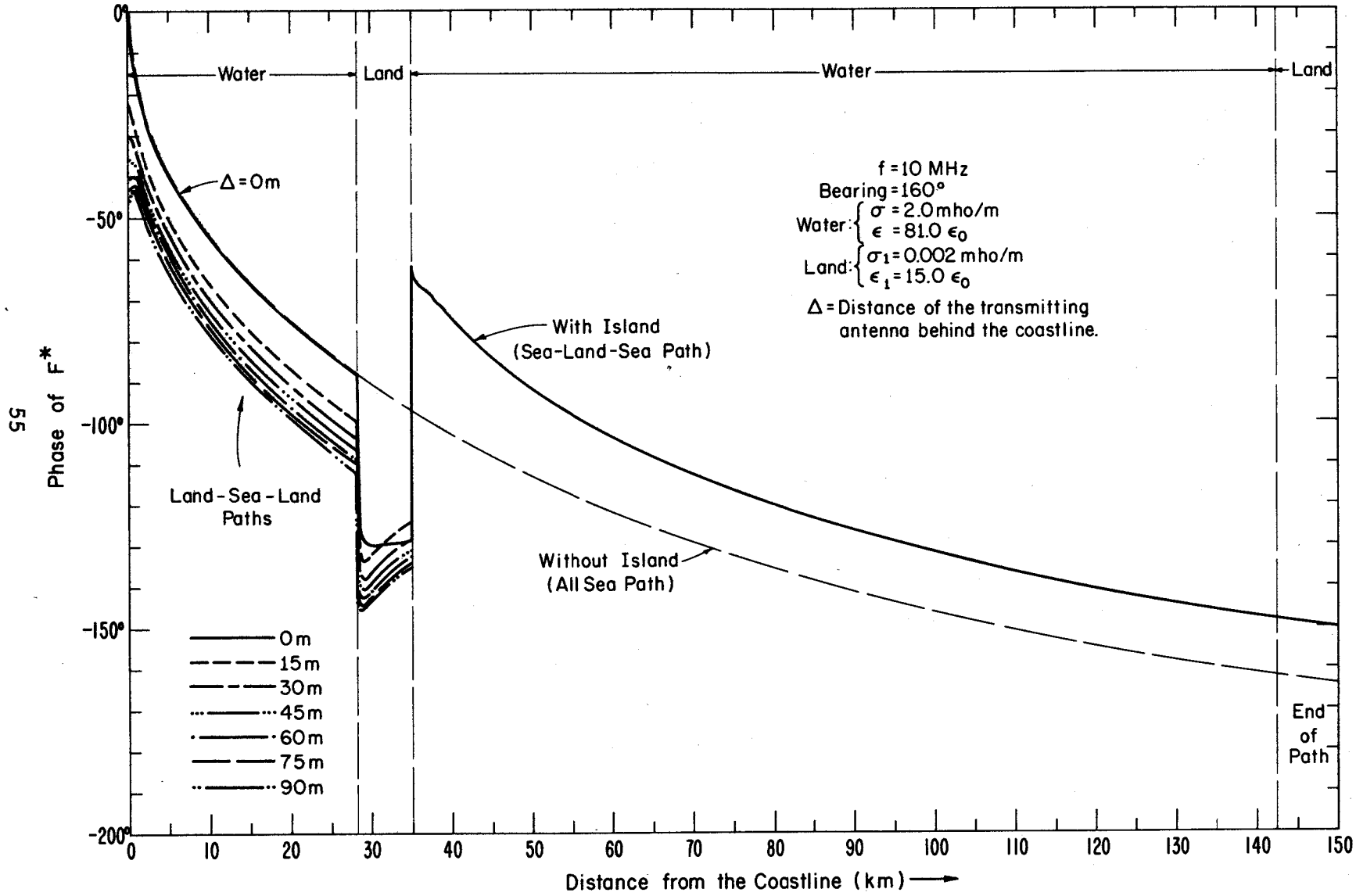
Graph 23. Amplitude versus distance for path 3, 25 MHz (see table 12).



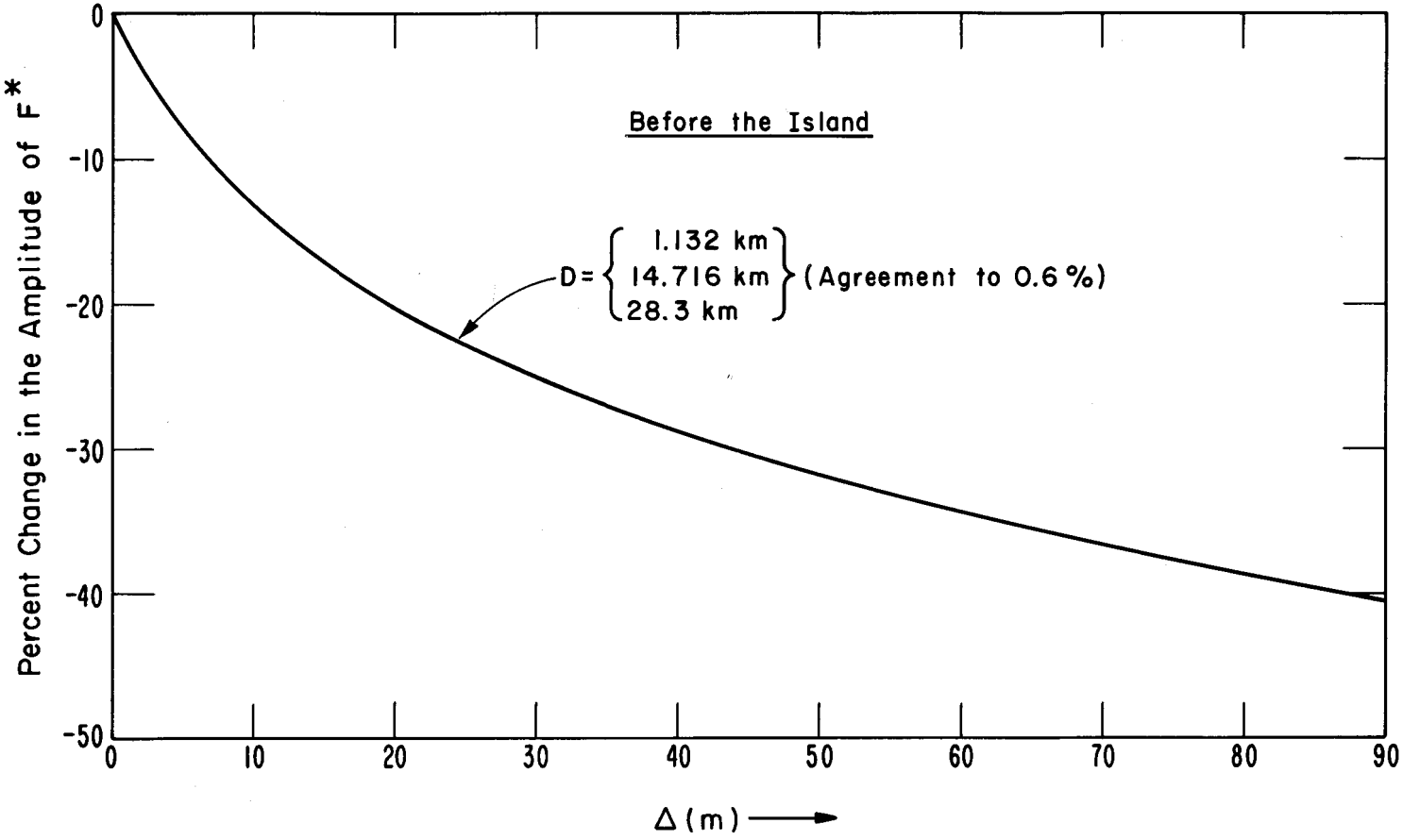
Graph 24. Phase versus distance for path 3, 25 MHz (see table 12).



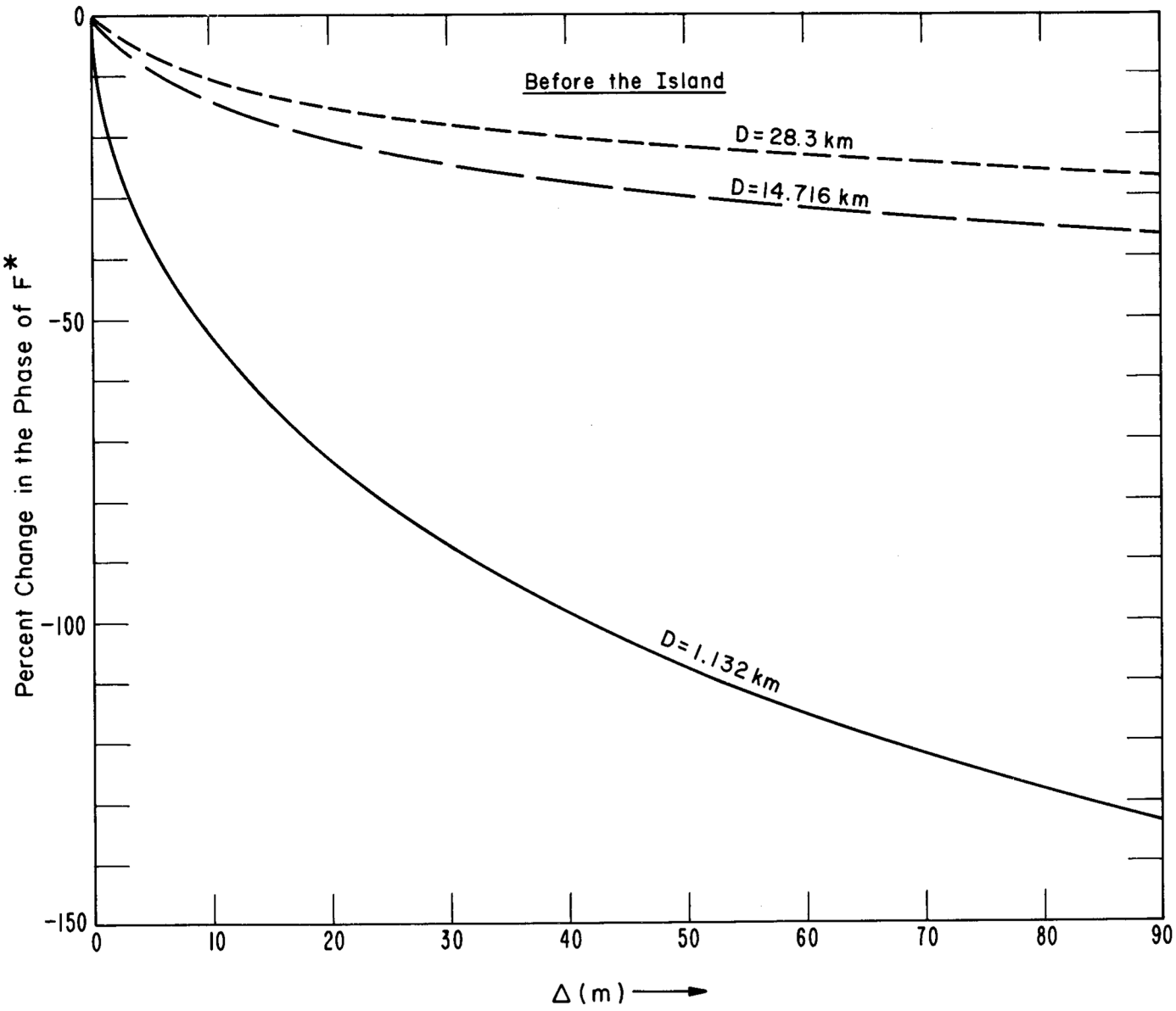
Graph 25. Amplitude versus distance for displaced antenna for path 1, 10 MHz.



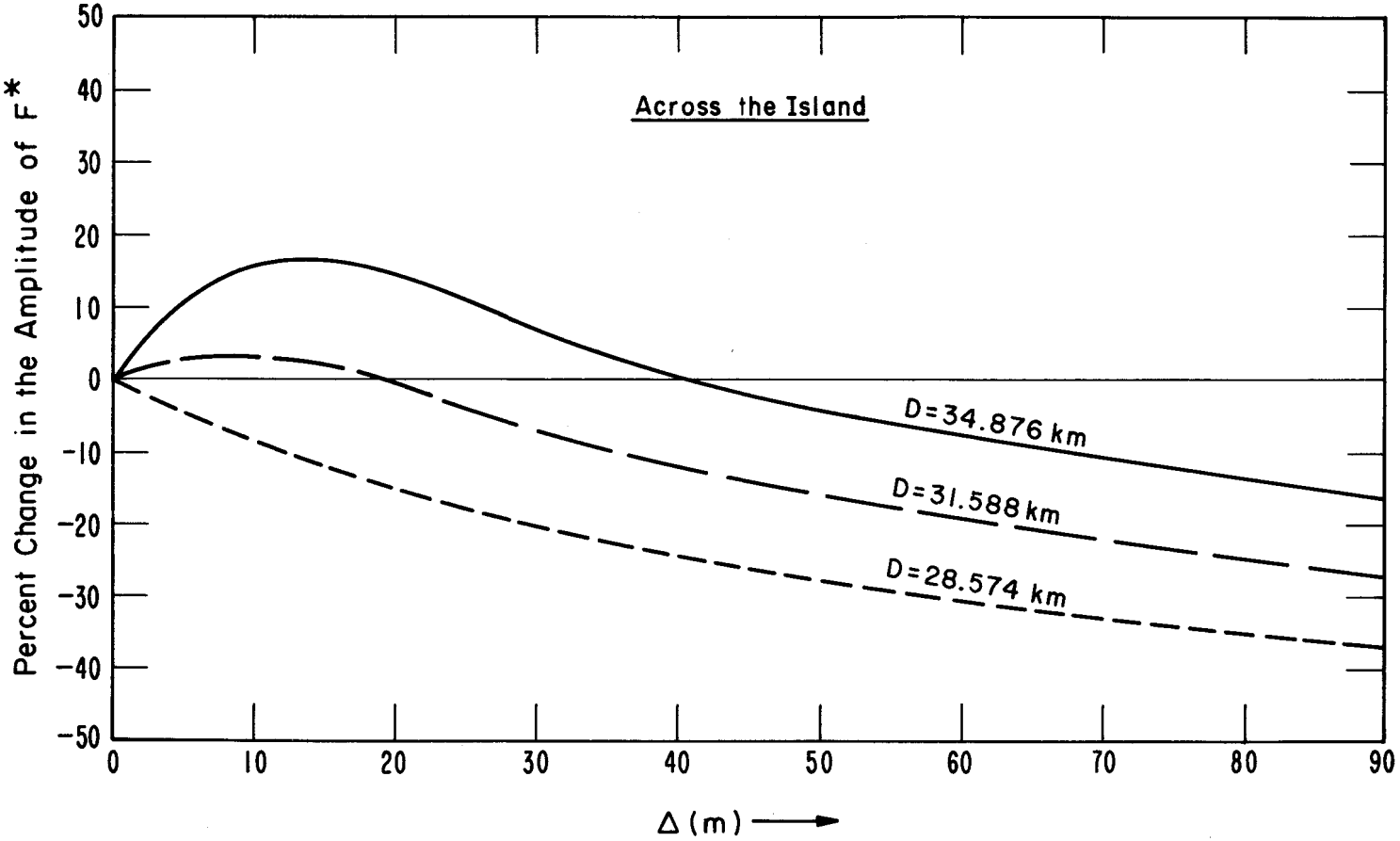
Graph 26. Phase versus distance for displaced antenna for path 1, 10 MHz.



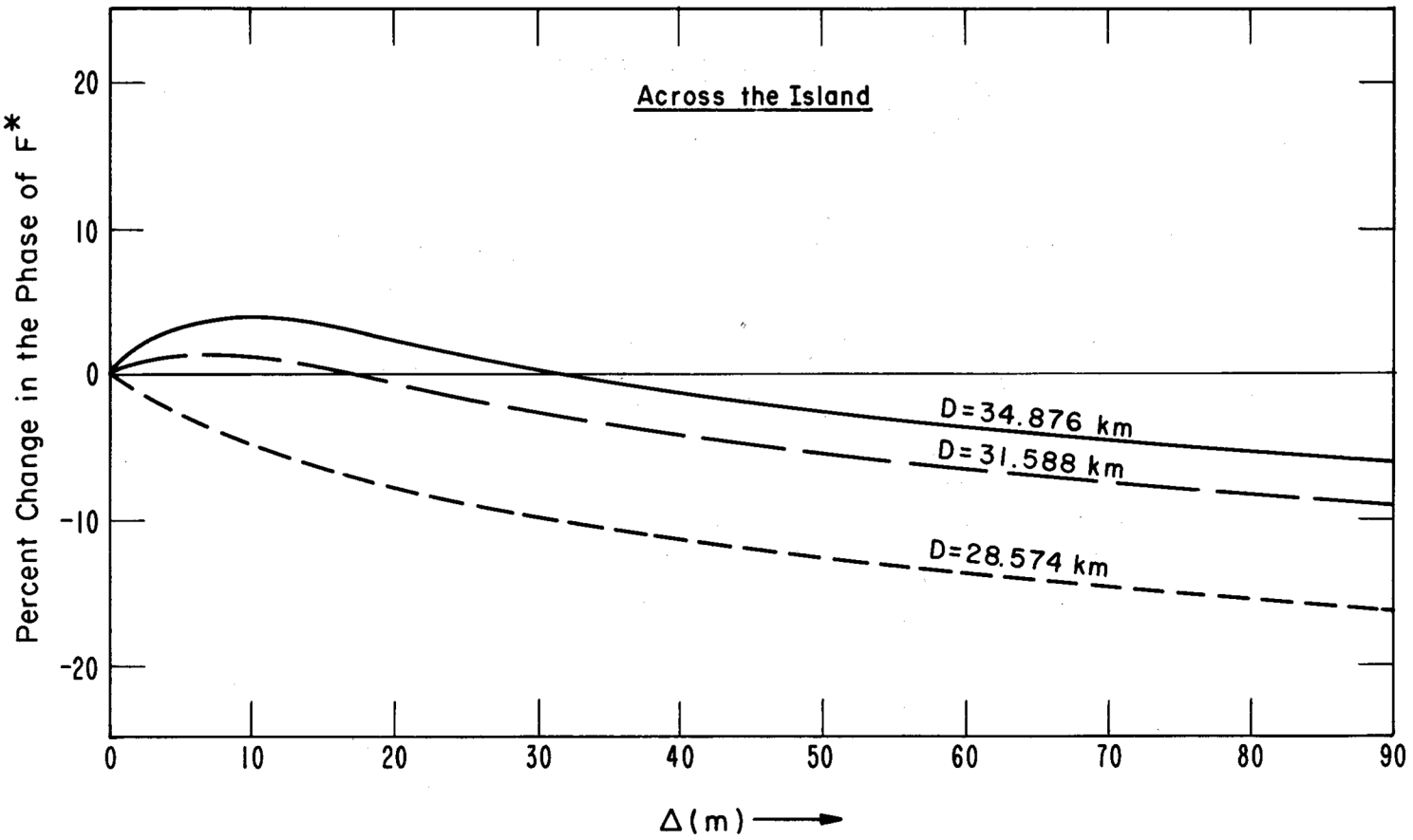
Graph 27. Percent change in amplitude (before the "island") versus antenna displacement Δ.



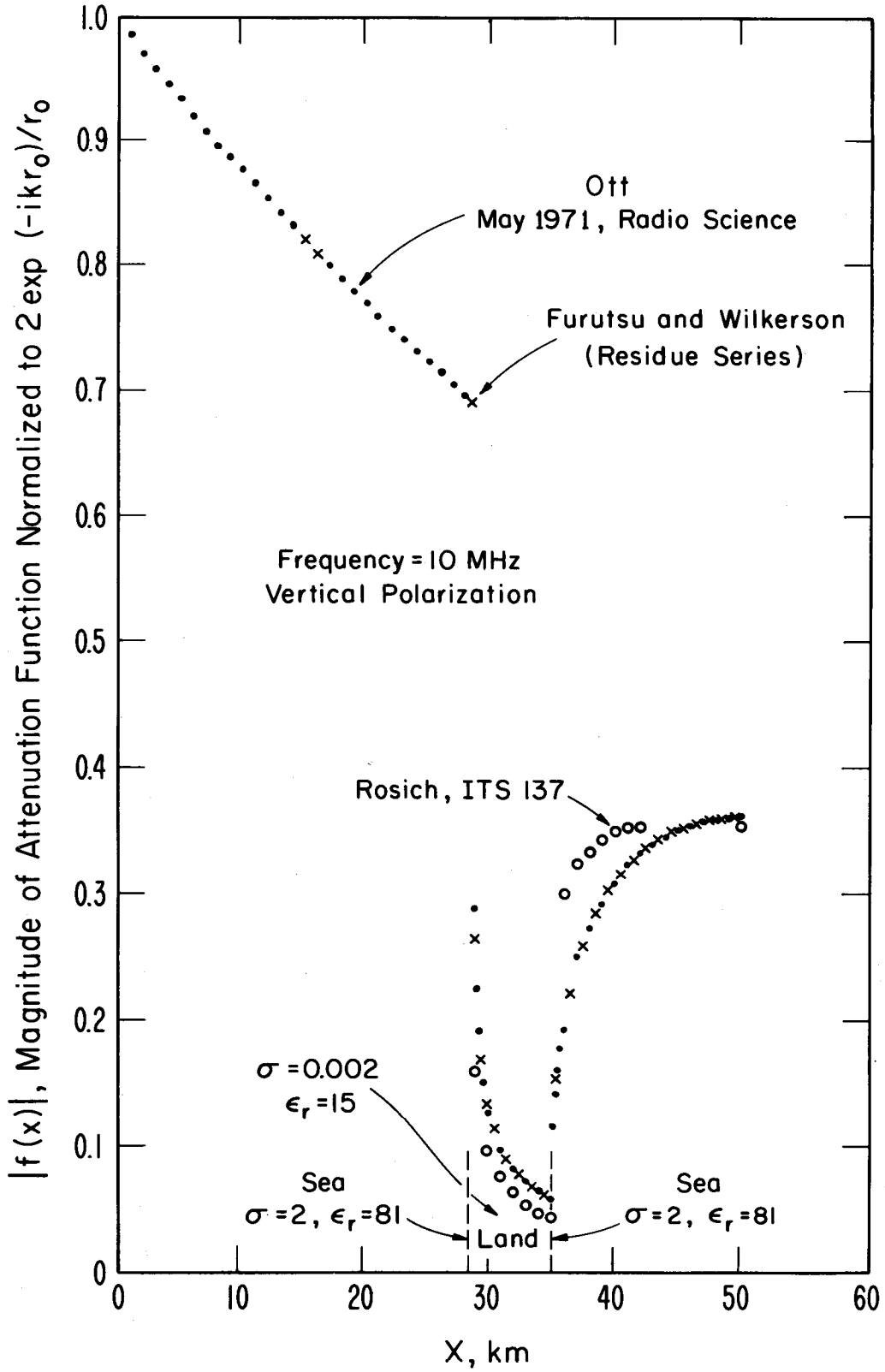
Graph 28. Percent change in phase (before the "island") versus antenna displacement Δ.



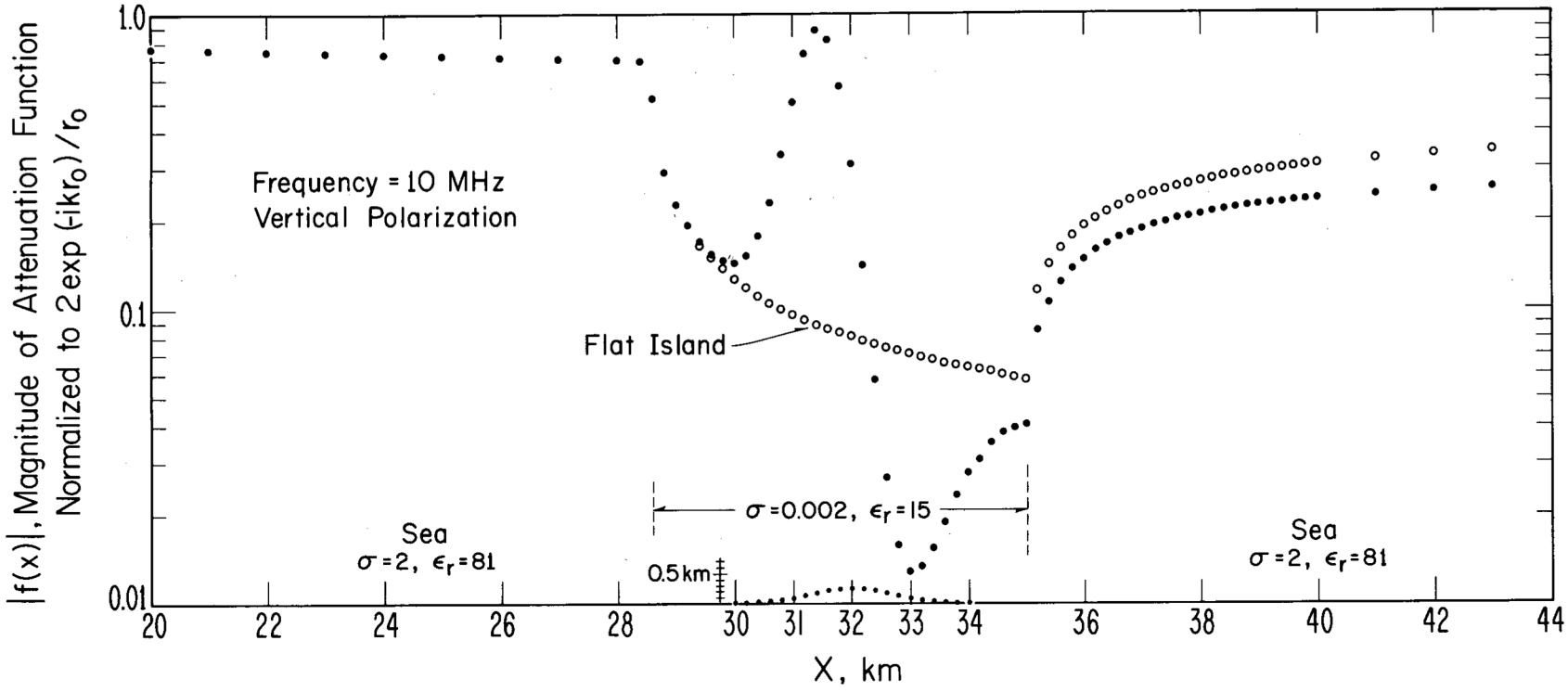
Graph 29. Percent change in amplitude (across the "island") versus antenna displacement Δ.



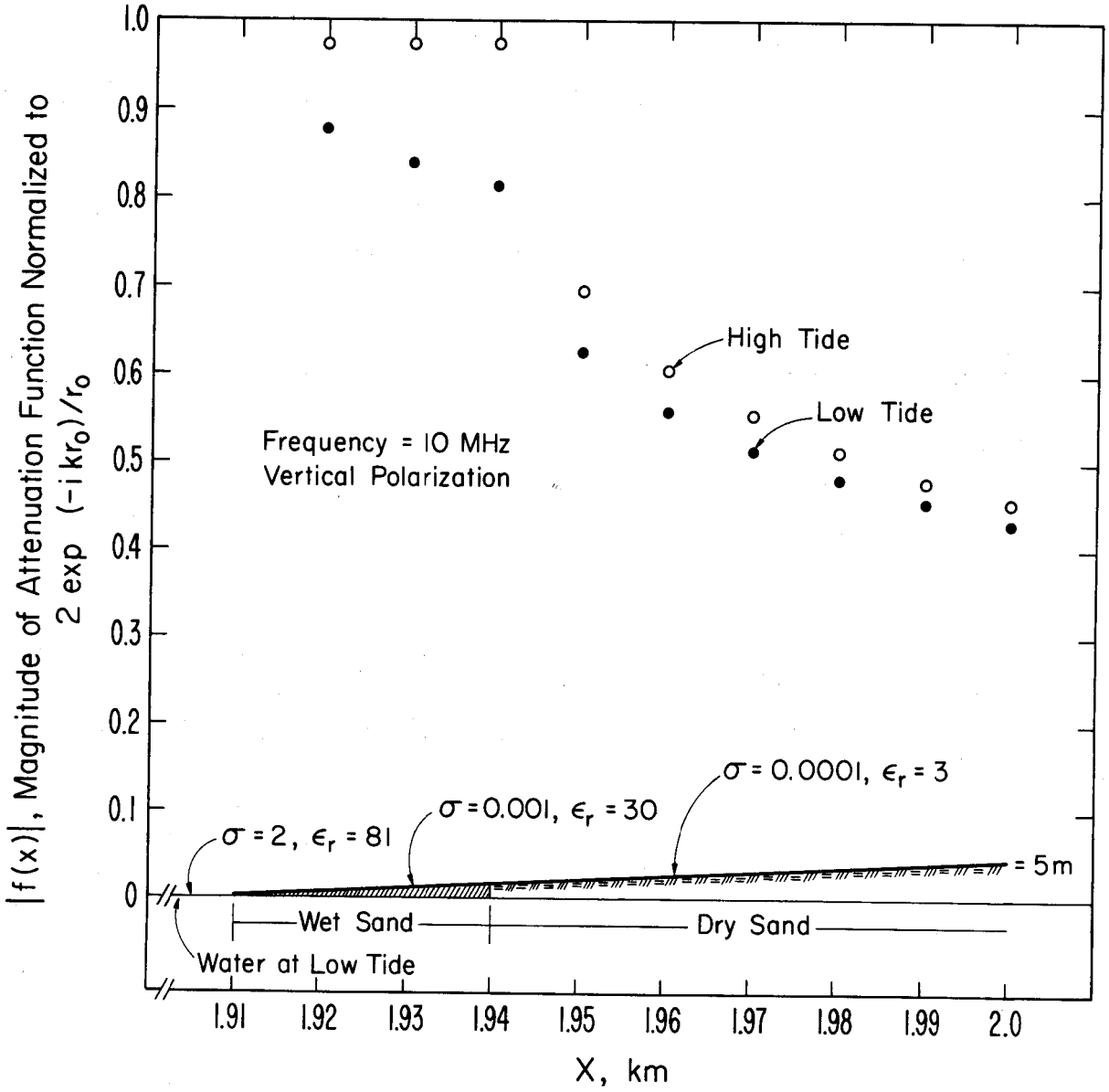
Graph 30. Percent change in phase (across the "island") versus antenna displacement Δ.



Graph 31. A comparison of the amplitude of the attenuation function for various models (Ott, 1971b).

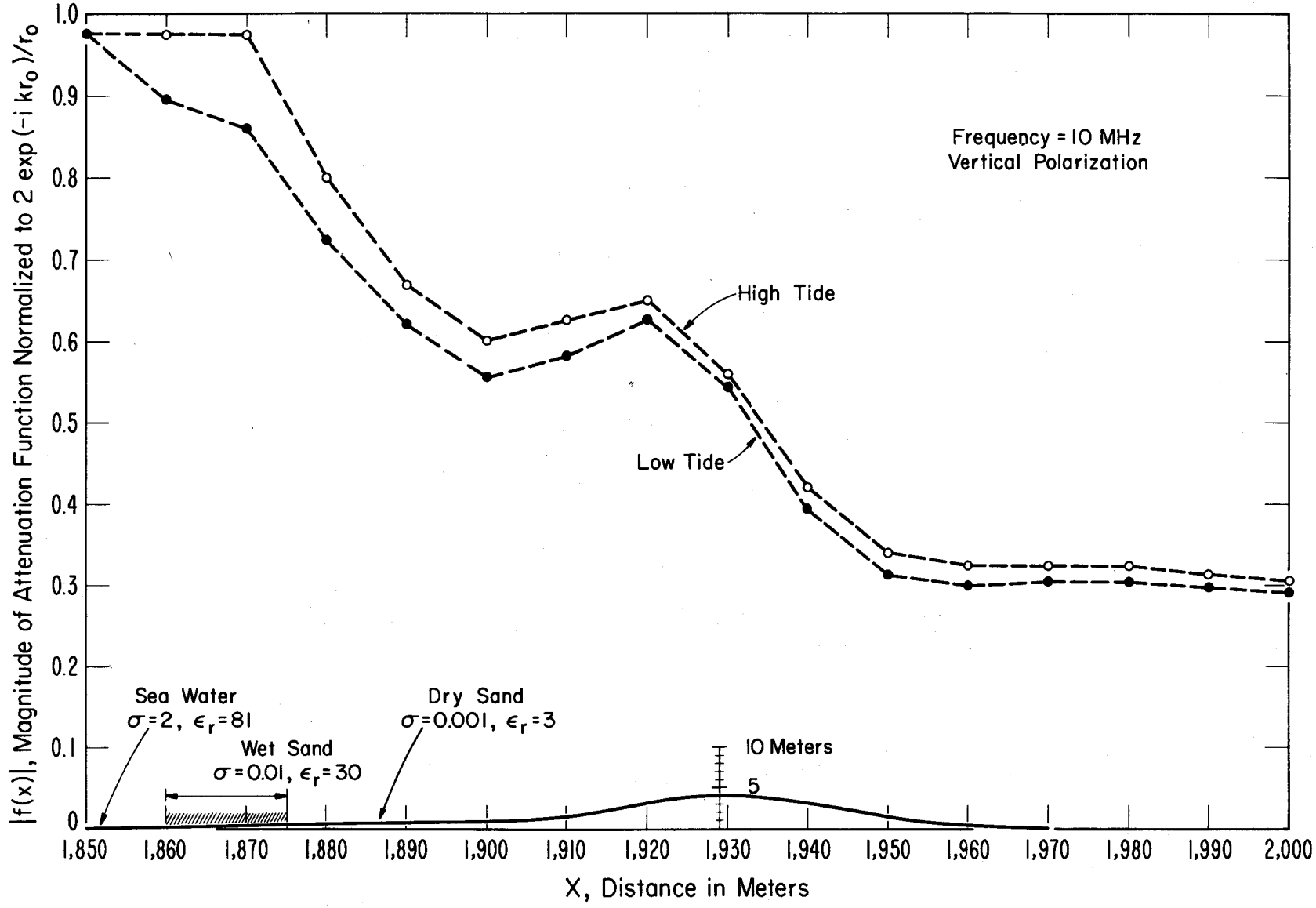


Graph 32. The effect of terrain upon attenuation. (Ott, 1971b)



Graph 33. A three-section path with a sloping beach.

(Ott, 1970, private communication)



Graph 34. A raised island with a wet sand beach. (Ott, 1971b)