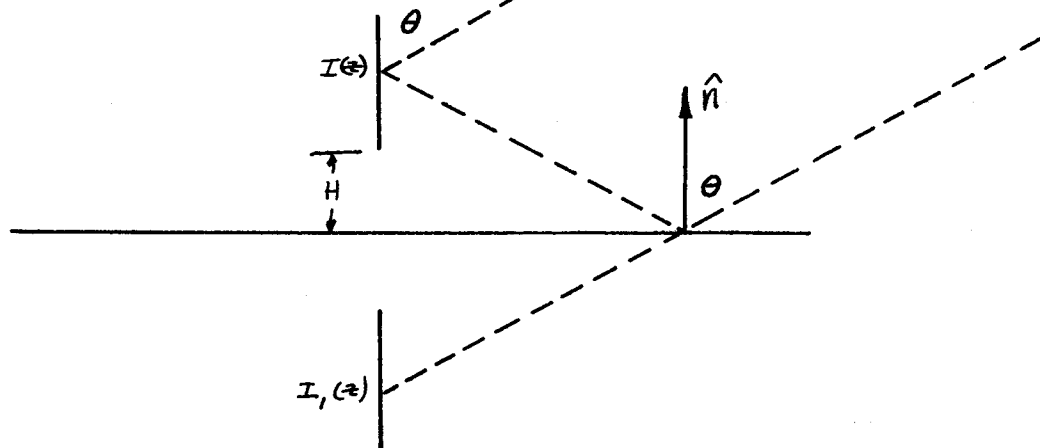


$$dA_z = \frac{e^{-jkr}}{4\pi r} \left[I(z) e^{jkz \cos \theta} + I_1(z) e^{-jkz \cos \theta} \right] dz$$

$$I_1(z) = \rho I(z)$$



$$dA_z = \frac{I(z) e^{-jkr}}{4\pi r} \left[e^{jkz \cos \theta} + \rho(\theta) e^{-jkz \cos \theta} \right] dz$$

$$I(z) = \sin k \left(\frac{L}{2} + H - z \right) \quad \frac{H}{2} \leq z \leq H + \frac{L}{2}$$

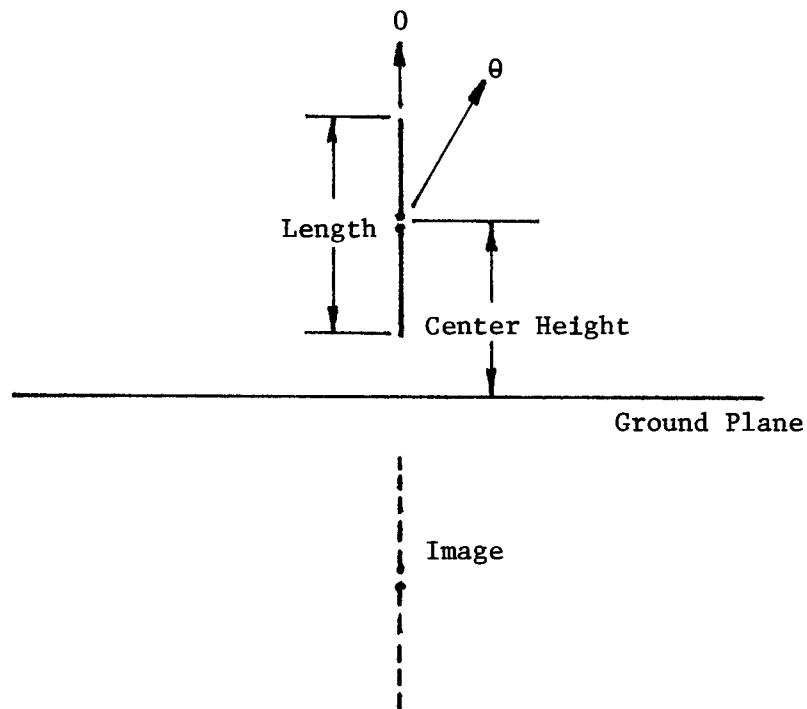
$$= 0 \quad \text{elsewhere}$$

$$A_z = \int_H^{\frac{L}{2} + H} dA_z \quad E_\theta = \sin \theta A_z$$

For Conservation of Radiated Power, that not reflected by ground enters ground & is absorbed.

$$TRANS(VOL.) = \sqrt{1 - |RHO|^2}$$

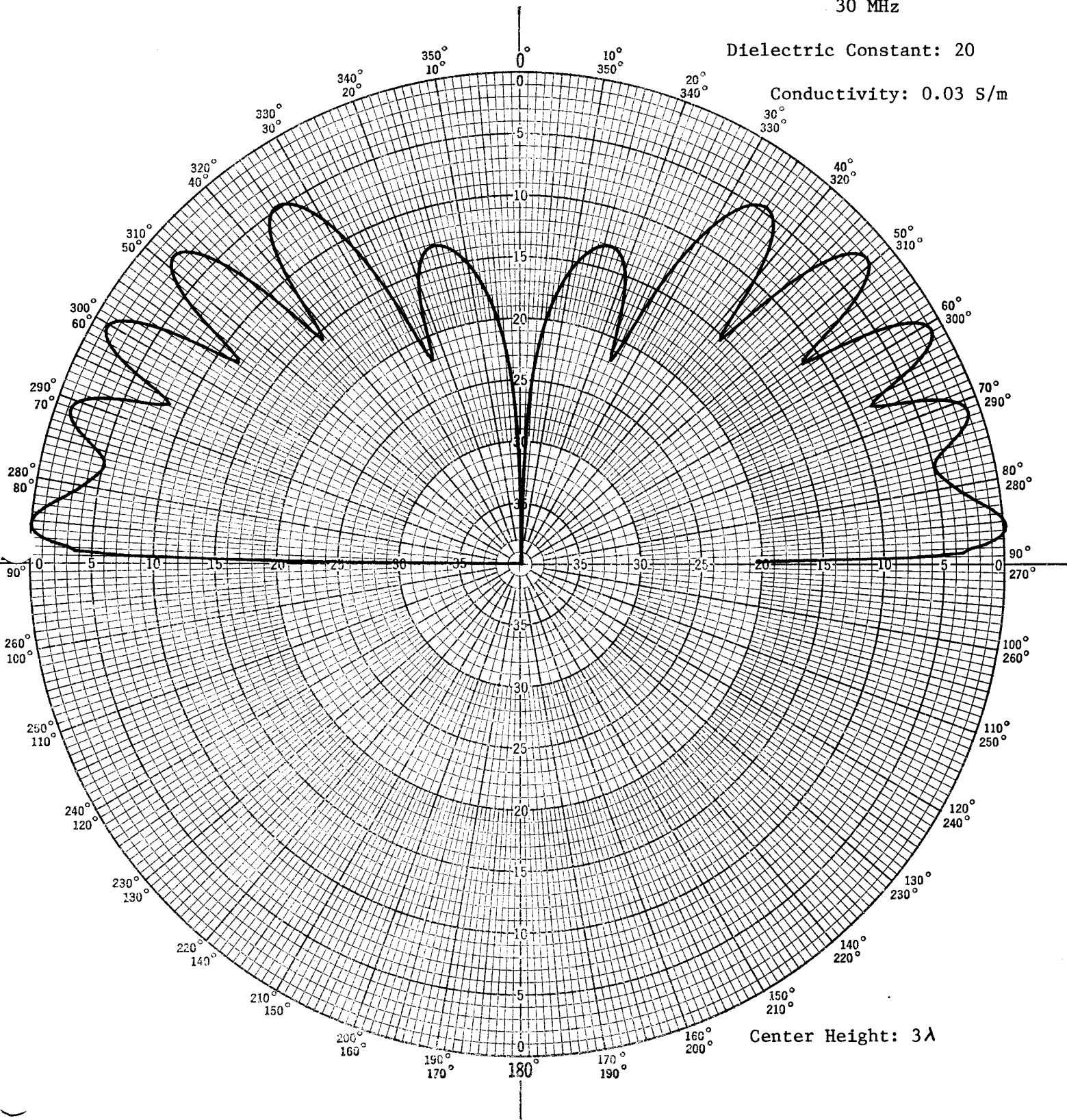
Pattern Response of Vertical Dipole Over
Perfect Ground Plane & Earth



30 MHz

Dielectric Constant: 20

Conductivity: 0.03 S/m

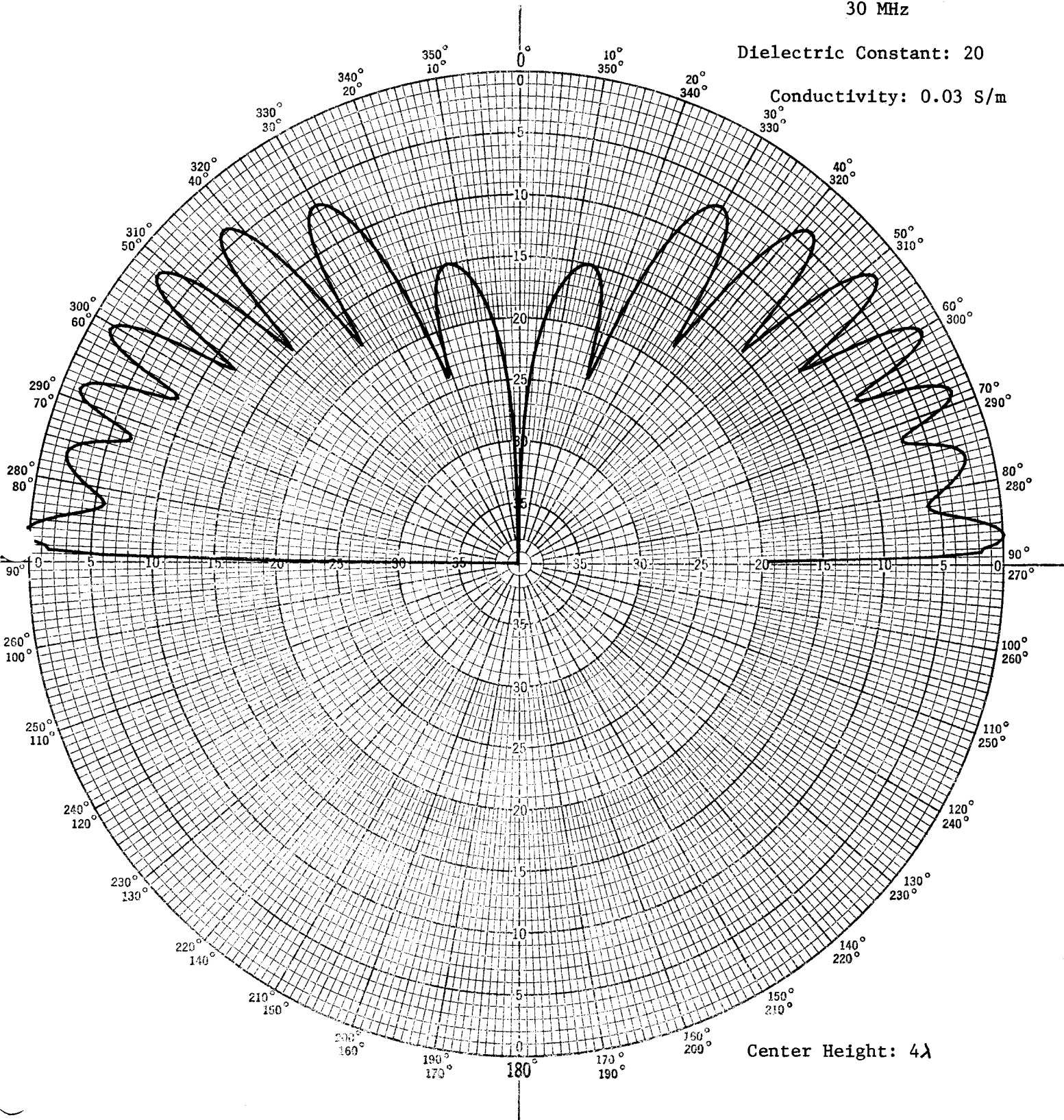
Center Height: 3λ 

Polar Chart No. 127D
 SCIENTIFIC-ATLANTA, INC.
 ATLANTA, GEORGIA

30 MHz

Dielectric Constant: 20

Conductivity: 0.03 S/m

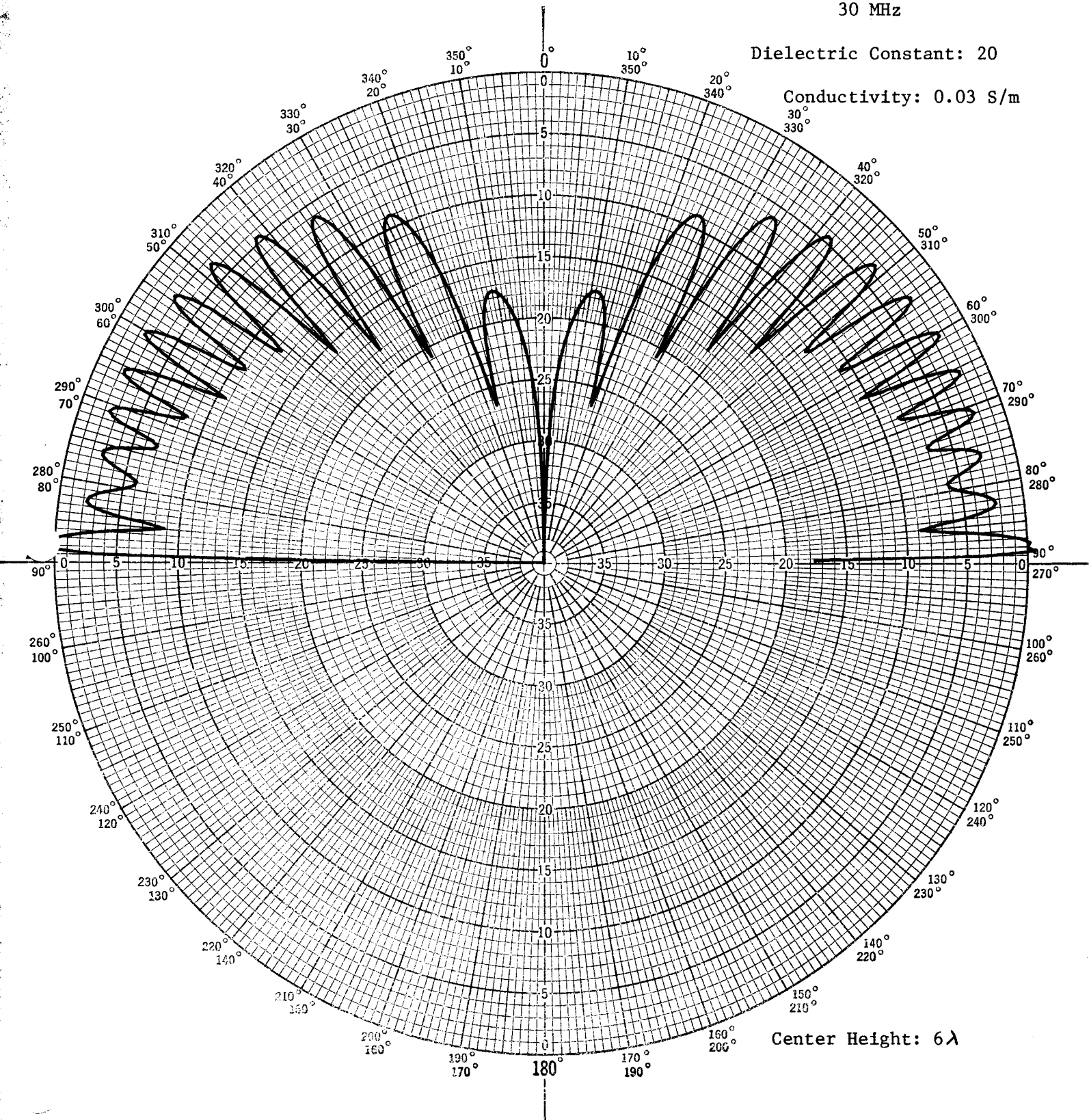
Center Height: 4 λ

Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA

30 MHz

Dielectric Constant: 20

Conductivity: 0.03 S/m

Center Height: 6 λ 

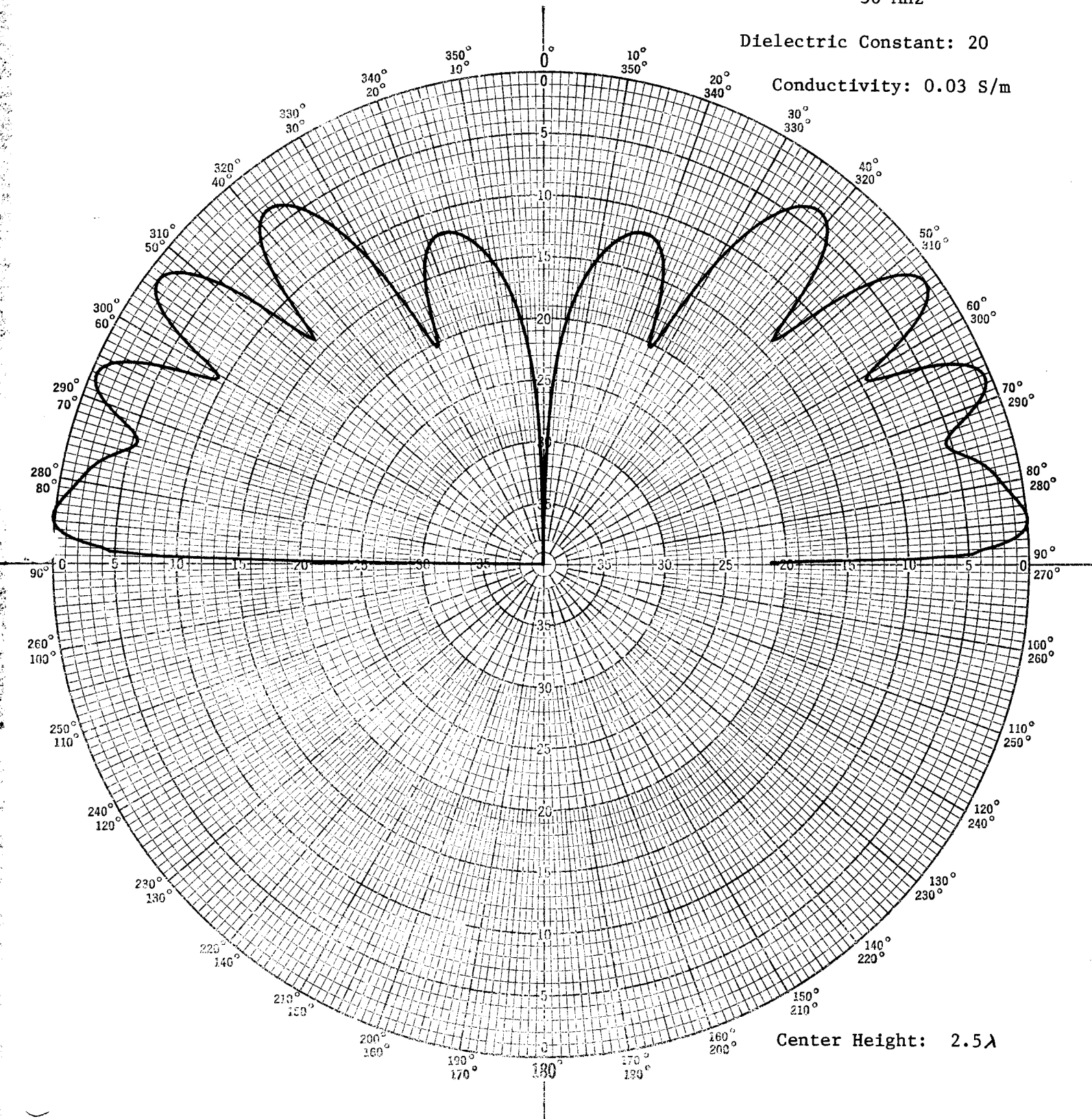
Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA

30 MHz

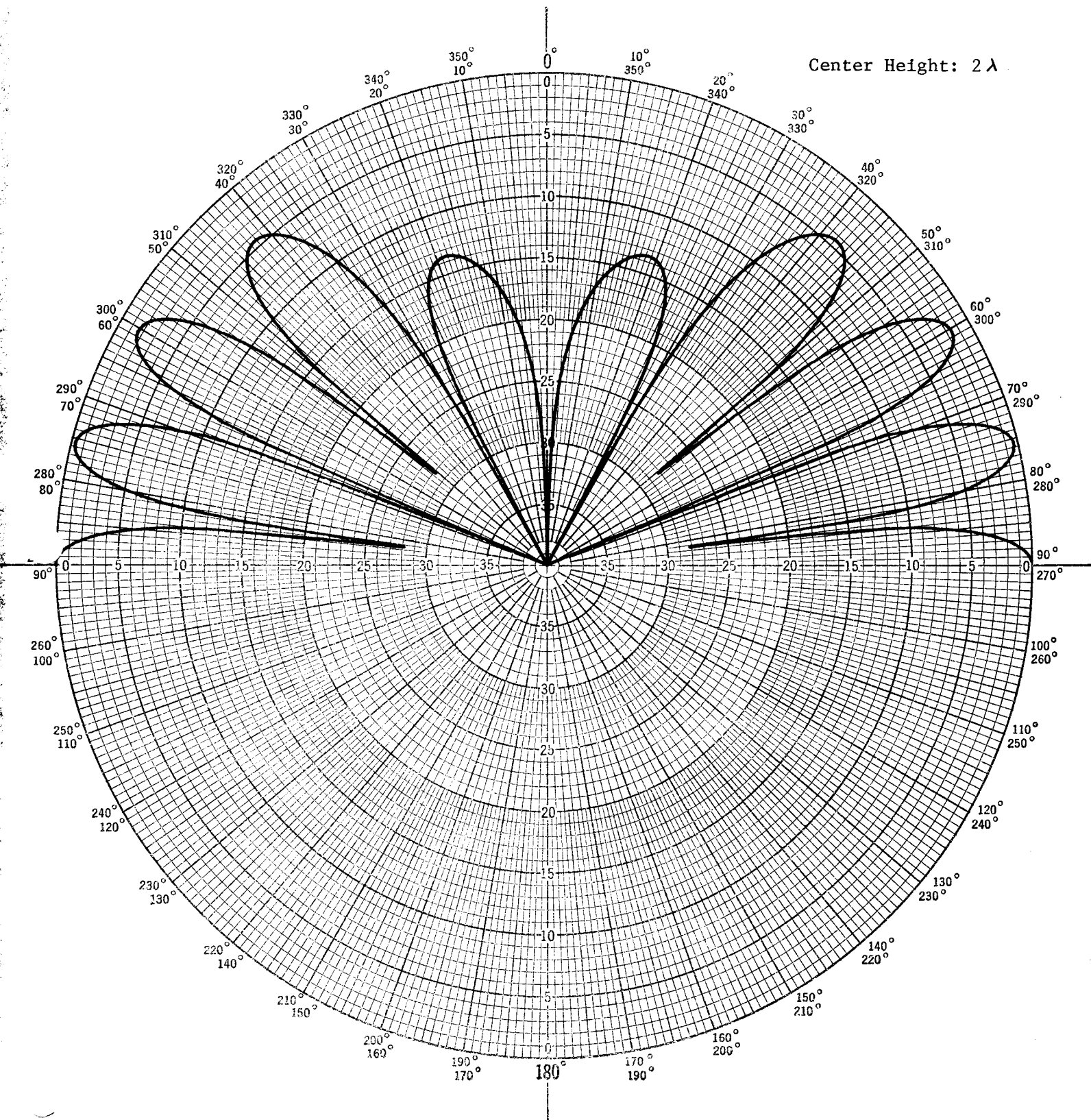
Dielectric Constant: 20

Conductivity: 0.03 S/m

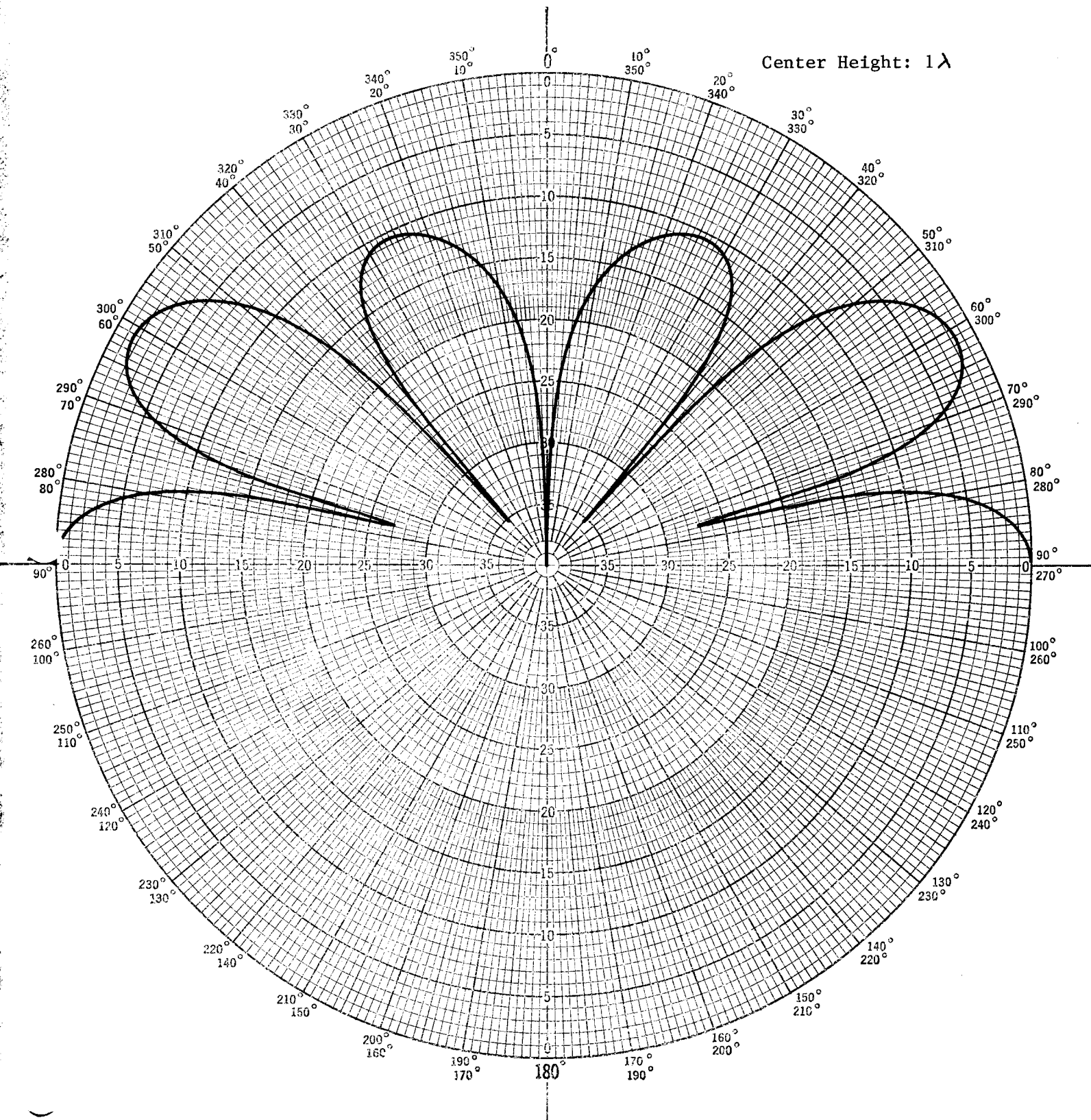
Center Height: 2.5λ



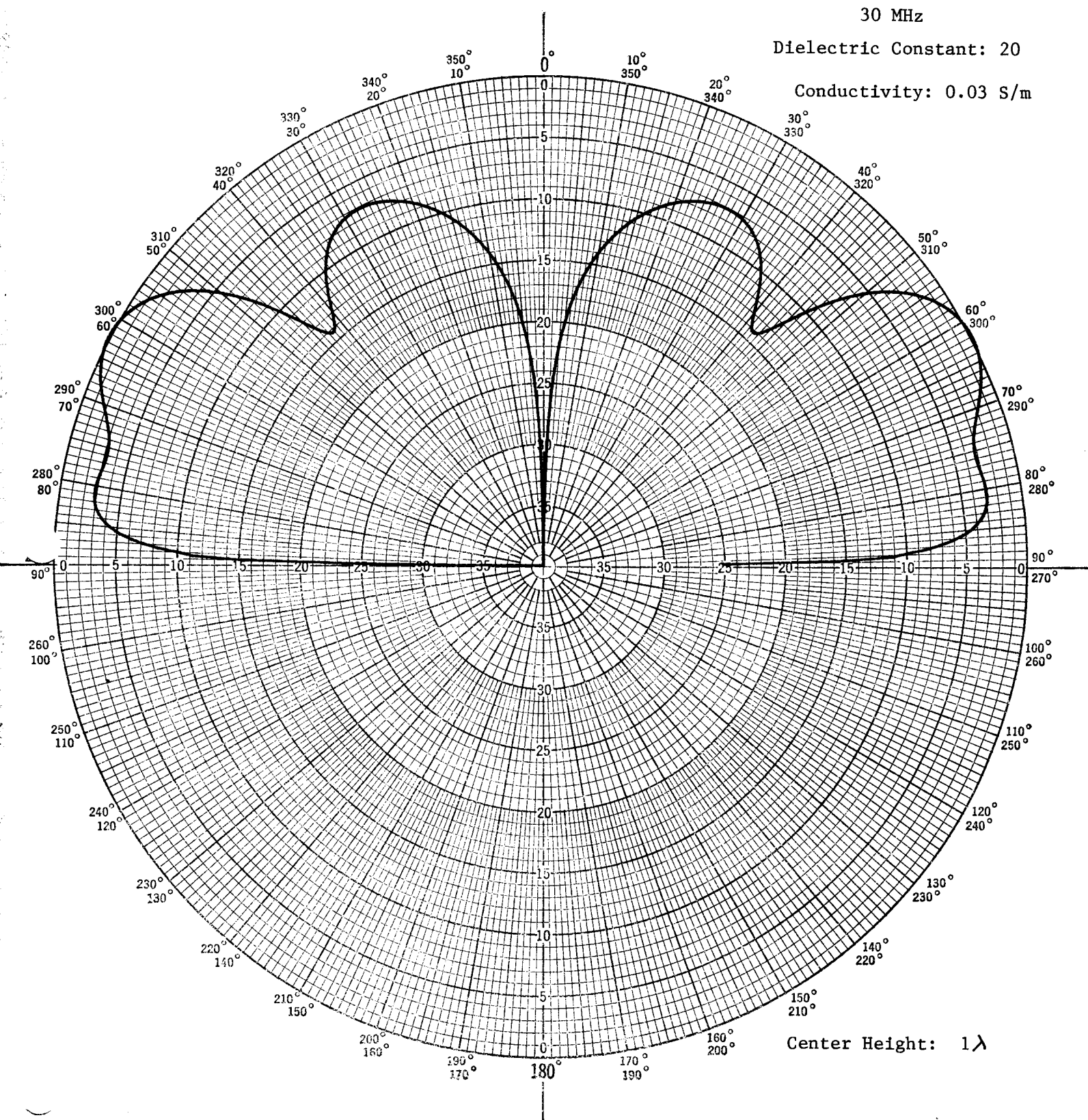
Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA



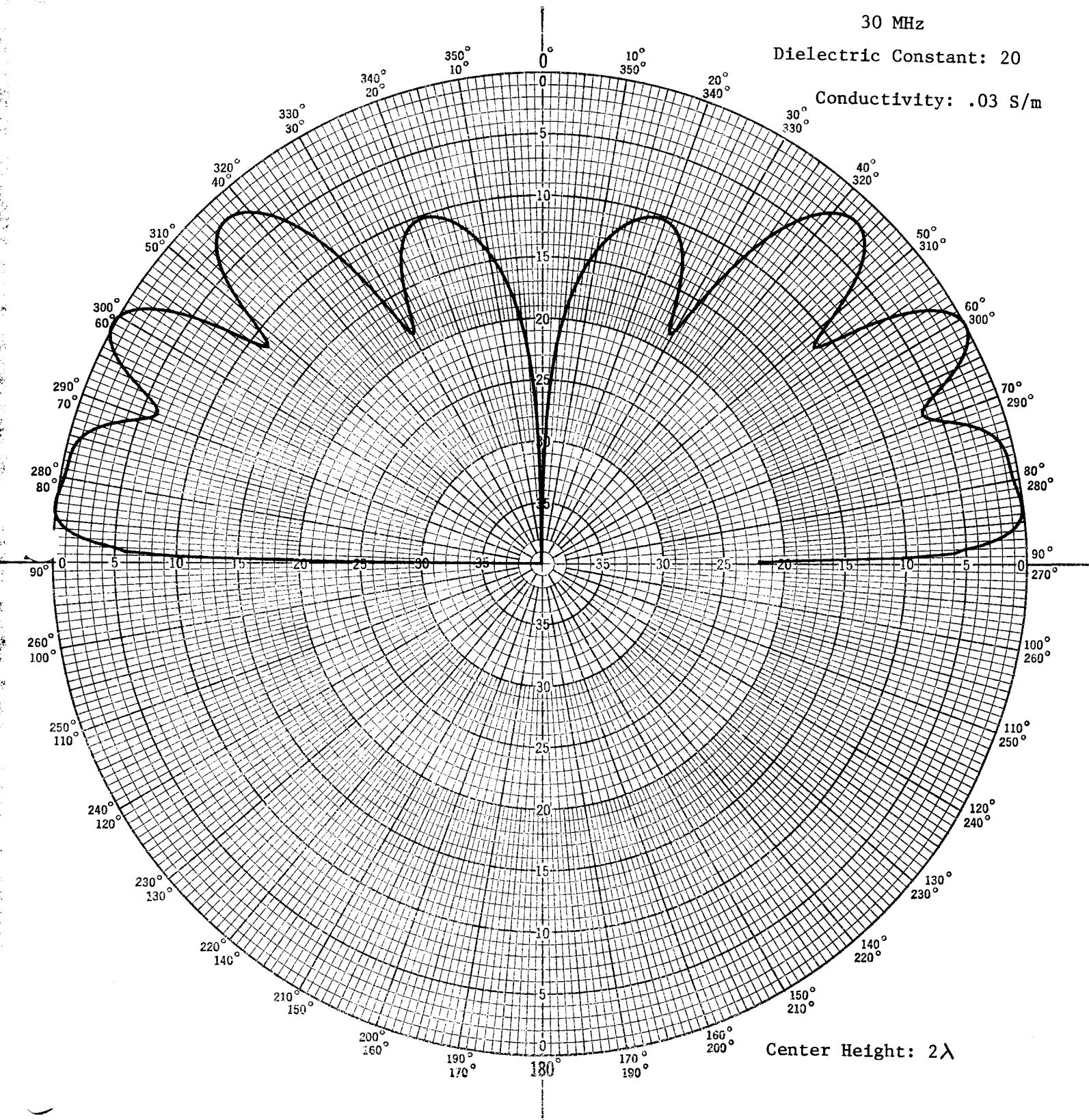
Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA



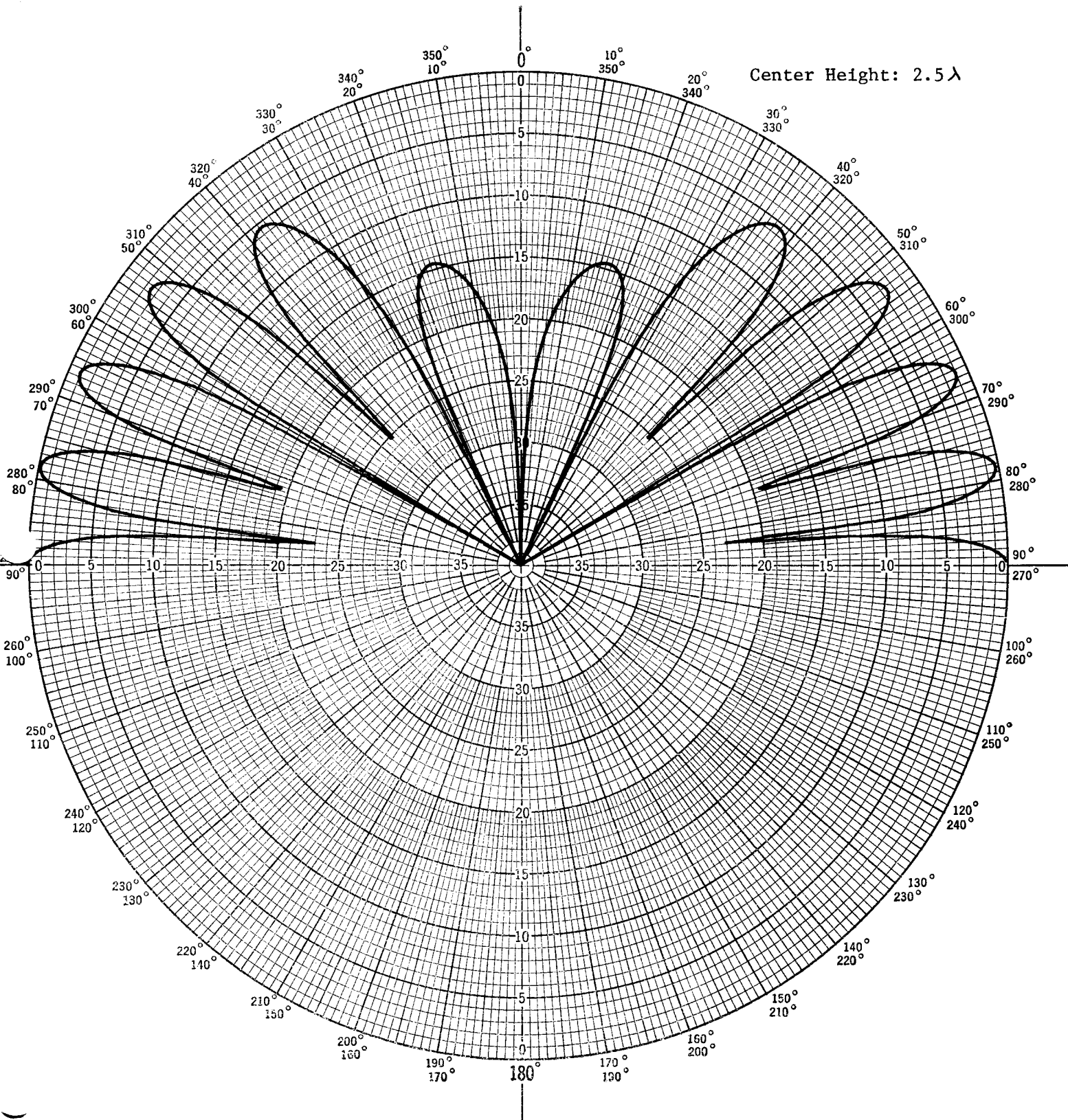
Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA



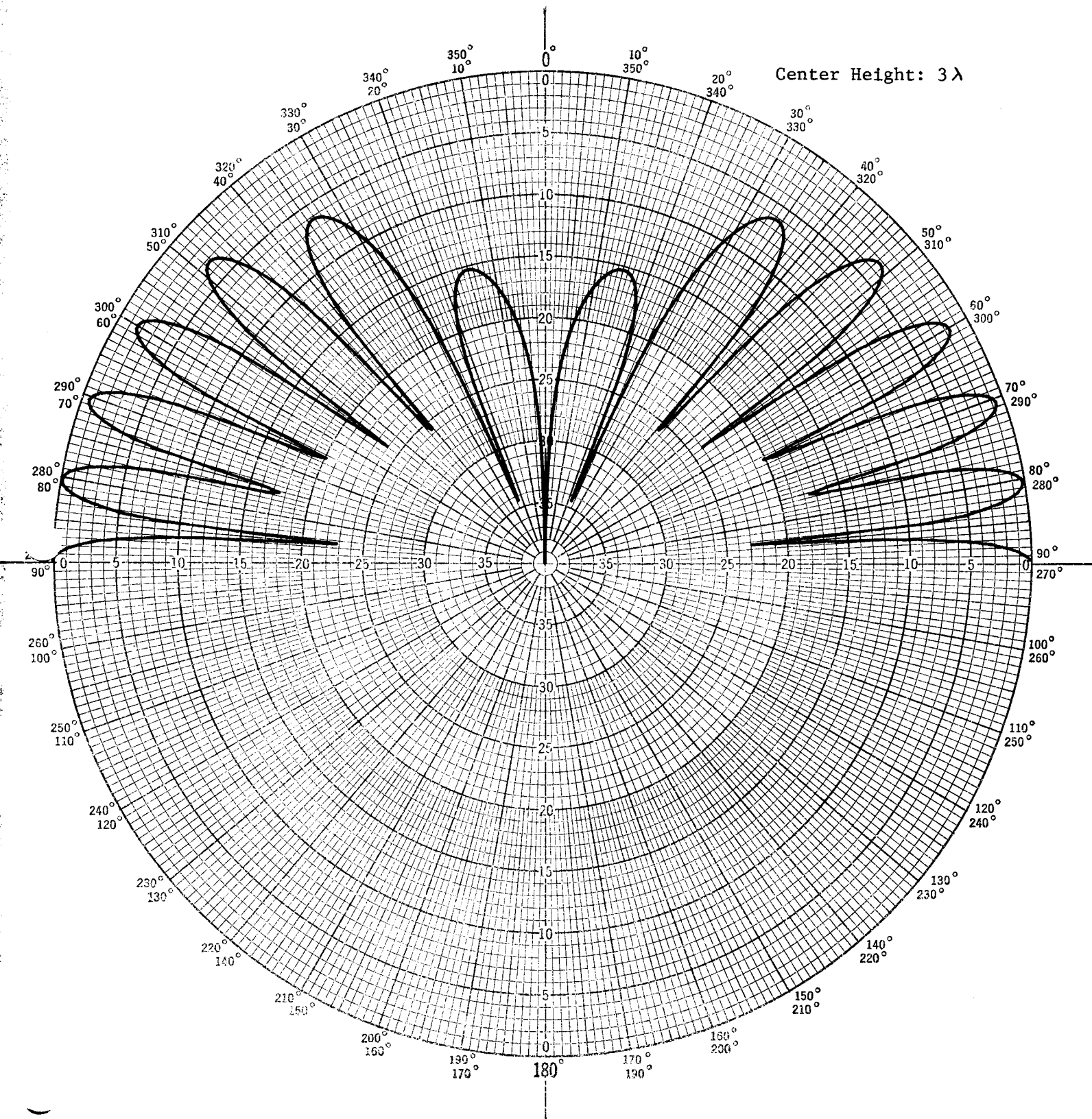
Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA



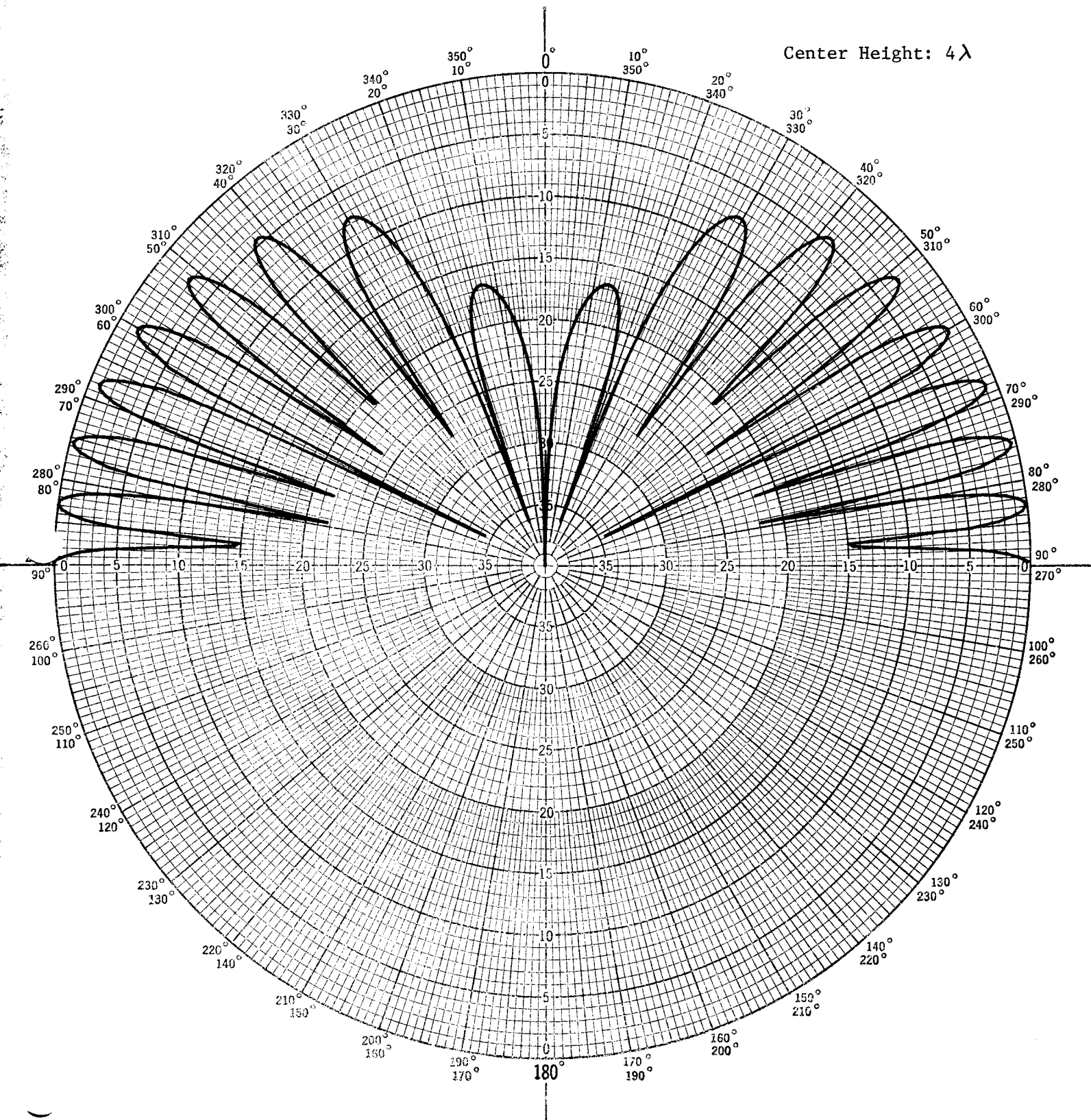
Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA

0.48 λ Dipole Over Perfect GroundCenter Height: 2.5 λ 

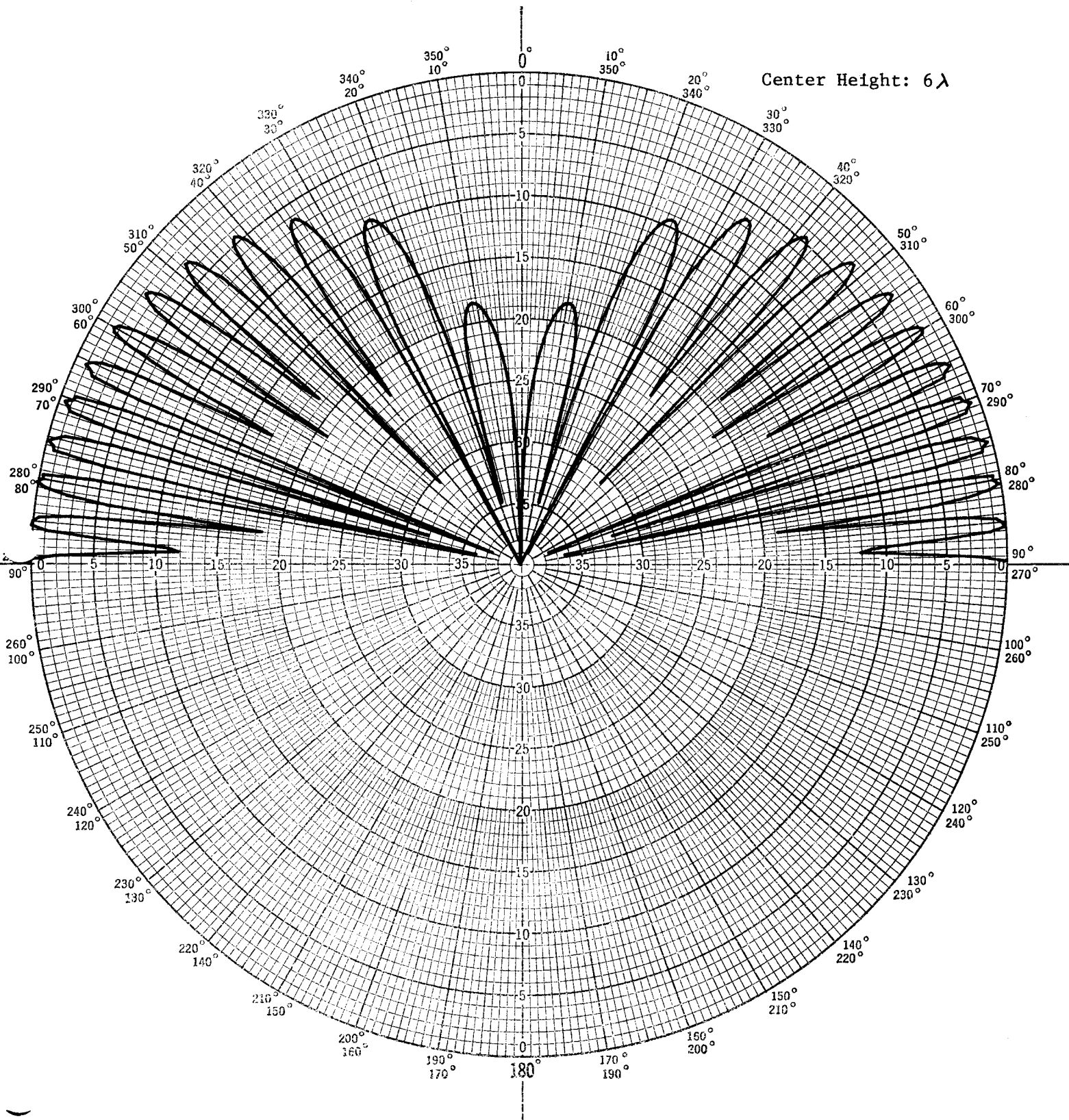
Polar Chart No. 127D
 SCIENTIFIC-ATLANTA, INC.
 ATLANTA, GEORGIA



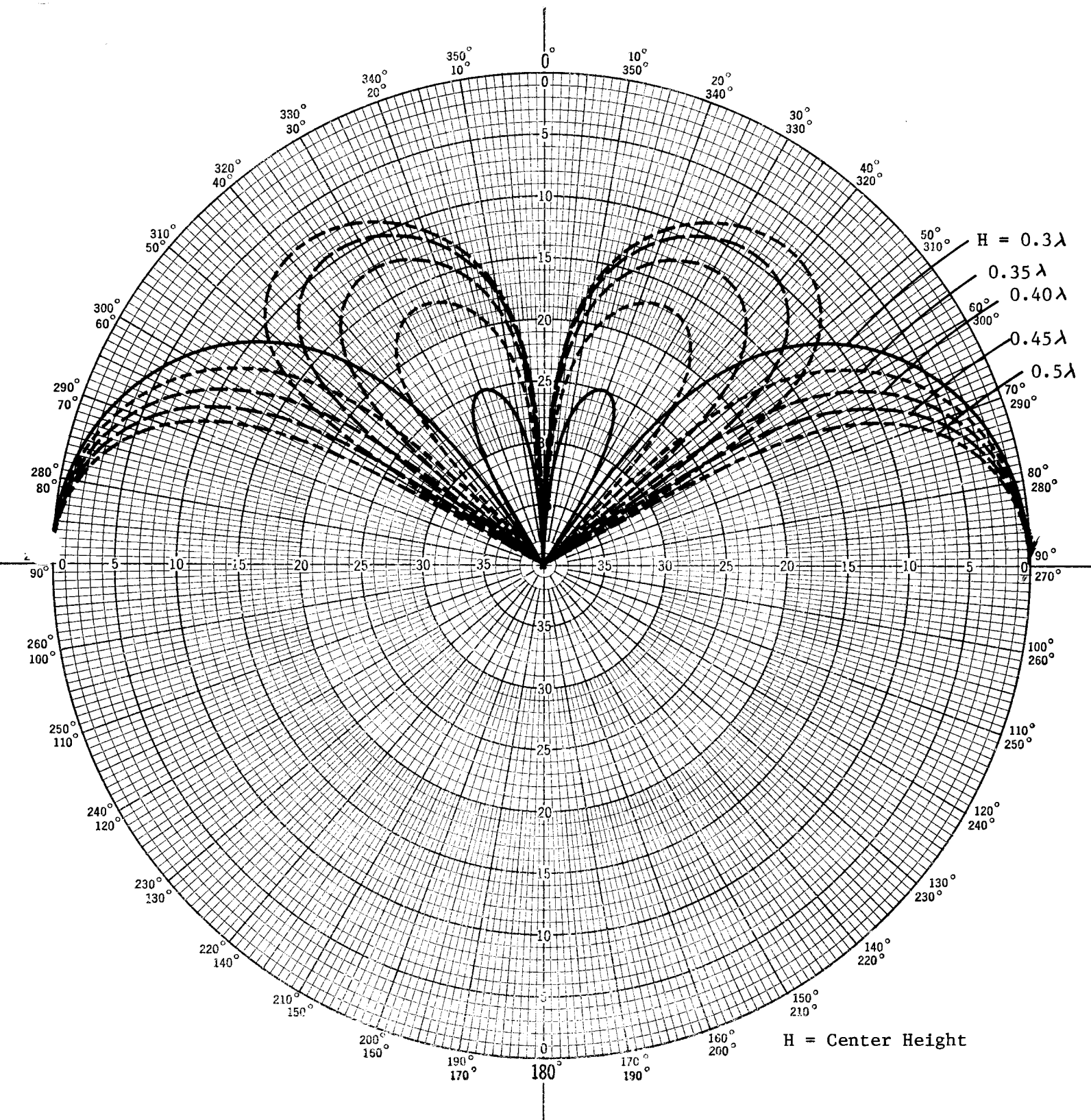
Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
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Center Height: 4 λ 

Polar Chart No. 127D
 SCIENTIFIC ATLANTA, INC.
 ATLANTA, GEORGIA

0.48 λ Dipole Over Perfect Ground

Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA

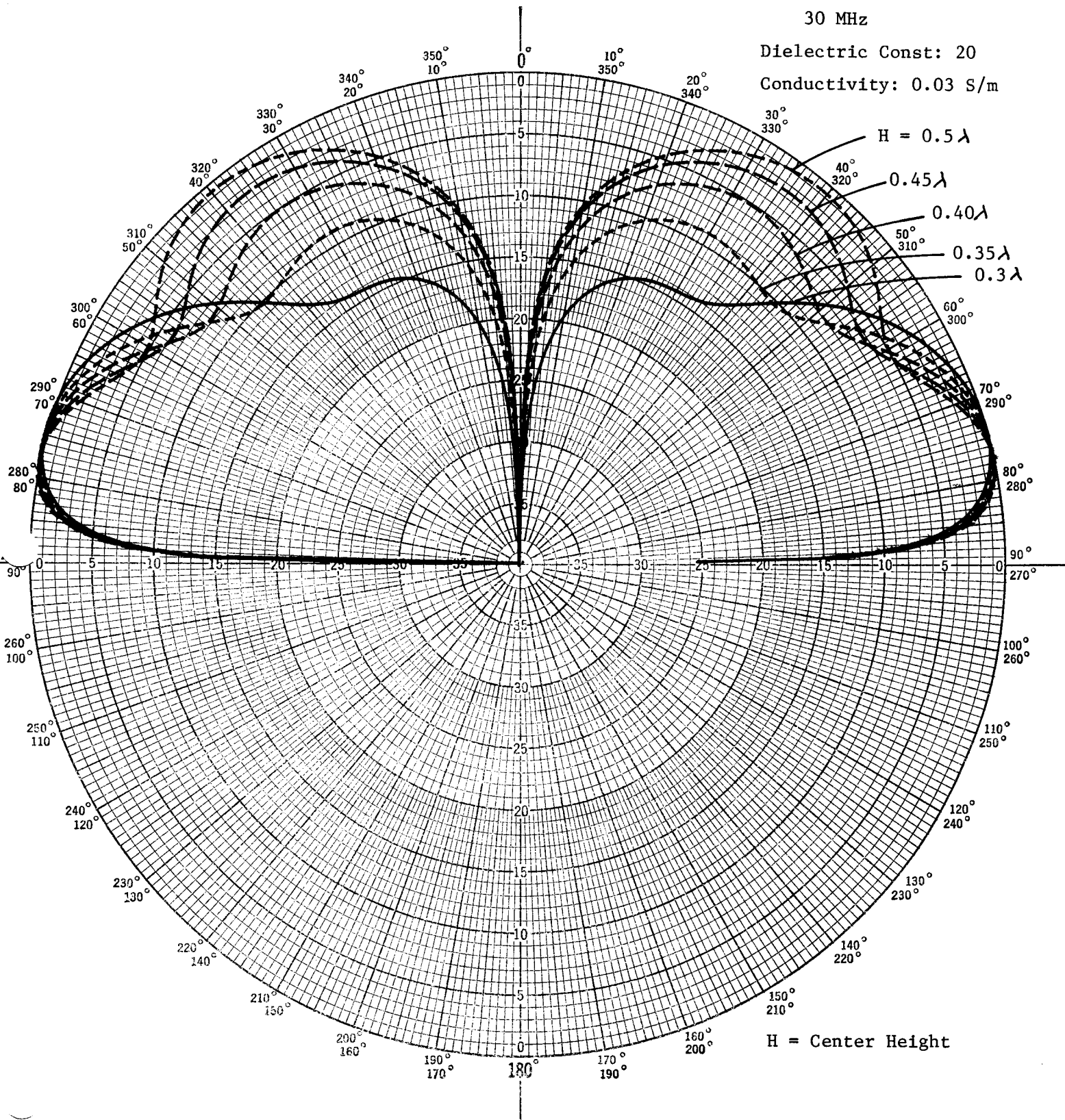


Polar Chart No. 127D
 SCIENTIFIC-ATLANTA, INC.
 ATLANTA, GEORGIA

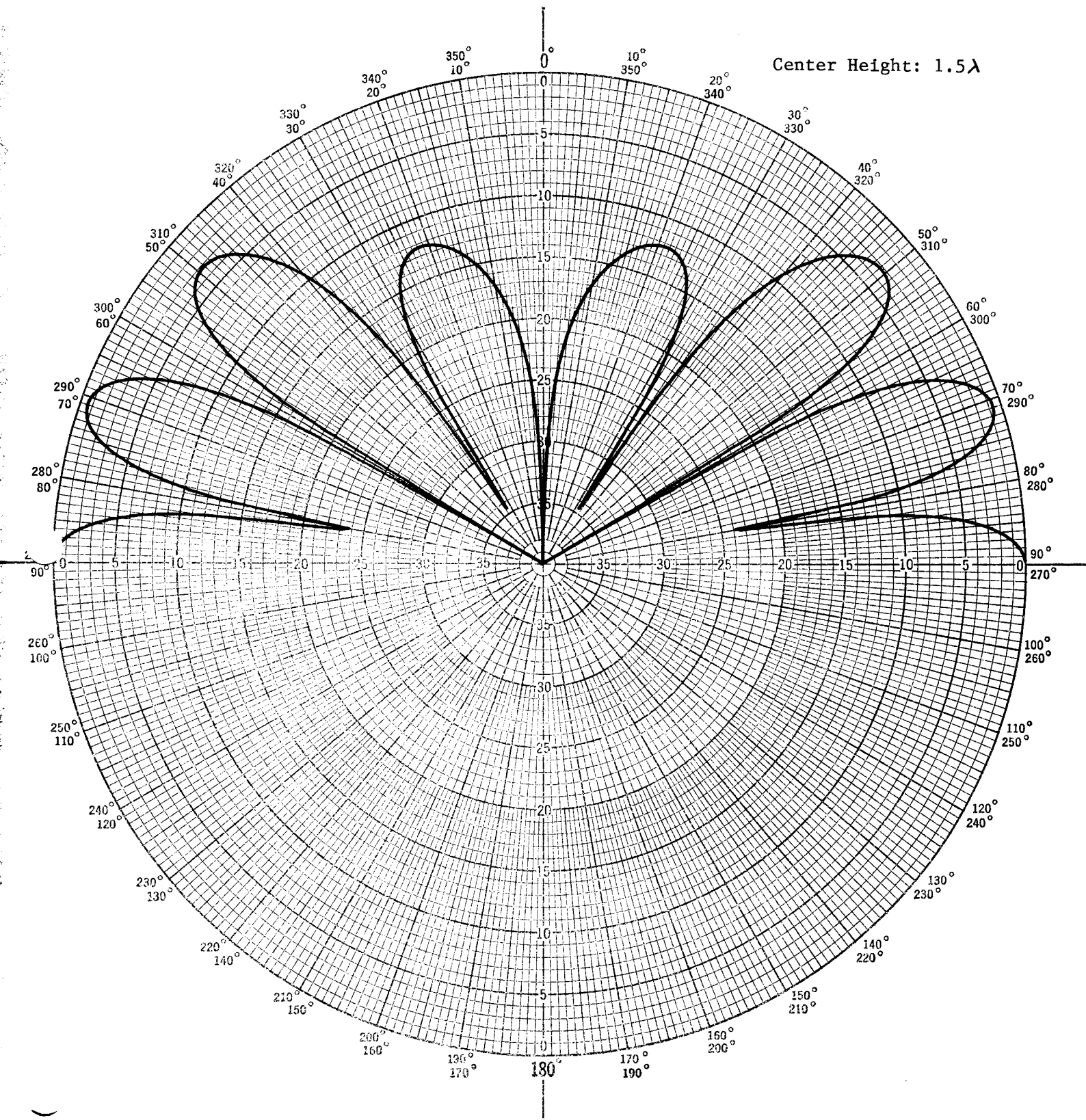
30 MHz

Dielectric Const: 20

Conductivity: 0.03 S/m



Polar Chart No. 127D
 SCIENTIFIC-ATLANTA, INC.
 ATLANTA, GEORGIA

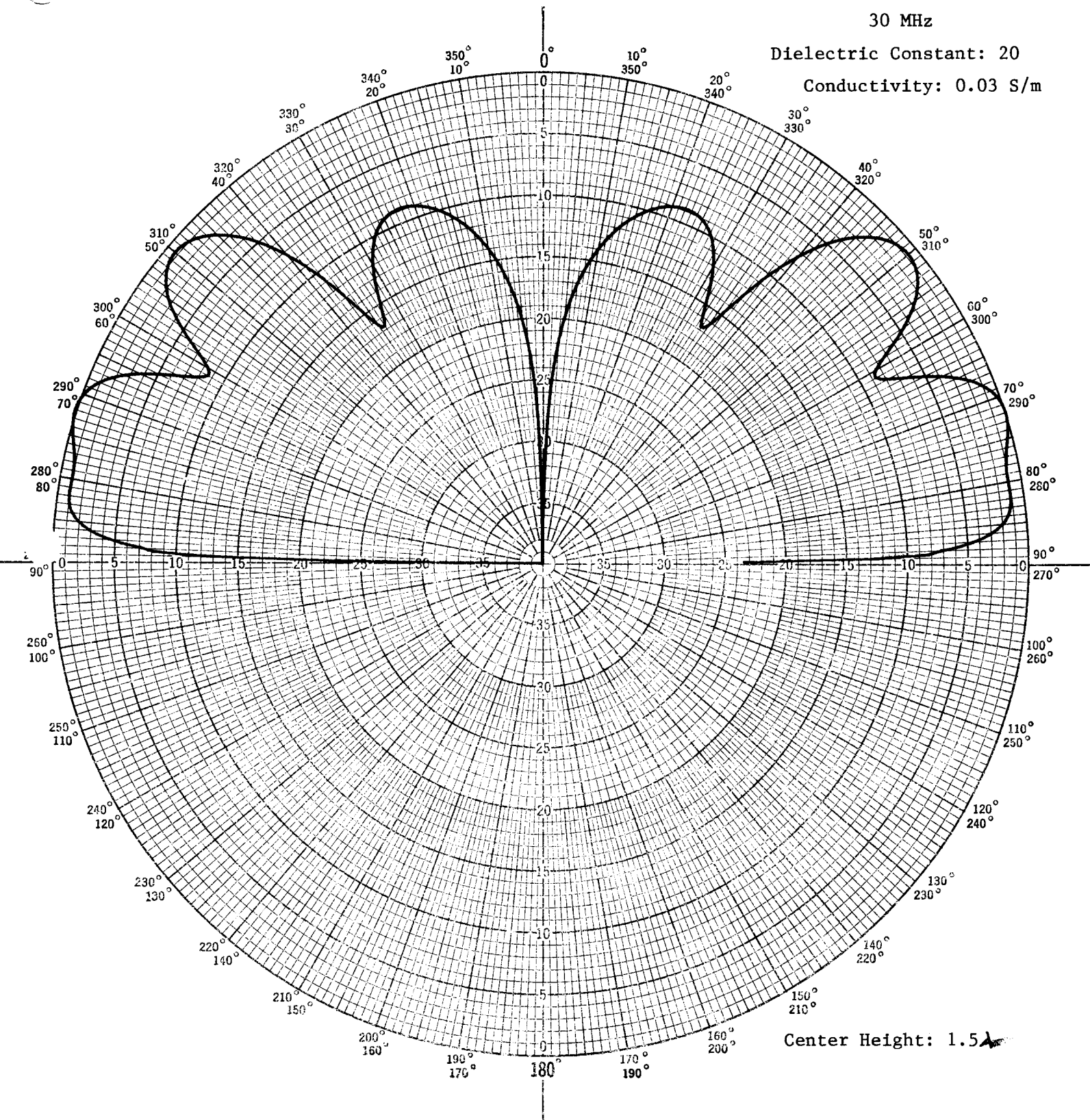


Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA

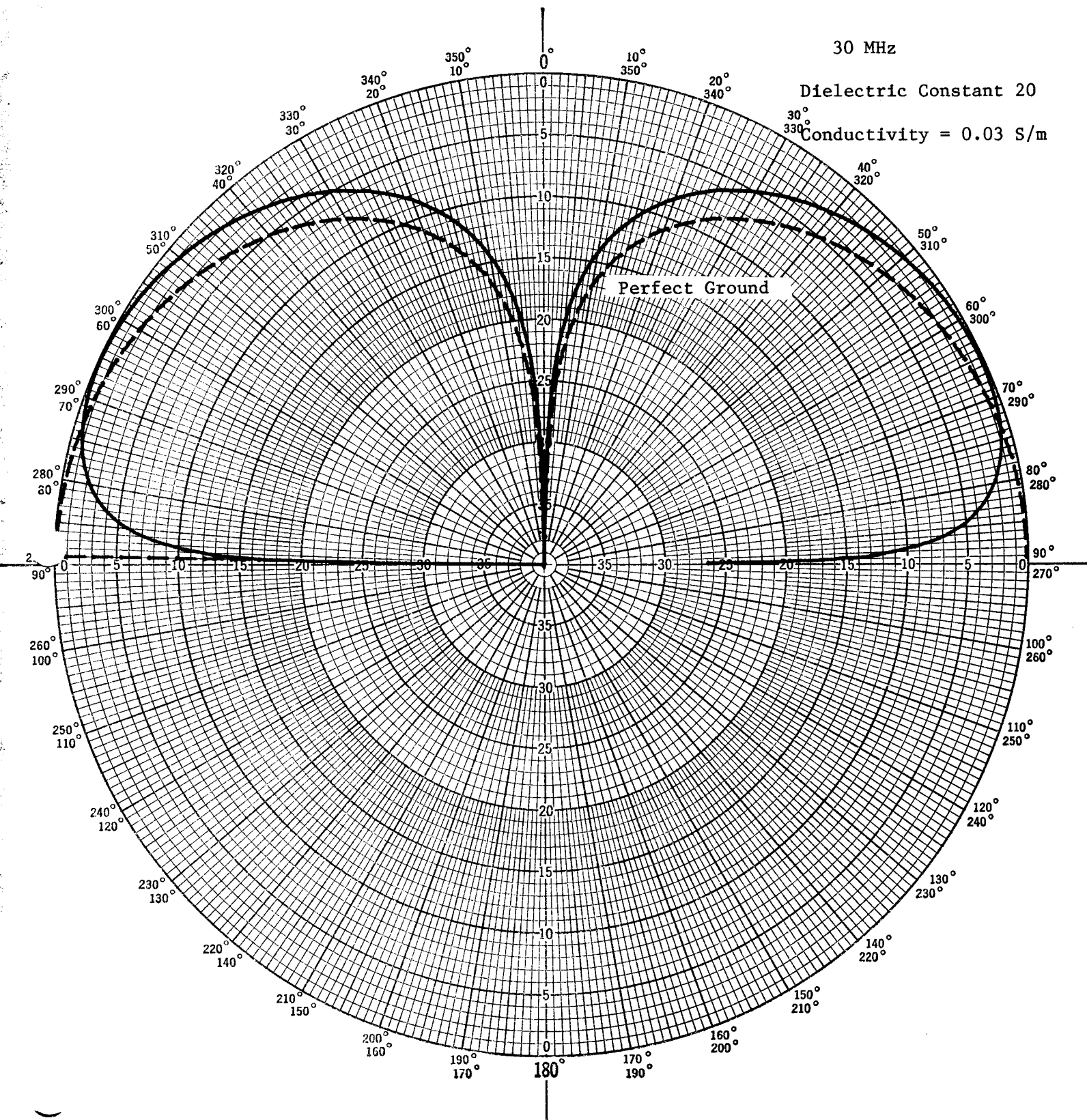
30 MHz

Dielectric Constant: 20

Conductivity: 0.03 S/m



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