

Ingenieurbüro Baumann --- www.leobaumann.de

manuelle Berechnung einer $9/2$ Lambda Langdrahtantenne, Leerlauf am Ende

h = Länge, b_2 = Höhe über Grund, l = Wellenlänge

- `reset():digits:=16:k:=1/1000:wh:=0*PI/180:vw:=14.03125*PI/180:h:=9/2
:b2:=1/8:l:=1:`

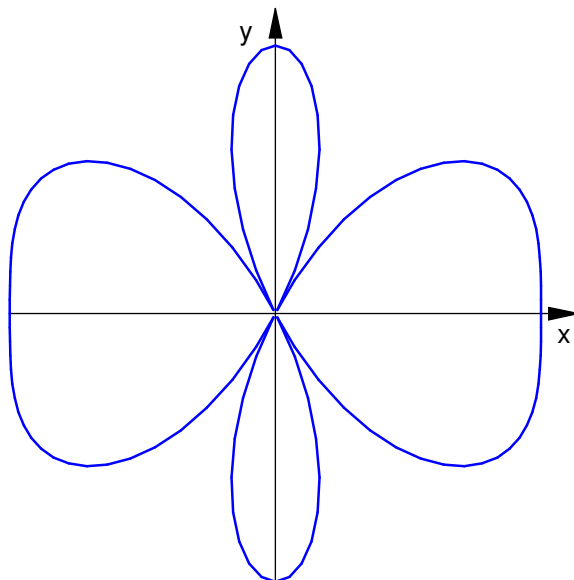
Richtdiagramm im Kugelraum als Funktion der Winkel

- `c:=(the,phil) -> abs((cos(PI*h/l*cos(the)*sin(phil))-
cos(PI*h/l))/(sqrt(1-cos(the)^2*sin(phil-
k)^2)))*2*abs(sin(PI*2*b2/l*cos(phil))):`

Antennenimpedanz 1812 Ohm, reell

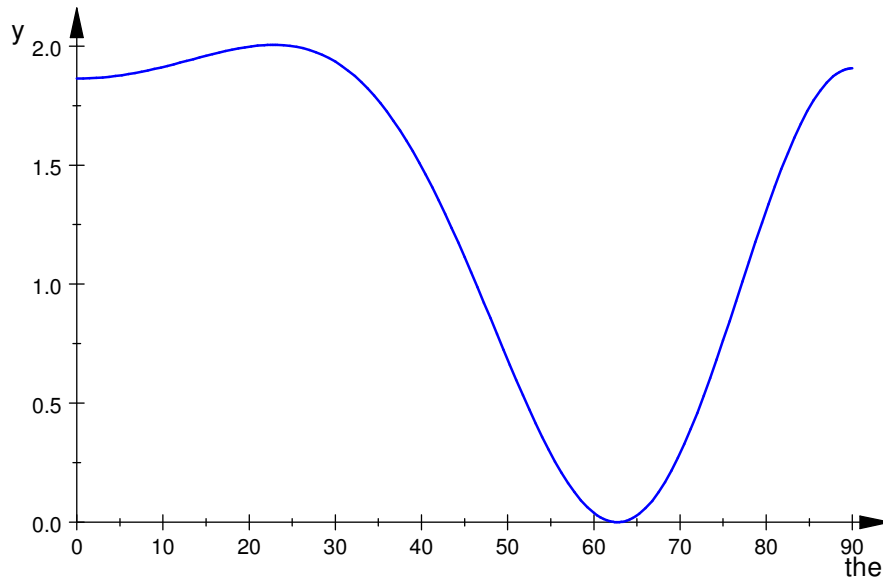
Horizontaldiagramm

- `plot(plot::Polar([c(the, vw), the], the = 0..2*PI, TicksNumber=None,
Scaling=Constrained));`



horizontale relative Strahlungsleistungsdichte

- `plotfunc2d(c(the*PI/180, vw)^2, the = 0..90):`



Maximalwert der relativen Strahlungsleistungsdichte , auch in dBi

- ```

ghmax:=0:ghwmax:=0:for m from 0 to 960 step 1 do
gh:=float(c(m*PI/5760,wv)^2);
if gh>ghmax then
 ghmax:=gh;
 ghwmax:=float(m/32);
end_if;
end_for:ghmax;float(10*ln(ghmax)/ln(10)+2.15);ghwmax;

```

2.005039495

5.171229316

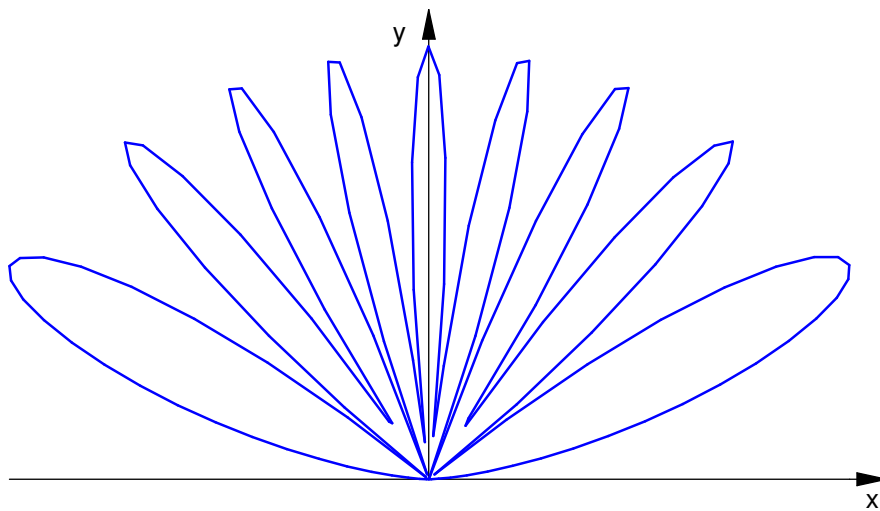
22.875

Vertikaldiagramm

- ```

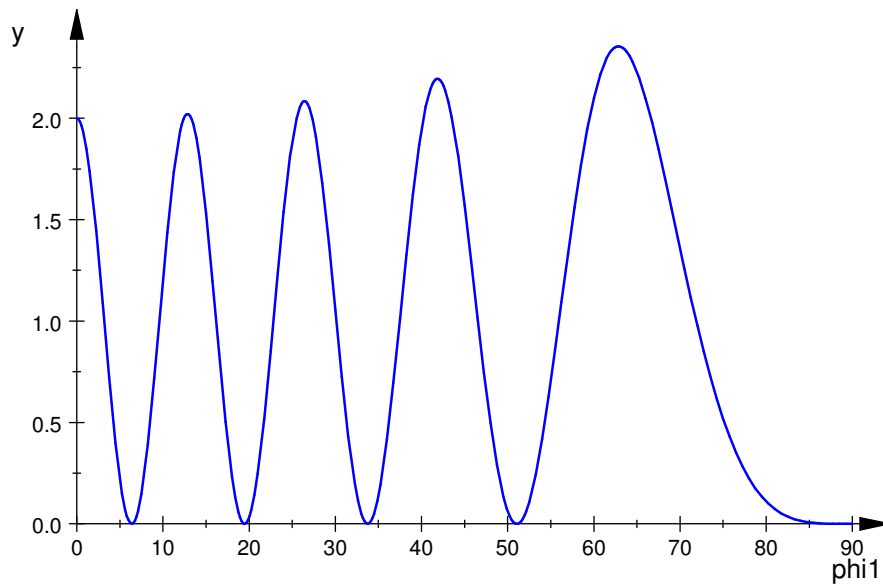
plot(plot::Polar([c(wh,phil),phil+PI/2], phil = -PI/2..PI/2,
TicksNumber=None, Scaling=Constrained));

```



vertikale relative Strahlungsleistungsdichte

- `plotfunc2d(c(wh,phi1*PI/180)^2, phi1 = 0..90):`



- Maximalwert der relativen Strahlungsleistungsdichte , auch in dBi
- `gvmax:=0:gvwmax:=0:for m from 0 to 2880 step 1 do
gv:=float(c(wh,m*PI/5760)^2);
if gv>gvmax then
gvmax:=gv;
gvwmax:=float(m/32);
end_if;`

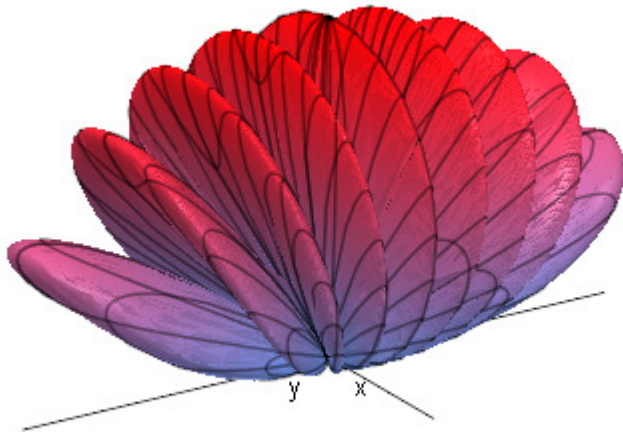
```
end_for:gvmax;float(10*ln(gvmax)/ln(10)+2.15);gvwmax;
```

2.353960413

5.867991549

62.84375

- delete
the,phil:graph:=plot::Surface([cos(the)*sin(phil)*c(the,phil),sin(the)*sin(phil)*c(the,phil),cos(phil)*c(the,phil)],the=0..2*PI,phil=-PI/2..PI/2,Axes=Origin,TicksNumber=None,Scaling=Constrained,AdaptiveMesh=4):
- plot(graph);



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