manuelle Berechnung einer elektrisch kurzen vertikalen Antenne
h = Länge, l = Wellenlänge

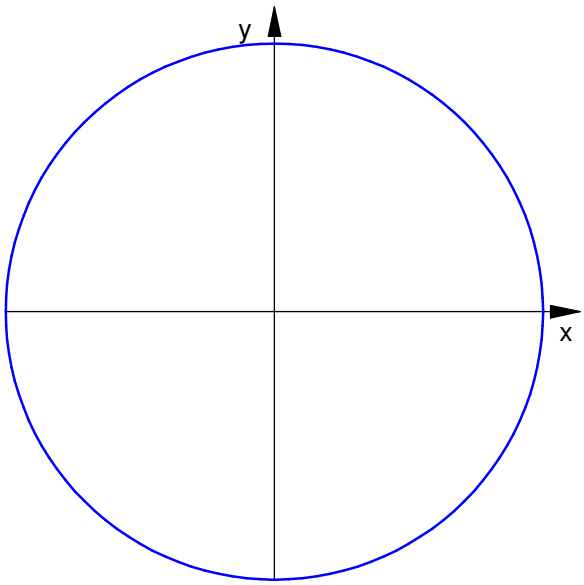
- `reset():digits:=16:wv:=90*PI/180:wh:=0:h:=1:l:=30:`

Richtdiagramm im Kugelraum als Funktion der Winkel

- `c:=(the,phi1) -> abs((cos(PI*h/l*cos(phi1))-cos(PI*h/l))/sin(phi1)):`

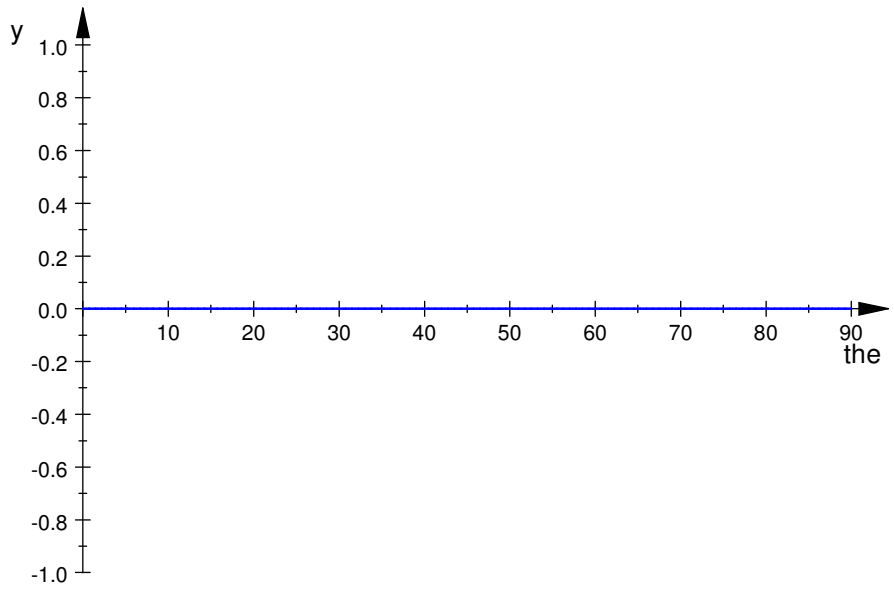
Horizontaldiagramm

- `plot(plot::Polar([c(the,wv),the], the = 0..2*PI, TicksNumber=None, Scaling=Constrained, AdaptiveMesh=4));`



horizontale relative Strahlungsleistungsdichte

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



Maximalwert der relativen Stahlungsleistungsdichte , auch in dB

```
ghmax:=0:ghwmax:=0:for m from 0 to 2880 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;
```

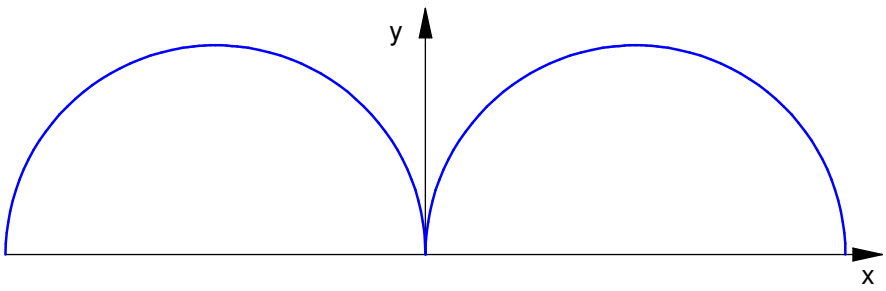
0.00003000963036

-43.07739354

0.0

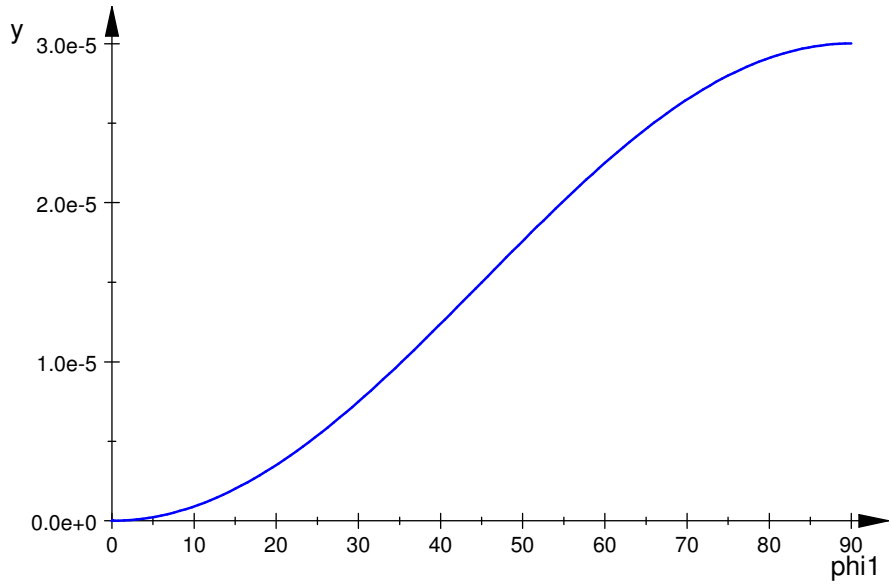
Vertikaldiagramm

```
plot(plot::Polar([c(wh,phi1),phi1+PI/2], phi1 = -PI/2..PI/2,
TicksNumber=None, Scaling=Constrained, AdaptiveMesh=4));
```



vertikale relative Strahlungsleistungsdichte

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



Maximalwert der relativen Stahlungsleistungsdichte , auch in dBi

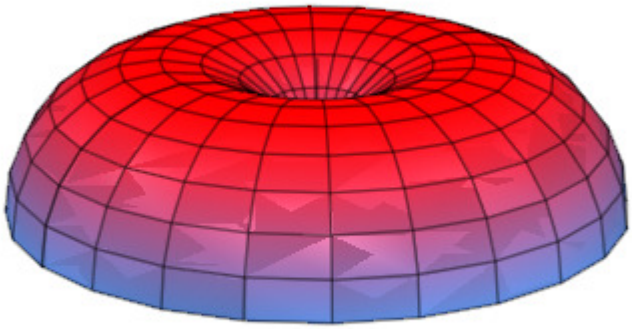
- ```
  gvmax:=0:gvwmax:=0:for m from 1 to 2880 step 1 do
  gv:=float(c(wh,m*PI/5760)^2);
  if gv>gvmax then
       gvmax:=gv;
       gvwmax:=float(m/32);
  end_if;
  end_for:gvmax;float(10*ln(gvmax)/ln(10)+2.15);gvwmax;
  ```
  ```

0.00003000963036

−43.07739354

90.0

- ```
  graph:=plot::Surface([cos(the)*sin(phi1)*c(the,phi1),sin(the)*sin(ph
  i1)*c(the,phi1),cos(phi1)*c(the,phi1)],the=0..2*PI, phi1=-
  PI/2..PI/2,Axes=Origin, TicksNumber=None, Scaling=Constrained,
  AdaptiveMesh=4):
  ```
- ```
  plot(graph);
  ```



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