

Ingenieurbüro Baumann --- www.leobaumann.de --- Markt 6, 46282 Dorsten
manuelle Berechnung eines horizontalen Dipols im freien Raum

h = Länge, l = Wellenlänge

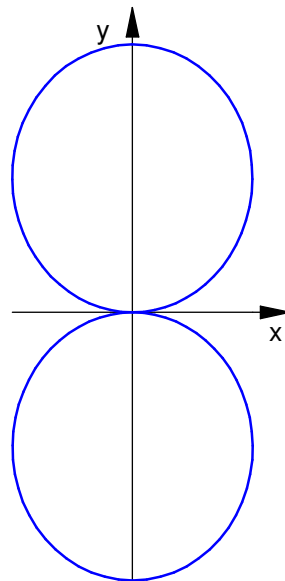
- `reset():digits:=16:k:=1/1000:wh:=90*PI/180:vw:=90*PI/180:h:=1/2:l:=1`
:

Richtdiagramm im Kugelraum als Funktion der Winkel

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

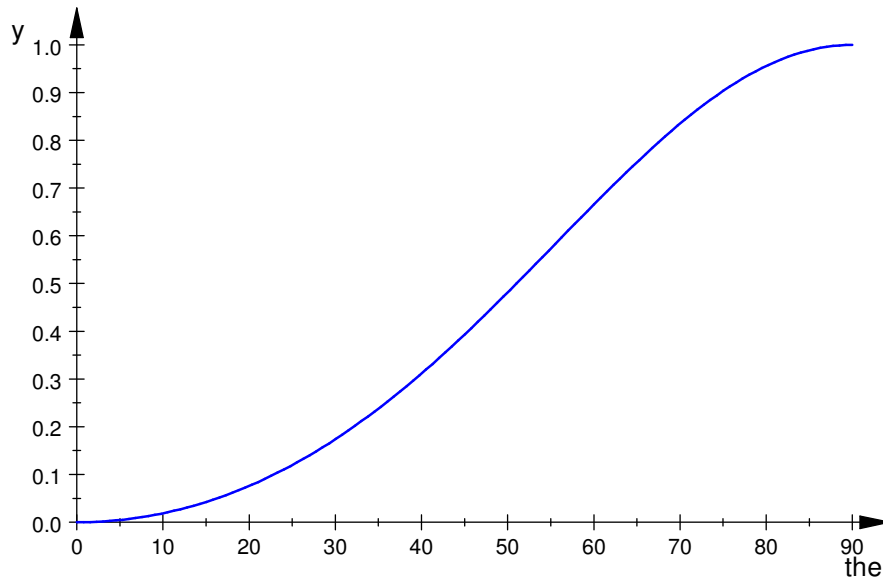
Horizontaldiagramm

- `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

- ```

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*log(10,ghmax)+2.15);ghwmax;

```

0.9999985326

2.149993627

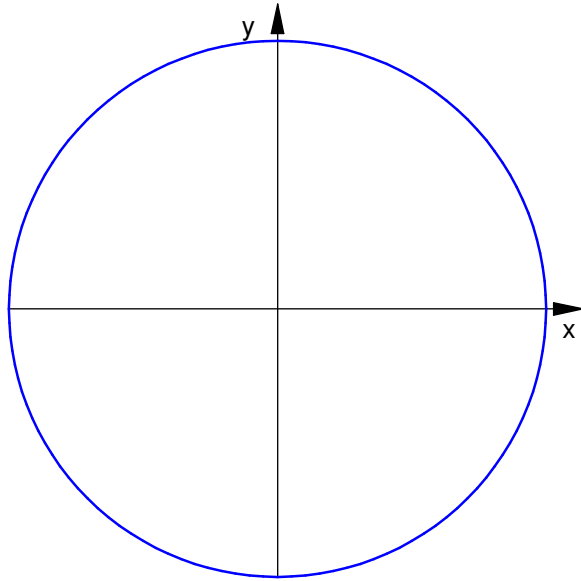
90.0

### Vertikaldiagramm

- ```

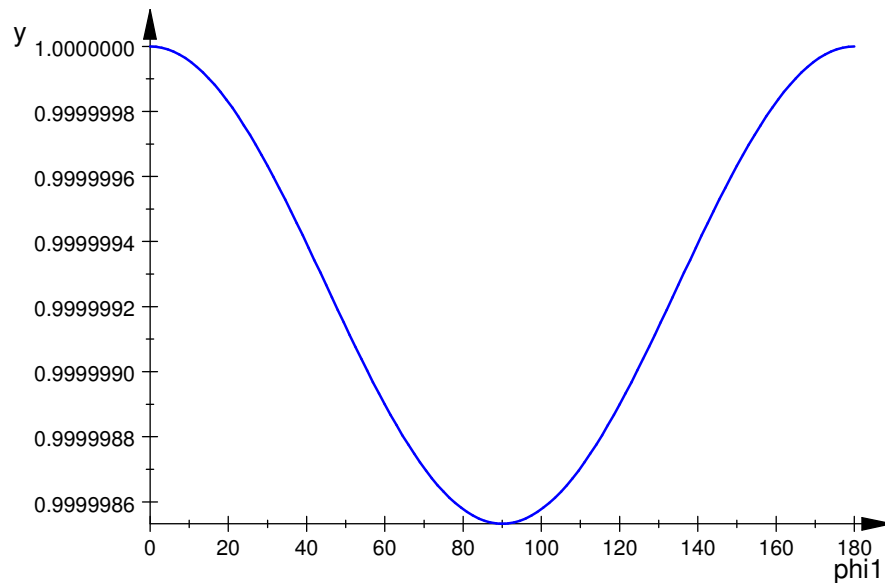
plot(plot::Polar([c(wh,phil),phil+PI/2], phil = -PI..PI,
TicksNumber=None, Scaling=Constrained));

```



vertikale relative Strahlungsleistungsdichte

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



Maximalwert der relativen Strahlungsleistungsdichte , auch in dBi

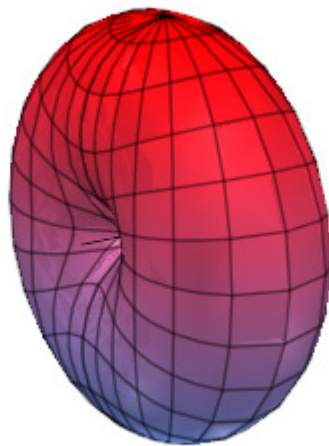
- `gvmax:=0:gvwmax:=0:for m from 0 to 2880 step 1 do
gv:=float(c(wh, m*PI/5760)^2);
if gv>gvmax then
gvmax:=gv;
gvwmax:=float(m/32);
end_if;
end_for:gvmax; float(10*log(10, gvmax)+2.15); gvwmax;`

1.0

2.15

0.0

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



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