

Ingenieurbüro Baumann --- [www.leobaumann.de](http://www.leobaumann.de) --- Markt 6, 46282 Dorsten  
manuelle Berechnung eines horizontalen Dipols über Grund  
h = Länge, b2 = Höhe über Grund, l = Wellenlänge

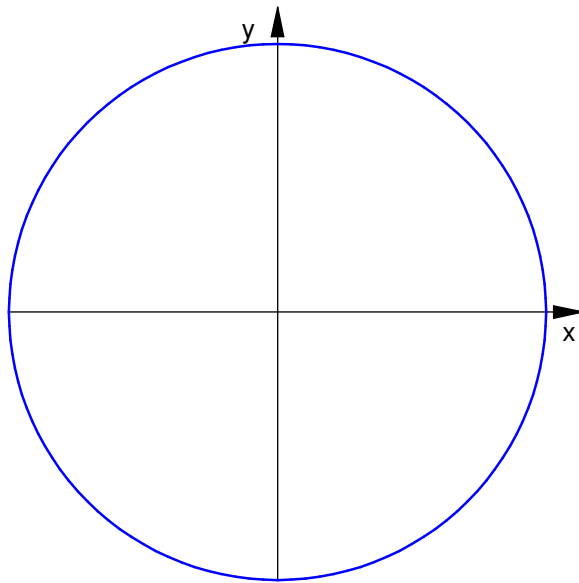
- `reset():digits:=16:k:=1/1000:wh:=89.9999*PI/180:vw:=0.0001*PI/180:  
h:=1:b2:=1/2:l:=1:`

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)^2))*2*abs(sin(PI*2*b2/l*cos(phil))):`

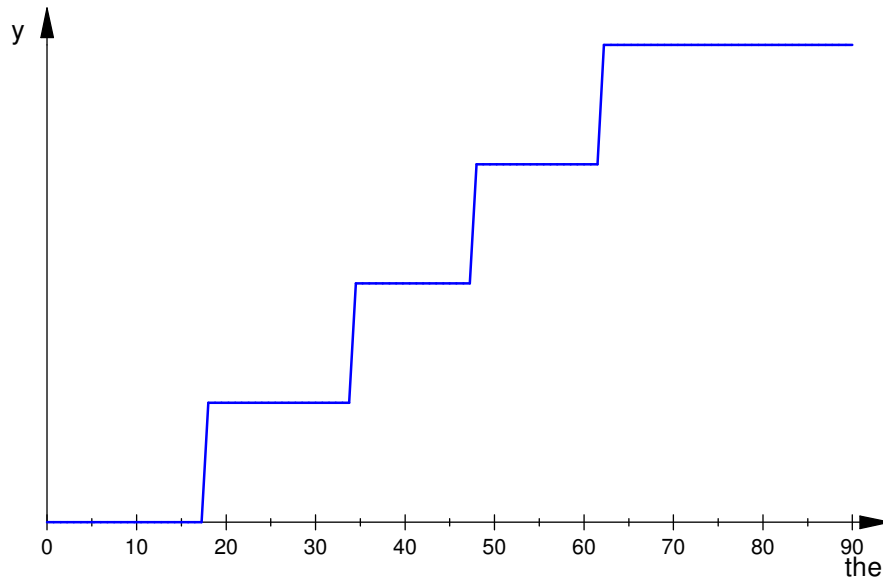
Horizontaldiagramm

- `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 2879 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;

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$$3.663271957 \cdot 10^{-22}$$

$$-212.2113084$$

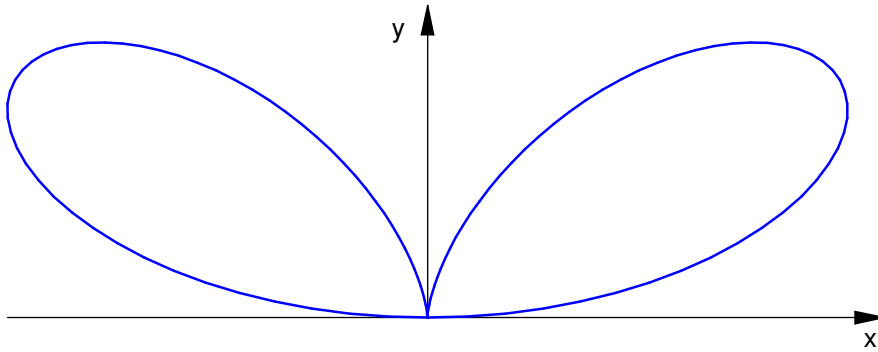
$$89.96875$$

Vertikaldiagramm

- ```

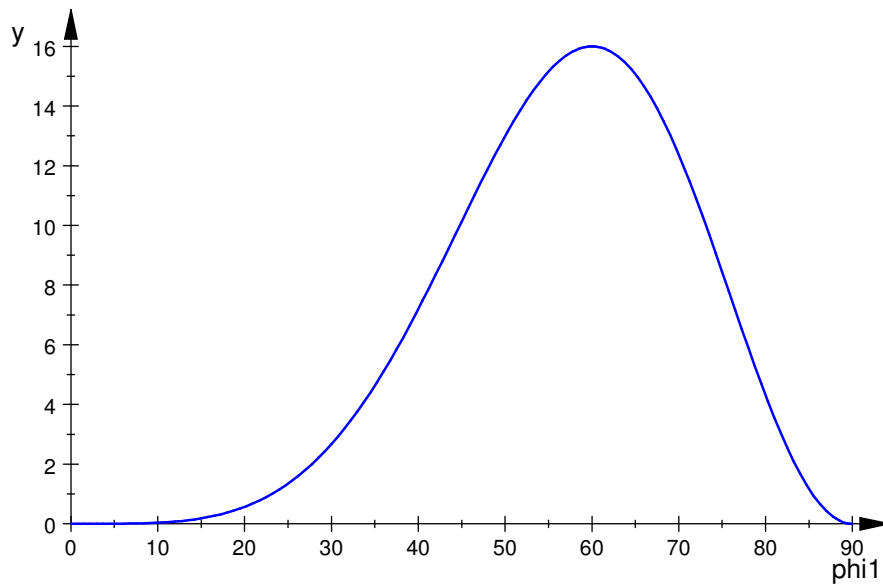
plot(plot::Polar([c(wh,phil),phil+PI/2], phil = -PI/2..PI/2,
TicksNumber=None, Scaling=Constrained));

```



vertikale relative Strahlungsleistungsdichte

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



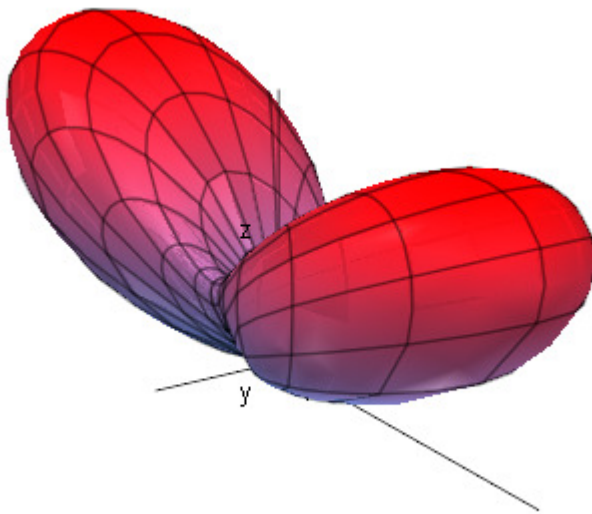
- Maximalwert der relativen Strahlungsleistungsdichte , auch in dBi
- `gvmax:=0:gvwmax:=0:for m from 1 to 2879 step 1 do  
gv:=float(c(wh,m*PI/5760)^2);  
if gv>gvmax then  
gvmax:=gv;  
gvwmax:=float(m/32);  
end_if;  
end_for:gvmax;float(10*ln(gvmax)/ln(10)+2.15);gvwmax;`

16.0

14.19119983

60.0

- 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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