

Ingenieurbüro Baumann --- www.leobaumann.de --- 46282 Dorsten, Markt 6  
 manuelle Berechnung eines horizontalen Bi-Quads mit Reflektor in einer Höhe b2 über Grund  
 h = Länge, d = Distanz, d1 = Distanz 2. Element, d2 = Distanz Reflektor, b2 = Höhe über Grund, l =  
 Wellenlänge

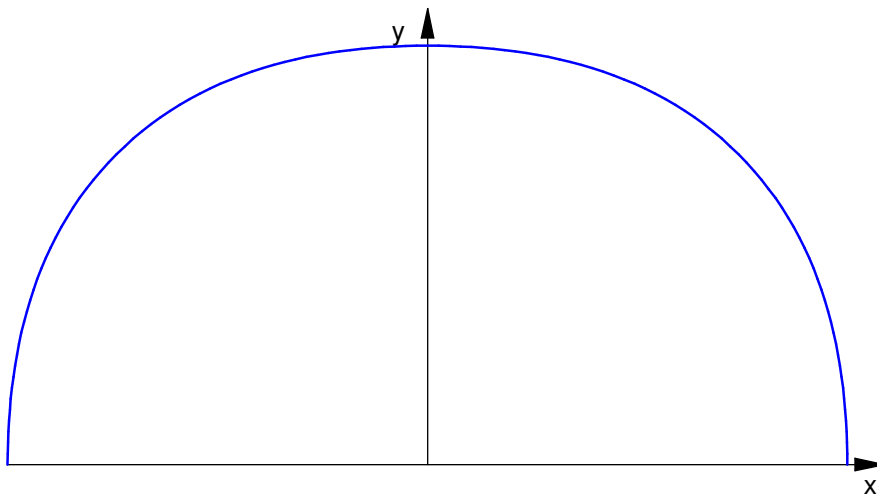
- `reset():digits:=16:wh:=45*PI/180:k:=1/1000:vw:=51.59*PI/180:w:=90*PI/180:h:=1/4:d:=h:b2:=1/1.999999:l:=1:d1:=1/4:`

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(cos(PI*d/l*sin(phil)*sin(the))  
 *2*abs(sin(PI*d1/l*sin(phil)*cos(phil)))  
 +abs((cos(PI*h/l*cos(the-w)*sin(phil))-cos(PI*h/l)))/(sqrt(1-cos(the-w)^2*sin(phil)^2))  
 *2*abs(cos(PI*d/l*sin(phil)*sin(the-w))  
 *2*abs(sin(PI*d1/l*sin(phil)*cos(phil))))  
 *2*abs(sin(PI*2*b2/l*cos(phil)))):`

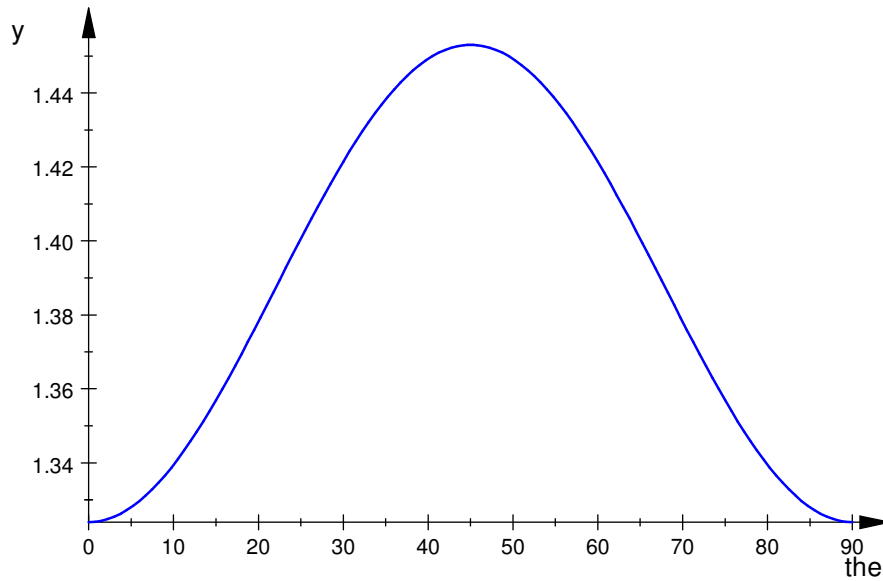
Horizontaldiagramm

- `plot(plot::Polar([c(the,vw),the], the = 0..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;

```

1.453017384

3.772708104

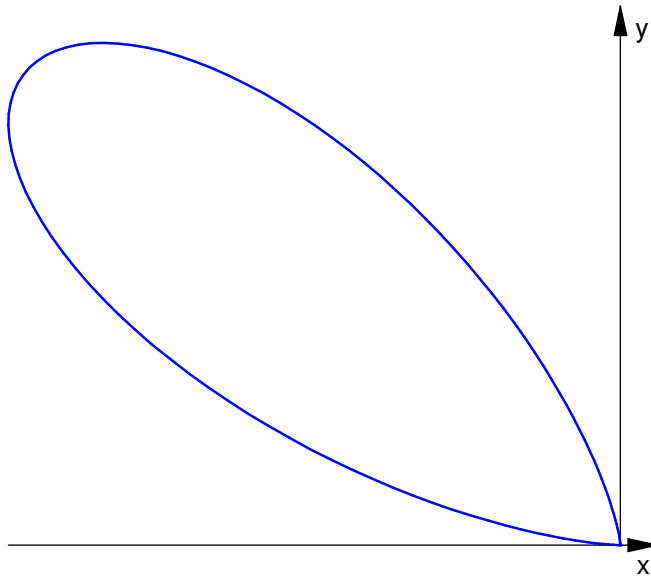
45.0

Vertikaldiagramm, y=Horizontale

- ```

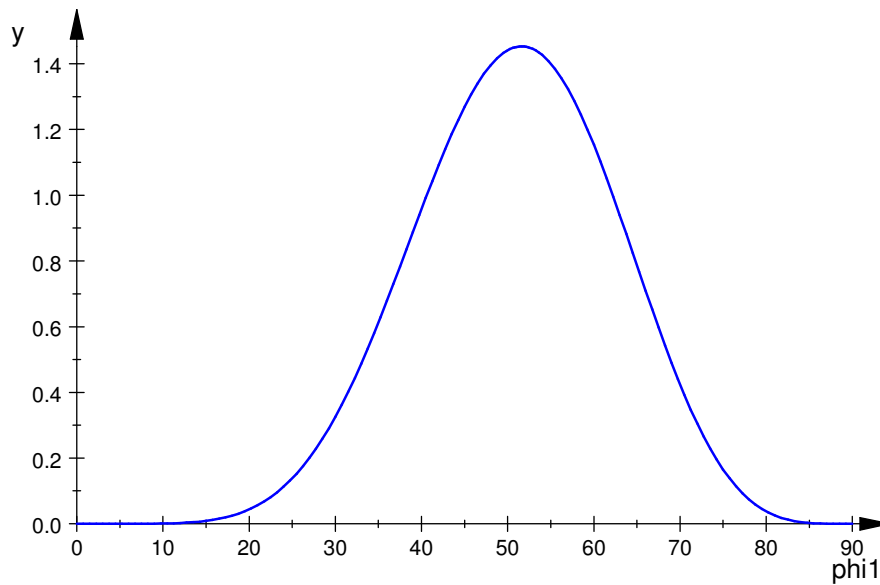
plot(plot::Polar([c(wh,phil),phil+PI/2], phil = 0..PI/2,
TicksNumber=None, Scaling=Constrained));

```



vertikale relative Strahlungsleistungsdichte

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



Maximalwert der relativen Strahlungsleistungsdichte , auch in dBi

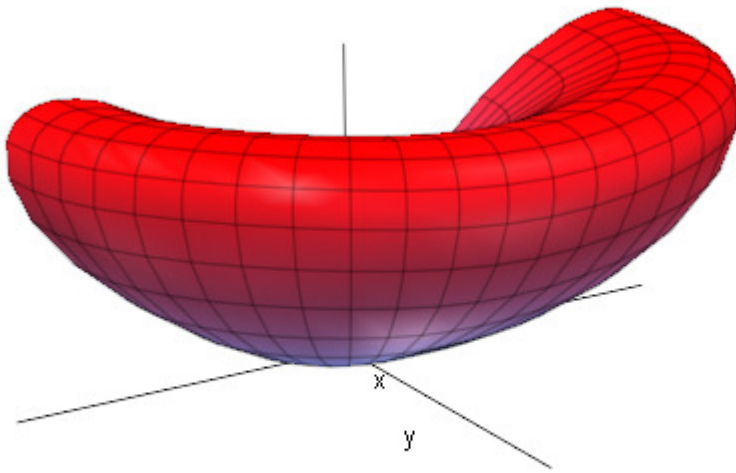
- `gvmax:=0:gvwmax:=0:for m from 0 to 2879 step 1 do  
gv:=float(c(wh,m*PI/5760)^2);  
if gv>gvmax then  
gvmax:=gv;  
gvwmax:=float(m/32);  
end_if;  
end_for:gvmax;float(10*ln(gvmax)/ln(10)+2.15);gvwmax;`

1.453017948

3.772709787

51.59375

- 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..PI, phil=-  
PI/2..0,Axes=Origin, TicksNumber=None, Scaling=Constrained,  
AdaptiveMesh=4):
- plot(graph);



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