

Ingenieurbüro Baumann --- www.leobaumann.de --- Markt 6, 46282 Dorsten

manuelle Berechnung eines vert. Bi-Quads vor einem Reflektor über Grund

$h$  = Länge,  $b_2$  = Höhe über Grund (Unterkante),  $d$  = Distanz Parallele,  $d_1$  = Distanz Reflektor,  $l$  =

Wellenlänge

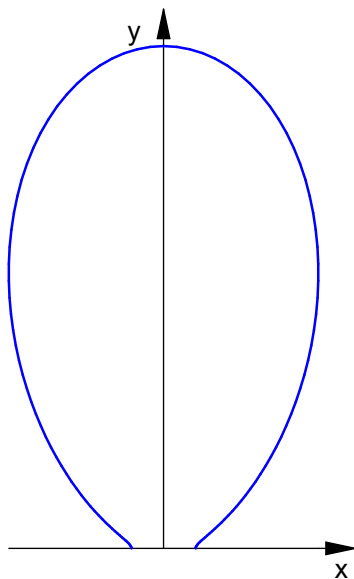
- `reset():digits:=16:w:=90*PI/180:vw:=61.625*PI/180:wh:=90*PI/180:h:=1/2:d:=1/2:d1:=1/2:b2:=1/2:l:=1:`

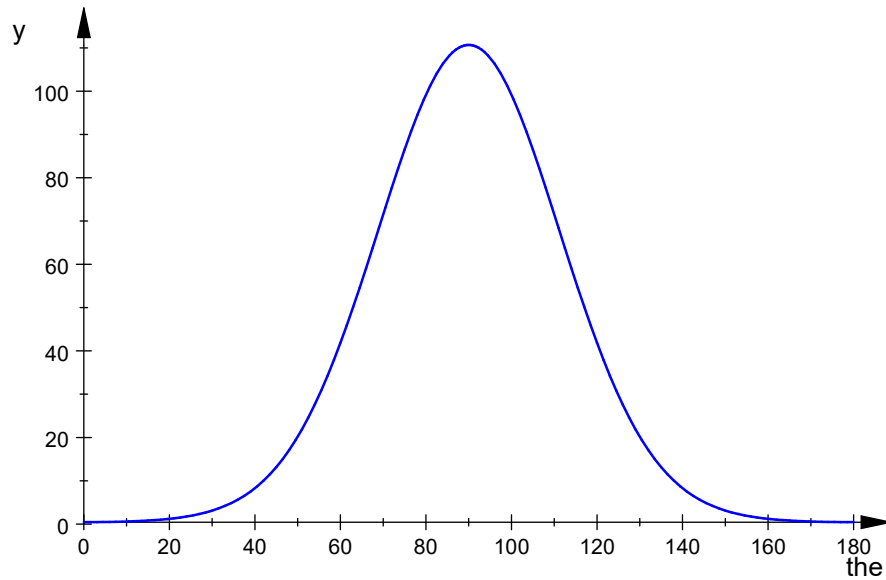
Richtdiagramm im Kugelraum als Funktion der Winkel

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

Horizontaldiagramm

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





Maximalwert der relativen Strahlungsleistungsdichte , auch in dBi

- ```

ghmax:=0:ghwmax:=0:for m from 1 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;

```

110.6661223

22.59014693

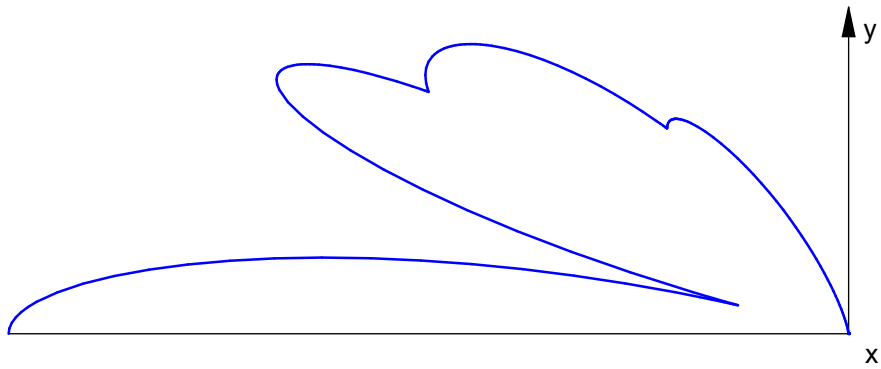
90.0

Vertikaldiagramm

- ```

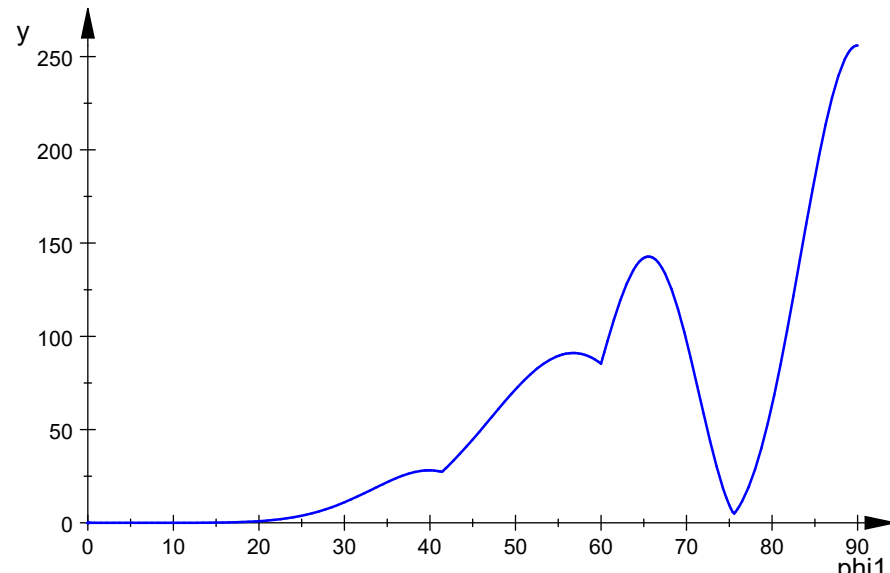
plot(plot::Polar([c(wh,phi1),phi1+PI/2], phi1 = 0..PI/2,
    TicksNumber=None, Scaling=Constrained, AdaptiveMesh=4));

```



vertikale relative Strahlungsleistungsdichte

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

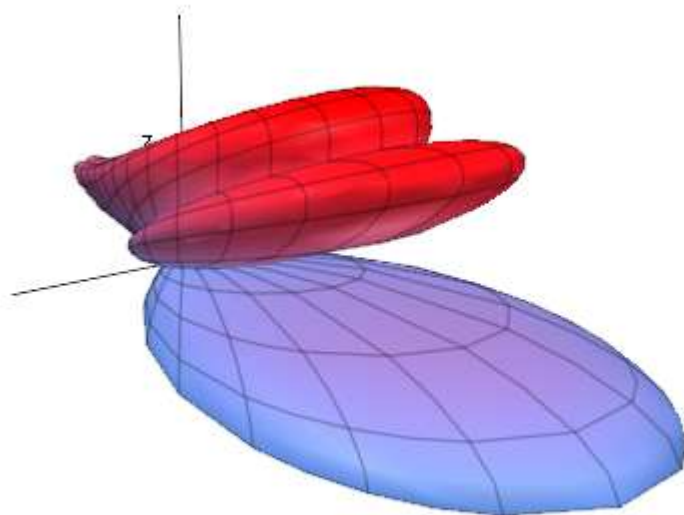


255.9966952

26.23234359

89.96875

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



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