

Ingenieurbüro Baumann --- www.leobaumann.de --- Markt 6, 46282 Dorsten
 manuelle Berechnung eines vert. 5x5-Quads vor einem Reflektor über Grund
 h = Länge, b2 = Höhe über Grund (Unterkante), d = Distanz Parallele, d1 = Distanz Reflektor, l =
 Wellenlänge

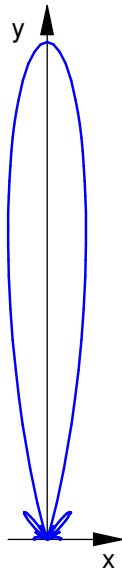
- `reset():digits:=16:w:=90*PI/180:vw:=40.21875*PI/180:wh:=90*PI/180:h:=1/2:d:=1/2:d1:=1/2:b2:=0.15:l:=1:`

Richtdiagramm im Kugelraum als Funktion der Winkel

- `c:=(the,phi1) -> abs((cos(PI*5*h/l*cos(phi1))-cos(PI*5*h/l))/sin(phi1))`
`*2*abs(cos(PI*d/l*cos(the)*sin(phi1)))`
`*2*abs(cos(PI*2*d/l*cos(the)*sin(phi1)))`
`*2*abs(cos(PI*3*d/l*cos(the)*sin(phi1)))`
`*2*abs(cos(PI*4*d/l*cos(the)*sin(phi1)))`
`*2*abs(cos(PI*5*d/l*cos(the)*sin(phi1)))`
`*2*abs(cos(PI*d1/l*cos(the)*sin(phi1)))`
`*2*abs(cos(PI*2*(b2+5*h/2)/l*cos(phi1)))`
`+abs((cos(PI*5*h/l*cos(the)*sin(phi1))-cos(PI*5*h/l))/sqrt(1-cos(the)^2*sin(phi1)^2))`
`*2*abs(sin(PI*d/l*cos(phi1)))`
`*2*abs(sin(PI*2*d/l*cos(phi1)))`
`*2*abs(sin(PI*3*d/l*cos(phi1)))`
`*2*abs(sin(PI*4*d/l*cos(phi1)))`
`*2*abs(sin(PI*5*d/l*cos(phi1)))`
`*2*abs(sin(PI*d1/l*sin(phi1)*sin(the)))`
`*2*abs(sin(PI*2*(b2+5*h/2)/l*cos(phi1))):`

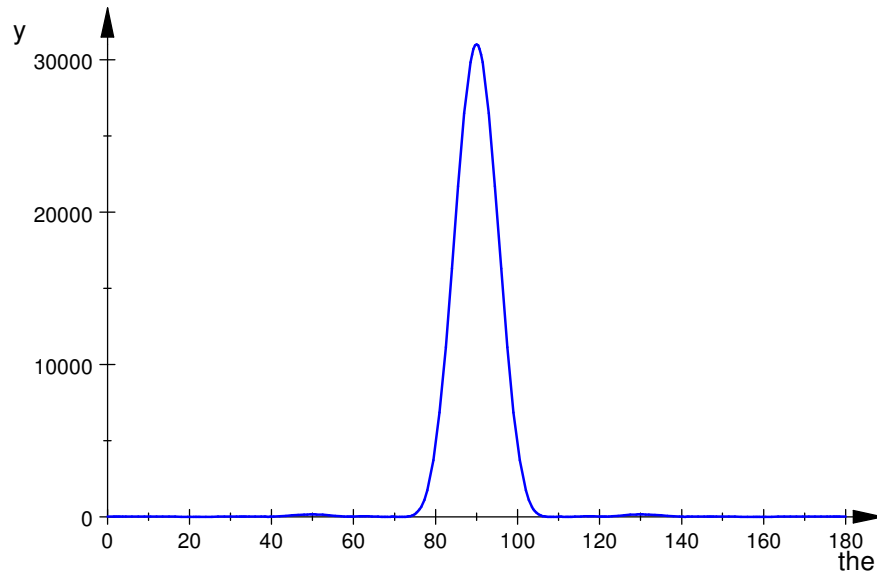
Horizontaldiagramm

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



horizontale relative Strahlungsleistungsdichte

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



Maximalwert der relativen Strahlungsleistungsdichte , auch in dBi

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

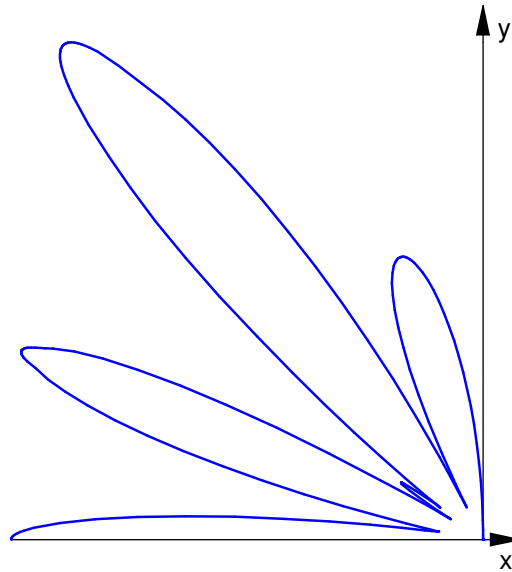
31025.97225

47.067254

89.96875
```

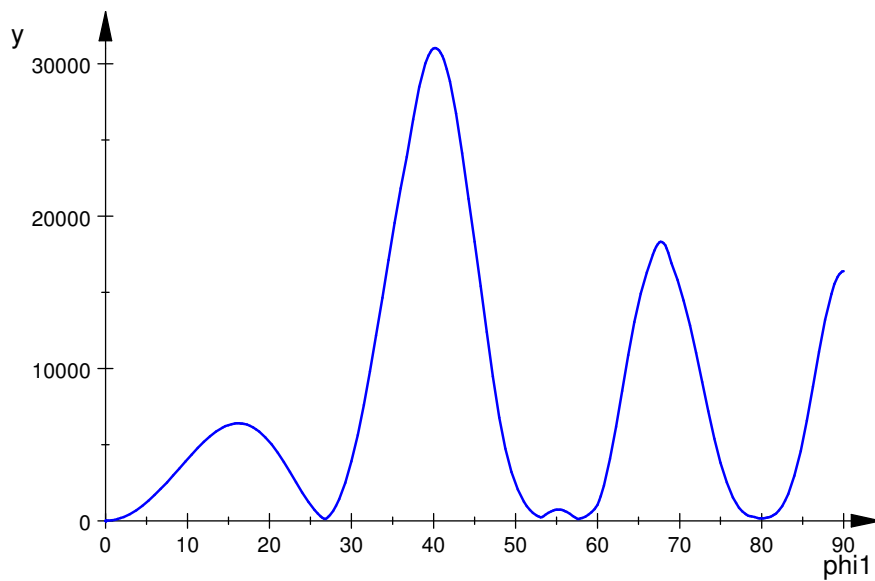
### Vertikaldiagramm

- `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):`



Maximalwert der relativen Strahlungsleistungsdichte , auch in dBi

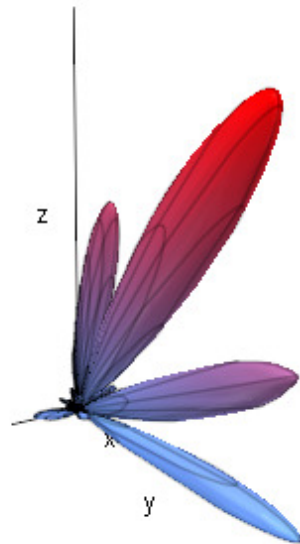
- `gvmax:=0:gvwmax:=0:for m from 1 to 2879 step 1 do  
gv:=float(c(wh,m*PI/5760)^2);  
if gv>gvmax then  
gvmax:=gv;  
gvwmax:=float(m/32);  
end_if;  
end_for:gvmax;float(10*ln(gvmax)/ln(10)+2.15);gvwmax;`

31026.49805

47.0673276

40.21875

- `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);`



•