

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

manuelle Berechnung eines vert. Bi-Quads über Grund

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

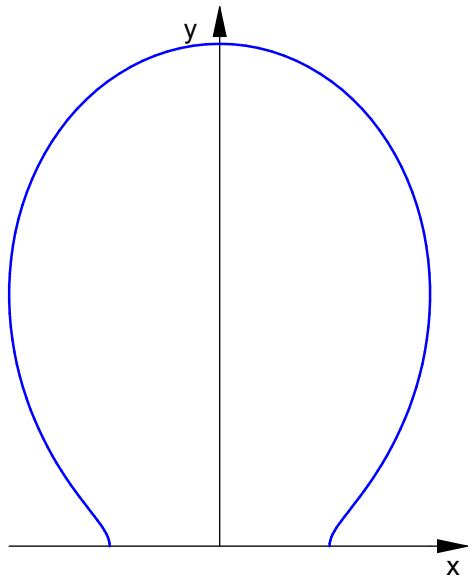
- `reset():digits:=16:w:=90*PI/180:vw:=61.625*PI/180:wh:=90*PI/180:h:=1/2:d:=1/2:d1:=1/2:b2:=1/2:l:=1:`

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*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))))):`

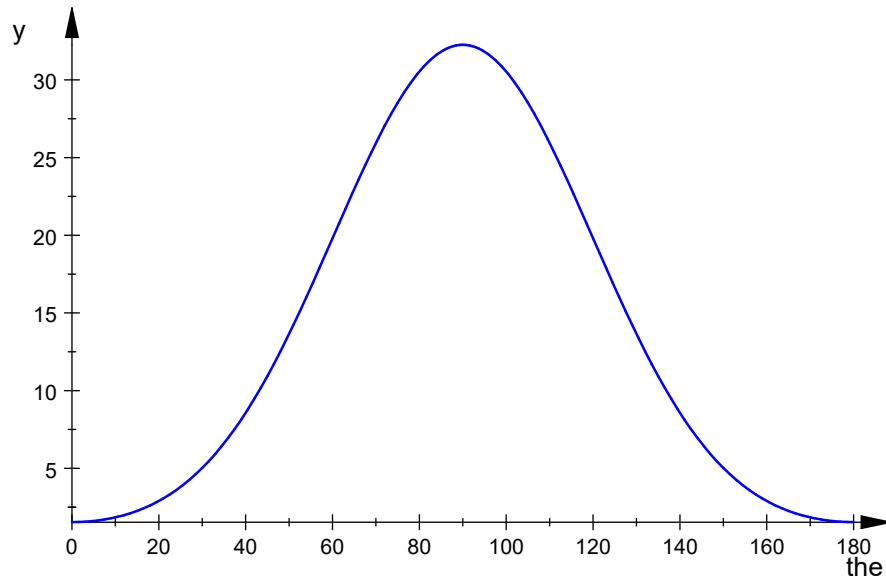
Horizontaldiagramm

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



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 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;

```

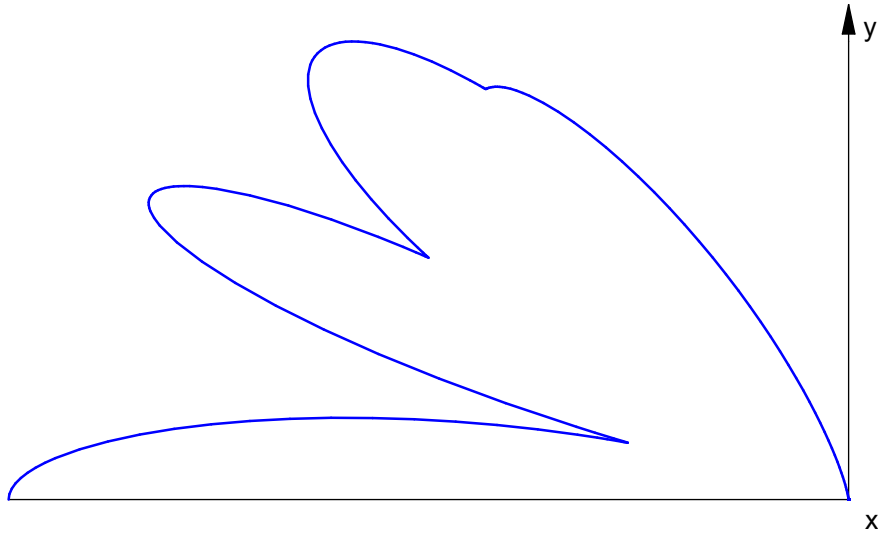
32.25670376

17.23619986

90.0

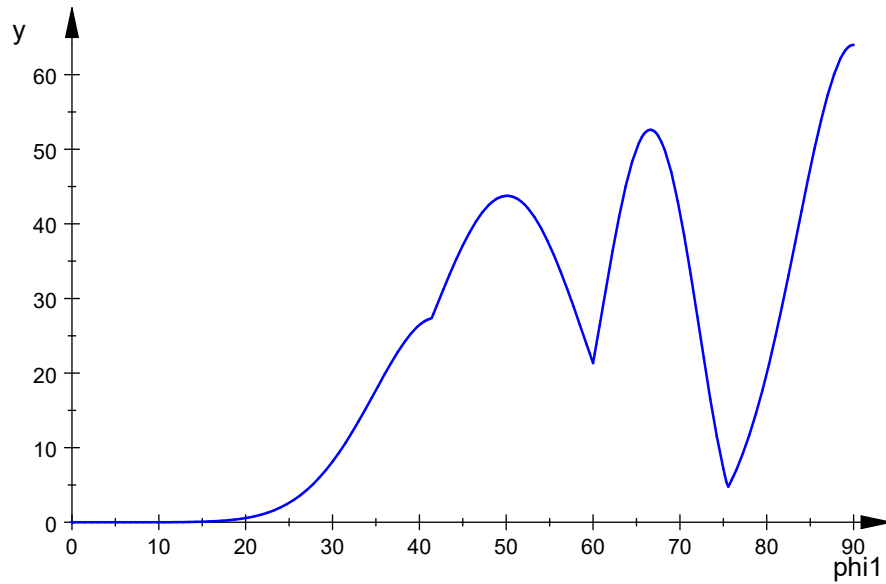
### Vertikaldiagramm

- `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):`



Maximalwert der relativen Strahlungsleistungsdichte , auch in dBi

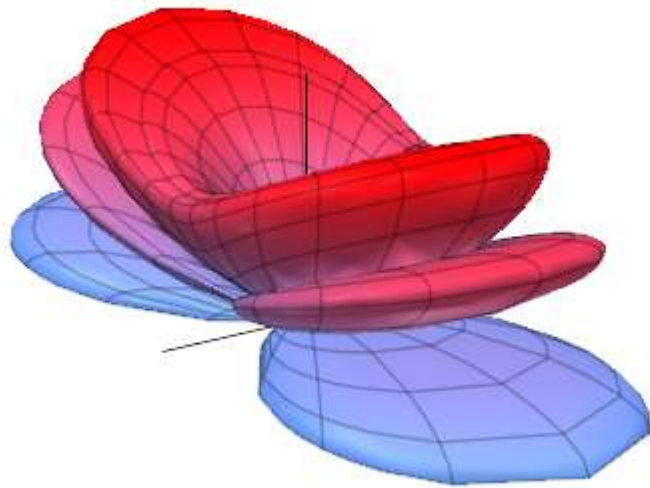
- `gvmax:=0:gvwmax:=0:for m from 1 to 2879 step 1 do`  
`gv:=float(c(wh,m*PI/5760)^2);`  
`if gv>gvmax then`  
`gvmax:=gv;`  
`gvwmax:=float(m/32);`  
`end_if;`  
`end_for:gvmax;float(10*log(10,gvmax)+2.15);gvwmax;`

63.99917412

20.2117437

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



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