

Ingenieurbüro Baumann --- www.leobaumann.de --- 46282 Dorsten, Markt 6
manuelle Berechnung einer horizontalen 6x2-Quad (6 Quads nebeneinander) in einer Höhe b2 über Grund
h = Länge, d = Distanz, d1 = Distanz 2. Element, b2 = Höhe über Grund, l = Wellenlänge

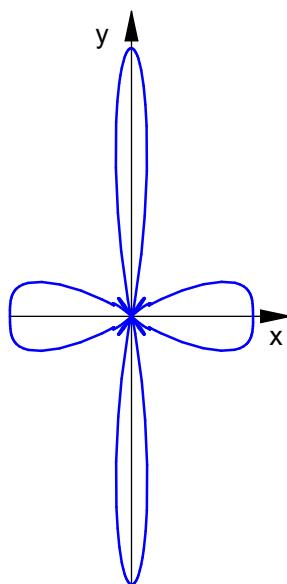
- `reset():digits:=16:wh:=0*PI/180:k:=1/1000:wv:=45*PI/180:w:=90*PI/180:
:h:=1/2:d:=1/2:b2:=0.15:l:=1:d1:=1/1000:`

Richtdiagramm im Kugelraum als Funktion der Winkel

- `c:=(the,phi1) -> (abs((cos(PI*6*h/l*cos(the-k)*sin(phi1))-
cos(PI*6*h/l))/sqrt(1-cos(the-k)^2*sin(phi1)^2)) *
2*abs(cos(PI*d/l*sin(phi1)*sin(the))) *
2*abs(cos(PI*2*d/l*sin(phi1)*sin(the))) +
abs((cos(PI*2*d/l*cos(the-w-k)*sin(phi1))-
cos(PI*2*d/l))/sqrt(1-cos(the-w-k)^2*sin(phi1)^2)) *
2*abs(cos(PI*h/l*sin(phi1)*sin(the-w))) *
2*abs(cos(PI*2*h/l*sin(phi1)*sin(the-w-k))) *
2*abs(cos(PI*3*h/l*sin(phi1)*sin(the-w-k))) *
2*abs(cos(PI*4*h/l*sin(phi1)*sin(the-w-k))) *
2*abs(cos(PI*5*h/l*sin(phi1)*sin(the-w-k))) *
2*abs(cos(PI*6*h/l*sin(phi1)*sin(the-w-k))) *
2*abs(sin(PI*2*b2/l*cos(phi1))):`

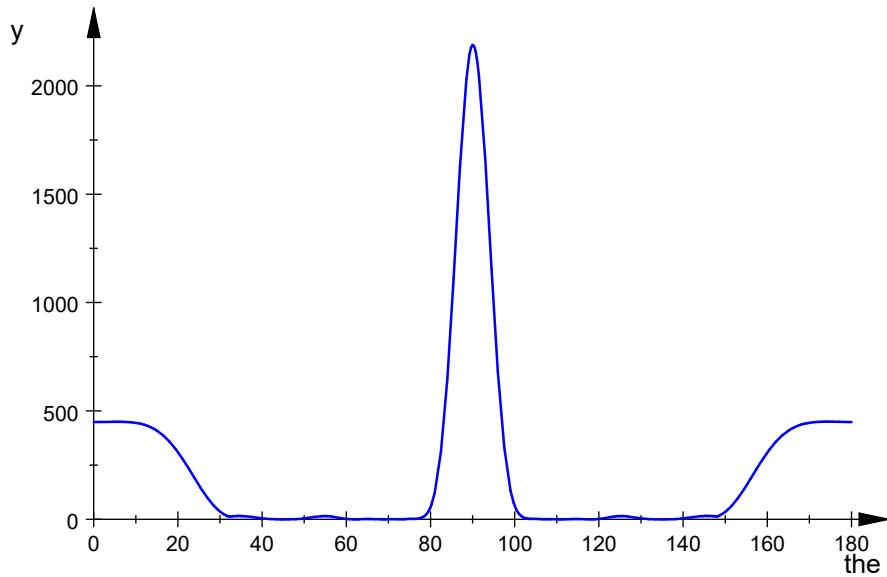
Horizontaldiagramm

- `plot(plot::Polar([c(the,wv),the], the = 0..2*PI, TicksNumber=None,
Scaling=Constrained, AdaptiveMesh=4));`



horizontale relative Strahlungsleistungsdichte

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



Maximalwert der relativen Stahlungsleistungsdichte , auch in dBi

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

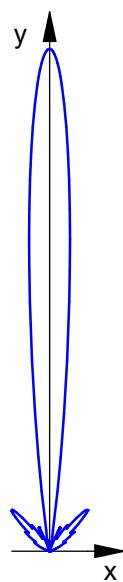
2188.487307

35.55144032

90.0

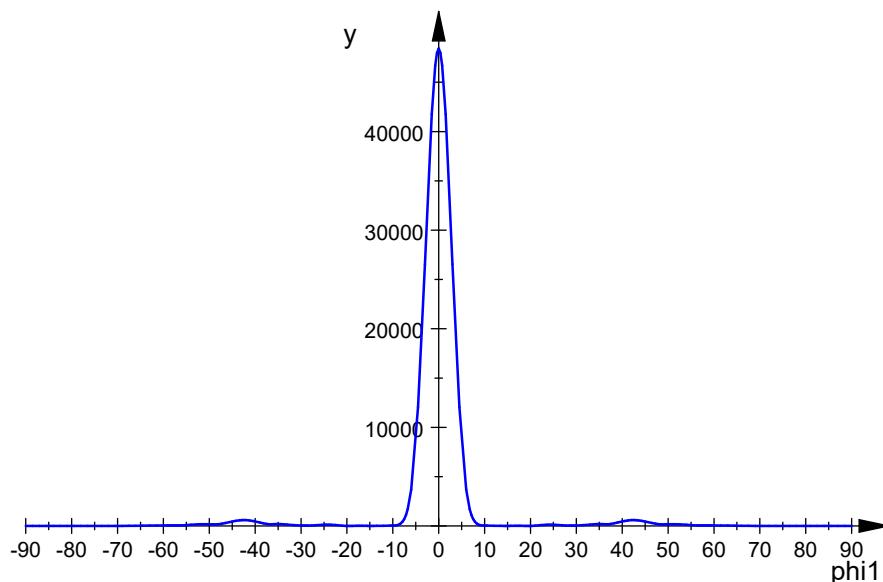
Vertikaldiagramm

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



vertikale relative Strahlungsleistungsdichte

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



Maximalwert der relativen Stahlungsleistungsdichte , auch in dBi

- `gvmax:=0:gvwmax:=0:for m from 0 to 320 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;`

48423.15666

49.00053097

0.0

- ```
delete
the,phil:graph:=plot::Surface([cos(the)*sin(phi1)*c(the,phi1),sin(th
e)*sin(phi1)*c(the,phi1),cos(phi1)*c(the,phi1)],the=0..2*PI, phi1=-
PI/2..PI/2,Axes=Origin, TicksNumber=None, Scaling=Constrained,
AdaptiveMesh=4):
plot(graph);
```



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