

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

manuelle Berechnung einer horizontalen Dipolwand aus  $m$  (in Spalte)  $\times$   $n$  (in Zeile) Dipolen vor einem Reflektor über Grund

$h$  = Länge,  $b_2$  = Höhe über Grund,  $l$  = Wellenlänge,  $d_1$  = Abstand in der Spalte,  $d_2$  = Abstand in der Zeile,  $d_3$  = Reflektorabstand,  $m$  = Anzahl in der Spalte,  $n$  = Anzahl in der Zeile

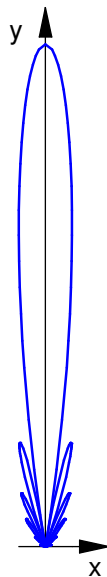
- `reset():digits:=16:k:=1/1000:wh:=89.999*PI/180:wv:=89.78125*PI/180:bet:=0:h:=1/2:b2:=1/2:d1:=1/2:d2:=1/2:d3:=1/2:l:=1:m:=6:n:=12:`

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-k)^2)))*abs(sin(n*PI*d2/l*cos(the)*sin(phil))/sin(PI*d2/l*cos(the)*sin(phil)))*abs(sin(m*PI*d1/l*cos(phil))/sin(PI*d1/l*cos(phil)))*2*abs(cos(bet/2+PI*2*d3/l*sin(the)*sin(phil)))*2*abs(sin(PI*2*b2/l*cos(phil))):`

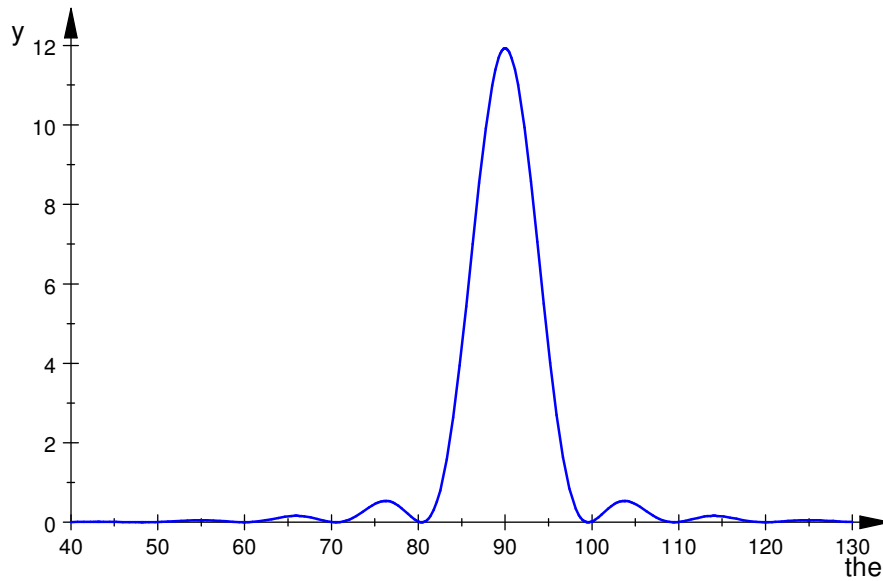
Horizontaldiagramm

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



horizontale relative Strahlungsleistungsdichte

- `plotfunc2d(c(the*PI/180,wv)^2, the = 40..130, AdaptiveMesh=4):`



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;

```

9213.786947

41.79438166

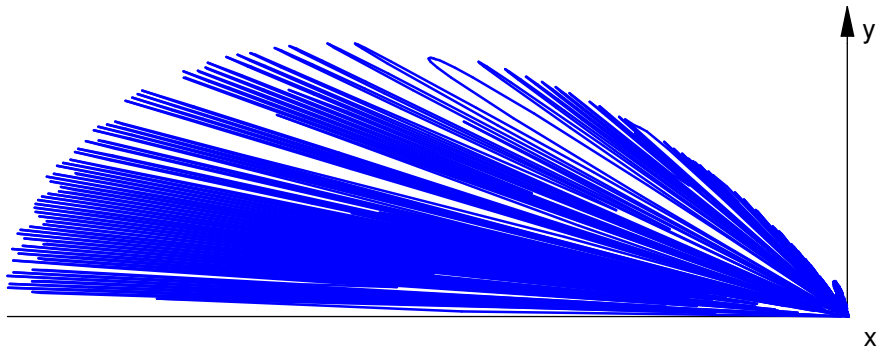
89.96875

Vertikaldiagramm

- ```

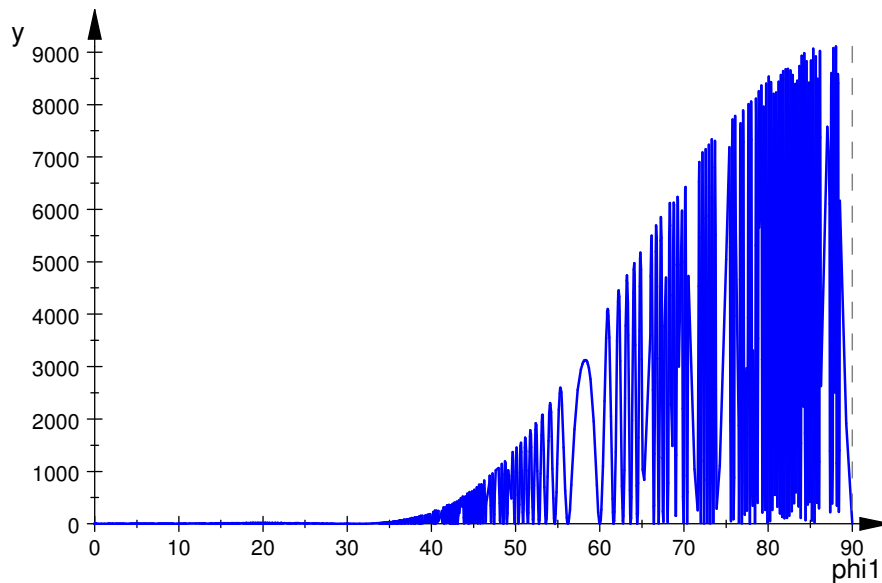
plot(plot::Polar([c(wh,phil),phil+PI/2], phil = 0..PI/2,
    TicksNumber=None, Scaling=Constrained, AdaptiveMesh=4));

```



vertikale relative Strahlungsleistungsdichte

- `plotfunc2d(c(wh,phi1*PI/180)^2, phi1 = 0..90, AdaptiveMesh=4):`



Maximalwert der relativen Strahlungsleistungsdichte , auch in dBi

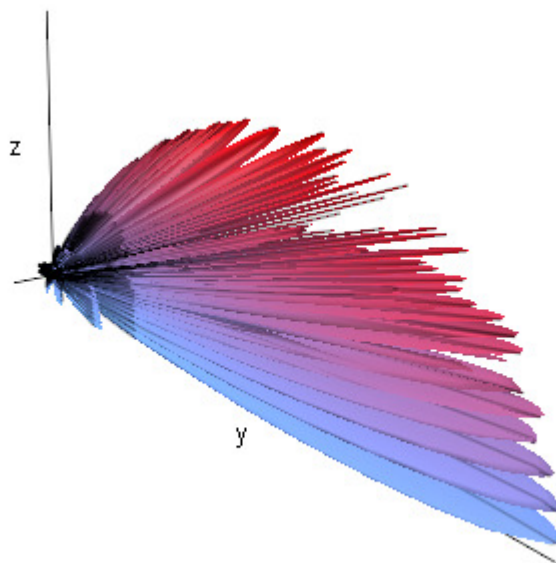
- `gvmax:=0:gvwmax:=0:for m from 2784 to 2879 step 1 do  
gv:=float(c(wh,m*PI/5760)^2);  
if gv>gvmax then  
gvmax:=gv;  
gvwmax:=float(m/32);  
end_if;  
end_for:gvmax;float(10*ln(gvmax)/ln(10)+2.15);gvwmax;`

9213.088658

41.7940525

89.5

- delete  
the,phil:graph:=plot::Surface([cos(the)\*sin(phil)\*c(the,phil),sin(the)\*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);



•