

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

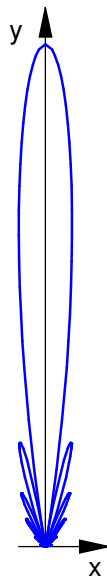
- `reset():digits:=16:k:=1/1000:wh:=89.999*PI/180:wv:=89.78125*PI/180
:bet:=0:h:=1/2:b2:=2:d1:=1/2:d2:=1/2:d3:=1/2:l:=1:m:=6:n:=12:`

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))):`

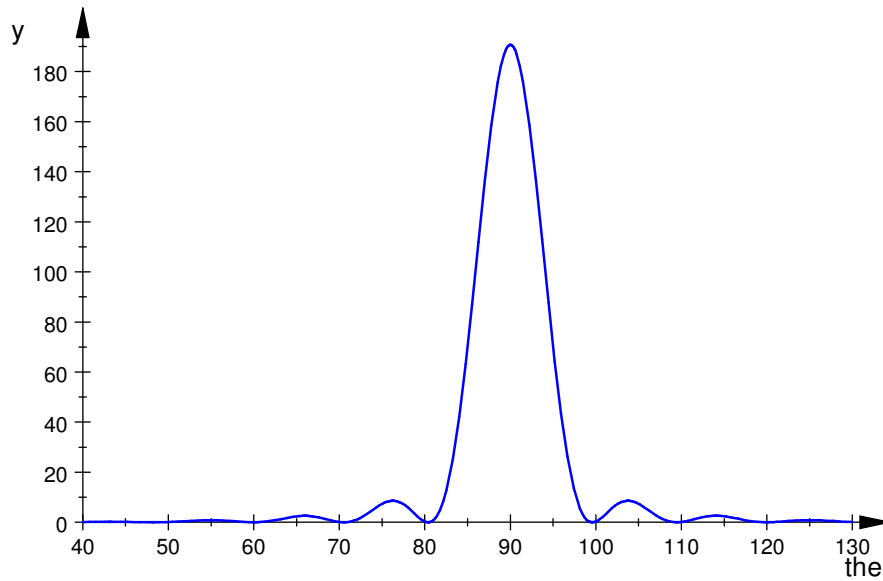
Horizontaldiagramm

- `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;

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147314.5789

53.83245729

89.96875

Vertikaldiagramm

- ```

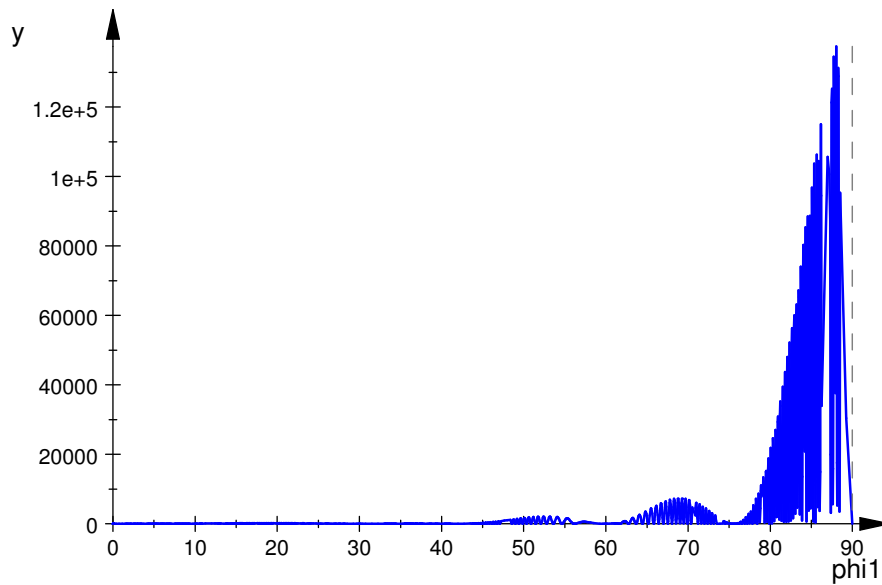
plot(plot::Polar([c(wh,phil),phil+PI/2], phil = 0..PI/2,
TicksNumber=None, Scaling=Constrained, AdaptiveMesh=4));

```



vertikale relative Strahlungsleistungsdichte

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



Maximalwert der relativen Strahlungsleistungsdichte , auch in dBi

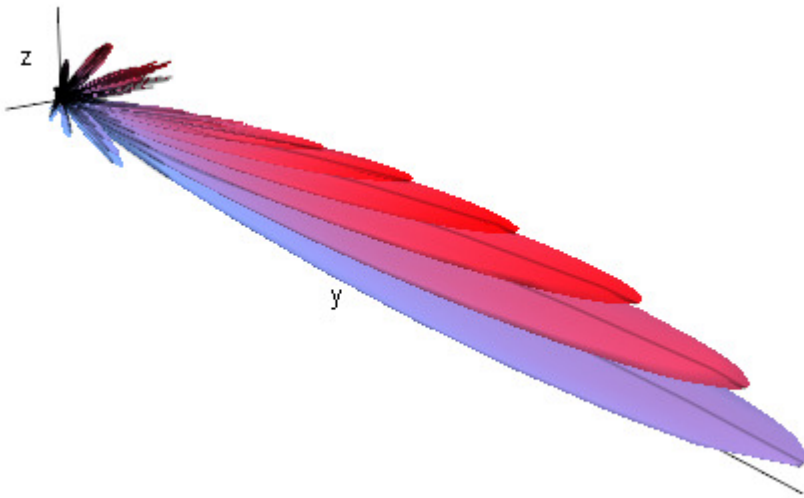
- `gvmax:=0:gvwmax:=0:for m from 2784 to 2879 step 1 do
gv:=float(c(wh,m*PI/5760)^2);
if gv>gvmax then
gvmax:=gv;
gvwmax:=float(m/32);
end_if;
end_for:gvmax;float(10*ln(gvmax)/ln(10)+2.15);gvwmax;`

146991.543

53.82292349

89.78125

- 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);



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