

Ingenieurbüro Baumann --- www.leobaumann.de --- Markt 6, 46282 Dorsten
manuelle Berechnung eines vert. Duo-Quads (2 nebeneinander) vor einem Reflektor über Grund
h = Länge, b2 = Höhe über Grund (Unterkante), d = Distanz Parallele, l = Wellenlänge

- `reset():digits:=16:w:=90*PI/180:wv:=58.90625*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,phi1) -> abs((cos(PI*h/l*cos(phi1))-cos(PI*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*2*(b2+h/2)/l*cos(phi1))))
+abs((cos(PI*2*d/l*cos(the))*sin(phi1))-
cos(PI*2*d/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*2*(b2+h/2)/l*cos(phi1)))):`

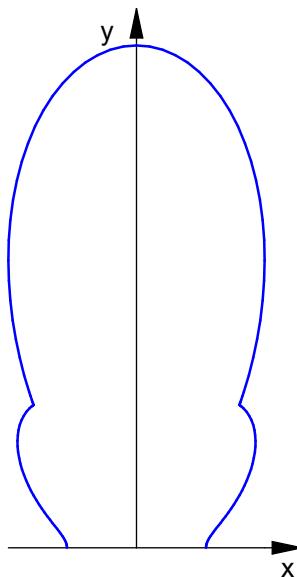
Antennenimpedanz nach 4nec2 einseitig mittengespeist

- `Z:=169+I*19.5;`

$$169.0 + 19.5 \cdot i$$

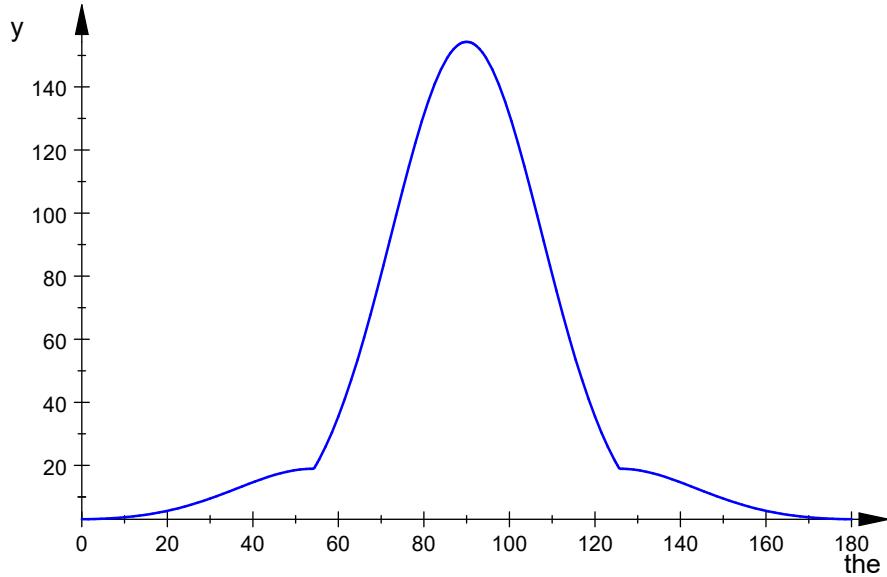
Horizontaldiagramm

- `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 = 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;
```

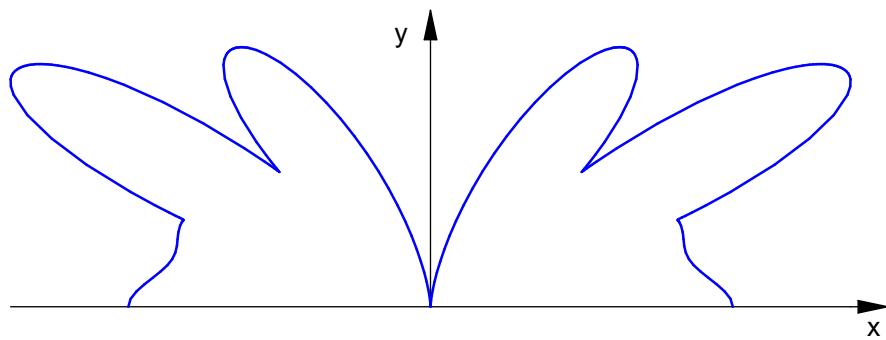
154.298168

24.0336077

90.0

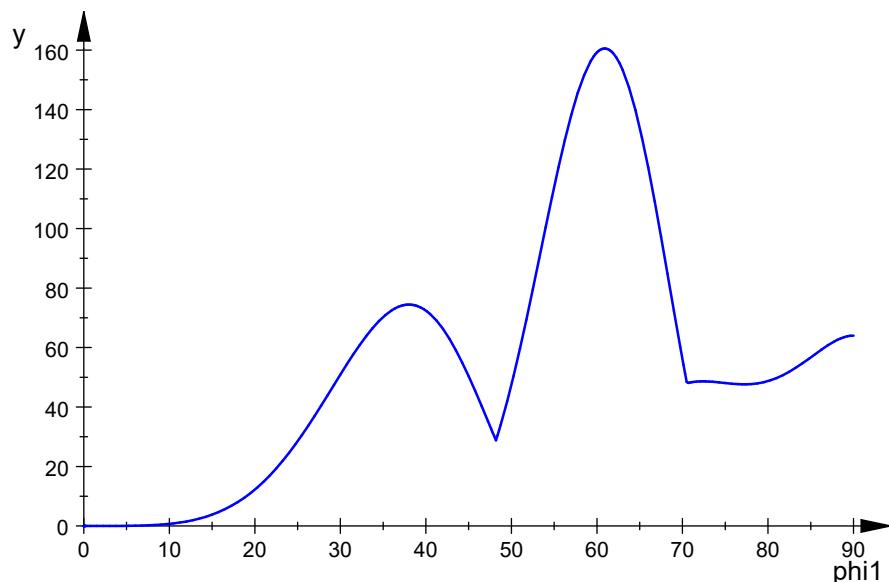
Vertikaldiagramm

- ```
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 = 0..90):`



Maximalwert der relativen Stahlungsleistungsdichte , auch in dBi

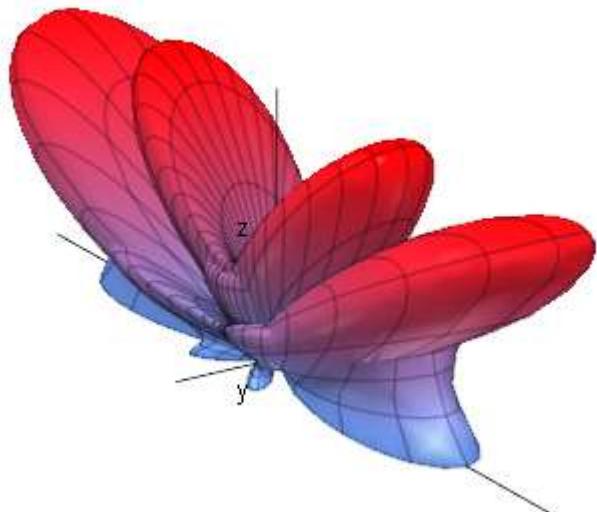
- `gvmax:=0:gvwmax:=0:for m from 1 to 2880 step 1 do
gv:=float(c(wh,m*PI/5760)^2);
if gv>gvmax then
 gvmax:=gv;
 gvwmax:=float(m/32);
end_if;
end_for:gvmax;float(10*log(10,gvmax)+2.15);gvwmax;`

160.5473271

24.2060308

60.90625

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



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