

Ingenieurbüro Baumann --- www.leobaumann.de --- Markt 6, 46282 Dorsten
 manuelle Berechnung eines vert. 4x4-Quads vor einem Reflektor über Grund
 h = Länge, b2 = Höhe über Grund (Unterkante), d = Distanz Parallele, d1 = Distanz Reflektor, l = Wellenlänge

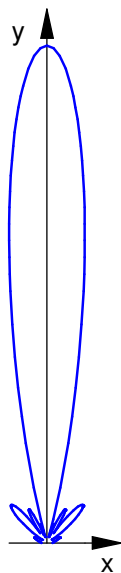
- `reset():digits:=16:w:=90*PI/180:vw:=62.5625*PI/180:wh:=90*PI/180:h:=1/2:d:=1/2:d1:=1/2:b2:=0.15:l:=1:`

Richtdiagramm im Kugelraum als Funktion der Winkel

- `c:=(the,phil) -> abs((cos(PI*4*h/l*cos(phil))-cos(PI*4*h/l))/sin(phil))
 *2*abs(cos(PI*d/l*cos(the)*sin(phil)))
 *2*abs(cos(PI*2*d/l*cos(the)*sin(phil)))
 *2*abs(cos(PI*3*d/l*cos(the)*sin(phil)))
 *2*abs(cos(PI*4*d/l*cos(the)*sin(phil)))
 *2*abs(cos(PI*d1/l*cos(the)*sin(phil)))
 *2*abs(cos(PI*2*(b2+2*h)/l*cos(phil)))
 +abs((cos(PI*4*h/l*cos(the)*sin(phil))-cos(PI*4*h/l))/sqrt(1-cos(the)^2*sin(phil)^2))
 *2*abs(sin(PI*d/l*cos(phil)))
 *2*abs(sin(PI*2*d/l*cos(phil)))
 *2*abs(sin(PI*3*d/l*cos(phil)))
 *2*abs(sin(PI*4*d/l*cos(phil)))
 *2*abs(sin(PI*d1/l*sin(phil)*sin(the)))
 *2*abs(sin(PI*2*(b2+2*h)/l*cos(phil))):`

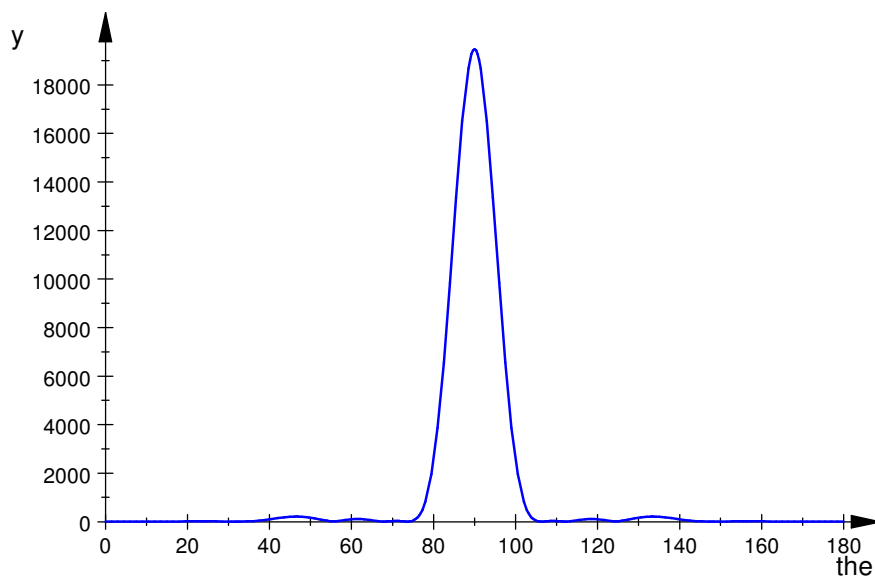
Horizontaldiagramm

- `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 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*ln(ghmax)/ln(10)+2.15);ghwmax;`

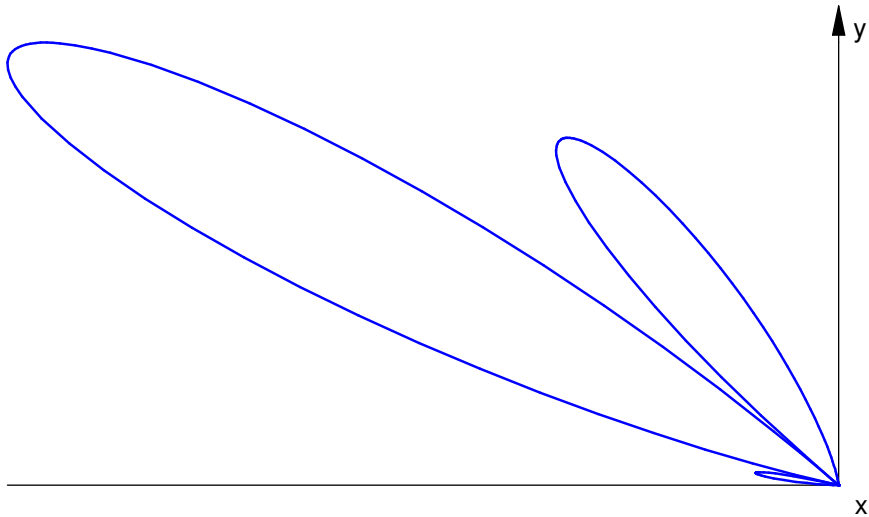
19473.01469

45.04433191

90.0

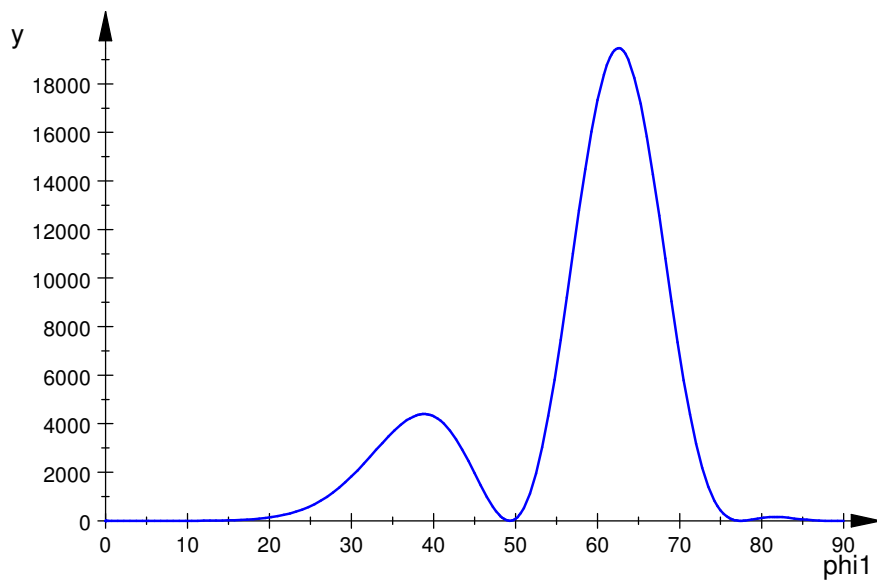
Vertikaldiagramm

- `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

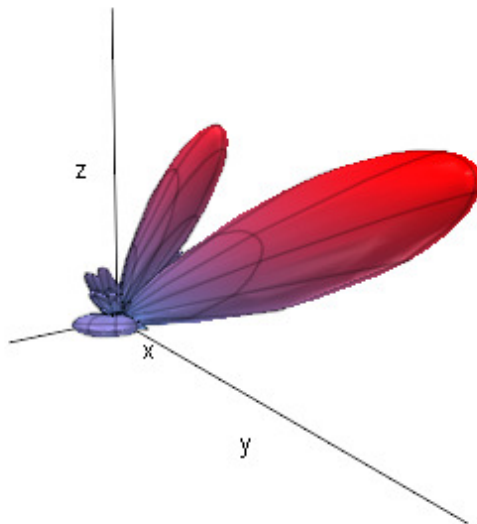
- `gvmax:=0:gvwmax:=0:for m from 1 to 2879 step 1 do
gv:=float(c(wh,m*PI/5760)^2);
if gv>gvmax then
gvmax:=gv;
gvwmax:=float(m/32);
end_if;
end_for:gvmax;float(10*ln(gvmax)/ln(10)+2.15);gvwmax;`

19473.01469

45.04433191

62.5625

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



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