Ingenieurbüro Baumann --- www.leobaumann.de --- 46282 Dorsten, Markt 6
manuelle Berechnung eines horizontalen Quads
h = Länge, d = Distanz, l = Wellenlänge

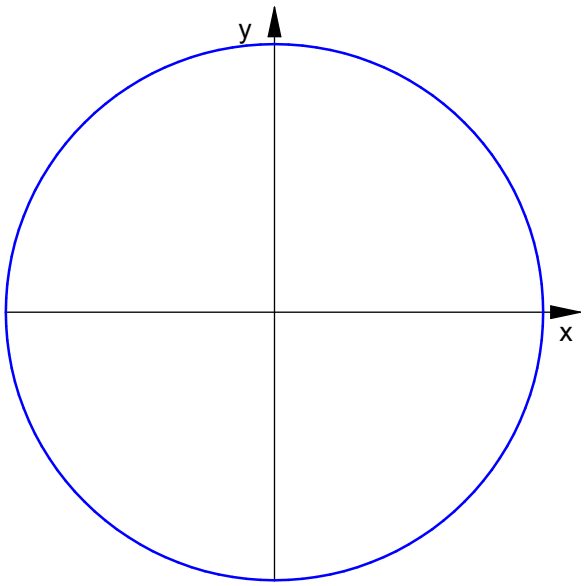
- `reset():digits:=16:wh:=0*PI/180:k:=1/1000:wv:=0*PI/180:w:=90*PI/180:h:=1/2:d:=h:l:=1:`

Richtdiagramm im Kugelraum als Funktion der Winkel

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

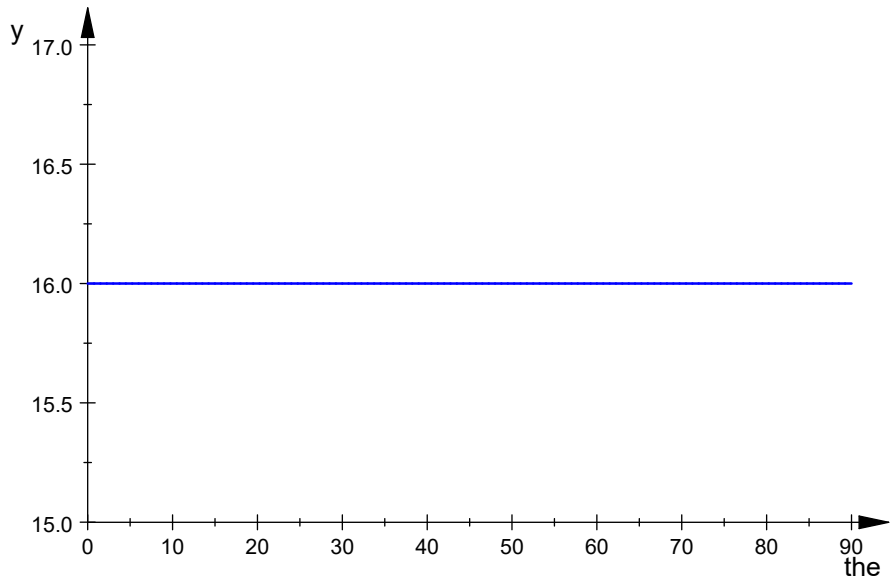
Horizontaldiagramm

- `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..90):`
  ```



Maximalwert der relativen Stahlungsleistungsdichte , auch in dBi

```
ghmax:=0:ghwmax:=0:for m from 0 to 10 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;
```

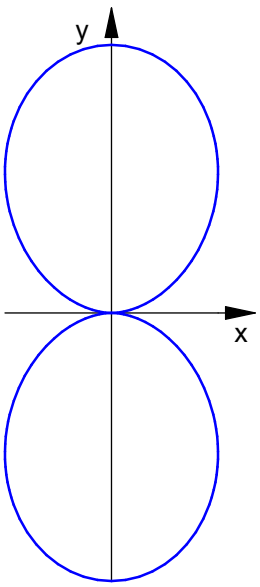
16.0

14.19119983

0.0

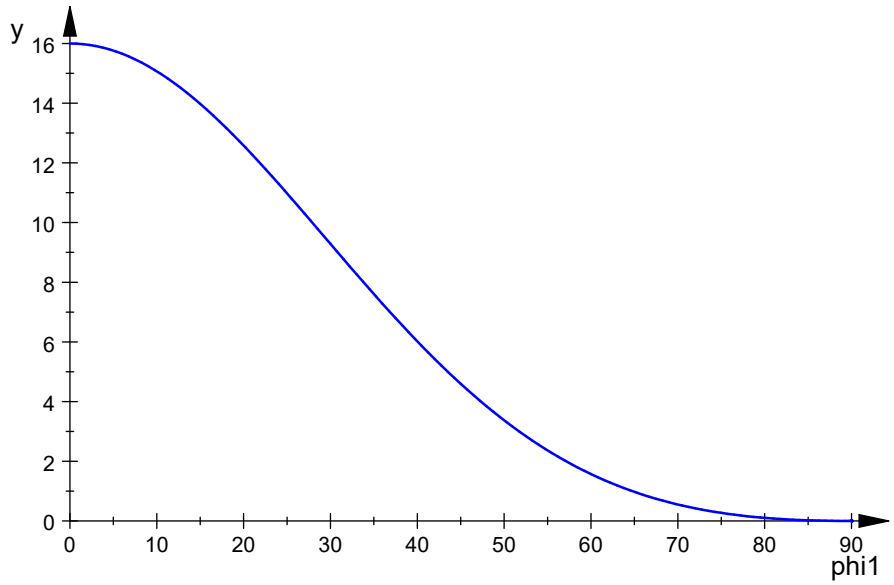
Vertikaldiagramm

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



vertikale relative Strahlungsleistungsdichte

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



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Maximalwert der relativen Stahlungsleistungsdichte , auch in dBi

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

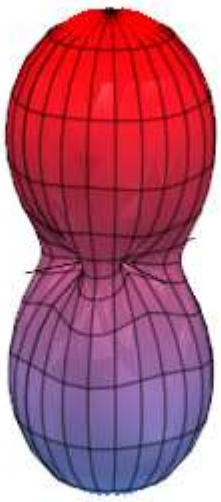
```
end_for:gvmax;float(10*log(10,gvmax)+2.15);gvwmax;
```

16.0

14.19119983

0.0

- ```
  delete
  the,phi1: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..PI,Axes=Origin, TicksNumber=None, Scaling=Constrained,
  AdaptiveMesh=4):
  ```
- ```
  plot(graph);
  ```



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