Ingenieurbüro Baumann --- www.leobaumann.de --- Markt 6, 46282 Dorsten
manuelle Berechnung einer horizontalen Dipolwand aus m (in Spalte) x n (in Zeile) Dipolen vor einem Reflektor über Grund
h = Länge, b2 = Höhe über Grund, l = Wellenlänge, d1 = Abstand in der Spalte, d2 = Abstand in der Zeile, d3 = Reflektorabstand, m = Anzahl in der Spalte, n = Anzahl in der Zeile

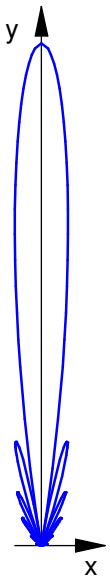
```
reset():digits:=16:k:=1/1000:wh:=89.999*PI/180:wv:=89.78125*PI/180
:bet:=0:h:=1/2:b2:=2:d1:=1/2:d2:=1/2:d3:=1/2:l:=1:m:=6:n:=12:
```

Richtdiagramm im Kugelraum als Funktion der Winkel

```
c:=(the,phi1) -> abs((cos(PI*h/l*cos(the)*sin(phi1))-
cos(PI*h/l))/(sqrt(1-cos(the)^2*sin(phi1-k)^2)))
                  *abs(sin(n*PI*d2/l*cos(the)*sin(phi1))/sin(PI*d2/
  l*cos(the)*sin(phi1)))*abs(sin(m*PI*d1/l*cos(phi1))/sin(PI*d1/l
  *cos(phi1)))
                  *2*abs(cos(bet/2+PI*2*d3/l*sin(the)*sin(phi1)))
                  *2*abs(sin(PI*2*b2/l*cos(phi1))):
```

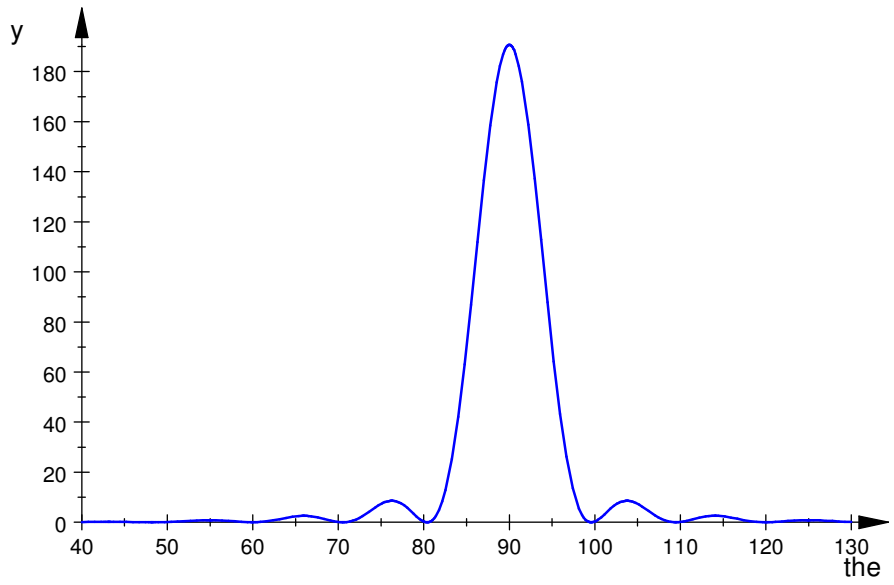
Horizontaldiagramm

```
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 Stahlungsleistungsdichte , 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;
```

147314.5789

53.83245729

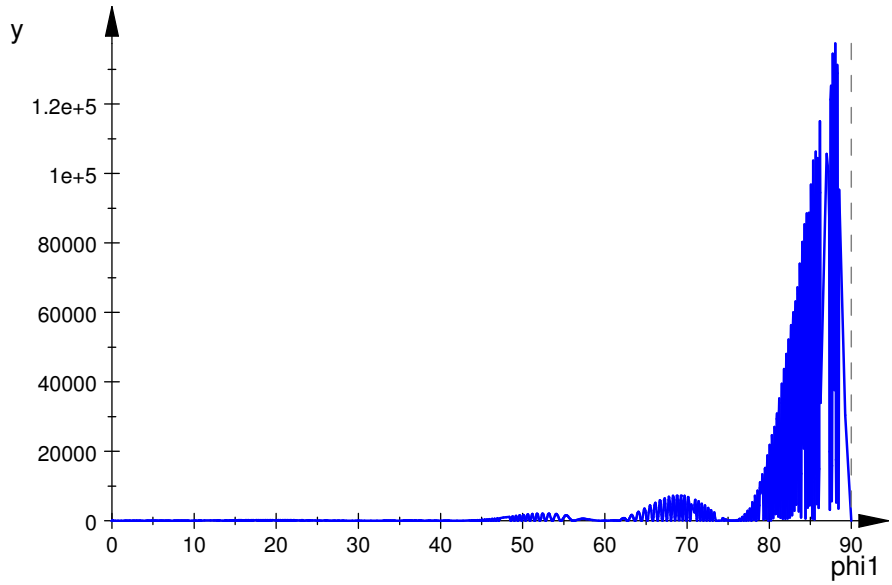
89.96875

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, AdaptiveMesh=4):`



Maximalwert der relativen Stahlungsleistungsdichte , auch in dBi

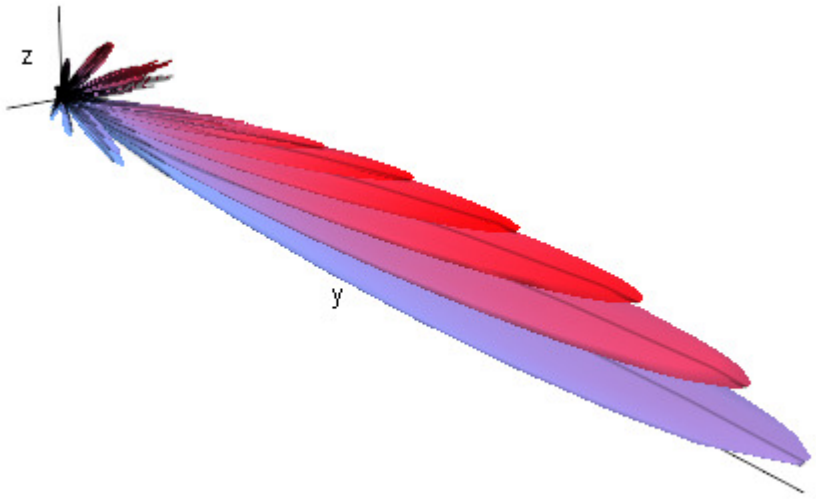
- ```
  gvmax:=0:gvwmax:=0:for m from 2784 to 2879 step 1 do
  gv:=float(c(wh,m*PI/5760)^2);
  if gv>gvmax then
       gvmax:=gv;
       gvwmax:=float(m/32);
  end_if;
  end_for:gvmax;float(10*ln(gvmax)/ln(10)+2.15);gvwmax;
  ```

146991.543
  ```

53.82292349

89.78125

- ```
  delete
  the,phi1: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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