

Eqn 1

$W50=y*2.78601$   
 $W129=y*0.243996$   
 $W815=y*1.03624$   
 $W24=y*8.19205$   
 $W80=y*1.08403$   
 $W197=y*10.5371$   
 $L50=x*x50*21.7317$   
 $L129=x*x129*11.8202$   
 $L815=x*x815*11.3386$   
 $L24=x*x24*10.2706$   
 $L80=x*x80*11.3204$   
 $L197=x*x197*10.1400$

Egn2

$x=0.932 \text{ m}$   
 $y=1 \text{ m}$   
 $x_{50}=1$   
 $x_{129}=1$   
 $x_{815}=1$   
 $x_{24}=1$   
 $x_{80}=1$   
 $x_{197}=1.03$

Eqn4

er=4.7  
h=1.55 m  
t=35 u  
tand=0.014  
rho=16.78 n  
D=150 n



er=er  
h=h  
t=t  
tand=tand  
rho=rho  
D=D

calcul  
des paramètres  $s$

SP1  
Type=log  
Start=100 MHz  
Stop=3 GHz  
Points=800

Eqn3

$$\begin{aligned} \text{dBS}_{11} &= \text{dB}(S[1,1]) \\ \text{dBS}_{21} &= \text{dB}(S[2,1]) \end{aligned}$$
