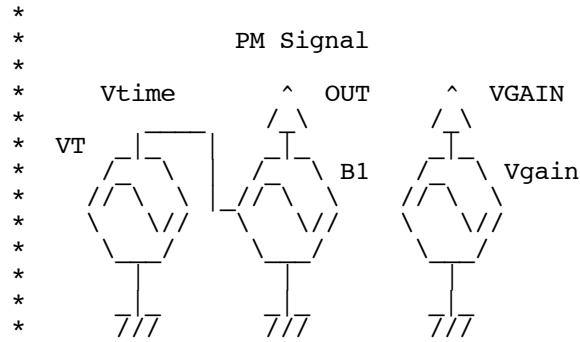


Spread_Spectrum

* dsauersanjose@aol.com 1/15/09
* www.idea2ic.com



```
* Gnd      www.idea2ic.com
*          dsauersanjose@aol.com 4/26/08
* .tran TSTEP TSTOP TSTART TMAX ?UIC?
.OPTIONS GMIN=1e-12 METHOD=trap ABSTOL=1e-12 TEMP=27 srcsteps = 1 gminsteps = 1
*=====
.include Noise_audio1K.txt
VT      Vtime 0      PWL      ( 0 0 1 1 )
VGAIN   VGAIN 0      DC       1m
BPM     Vmod  0      V =    V(VGAIN)*V(audio1K)
B1      OUT   0      V =    .9*tanh(100*sin(6.283185307179586232*100000*v(Vtime) + 6.283185307179586232*v(Vmod)))
.tran   .1u   .1m   0      .1u

.control
set     pensize = 2
run
plot    v(out)      v(vmod)  xlimit 0 .1m title VGAINis1m
linearize
set     specwindow= "none"
spec   10000        1000k    10000    v(out)
plot   mag(v(out)) loglog  title VGAINis1m ylimit 1m 1

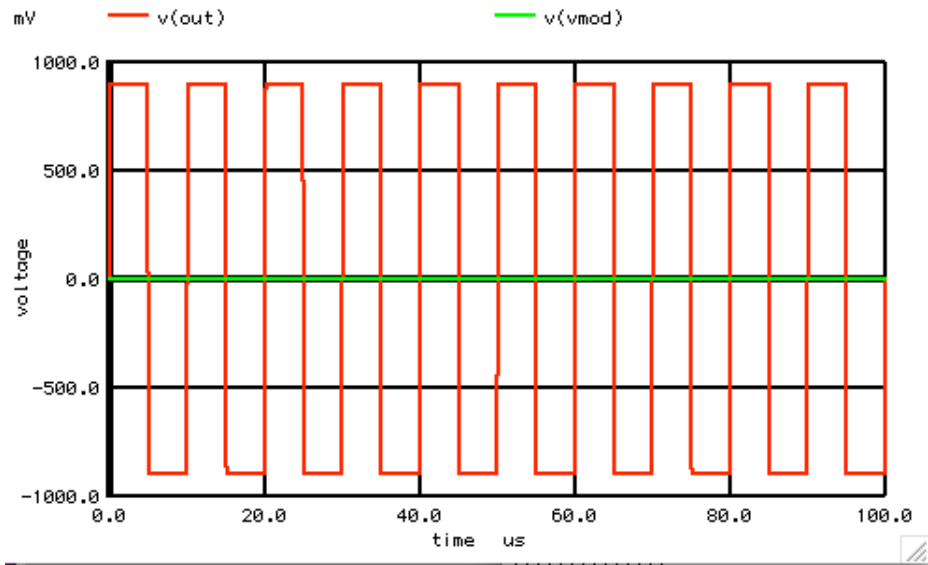
alter   VGAIN      dc = 1000k
run
plot    v(out)      v(vmod)  xlimit 0 .1m title VGAINis1MEG
linearize
set     specwindow= "none"
spec   10000        1000k    10000    v(out)
plot   mag(v(out)) loglog  title VGAINis1MEG

set     pensize = 1
.endc
.end
```

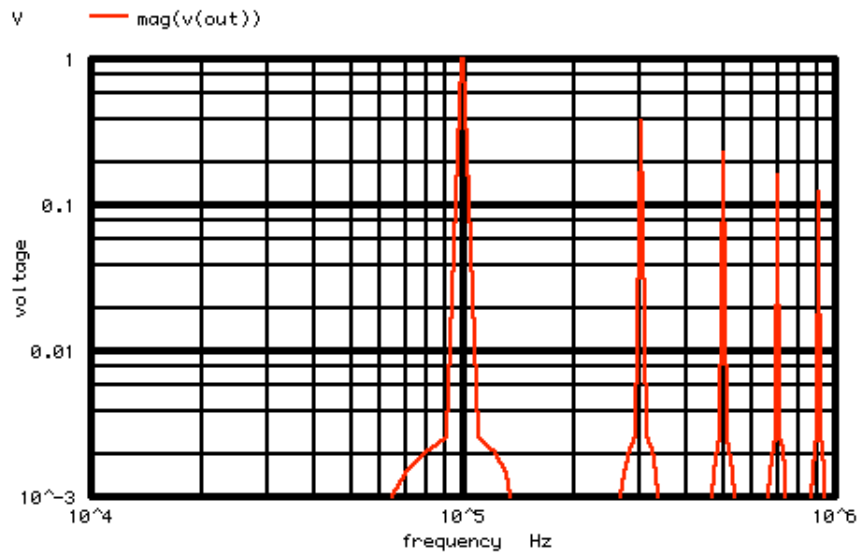
=====**END_OF_SPICE**=====

To Covert PDF to plain text click below
<http://www.fileformat.info/convert/doc/pdf2txt.htm>

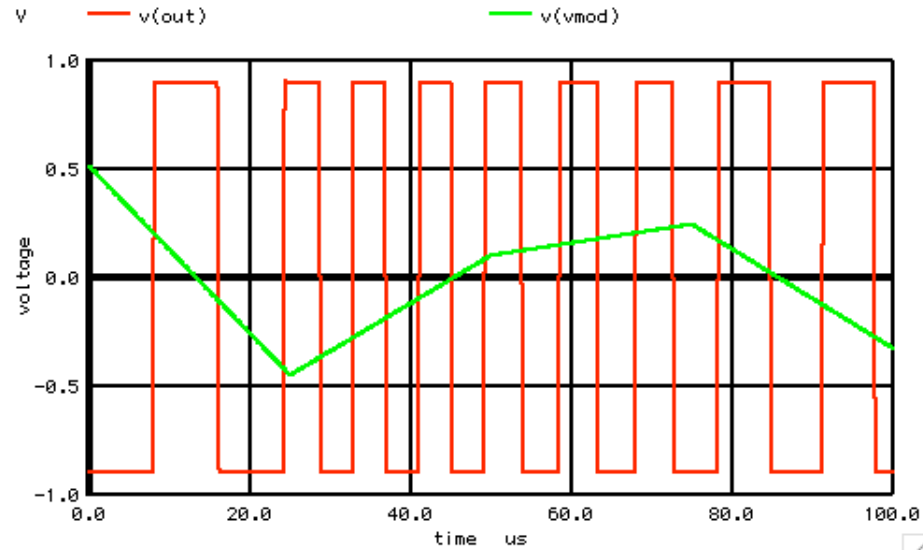
The Square wave (**out**) is simulated which can be phase modulated by a random signal (**vmod**).



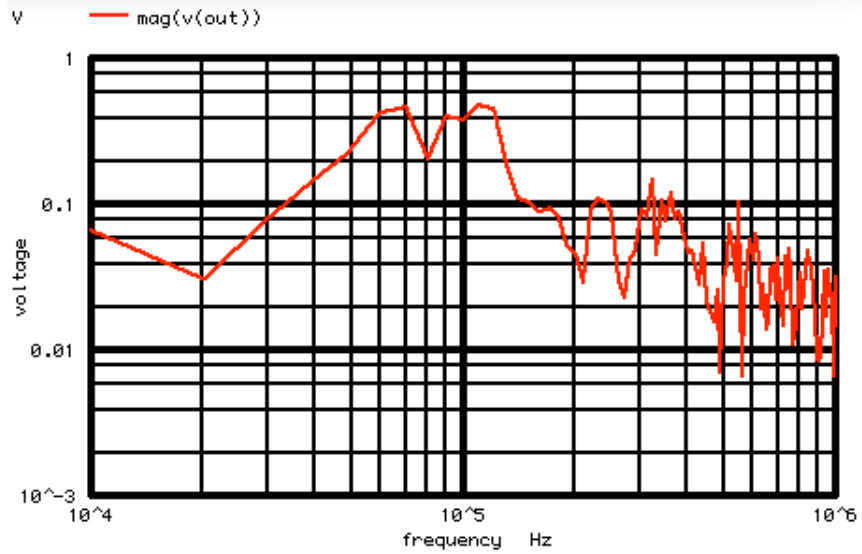
The FFT is taken without using any windowing.



The classical output spectrum is the result.



Next the square wave get phase modulated by a random signal.



The fundamental gets reduced in size and gets spread out. Notice the odd harmonics gets spread out much more.