EVOLUTIA DE LA BPSK LA QPSK

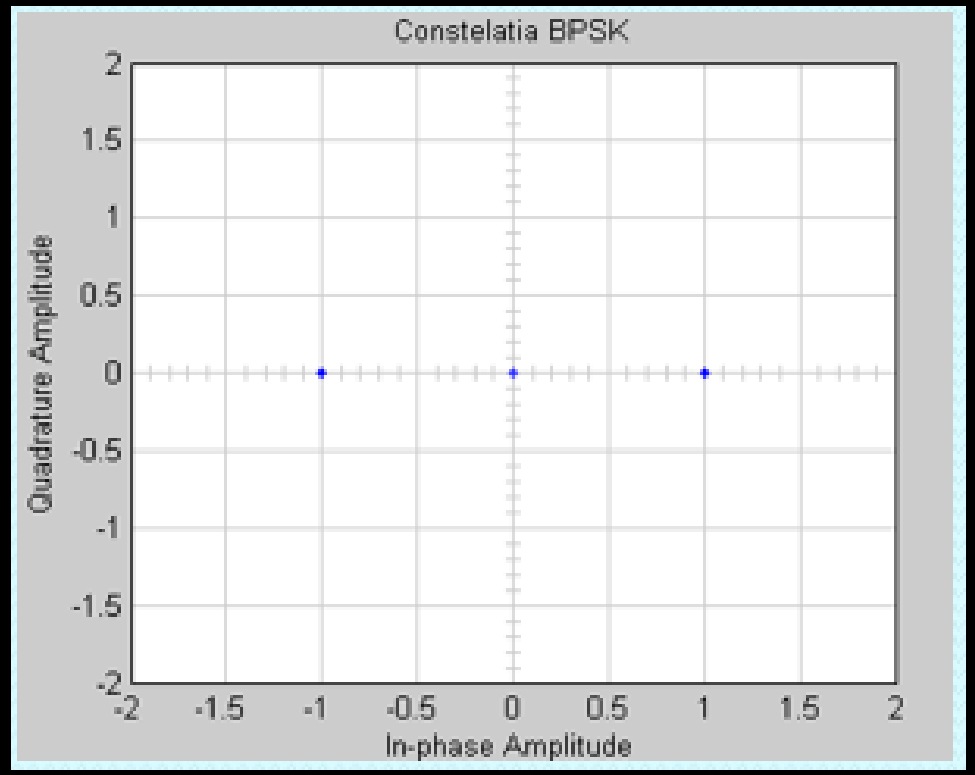
Prezentare realizată de Pârvan Andrei Leonard
IESC, Calculatoare 2, grupa 4LF781

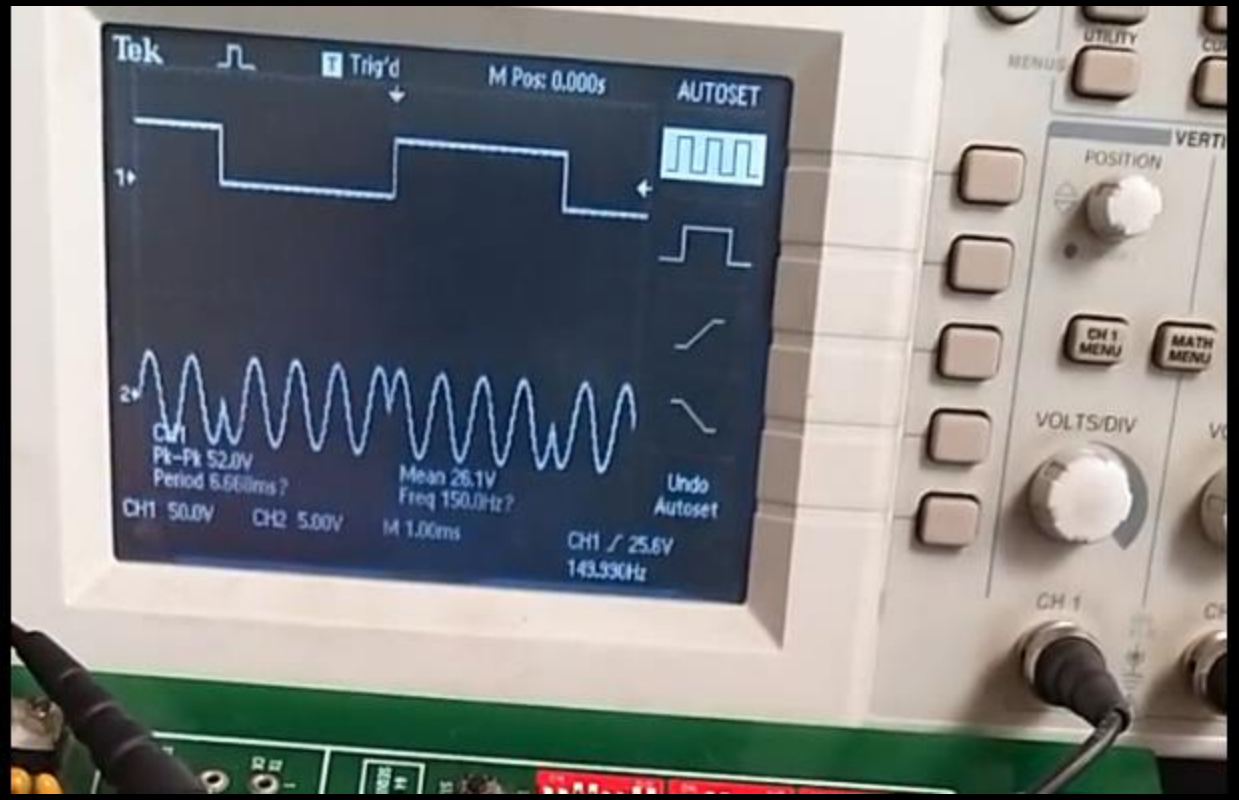
MODULATIA BPSK

- $s_i(t) = \sqrt{\frac{2 \times E(t)}{T}} \times \cos(\omega_0 \times t + \varphi_i(t)) \quad 0 \le t \le T \quad i = 1, \dots, M \quad M = 2^k$

$\varphi_i(t) = \frac{2 \times \pi}{M} \times i$ $\omega_0 = 2 \times \pi \times f_0$

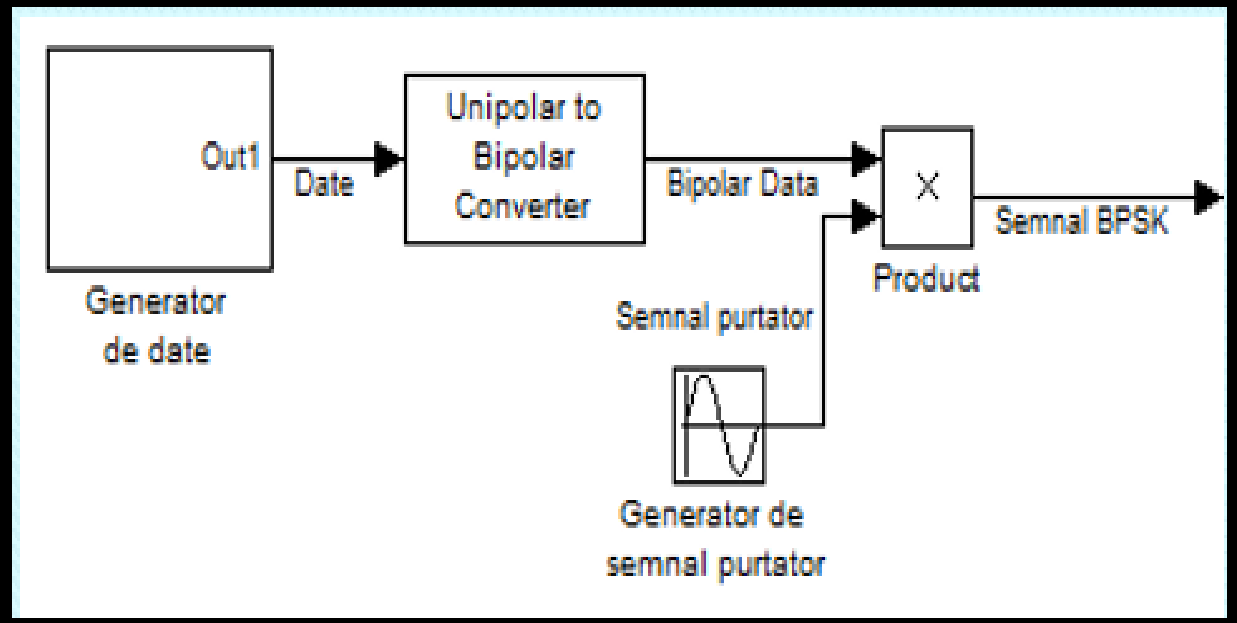
La BPSK, k = 1.



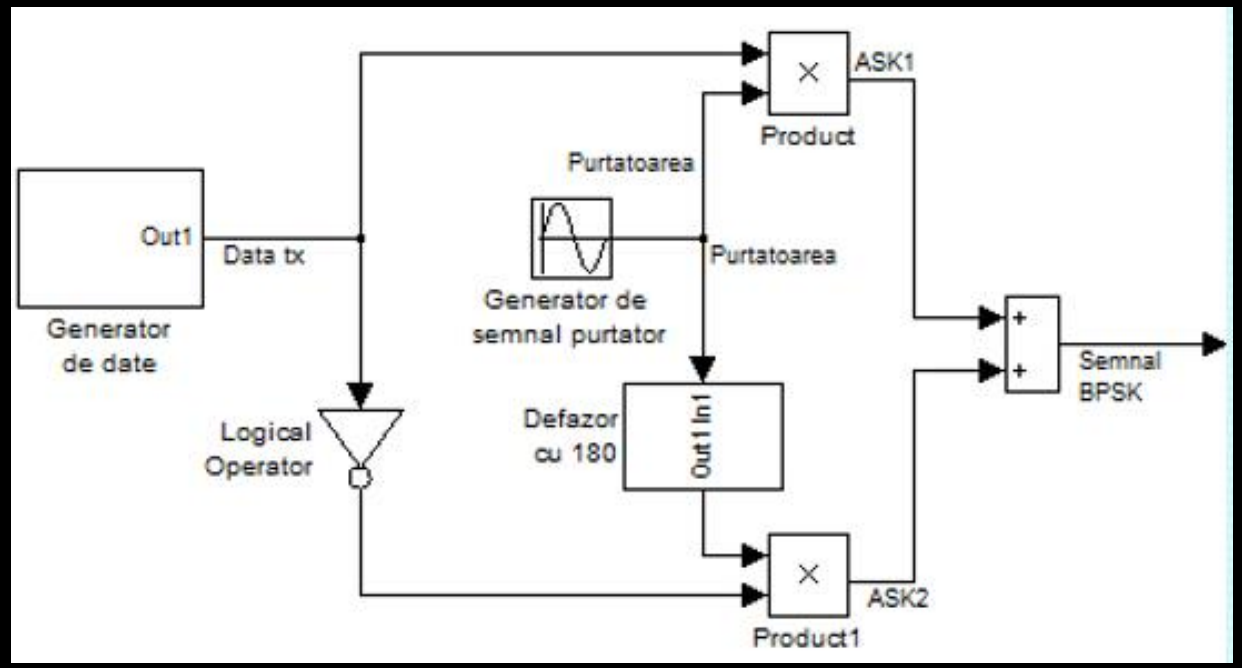


MODULATOARE BPSK

-Cu operator de produs:



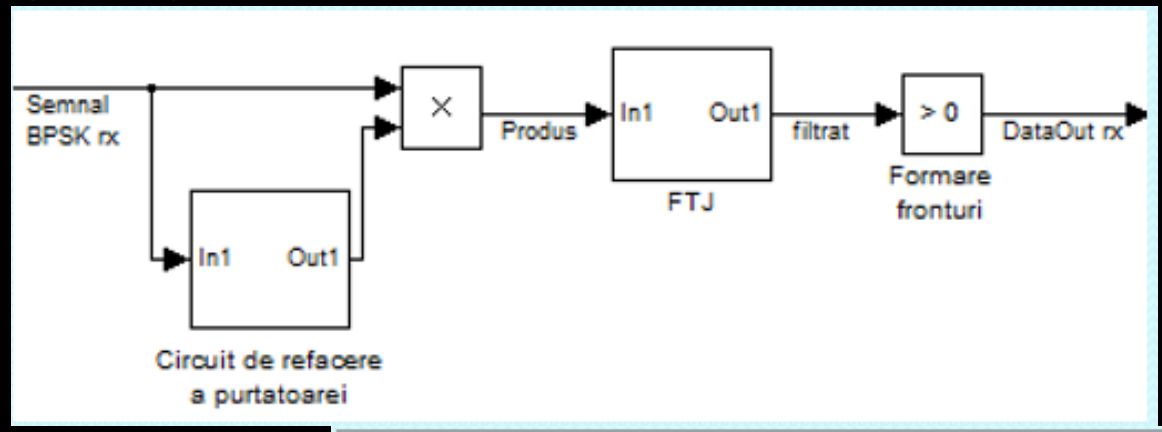
-Echilibrat:



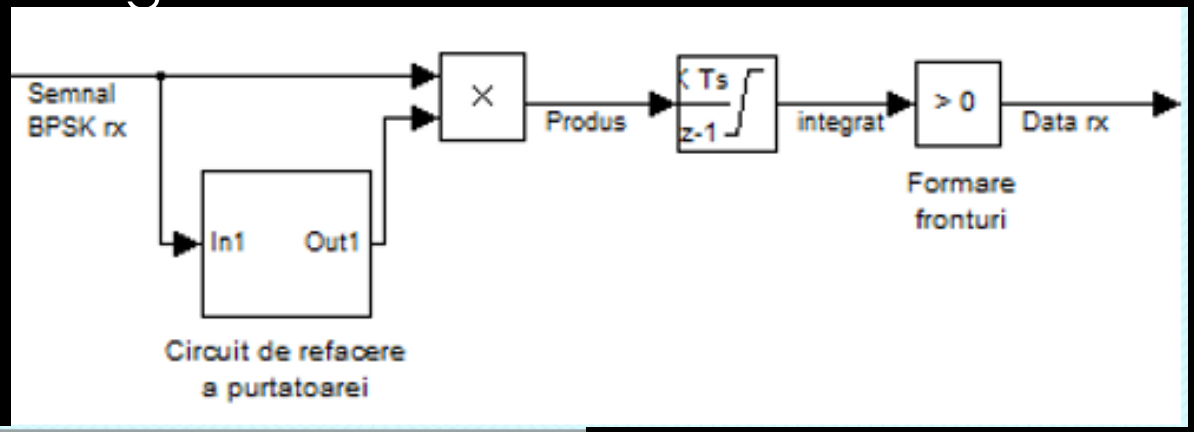
DEMODULATOARE BPSK
CU MODULATOR DE PRODUS

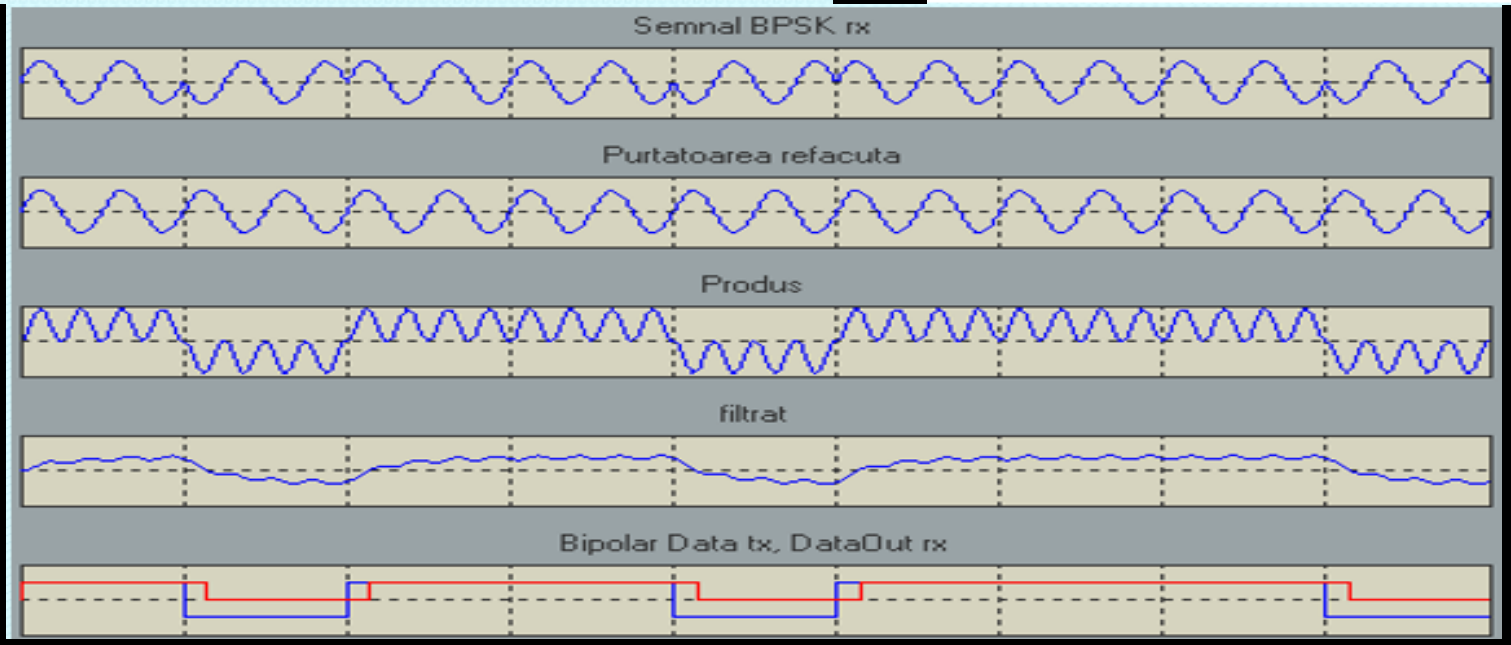
- Cu purtatoarea refacuta sinusoidal

Cu FTJ



Cu integrator

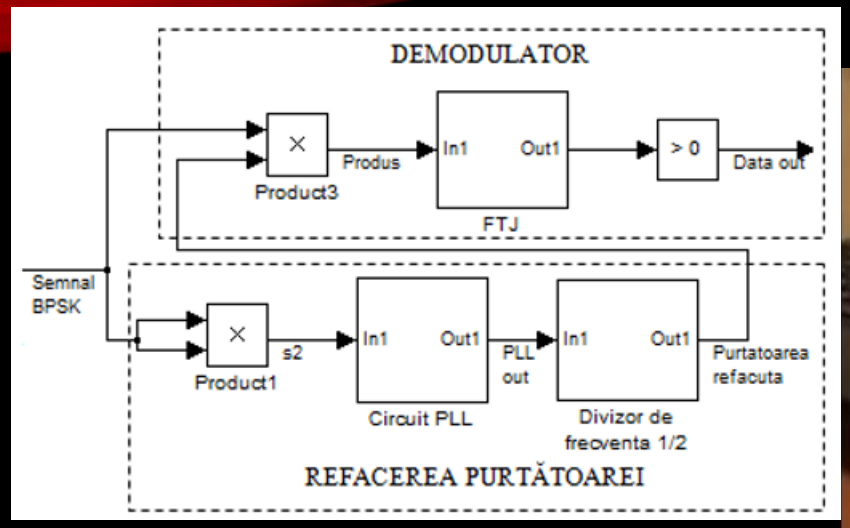


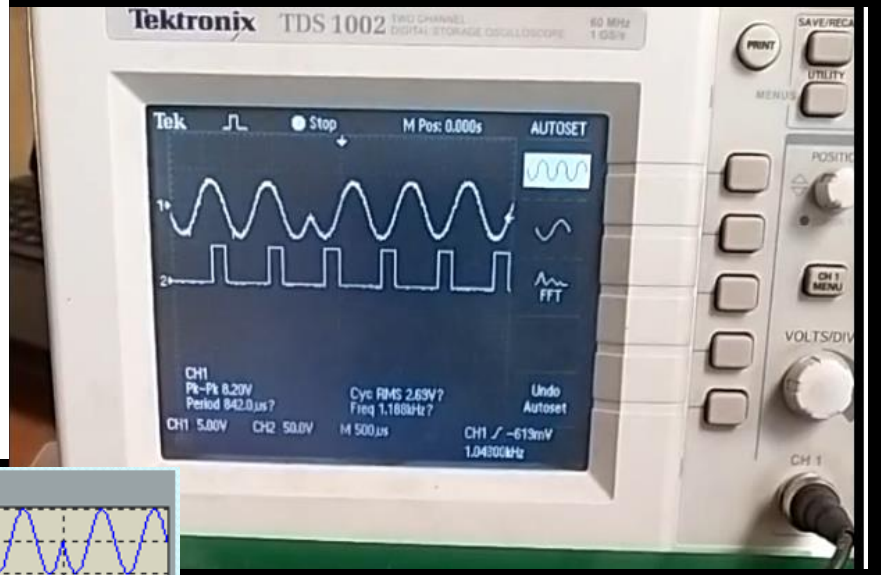


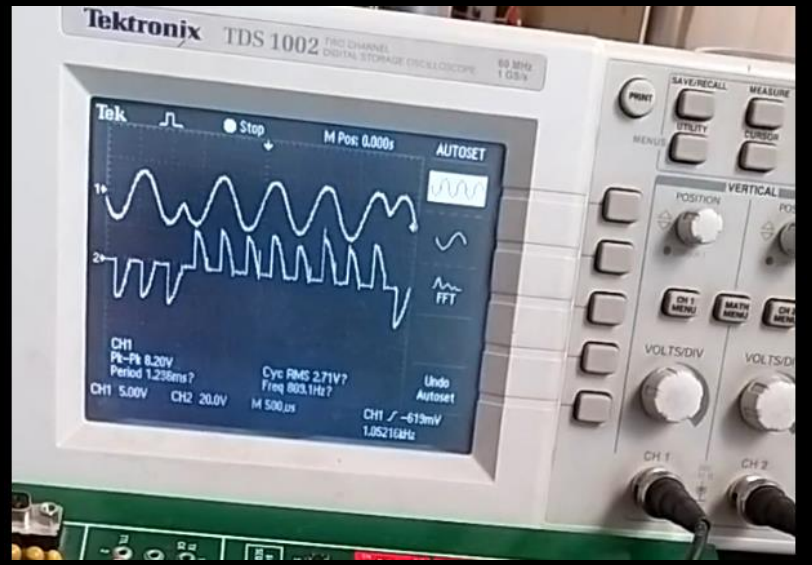
DEMODULATOARE BPSK

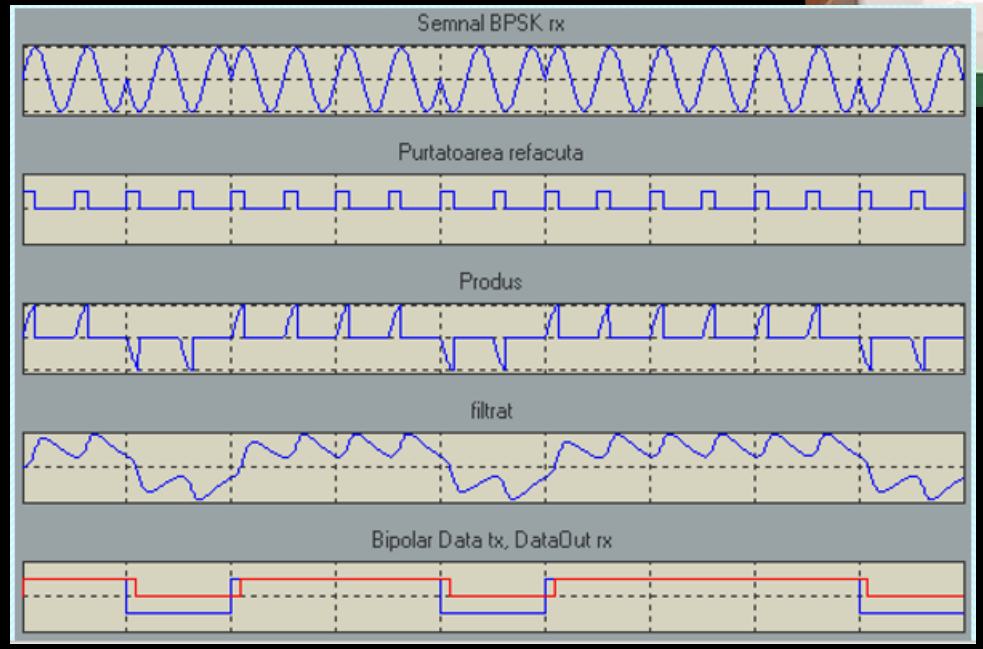
CU MODULATOR DE PRODUS

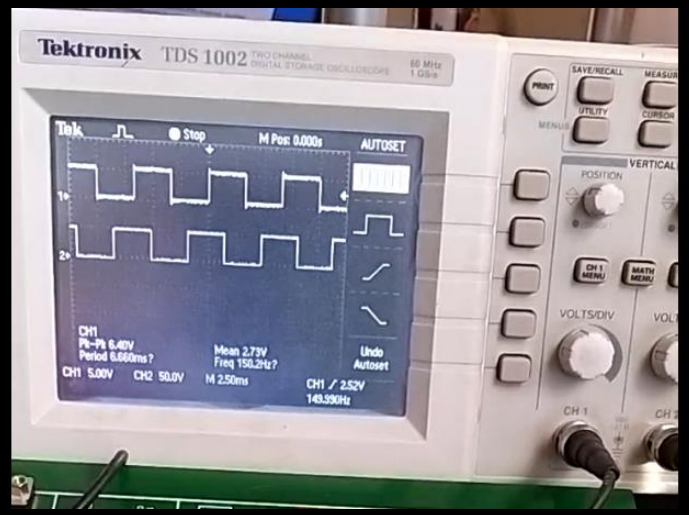
- Cu purtatoarea refacuta dreptunghiular

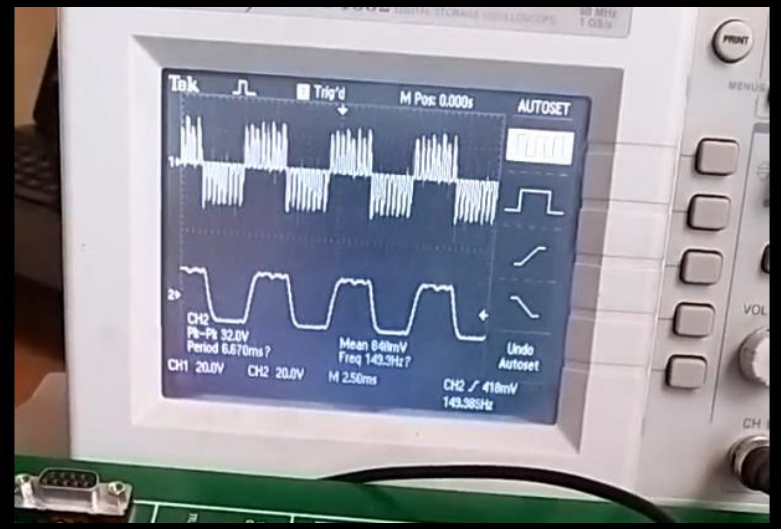






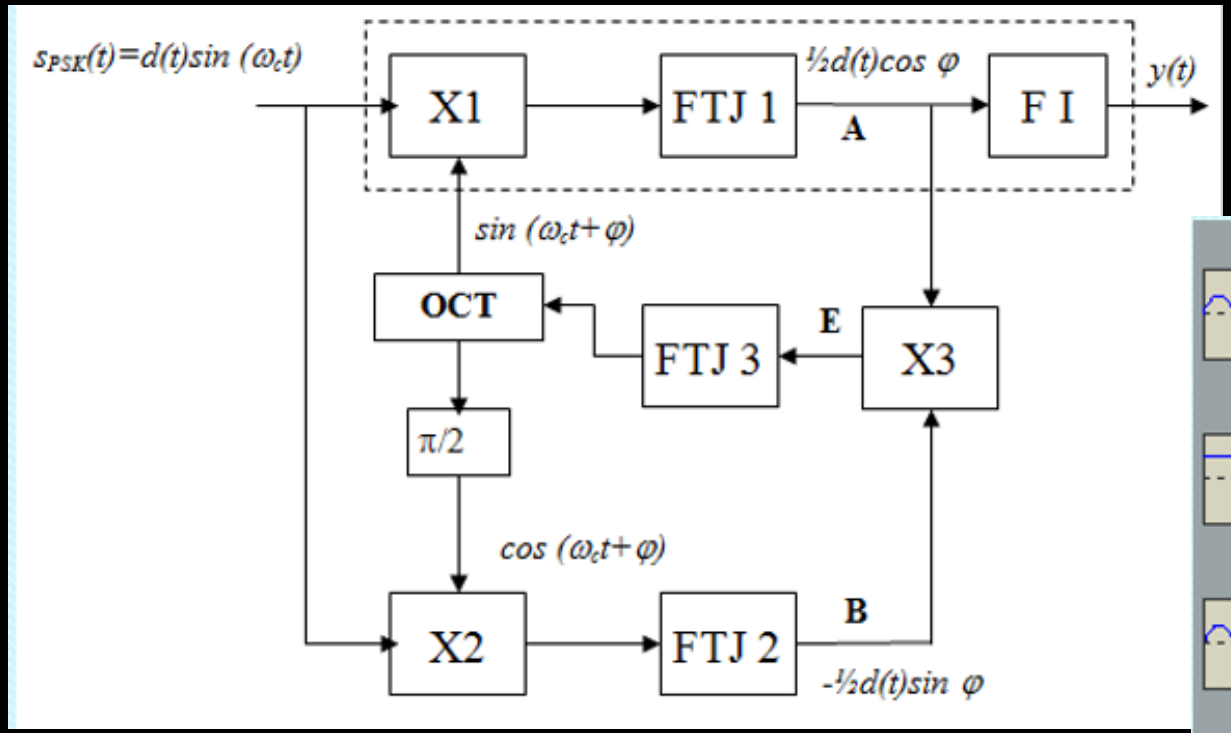


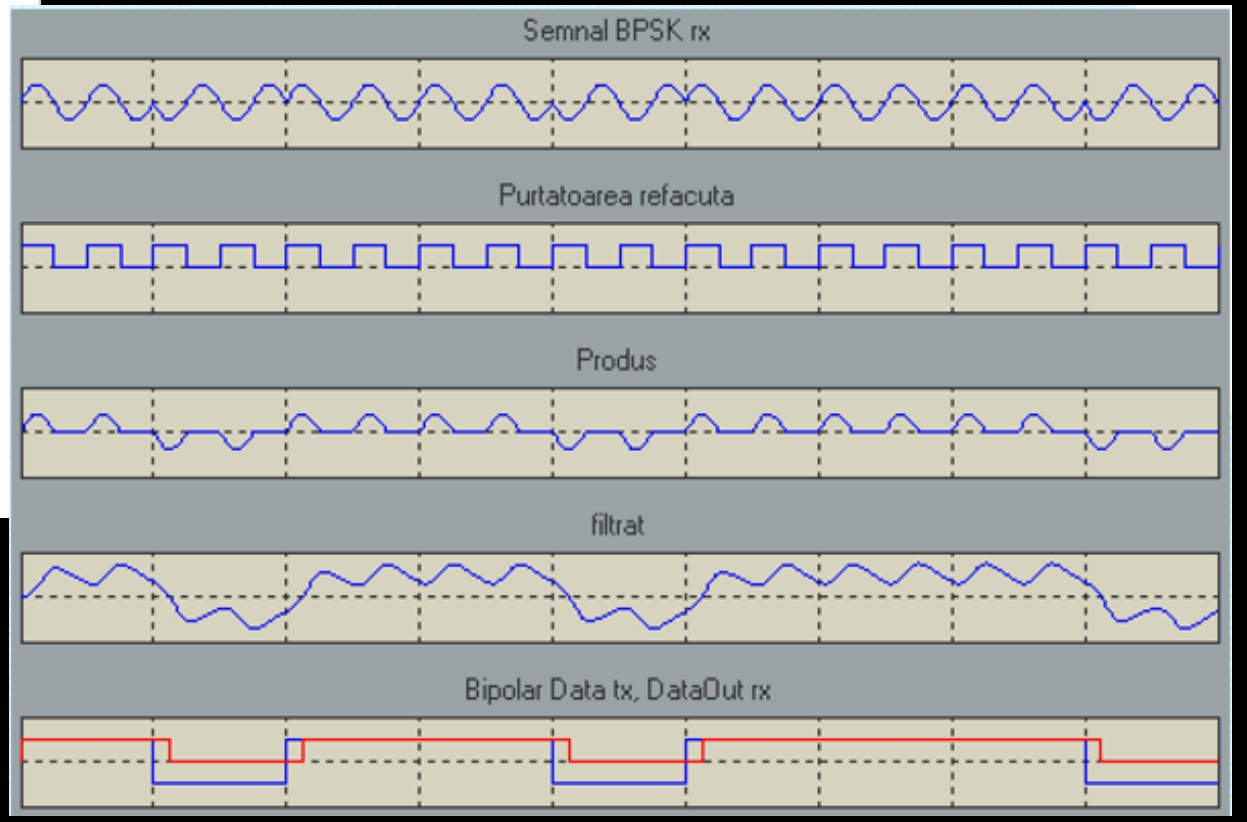




DEMODULATOARE BPSK
CU MODULATOR DE PRODUS

- Cu bucla Costas





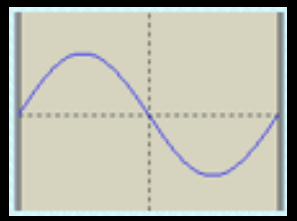
MODULATIA QPSK

- $s_i(t) = \sqrt{\frac{2 \times E(t)}{T}} \times \cos(\omega_0 \times t + \varphi_i(t)) \quad 0 \le t \le T \quad i = 1, \dots, M \quad M = 2^k$

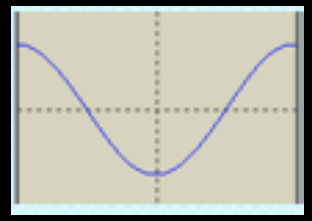
$\varphi_i(t) = \frac{2 \times \pi}{M} \times i$ $\omega_0 = 2 \times \pi \times f_0$

La QPSK, k = 2.

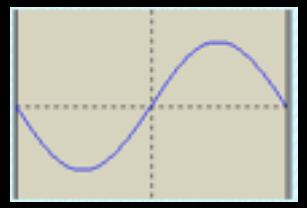
- 00 – 0



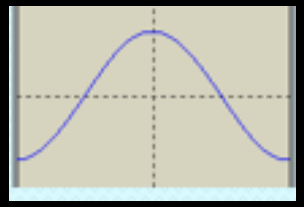
- 01 - $\pi/2$

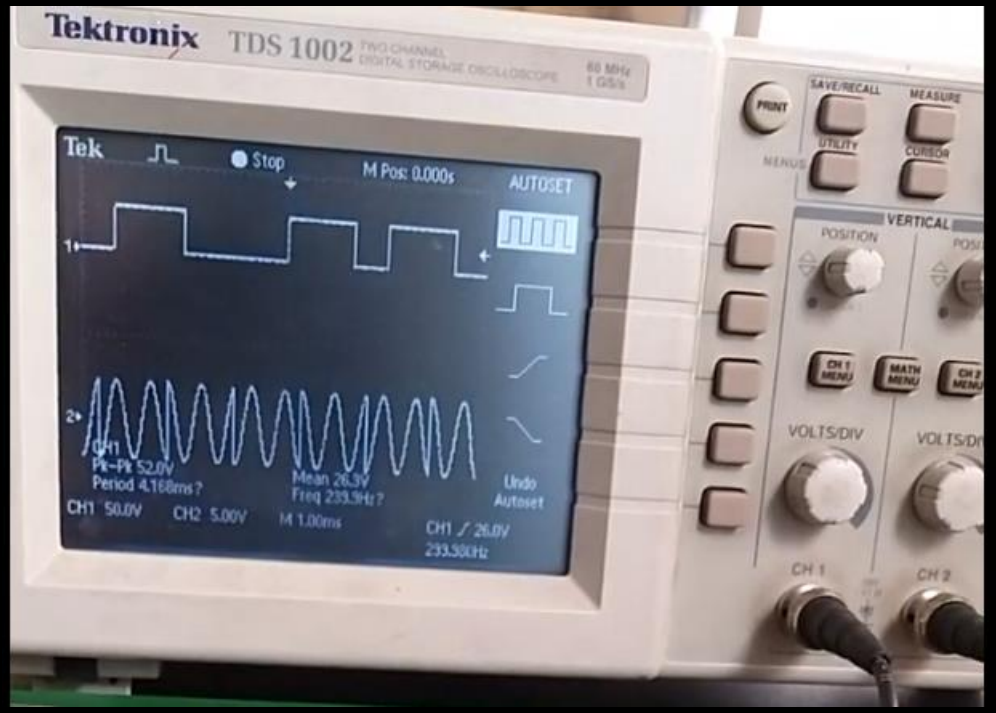


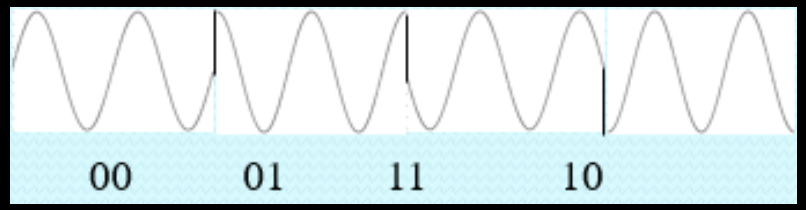
- 11 - π



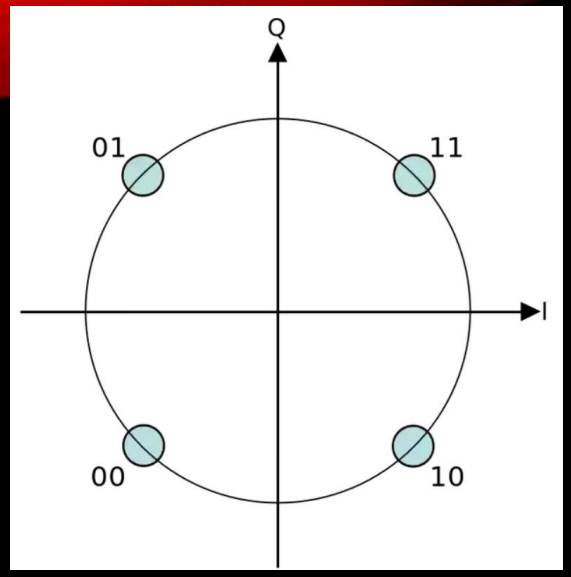
- 10 - $3 \times \pi/2$



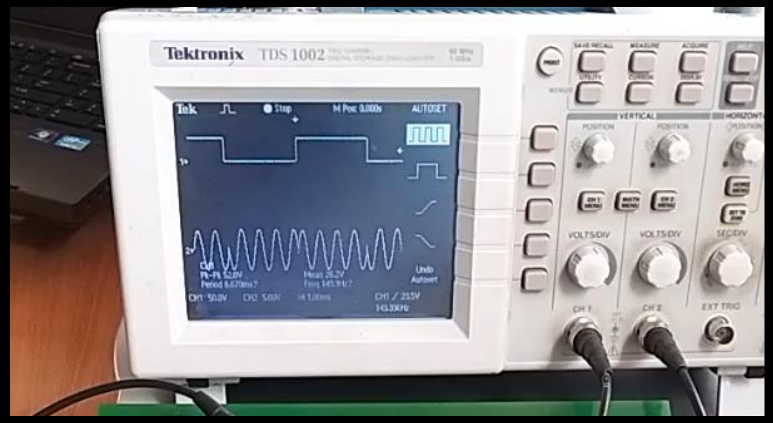




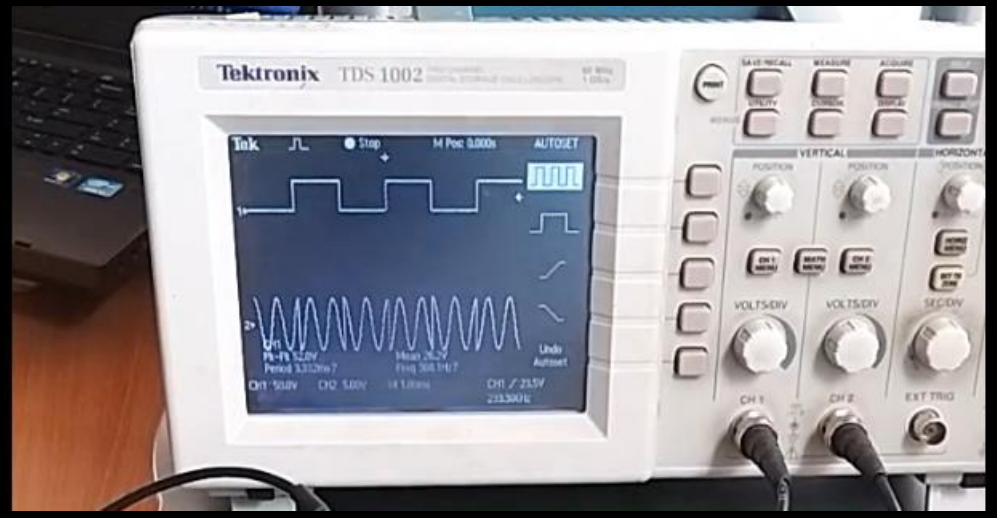
MODULATORUL QPSK



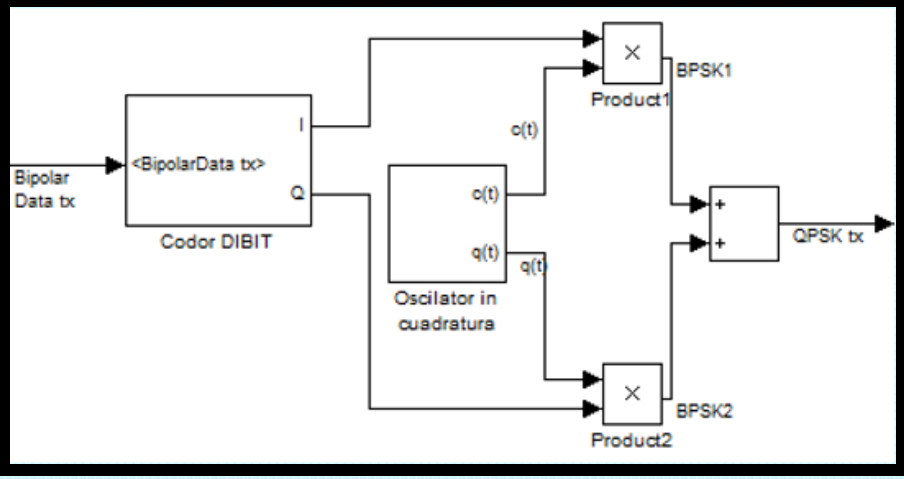
Constelatia QPSK

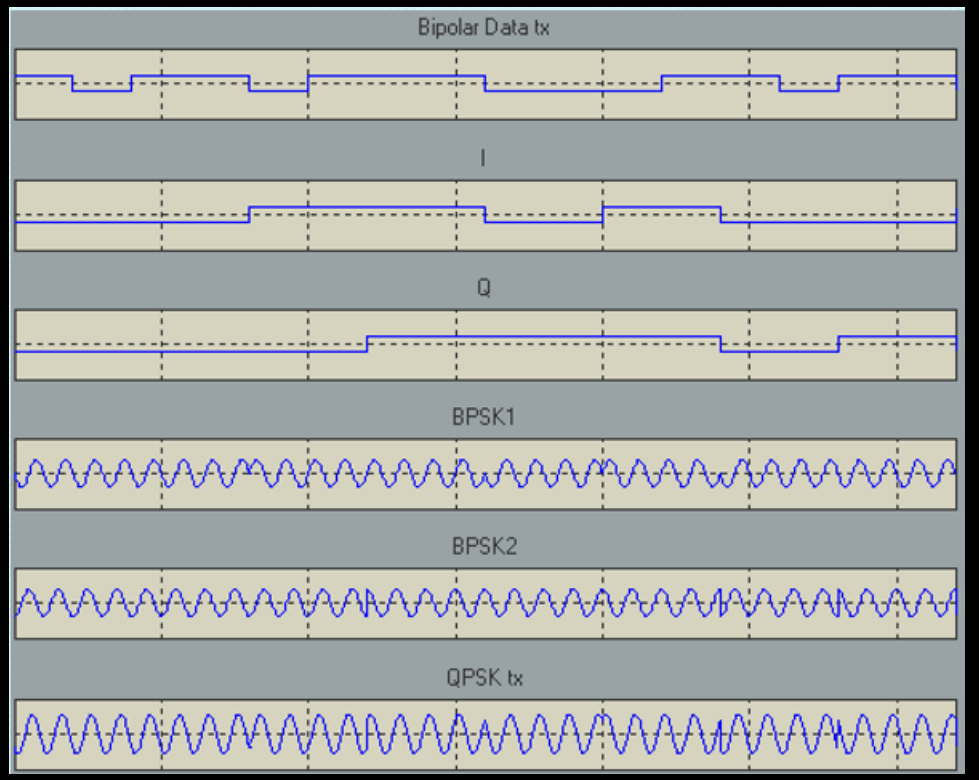


BPSK1



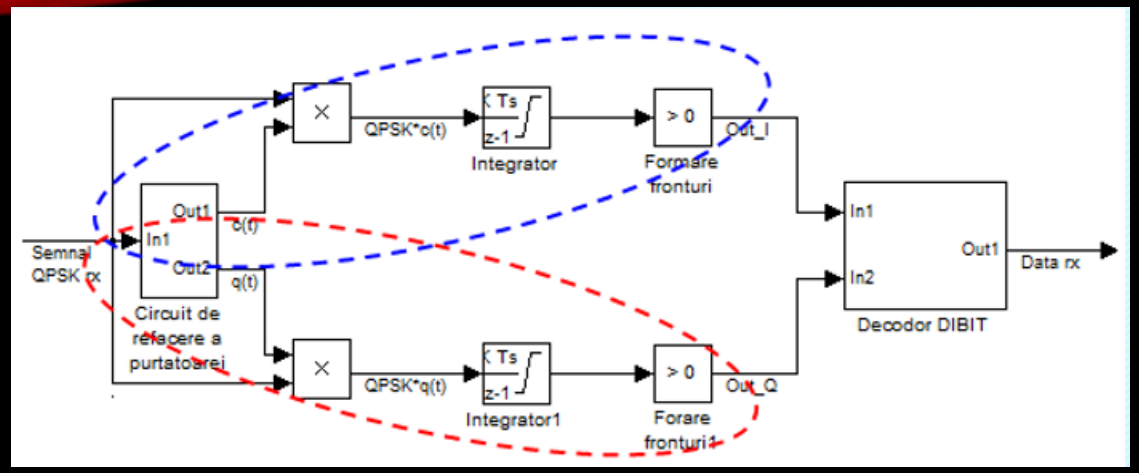
BPSK2

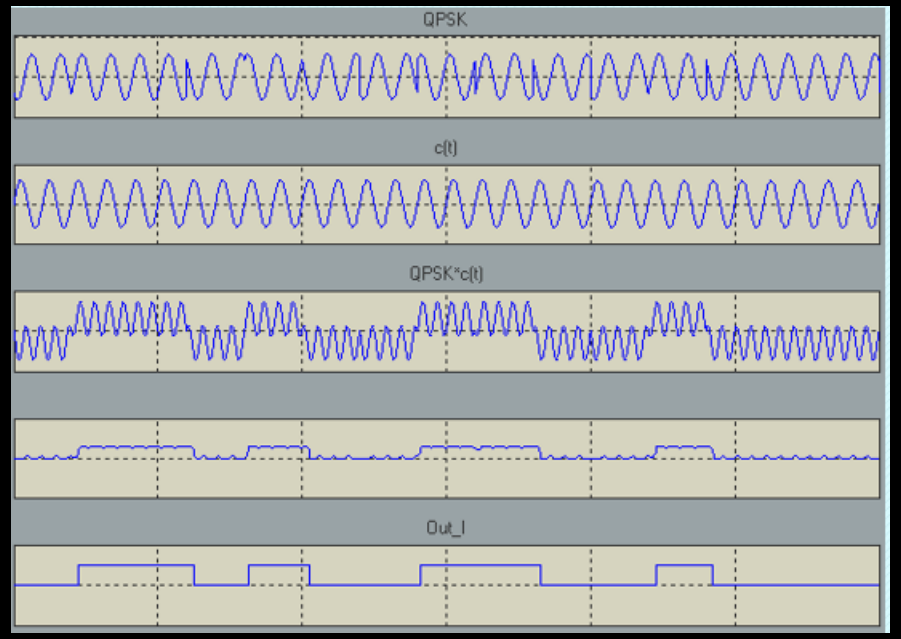


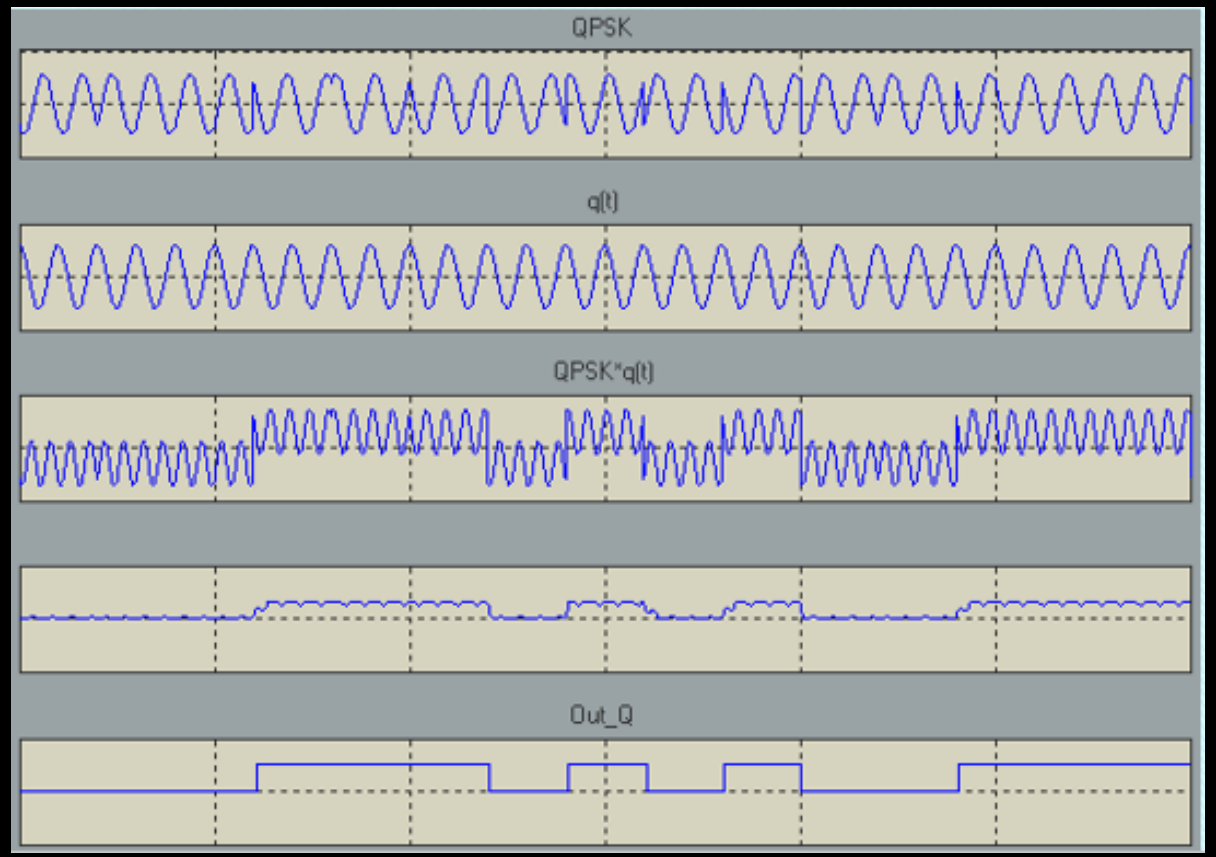


DEMODULATORUL QPSK

- Este alcatuit din 2 demodulatoare BPSK







CONCLUZIE

- QPSK este alcatuit din 2 BPSK-uri
- QPSK fie injumatateste latimea de banda fie dubleaza numarul de date transmis, deci este mai eficient
- Are o rata de erori mai mare ca la BPSK si necesita circuite mai complexe

SFARSIT