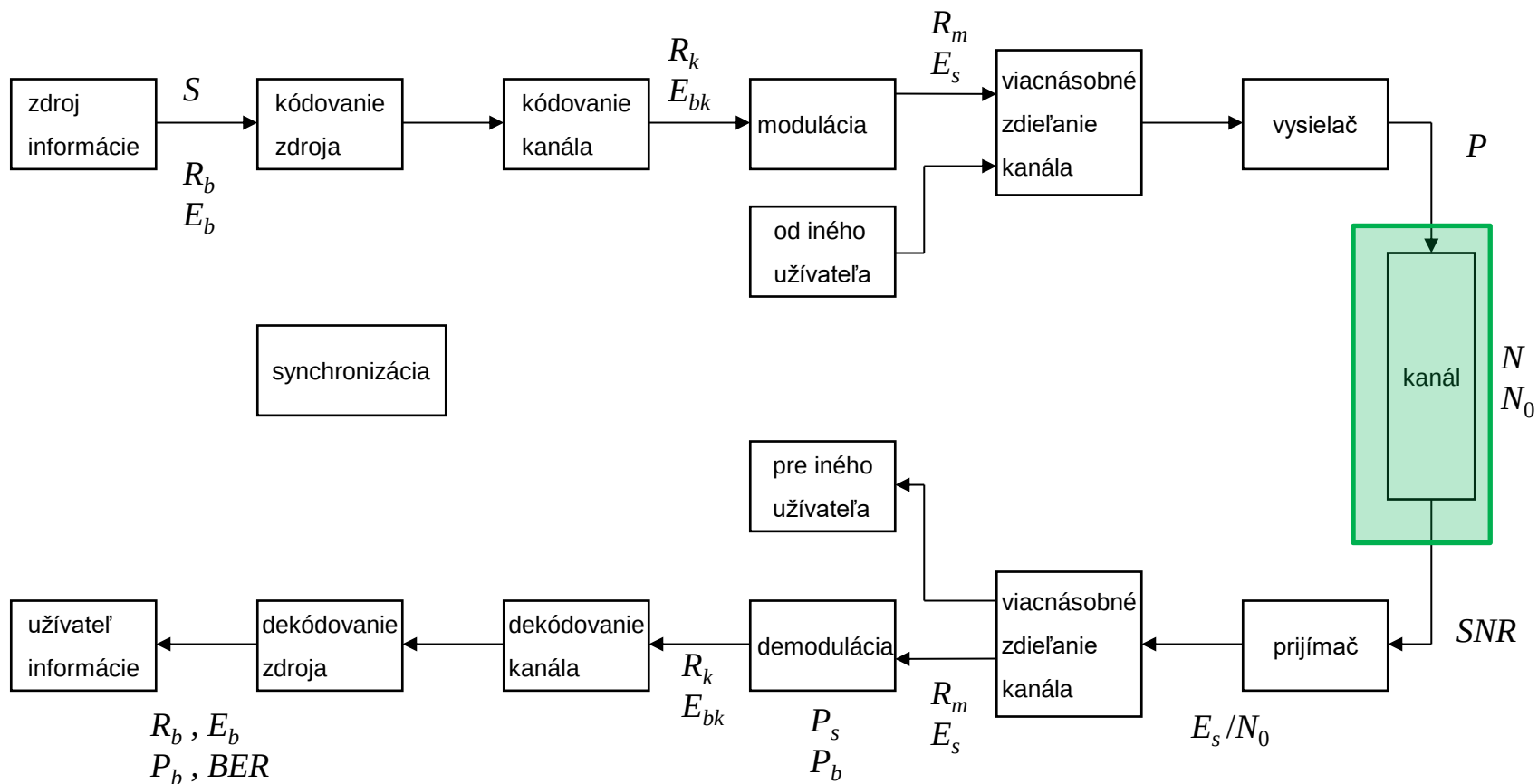
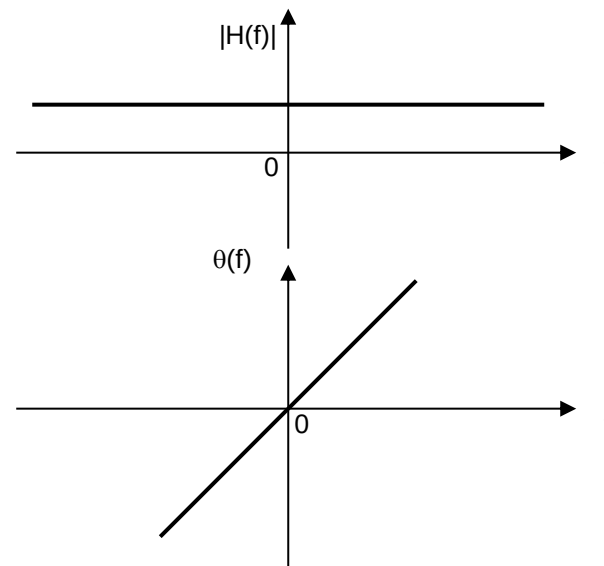
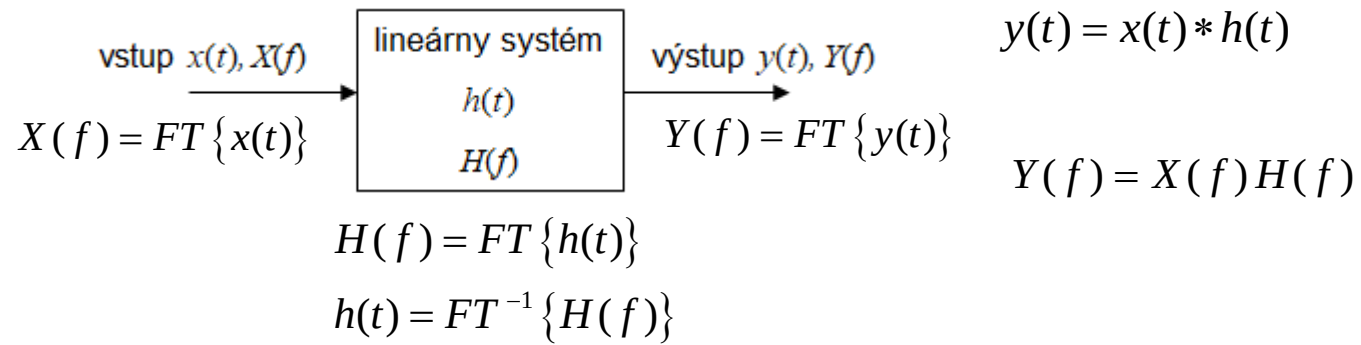
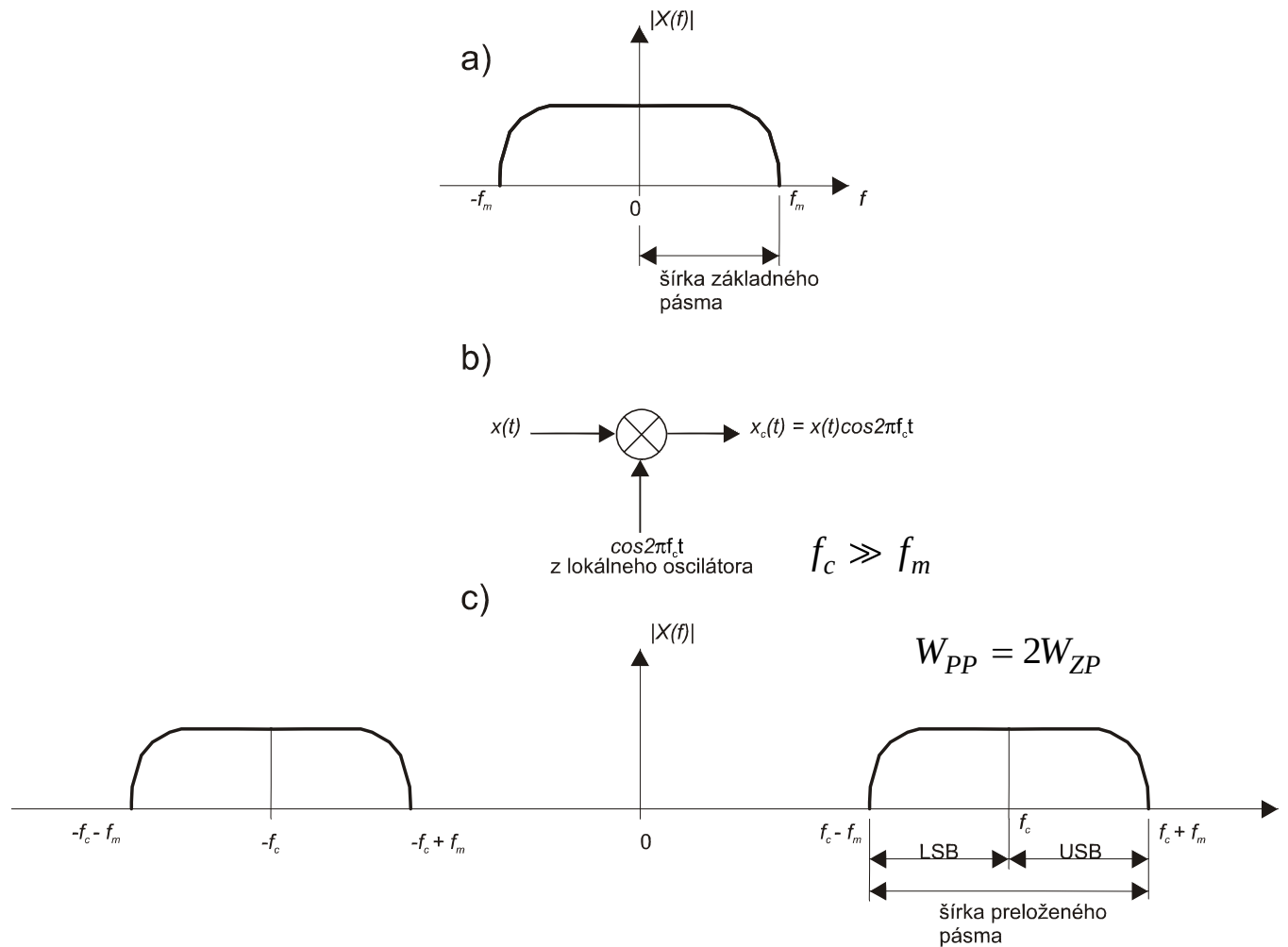


Digitálny prenosový systém:

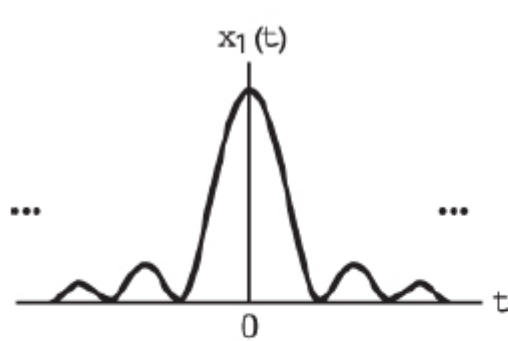




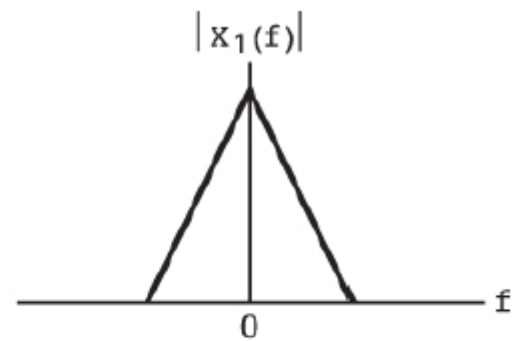
Grafické znázornenie podmienky neskresleného prenosu



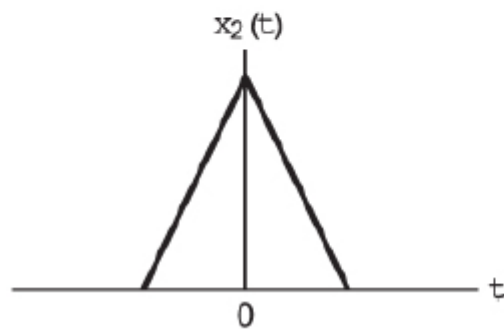
Prenos v základnom a v preloženom pásme



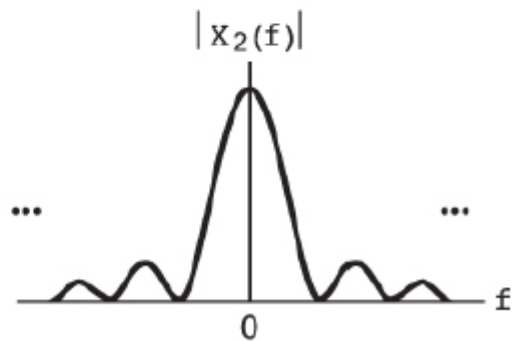
(a)



(b)



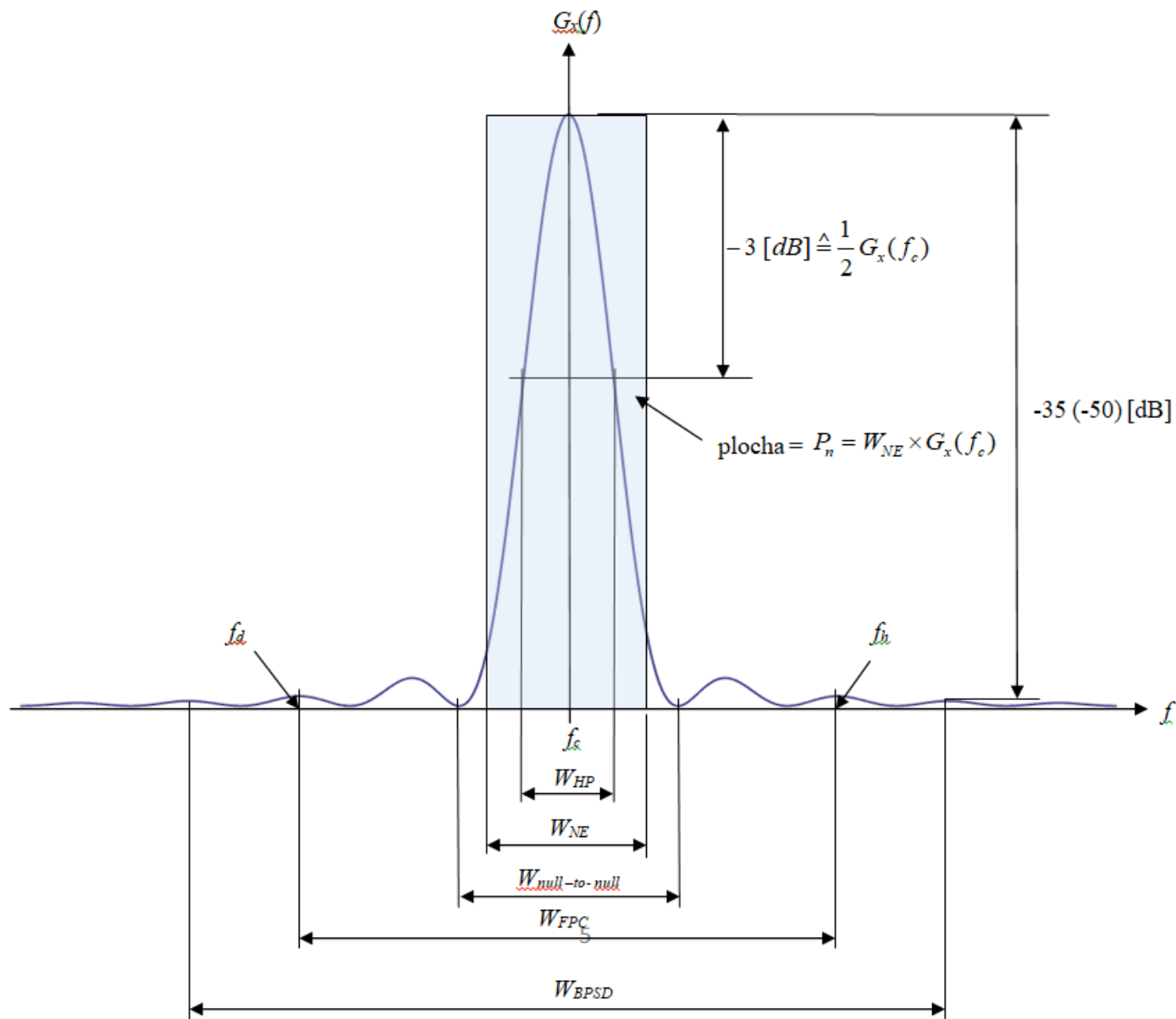
(c)



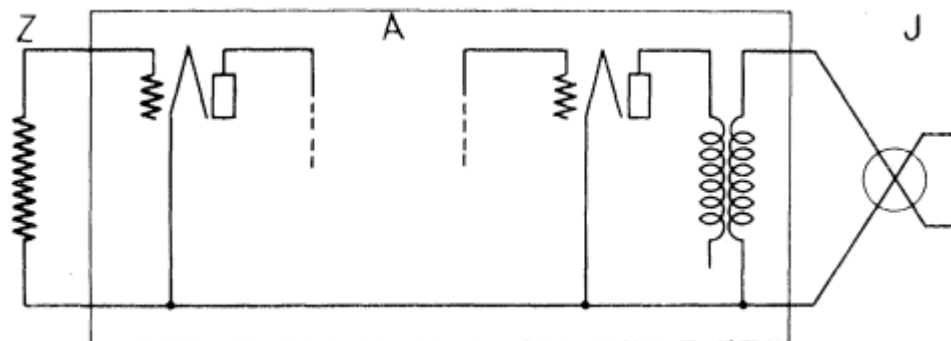
(d)

Časovo a frekvenčně limitované signály

zdroj: B. Sklar, F. Harris.: Digital Communications, Pearson Education, Inc., 2021

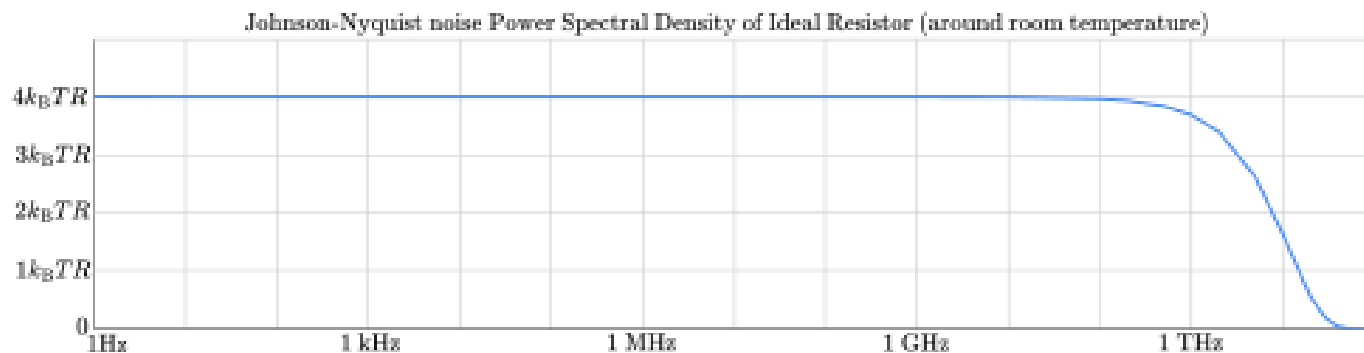


Definície používaných frekvenčných pásiem



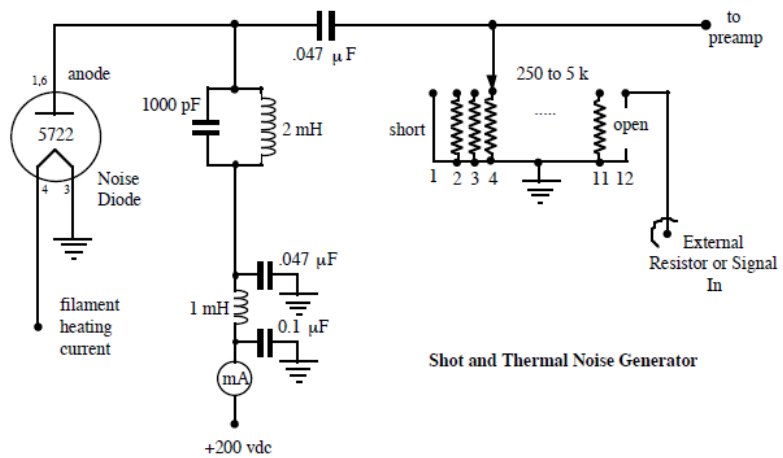
Johnson-ov experiment

zdroj: American Physical Society: J.B. Johnson, Thermal Agitation of Electricity in Conductors, Physical Review, vol. 32, July 1928.

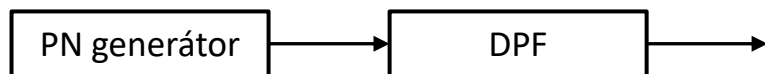
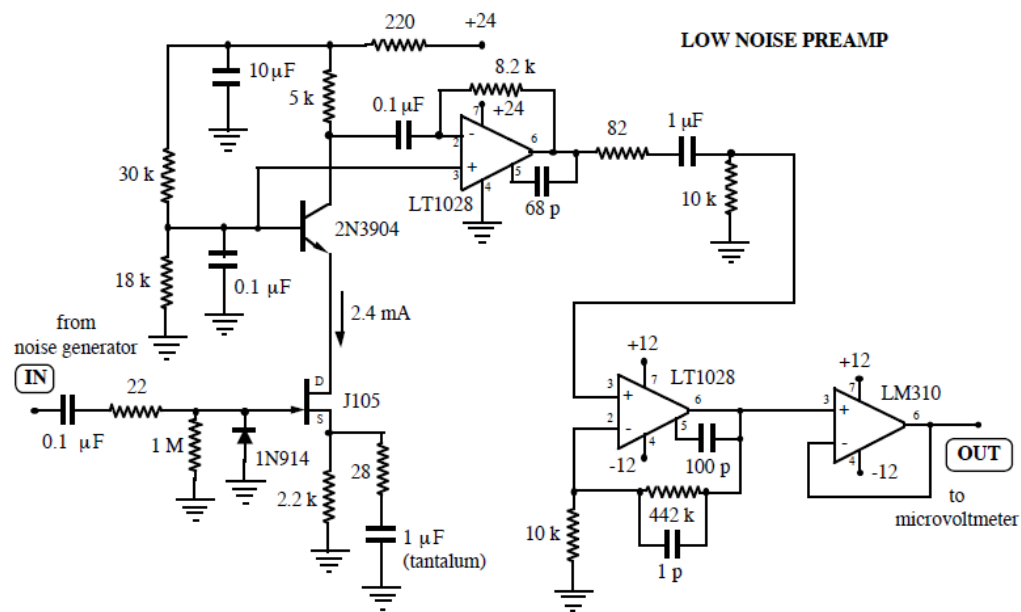


PSD teleného šumu

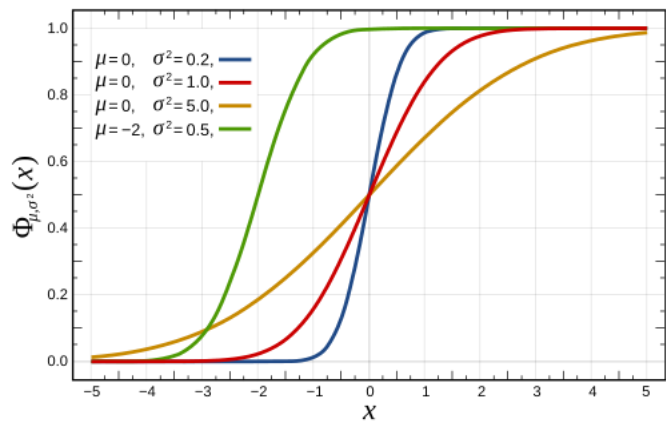
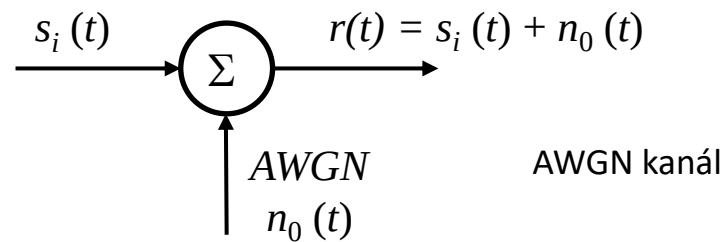
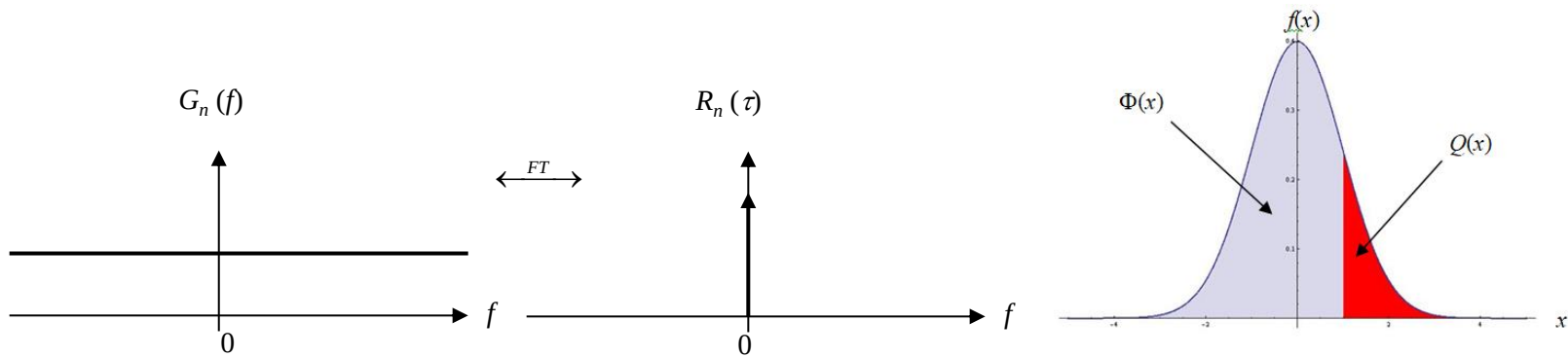
zdroj: <https://commons.wikimedia.org/wiki/File:Johnson-nyquist-noise-power-spectral-density-of-ideal-resistor.svg>.



Generátor tepelného šumu
zdroj Harvard Noise Lab.

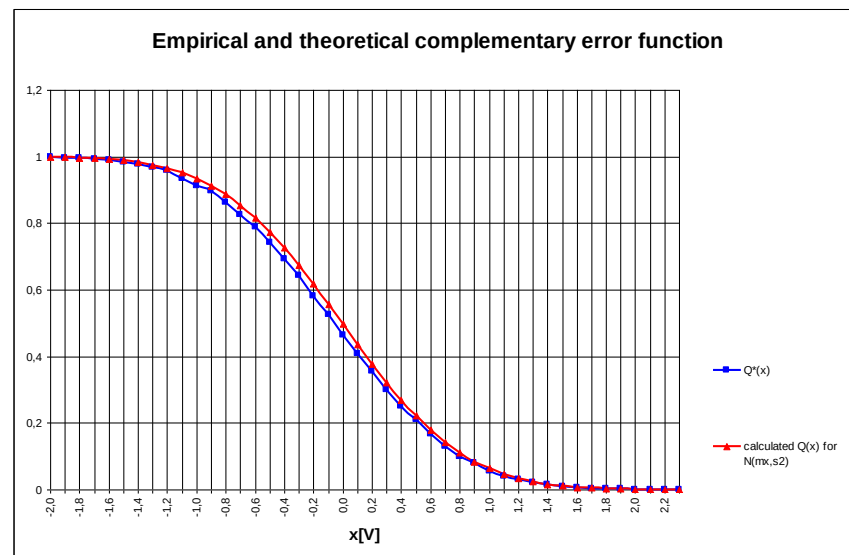


Praktický generátor tepelného šumu

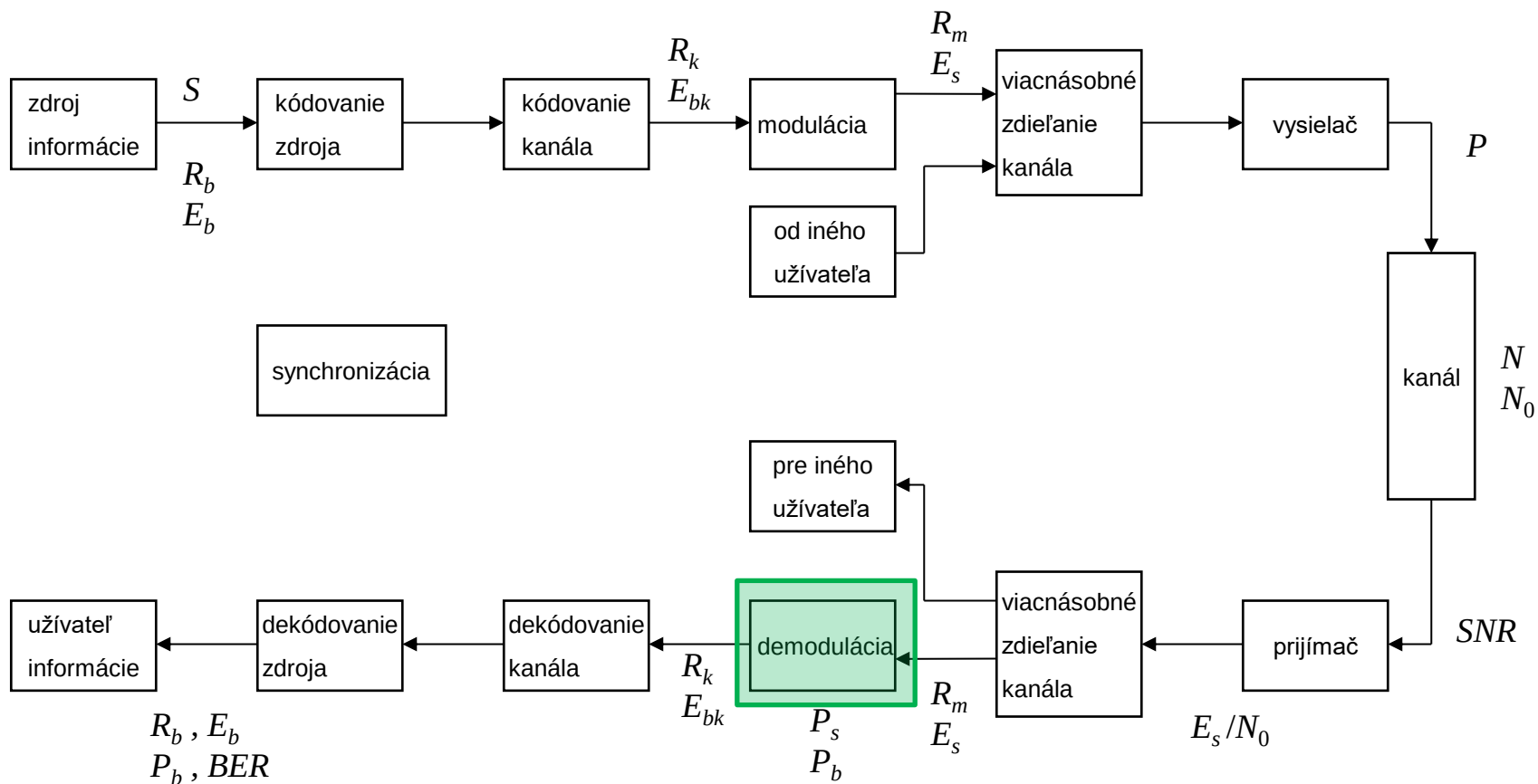


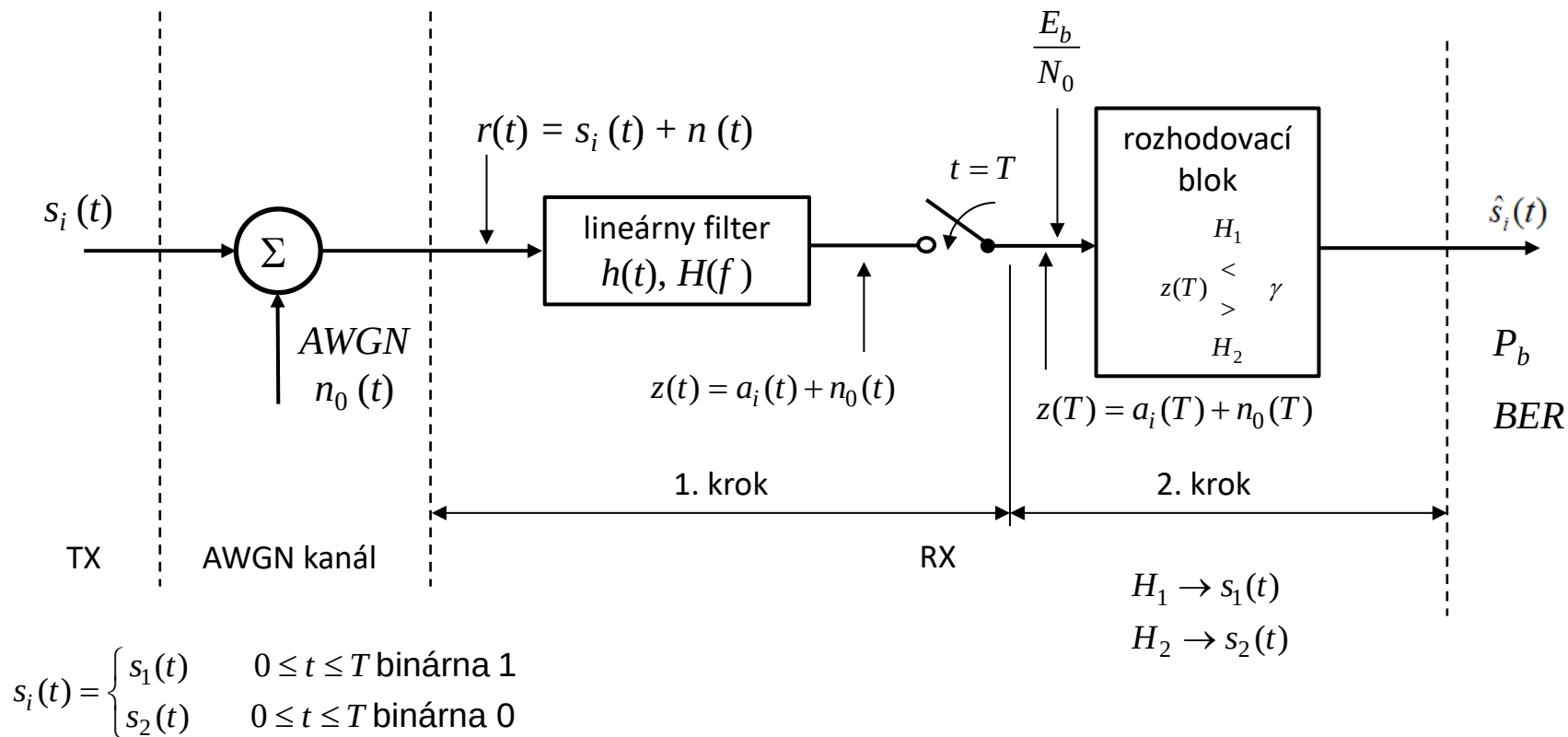
Distribučná funkcia normálneho rozdelenia

zdroj: https://en.wikipedia.org/wiki/Normal_distribution.



Digitálny prenosový systém:





Detektor binárných signálov

$s_i(t)$ - vyslaný signál

$n_0(t)$ - Gaussova náhodná premenná s nulovou strednou hodnotou $\alpha = 0$

$r(t)$ - prijatý signál

$z(t)$ - výstup lineárneho filtra - Gaussova náhodná premenná

$a_i(t)$ - výstupná zložka spôsobená signálom $s_i(t)$

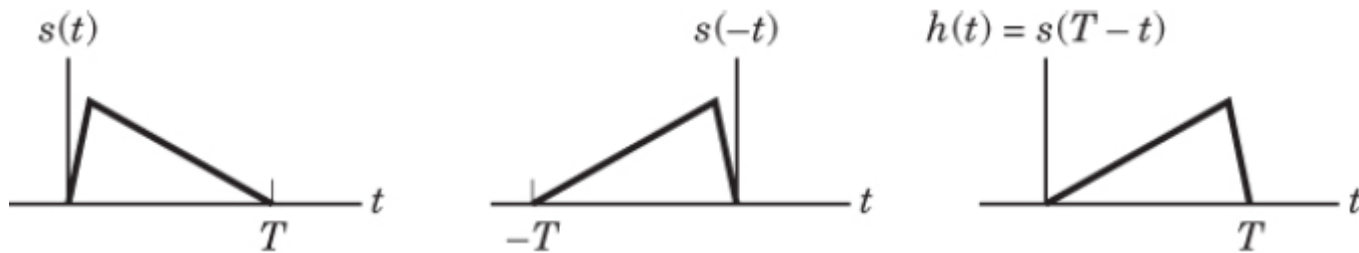
$n_0(t)$ - výstupná zložka spôsobená šumom $n(t)$

$z(T)$ - testovacia štatistika = napätie úmerné energii prijatého signálu

H_1, H_2 - testovacie hypotézy

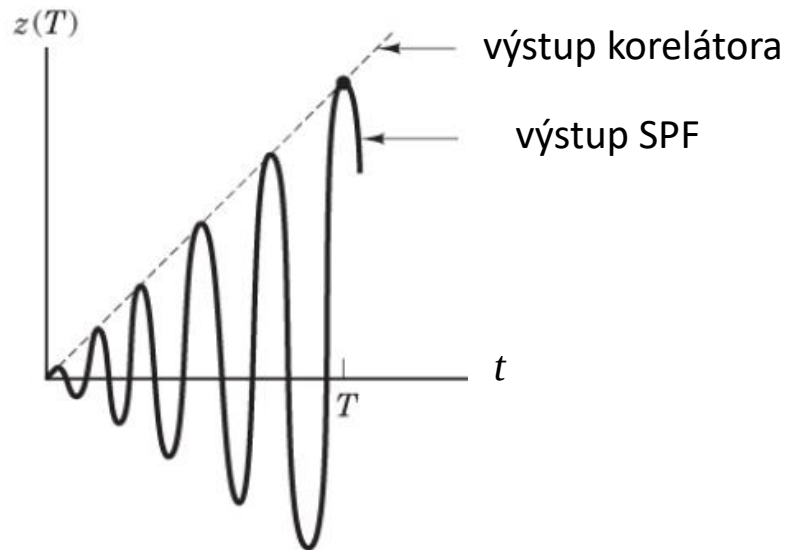
γ - rozhodovacia úroveň

$\hat{s}_i(t)$ - odhad vyslaného signálu



Charakteristika SPF

zdroj: B. Sklar, F. Harris.: Digital Communications, Pearson Education, Inc., 2021



Porovnanie analógového SPF a korelátoru

zdroj: B. Sklar, F. Harris.: Digital Communications, Pearson Education, Inc., 2021

