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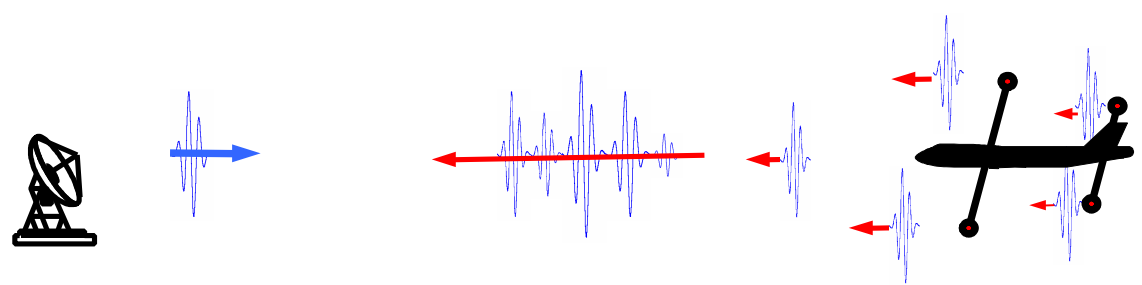
zig@uwbgroup.ru

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Traditionally in a radar-location narrow-band pulse or continuous harmonious signals are applied. The aspiration to receive more information about targets has led to use in radar systems ultra wide band (UWB) signals. Features of radiation, propagation and reflection of UWB signals made impossible application of optimum detection-algorithms of narrow-band signals for detection of UWB radar-tracking signals. In this paper are considered search optimum and quasi-optimum algorithms of detection of UWB radar-tracking signals. Results modeling of algorithms are shown.

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• s(t)   n(t)

• –   ,

σ

,   τ,

,   N

N$_0$.

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$$s(t) = \sum_{k=0}^{M-1} u_0(t - kT) \qquad (1)$$

u$_0$(t) –   (   )   τ   :

:

$$T_0 = (M-1)T + \tau \qquad (2)$$

x(t) = s(t) + n(t)   :

$$\ln \Lambda = \ln \frac{W\left[x(t)\Big/Z_1\right]}{W\left[x(t)\Big/Z_0\right]} = \sum_{k=0}^{M-1}\int_{-\infty}^{\infty} x(t)u_0(t-kT)dt - \frac{1}{2}\sum_{k=0}^{M-1}\sum_{l=0}^{M-1}\int_{-\infty}^{\infty} u_0(t-kT)u_0(t-lT)dt \quad (3)$$

:

$$\ln \Lambda = \sum_{k=0}^{M-1}\int_{-\infty}^{\infty} x(t)u_0(t-kT)dt - \frac{1}{2}\sum_{k=0}^{M-1}\int_{-\infty}^{\infty} u_0^2(t-kT)dt \qquad (4)$$

s(t)   (   ),   .

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$$\Re_1 = -\frac{1}{2} \int\limits_{-\infty}^{\infty} \left[x(t) - \sum_{k=0}^{M-1} u_0(t - kT) \right]^2 dt \qquad (5)$$

$u_0(t_1)$,

,   ,   (5)

(   )

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$$\Re = L = \int\limits_{0}^{\tau} \left[\sum_{k=0}^{M-1} x(t + kT) \right]^2 dt \underset{<}{\overset{>}{\Lambda_0}} \qquad (6)$$

$\Lambda_0 -$.

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x(t)

X^2 $\int_0^\tau$

$\times$ $\int_0^\tau$ Σ $\times$ $\boxed{}$ Z_0/Z_1

X^2 $\int_0^\tau$

$\Delta(t-\ _0)$ U

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Z_0/Z_1

x(t) $\times^2$ $\int_0^\tau$ $\times$ $\sum^M$ $\times$ $\boxed{}$

$\Delta(t-k\ -\tau)$ $\Delta(t-\ _0)$ U

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Z_0/Z_1

x(t) $\times$ $\int_0^\tau$ $\times$ $\sum^M$ $\times$ $\boxed{}$

$\Delta(t-k\ -\tau)$ $\Delta(t-\ _0)$ U

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τ ,   , $\tau=N\cdot$

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, $L_R=N\cdot c\ /2$,   ,

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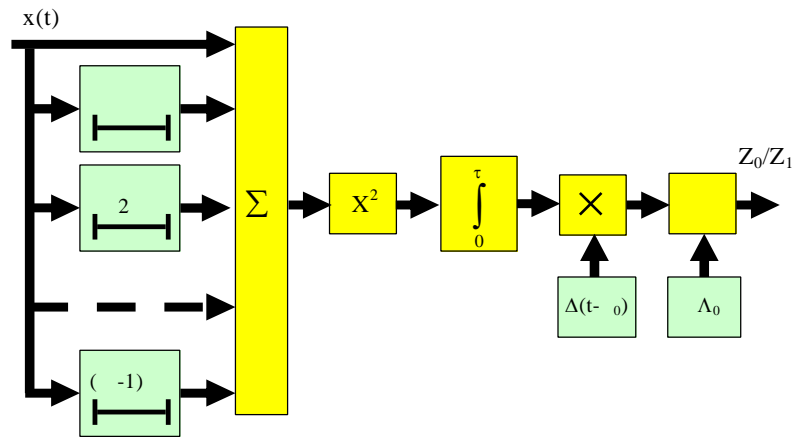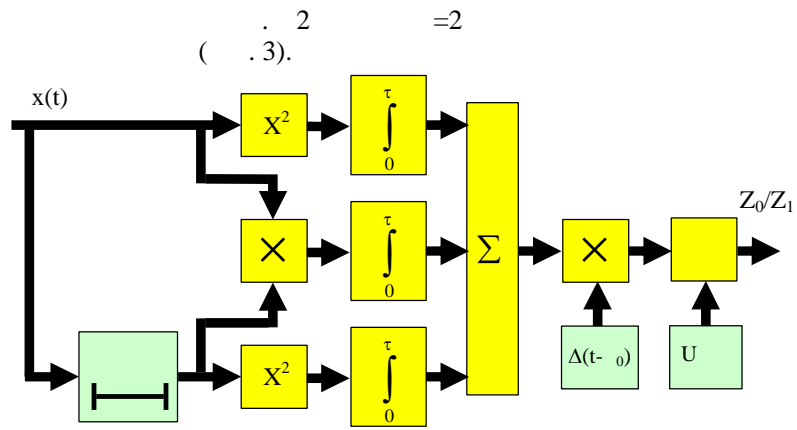
. 6.   =5. N=2.

. 7.   =5. N=10.

. 8.   =2. N=60.

. 9.   =10. N=60.

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M>2 (=2
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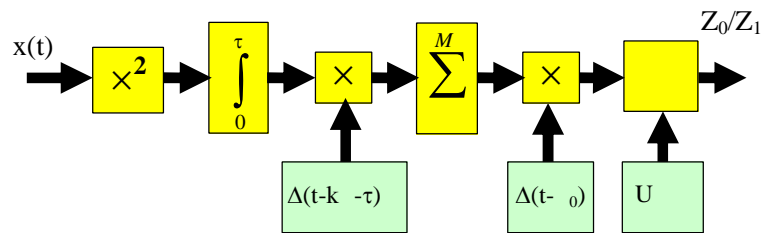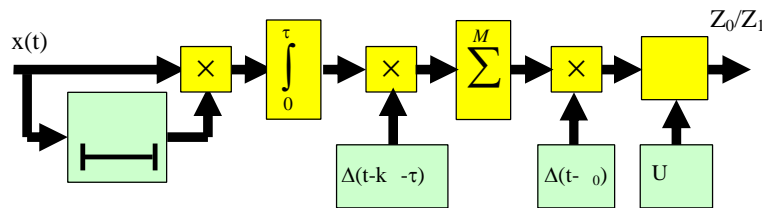N   .
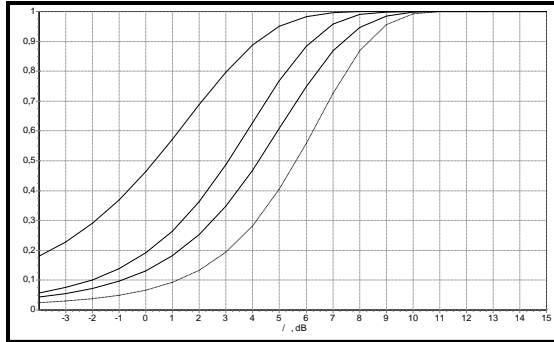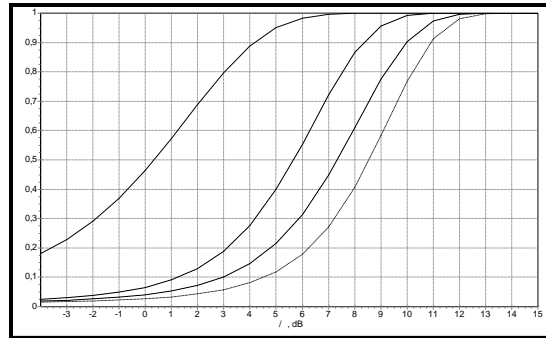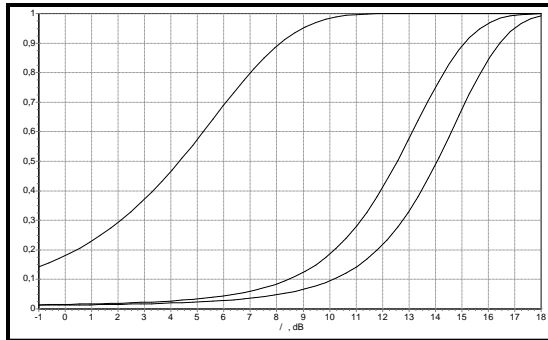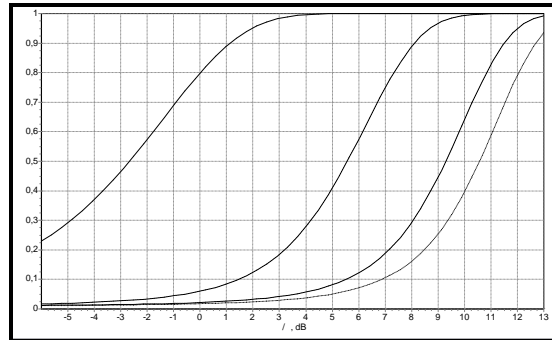(   )
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[3] –   . .   .   , 1979,   12
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[5] –   . .   -
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