

621.398.96

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**LTE**

– OFDM.

LTE.

: OFDM,

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OFDM,

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(Inter Symbol

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Interference, ISI).

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802.11b  
11 /

CCK-

( )

( Orthogonal Frequency Division  
Multiplexing , OFDM ).

OFDM

3,2  
- 0,8

LTE

4  
OFDM,  
DVB, Wi-Fi WiMAX.

OFDM

$S_k(t) = a_k$

$\sin [2\pi (f_0 + k \Delta f)t]$

OFDM-

OFDM-

(Cyclic Prefix) -

OFDM

(OFDMA) -

OFDMA  
Frequency Division Multiplexing,

OFDM ( Orthogonal

(OFDM).  
OFDM

( IFFT )

( FFT ),

OFDM

OFDM,

Guard Interval , GI) -

$$S(t) = \sum_{m=0}^{M-1} A_m x_m e^{j\omega_m t}, \quad (1.1)$$

M - ;  $w_m$  - m-  
c ;  $A_m$  - ;  $x_m$  -

y(t) ; OFDM

$$y(t) = \sum_{q=1}^Q \lambda_q s(t - \tau_q) + \eta(t), \quad (1.2)$$

Q - ;  $\lambda_q$  -  
q - ;  $\tau_q$  -  
q - ;  $\eta(t)$  -

1.1 1.2, :

$$y(t) = \sum_{m=0}^{M-1} g_m x_m e^{jw_m t} + \eta(t), \quad (1.3)$$

$$g_m = A_m \cdot \sum_{q=1}^Q \lambda_q e^{-jw_m \tau_q} .$$

OFDM.

$$y_n = \sum_{m=0}^{M-1} g_m \cdot x_m e^{jw_m n T_0} + \eta(t) ;$$

$$n = 1; \dots N, \quad (1.4)$$

$$y_n = y(nT_0) -$$

$$\eta_n = \eta(nT_0) -$$

$T_0$  -  
N -

$$2\sigma_q^2;$$

LTE  
OFDM :  
OFDM - 4,69 ;  
OFDM - 66,7 ;  
2048 ( ;  
72 ) ;  
15 ;  
QPSK ( 4QAM ) 2 ;  
16QAM 4 ;  
64QAM 6 .  
OFDM  
(PARP - Peak to Average Power Ratio).  
PARP

Uplink

Carrier Frequency-Division - SC-FDMA (Single-Multiple Access).  
OFDMA  
SC-FDMA  
OFDMA  
SC-FDMA -

OFDM

OFDMA :

SC-FDMA-

OFDM.

Af.

SC-FDMA :

FDMA OFDMA

SC-

OFDM

OFDM

SC-FDMA,

OFDMA.

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LTE

- OFDM.

LTE.

: OFDM,

USE OF TECHNOLOGY ORTHOGONAL FREQUENCY-DIVISION MULTIPLEXING IN LTE

G.Y. Byshovets

The paper considers one of the most common transmission technologies - OFDM. We describe the main advantages and disadvantages of technology in LTE.

Keywords: OFDM, intersymbol interference, modulation.