

(Efficient cooperative re-transmission scheme for the future tactical data link)

* , * , *

automatic repeat request, H - ARQ (hybrid scheme) (cooperative communication scheme) (incremental relaying)

I .

(time division multiple access, TDMA) (cooperative communication) (diversity)

[2]. [3] (ad hoc network) (dedicated access) (contention access) (time slot reallocation) [1]. (throughput)

가 [4]

가 [3, 4] (relay node) (source node) (destination node) (central control node) 가

(point to point)

communication)

(point to multi point communication)

(Rayleigh block fading)

가

i $s_i[n]$
 j

$$y_{ji}[n] = h_{ji}[n]s_i[n] + z_j[n]. \quad (1)$$

$h_{ji}[n]$ i j
 $z_i[n]$

[4, 5]

가

$h_{ji}[n]$ $z_i[n]$
 0 1 N_o 가

(complex Gaussian random variable)

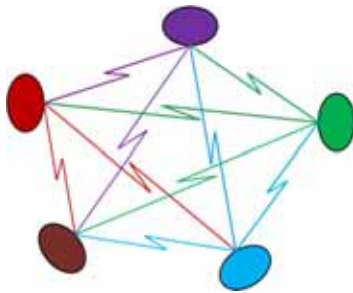
(broadcasting)

II.

(Poisson distribution)

(arrival rate) λ λt 가
 t m

1.



1

1 K

$$P\{N(t)=m\} = \frac{e^{-\lambda t}(\lambda t)^m}{m!}. \quad (2)$$

b

(bit), l (symbol)

M (block)

(codeword)

(encoding) 1

$$L = \frac{l}{M}$$

$$R = \frac{b}{L} \quad \text{가}$$

(complexity)

(one hop)

가

M
(repetition code)

가
(decoding)

(diversity combining)
가

가 , (mutual information)

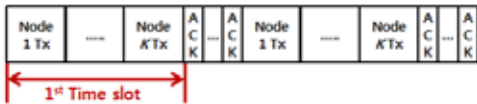
k , i
 j
가 $SNR_{k,ij}$, $h_{k,ij}$

[4].

$$I[m] = I\left(\sum_{k=1}^m SNR_{k,ij} |h_{k,ij}|^2\right) \quad (3)$$

$$= \frac{1}{2} \log\left(1 + \sum_{k=1}^m SNR_{k,ij} |h_{k,ij}|^2\right).$$

2.



2

2

가

ACK/NACK

, ACK/NACK

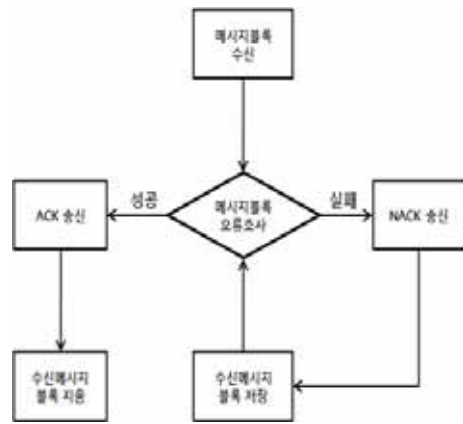
가

3

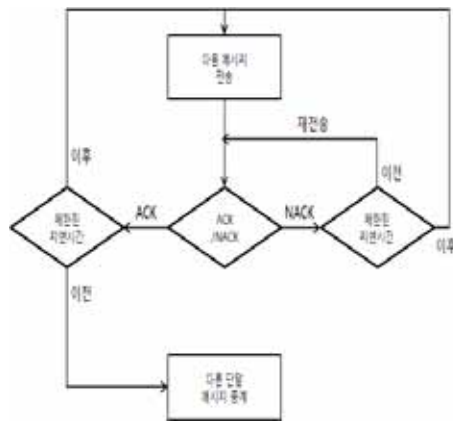
가

NACK

ACK



3



4

4

NACK

ACK

가

3.

ACK

ACK/NACK

k

X_k

5

X_{k_0} ,

5

X_{k_1} ,

0.5

X_{k_2} 가

가

$$X_k = X_{k_0} \cup X_{k_1} \cup X_{k_2}. \quad (4)$$

(drop ratio)

$$\{X_{k_0} \cap X_{k_1} \cap X_{k_2}\} = \emptyset. \quad (5)$$

X_{k_1}

X_{k_1}

가

가 1

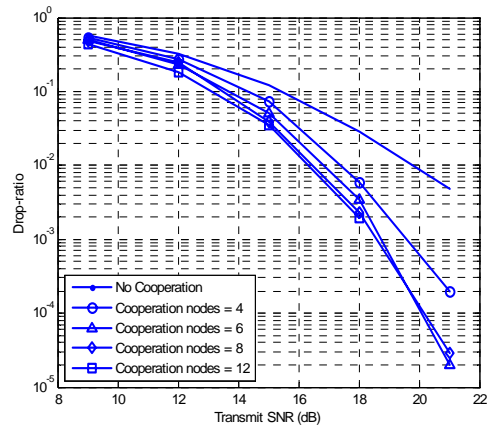
가

X_{k_1}

가 2

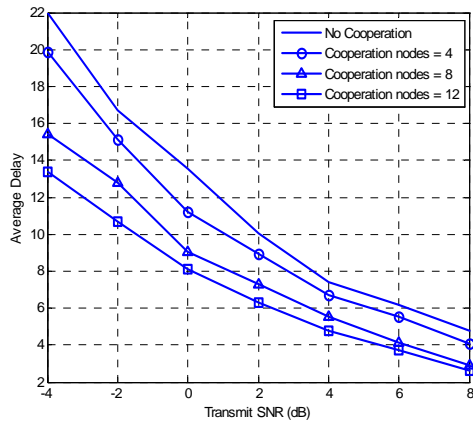
가

가 가



가

가



6

6

가

가

III.

IT

(IITA-2008-C1090-0801-0003)

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