

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl. ⁷
H04Q 7/26

(11)
(43)

2002 - 0072340
2002 09 14

(21) 10 - 2001 - 0012148
(22) 2001 03 09

(71) 890 - 20

(72) 502 1202

(74)
:

(54)

CDMA

5

CDMA, SMS

1 CDMA

2

3

4

5

<

>

100: 200:

300: 400:

500: BS1:

BS2~BS3: RE1~RE3:

(Code Division Multiple Access: CDMA)

(Repeater Enhancer: RE)
(Base Station: BS)

1980

가

1990

가

3

(, 21, IMT - 2000)가

(Time Division Multiple Access: , 'TDMA'

) GSM(Global System for Mobile communication) ,

(, 'CDMA') IS - 95((TIA))

IS - 95

soft hand - over)

가

CDMA

가

3

, 가 , 2001 가 가 가

가 , .

A) 가 (Time Difference Of Arrival: TDO
) (Pilot Strength Measurement Message: PSMM)

() .

가 가 가 ,

() ,

CDMA

CDMA

() ,

:

가 , 가 ; ;

, , ;
 , 가 가 ;
 가 , ;
 .
 , , ;
 : , ;
 , 가 가 ;
 가 , ;
 가 , ;
 ;
 , , 5 (=4.165μs) ~ 25 (=20.825μs) 가 .
 , , 가 .
 , 가 () 가 .
 , , 가 .
 , , .
 1 CDMA 가 , 2
 가 , 3
 가 , 4 , 5
 CDMA 가 .
 1 .

1 CDMA (100) (BS1~BS3) (RE1~RE3) (100) (BS1~BS3)
 (pilot pseudo noise phase signal)

(200) (BS1~BS3) (RE1~RE3) /

(300) (Public Switched Telephone Network: PSTN) (200)

(400) (BS1~BS3) (200) (100) (100)가

3) (500) (100)가 (BS1~BS3) (RE1~RE3) (400)

2 5

(100) (BS1~BS3) (RE1~RE3) (BS1~BS3)
 (SAW Filter) $4.7\mu s$ $1.7\mu s/km$ (RE1~RE3)가 (BS1~BS3)
 (BS1~BS3) (BS1~BS3) (5chip)
 가 (100)가 64chip (5~25)가
 chip) 가 (RE1~RE3) 가 (BS1~BS3) 가

CDMA MA (pilot signal offset) (BS1~BS3) , CD
 (BS1~BS3) 가 2^{15}
 (chip) 1

1

$$chip = \frac{1}{1.2288 \times 10^6} [sec] = 833 [ns]$$

2

$$\frac{3 \times 10^8}{1.2288 \times 10^6} = 244.14 [M]$$

(=512) (BS1~BS3) 2^6 (=64) 가 2^9
 (BS1~BS3)

2 (BS1~BS3) (100) (BS1) (BS2, BS3)

2 (BS1~BS3) 가 64 (BS1) 0 (BS2, BS3) 64, 128

3 (BS1~BS3) 가 (100) 3

3

$$\begin{aligned}
 &PILOT_PN_PHASE \\
 &= (PILOT_ARRIVAL + (64 \times PILOT_PN)) \bmod 2^{15} \\
 &= (\Delta\tau + (64 \times PILOT_PN)) \bmod 2^{15} \\
 &= (\tau_2 - \tau_1 + (64 \times PILOT_PN)) \bmod 2^{15}
 \end{aligned}$$

$PILOT_PN$ (reference time) (offset index) $PILOT_ARRIVAL$ (100)가 가
 (reference time) (100) 2^{15}

3 (100)가 (reference) (BS1) τ_1
 (100) 가 (100) (reference)
 (BS2, BS3) (BS1) (3) β)
 $PILOT_ARRIVAL \cdot (2^{-1})$ (100) (BS1) β
 (BS2, BS3) (100) 2^{15}
 (BS1) (BS2, BS3) (BS1)
 (BS2, BS3) (BS2, BS3) (100)
 (100) (BS1~BS3) (search window size) ()
 5~25) $\frac{1}{8}$ 가 가)

3 (RE1~RE3)가 (BS1~BS3) (RE1~RE3)가
 , CDMA 가 (RE1~RE3)가

E3) 4 (BS1~BS3) , (100)가 (RE1~R
 (BS1~BS3) (RE1~RE3)
 (multipath) 5 (, 244.14×5=1220[M])가
 가 4 (100) (BS1)
 τ₂ (S101) (5~25)
 (S102) (BS1) τ₁
 가 (S103). , 4 τ₁ (S104) τ₁
 (BS1) , τ₂ 가 (RE1) , (i-1)
 (RE1) τ₁
 (S105).

(100) (BS1) (BS2, BS3) 가 (S101),
 가 τ₂ 가 (BS2, BS3)
 (RE2, RE3) (, 5~25) (S102) (BS2, BS3)
 가 가 (S103), 가
 τ₂ (BS2, BS3) (S106), τ₂
 τ₄ (RE2, RE3) (S107).

(, 5~25) , ((BS1~BS3)
) (RE1~RE3)

(100) (RE1~RE3) (BS1~BS3)
 가 , (100) (BS1~BS3)
 가 (100)

(BS1) (100) (BS1~BS3)
 (paging channel) , (100) (BS1) (BS1~B
 S3) (Short Message Service: SMS) (access channel)
 (BS1) , (BS1) (100) (BS1~
 BS3) .

(BS1) (BS1~BS3) (200)
 (400) , (400) (500)
 (BS1~BS3) (,) (100)

(100) 4 .

4

$$\begin{aligned} \sqrt{(X_1-X_0)^2+(Y_1-Y_0)^2}-\sqrt{(X_2-X_0)^2+(Y_2-Y_0)^2} &= mt_c c \\ \sqrt{(X_2-X_0)^2+(Y_2-Y_0)^2}-\sqrt{(X_3-X_0)^2+(Y_3-Y_0)^2} &= (n-m)t_c c \\ \sqrt{(X_3-X_0)^2+(Y_3-Y_0)^2}-\sqrt{(X_1-X_0)^2+(Y_1-Y_0)^2} &= -nt_c c \end{aligned}$$

, X Y (BS1~BS3) , c (()
) , X₀ Y (100)

, (BS1~BS3) (X Y) , (100) (X₀ Y) .

, 가 가 () , () .

, CDMA () .

, CDMA , ,

, 가 .

(57)

1.

:

;

가 ,

가

;

2.

1 ,

;

3.

1 2 , , ;

, 가 가 ;
가 , ;
가 ,

4.

3 , ,
5 (=4.165 μ s) ~ 25 (=20.825 μ s) 가

5.

3 , ,
가

6.

;
;
가 가 ;
가 , ;

가 ,
;

, ;
,

7.

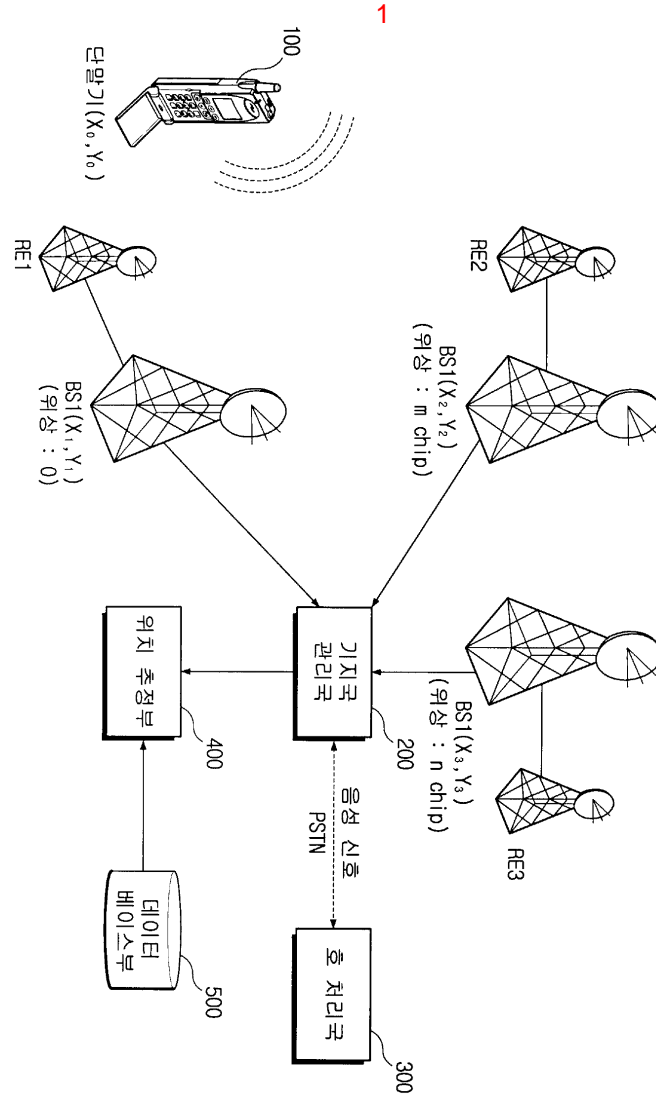
6 , ,

5 (=4.165 μ s) ~ 25 (=20.825 μ s) 가

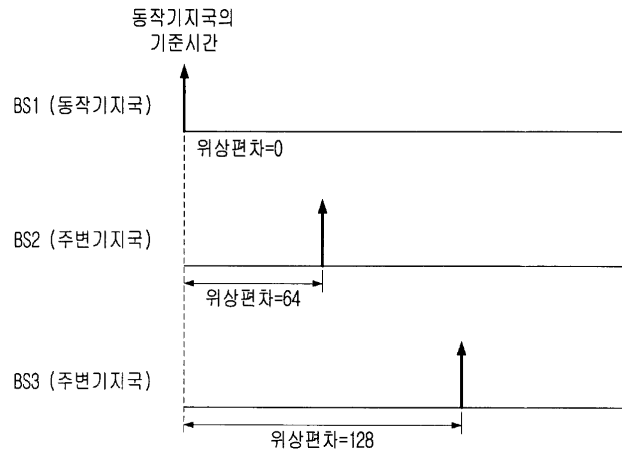
8.

6 , ,

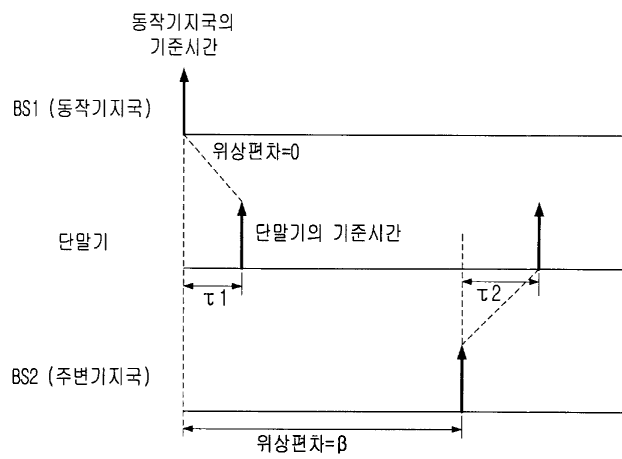
가



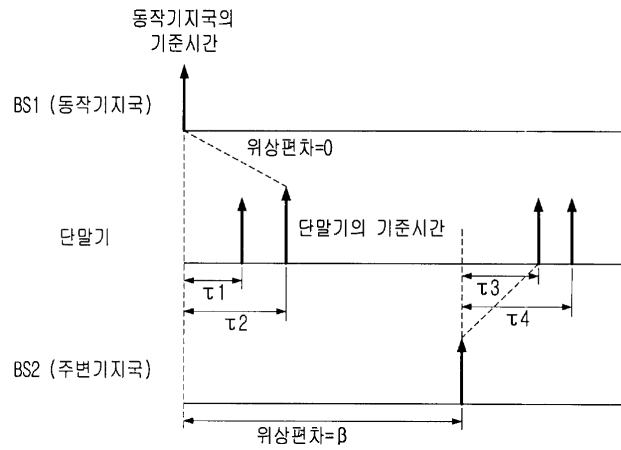
2



3



4



5

