

(19)  
(12)

(KR)  
(B1)

(51) 。 Int. Cl.7  
H04L 12/28

(45)  
(11)  
(24)

2004 01 13  
10-0415114  
2003 12 30

(21) 10-2001-0074705  
(22) 2001 11 28

(65)  
(43)

10-2003-0044116  
2003 06 09

(73) 416

(72) 91 327 807

(74)  
:

(54)

(ATM)

ATM

가 ATM

ATM 가

ATM

ATM

ATM

IMA

4

IMA, ATM, ALL2, MUX, CELL, VOICE

- 1 ATM IMA
- 2 1 ALL2 IMA ATM
- 3 2 ALL2
- 4 ALL2 AAL2
- 5 ALL2 가
- 6 ALL2 IMA

7 IMA  
 8 가 IMA  
 9  
 10 9 가  
 11  
 12 11 가  
 13 가 ATM  
 14 가

ATM(Asynchronous Transfer Mode) IMA(Inverse Mux Assembly)  
 IMA  
 (Inverse Mux Assembly) 가 ATM(Asynchronous Transfer Mode) IMA  
 M ALL2(ATM Adaptation Layer 2) IMA AT  
 ATM 가  
 E1 (53 ) 가 (ATM ) . ATM AT  
 M ATM IMA  
 1 (ATM : Asynchronous Transfer Mode) (IMA : Inverse Mux As  
 ssembly) IMA  
 M Adap Layer 2 Switch)(102) (Voice Sources)(101) (101) AAL2 (AT  
 (103,105) (Low and High Rate Data Sources)(103,105) IMA  
 ATM (107) AAL5 (AAL5 framers)(104,106) IMA  
 (108) AAL2 (109) AAL2 (109) ATM (108) ATM  
 ATM (108) AAL5 (AAL5 de-framers)(111,113) AAL5  
 (111,113) (Low and High Rate Data Destinations)  
 AAL2 ATM , AAL5  
 (Data Stream) ATM  
 1 , ALL2 (102) 가 ATM  
 , ATM internal-fragment' 가  
 . internal-fragment . AAL5  
 (104 105) 가 ATM  
 ATM (IMA 'with IMA' )(107) ALL2 (102) ALL5  
 (104 105) ATM ATM T1  
 M IMA (1.544Mbps), E1 (2.048Mbps), D3 (34Mbps), (Synchronous Transfer Mode:  
 STM) E1 가 ATM  
 (109) ATM (108) ATM ALL2  
 가 , ALL5 (111 113) ATM (108) ATM (110)  
 (112 114)

2 1 AAL2 (102) IMA ATM (107)  
 4) , AAL2 (102) ATM (107) (201, 203) (202, 20  
 , AAL2 (102) AAL2 (201) 3 가 ATM  
 (Multiplexer)(302) (Input Queue)(301)  
 , AAL2 (201) 가 ATM 가  
 ATM , AAL2 (201) 가 ATM  
 ATM , AAL2 ATM 가 ATM ATM  
 가 (301) , ATM (internal-fragment) , AAL2 (201)  
 , ALL2 ATM ATM 가 IMA  
 가 가

ATM(Asynchronous Transfer Mode) IMA(Inverse Mux Assembly)

ATM  
 ATM(Asynchronous Transfer M  
 ode) ATM , ATM  
 ATM ATM  
 ATM(Asynchronous Transfer Mode) ATM  
 ATM ATM 가 ATM ATM

ATM(Asynchronous Transfer Mode) IMA(Inverse Mux Assembly)  
 AAL2

4 , ATM IMA ALL2  
 , ALL2 2 ALL2 (102) AAL2 (201) , (201)  
 (input Queue)(401) , (401) (voice sources) ATM  
 (402) , (402) ATM (rate) (403)가 가 (40  
 3) 가 가 가  
 ATM (Vocoder) 가 (40  
 2) (403) , (401) 가 (40  
 TM (403) (403)  
 5 , (Vocoder Type)

(Assigned Voice User Number)' (403) 5  
 ATM  
 cdma2000 8kbps 13kbps  
 EVRC(Enhanced Variable Rate Codec) Q-CELP(Qualcomm-Code Excited Linear Prediction)  
 Type#1 8kbps EVRC Type#2 13kbps EVRC  
 가 가  
 (402)  
 (403) 6 (402) 가 IMA  
 7 ALL2 (102) (403)가 IMA  
 , IMA ( 2 203) 가  
 AAL2 (120) (403) 가  
 8 (403) (403) 801 IMA (IM  
 8 가 ) (403) 803 가 6  
 (403) IMA (Rate)'  
 ATM  
 (Call Processor) 가  
 (403) 가  
 9 (403)가  
 9 가 (403)  
 (403) 5  
 10 (403) (403) 1001 가 ,  
 10 가 (403) 1003 가 가 5 가  
 (403) 1 가 가 가 8kbps EVRC , ALL2  
 (201)  
 11 (403)가  
 가 (403) 5  
 (403)  
 12 (403) (403) 1201 가  
 12 가 (403) 1203 5  
 1 (403)  
 02) ATM ALL2 (4  
 13 (403)가 ALL2 (402) ATM  
 가 (403) 가 가  
 13 (403) 1301 (403) 1303 (401)  
 (counter Coin) (Given Coin)  
 'Coin Interval' 가 ATM  
 ATM  
 14 < 1>



ocoder) 가 , cdma2000 1x , AAL2 , 8kbps QCELP (V 6.7  
 kbps , AAL2 , 가 , (sector) 100kbps  
 가 , cdma2000 1xEV - DO(Evolution in Data Only)  
 (sector) 600kbps 가 , IMA 2 E1  
 IMA ATM ATM 가 , IMA 2 E1  
 , IMA 3.84Mbps(= 1.92 Mbps x2)  
 E1 IMA 105 가 3 (Sector) (= 1.8Mbps) (= 300kbps), 3 (Sector) 가 , AAL2 (= IMA 가 가 1 .

[ 1 ]

	AAL2 - Switch IMA Rate		
	1Mbps	1.92Mbps	3.84Mbps
1x Voice Mean Delay	10.85 ms	9.9 ms	9.5ms
1x Voice Peak delay	22.34 ms	20.4 ms	19.6ms
1x Voice Throughput	100 %	100 %	100%
1x Data Mean Delay	7.2 ms	58.8 ms	가
1x Data Peak Delay	21.7 ms	251.8 ms	가
1x Data Throughput	100 %	100 %	72%
Do Data Mean Delay	3.8 ms	57.5 ms	가
Do Data Peak Delay	24.2 ms	252.8 ms	가
Do Data Throughput	100 %	100 %	71%
Available Bandwidth	0.6 Mbps	0.6 Mbps	0.6Mbps
Voice Q Mean Size	0.3 cell	0.4 cell	0.57cell
Voice Q Peak Size	1 cell	1 cell	1cell
Data Q Mean Size	23 cell	308 cell	가
Data Q Peak Size	162 cell	1382 cell	가

1 'Mean Delay' , 'Peak Delay' , 'Throughput'  
 , 'Available Bandwidth' , IMA  
 , 'Q Size' IMA ATM 가 가 3.84Mbps , IMA A  
 IMA AAL2 IMA ATM 'internal - fragment' ,  
 AAL2 , ATM , ATM 'internal - fragment' ,  
 , 가 1Mbps 1.92Mbps . 1Mbps 300kbps  
 , 1.92Mbps 1Mbps ,  
 100% ,  
 가 가 ,  
 , ATM AIM , AAL2 IMA  
 IMA ,

1.

2.

3.

4.

5.

6.

7.

8.

ATM(Asynchronous Transfer Mode)

ATM

(Queue)

ATM

ATM

9.

8

10.

9

가 ATM

11.

10

$$N_{max} = \frac{\text{Output Rate}}{\text{Control Interval}} \times \text{ATM Cell Size}$$

$$\text{Output Rate} = \alpha + \text{Input Rate}$$

$$= \alpha + \sum (\text{Vocoder Rate} \times \text{Voice User Number})$$

Nmax

가

ATM

Vocoder Rate

Control Interval

Voice User Number

12.

10

ATM

가

ATM

13.

10

ATM

가

ATM

14.

ATM(Asynchronous Transfer Mode)

ATM

1

ATM

ATM

ATM

2

가

ATM

3

15.

14

16.

15 , 2 , 가 ATM

17.

16 , .

$$N_{max} = \frac{\text{Output Rate}}{\text{Control Interval}} \times \text{ATM Cell Size}$$

$$\text{Output Rate} = \alpha + \text{Input Rate}$$

$$= \alpha + \sum (\text{Vocoder Rate} \times \text{Voice User Number})$$

가 ATM , Control Interval

Vocoder Rate

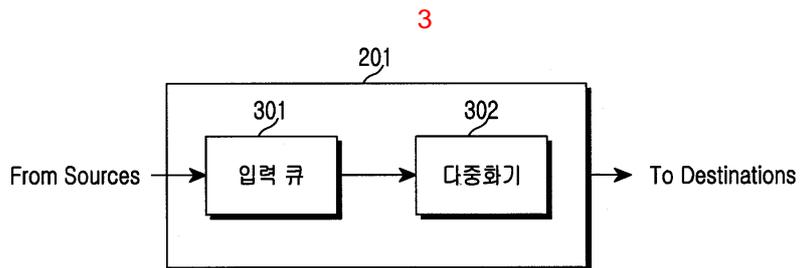
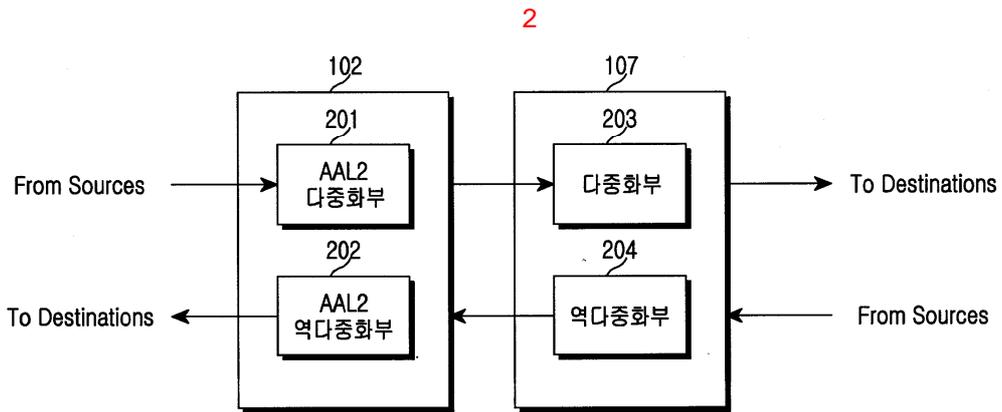
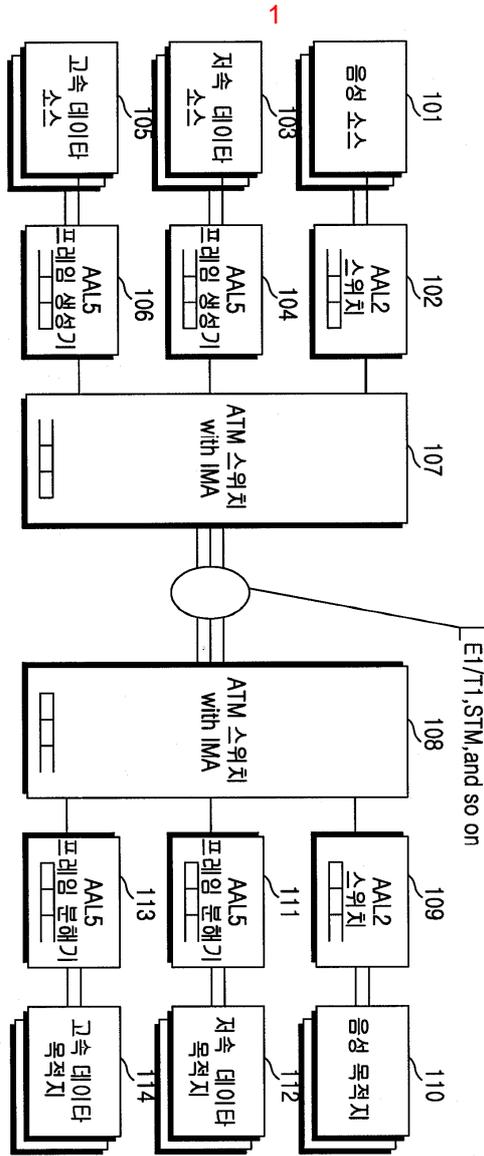
Voice User Number

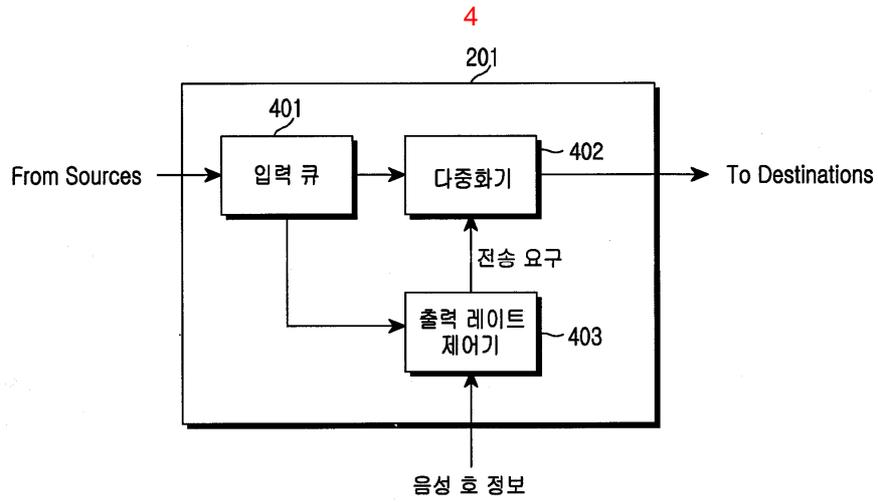
18.

16 , 2 , ATM ATM 가

19.

16 , 2 , ATM ATM 가





5

보코더 타입	음성 사용자 수
Type#1	X
Type#2	Y

-----

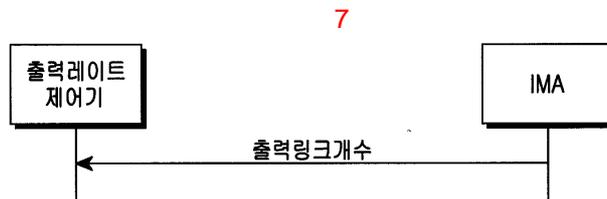
Type#n	Z
--------	---

6

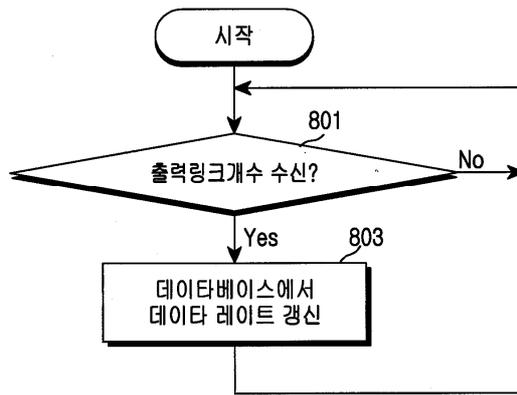
IMA 번호	데이터 레이트
#1	K

-----

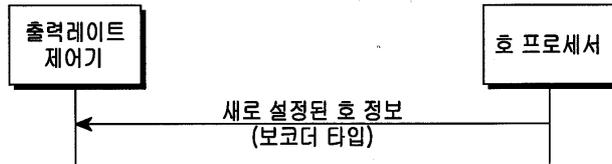
#n	m
----	---



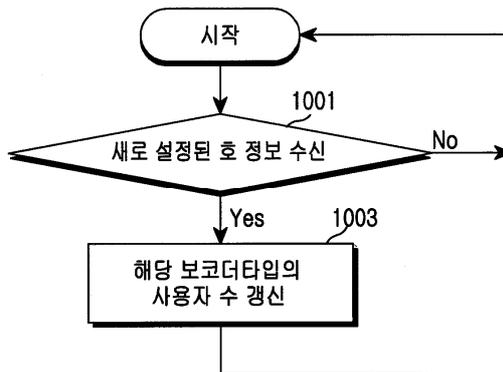
8



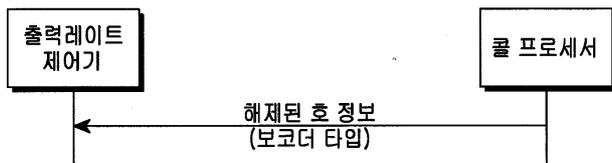
9



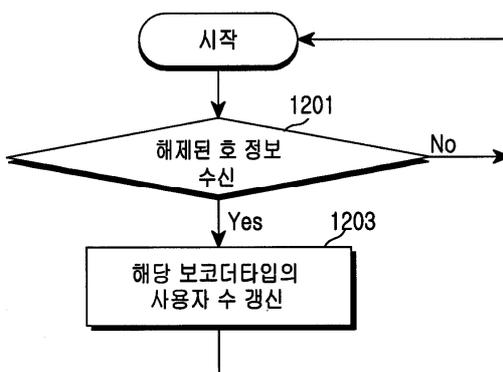
10



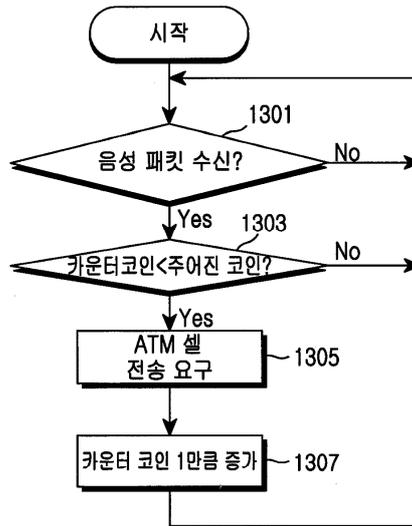
11



12



13



14

