

(19) (KR)
(12) (A)

(51) 。 Int. Cl.7
H04L 12/66

(11)
(43)

10-2004-0048389
2004 06 09

(21) 10-2004-0030680 ()
(22) 2004 04 30
(62) 20-2003-0009087
: 2003 03 26

(30) 60/367,945 2002 03 26 (US)
60/367,946 2002 03 26 (US)
60/367,948 2002 03 26 (US)
60/367,949 2002 03 26 (US)
60/367,950 2002 03 26 (US)
60/367,975 2002 03 26 (US)
10/329,098 2002 12 23 (US)

(71) , 19801, , 300, 527

(72) 19422 135

08043 31

11804 20

11050 70

- 11746 305

2 4 2 20 206

(74)

:

(54) I u - P S I P R A N I P L
A N

가 LAN(TDD-RLAN) (mobility)
(RAN IP)
UMTS

AAA

12

1 3GPP UMTS .

2 1 .

3 , ,

1 2 .

4 , 가 RLAN UMTS .

5 4 .

6 RLAN UMTS , .

7 6 UMTS .

8 RLAN UMTS , , 4 UMTS .

9 RLAN UMTS , , 4 UMTS .

10a 10b RLAN IP v4 , 4, 8 9
IP .

11a 11b RLAN IP v6 , 4, 8 9
IP .

12 RLAN .

13 RNC RLAN .

14 RNC RLAN .

15 , .

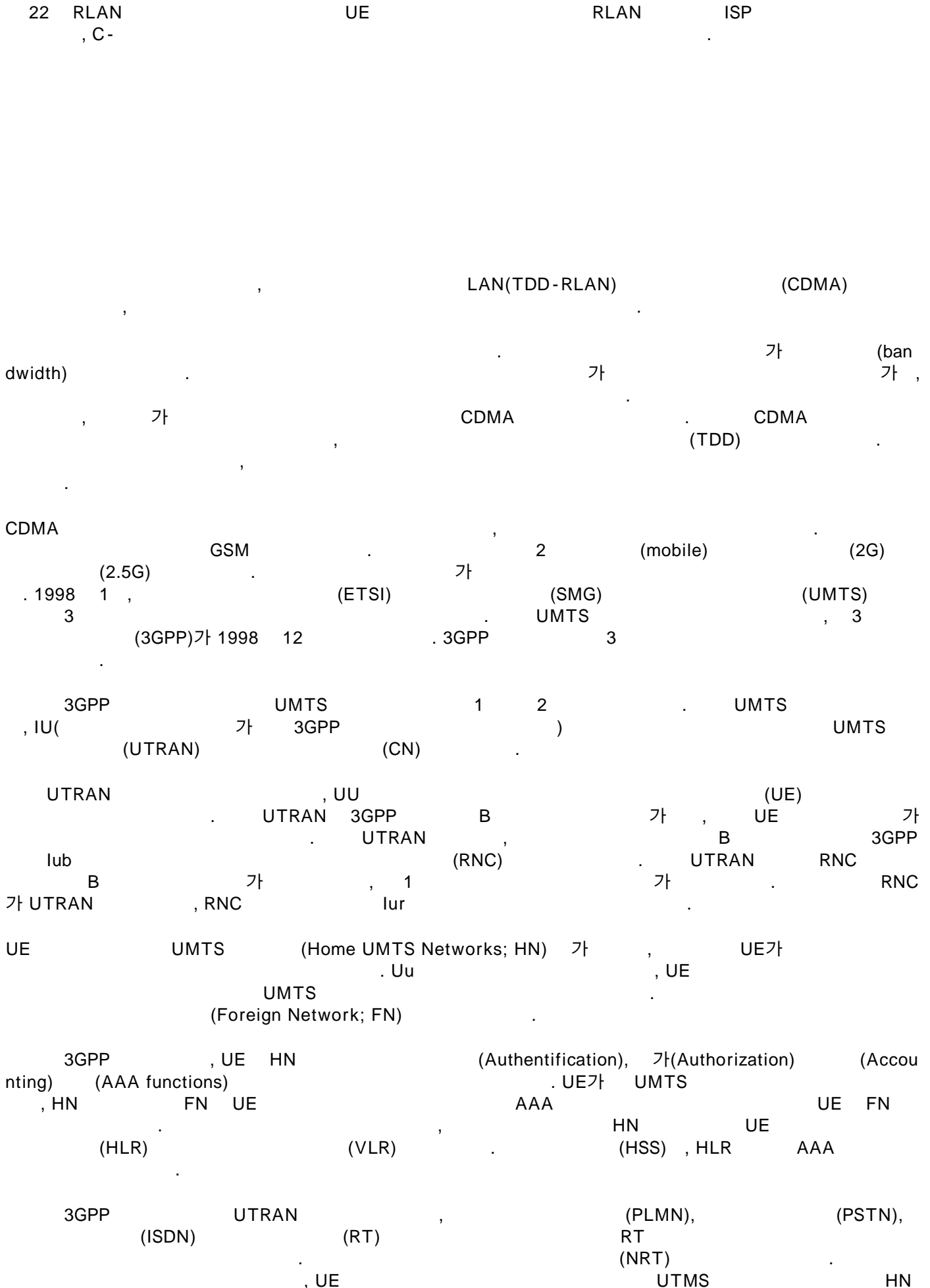
RLAN .

16 15 RLAN .

17 , RLAN (C-Plane) .

18 , RLAN (U-Plane) .

19, 20, 21 RLAN UE RLAN ISP
, U- , 가 .



ATM RLC/MAC (AAL2/ATM) . lub ATM , 2(AAL2) (/RLC/MAC) UMTS

lu (RANAP) . RANAP
 UTRAN , RNC SGSN/MSC
 / (SSCP/MTP) . RANAP AAL5 SSCP SSCOP ,
 (SCTP) IP lu-PS 7(SS7) 가 AAL5/ATM .
 , IP ATM RNC가 lur UTRAN
 3 SSCP (M3UA) SSCP, SCTP IETF가 SS7

UTRAN CN U- RNC MSC lu-CS
 Data Protocol) AAL5/ATM (GTP) AAL5/ATM , RNC SGSN UDP/IP(IP User
 GPRS lu-PS

UTRAN IP 가 .

N IP) (TDD-RLAN){ 가 (RA
 AAA } (stand-alone) UMTS .

RLAN (UE) , UE /
 RLAN UE TDD-CDMA (transceiver)
 RLAN RAN IP (RIP GW)가
 GPRS) RAN IP GGSN(

RLAN MA) , Uu UE TDD CDMA(W-CD
 RLAN

RAN IP 3GPP RLAN SGSN
 LAN RNC 가 , RNC IP RNC IP 가 , R

RLAN , CN UE AAA UE UE
 IP . RLAN GPRS , RLAN 가 , CN AAA UE TDD-CDMA RAN

UE RLAN UE RLAN
 GPRS 1 2 UE AAA
 2 UE가 RLAN 1 2 UE
 GPRS 1 2 UE
 GPRS 1 2 UE 가 RLAN , 1 2 UE
 GPRS 1 2 UE
 RLAN UE

. 1 2 UE . 1 2 UE 가 RLAN AAA
 , , GPRS .
 RS 가 가 AAA , CN UE AAA , RAN IP GP
 , AAA 2 UE CN . AAA CN
 GPRS .
 UE 2 UE 가 RLAN 가 , 2 UE
 가 RLAN GPRS 가 .
 2 UE 2 UE가 RLAN 가 GPRS
 UE , 2 UE 가 RLAN GPRS 2
 - , RLAN U- C
 C- , SGSN 가 RAN IP U- U- C-
 , 가 , RAN IP U- C- IP
 , (PCM) 가 RLAN
 , U- IP C- (RNC가 RLAN)
 , RLAN 가 RAN IP (Iu-PS
 , IP RNC가) RNC RNC , IP
 . 가 , TDD CDMA(W-CDMA) , Uu
 가 RAN IP RNC SGSN
 , RLAN IP RLAN ,
 GGSN PCM RLAN (ISP) UE
 UE가 ISP RLAN PCM RLAN
 AMR G.729 RLAN U- C- RNC
 , RLAN RLAN IP 가 ,
 , UE UE AAA CN
 AAA UE CN TDD-CDMA , GI RAN IP 가 RLAN GGSN RLAN

RLAN SGSN RLAN RAN IP
 RLAN CN RAN IP AAA CN
 RAN IP lu / (Radius/Diameter) MAP AAA lu-CS C
 RAN IP GI GI IP v4 IP v6 GGSN
 4 RLAN 가 RLAN UMTS 5
 3GPP B 3GPP RNC B
 RNC RLAN 가 RLAN
 UTRAN RLAN (RLAN
) RLAN RAN IP lu 4 5
 TS 가 RAN IP 가 6 UMTS RLAN IP
 N 7 RLAN AAA RLAN C
 P 8 9 UMTS RLAN 가 RLAN I
 CN AAA
 RAN IP 8 / AAA 9
 MAP RLAN IP 3GPP CN HSS/HLR (IWU) CN HSS/HLR MAP
 Gr
 RAN IP GI RLAN 가 UE UMTS
 , AAA 7, 8 9 RLAN RLAN IP
 IETF GI IP v4 IP IP v6
 10 RLAN 1 UE RLAN 2 UE
 IP IP v4가 RAN IP GI RLAN RAN IP
 N 1 UE 2 UE IP 2 UE RLAN RAN IP
 1 UE CN IP 2 UE 1 UE가 CN C
 FA; Forwarding Address) (轉送) CN HLR 1 UE IP (

RAN IP, 1 UE가, CN, 1 UE가, RLAN, IP, IP, 1 UE
 10b, IP v4가, (reverse path tunneling), GI, RLAN, 1 UE, IP, CN, 2 UE
 IP, RLAN, IP v6, GI, 11a, (redirection), 11b, RLAN, CN, 1 UE, 2 UE, IP, CN
 12, B, RLAN, UE, 3GPP, UE, Uu, C-, U-, lu-PS, RAN IP, IP
 ATM, SS7, UMTS, MTP3/SSCF/SSCOP, SCCP(SS7), M3UA/SCTP, ATM, SSCP가 IP, IP, M, 3UA/SCTP, ATM, SS7(SS7-over-ATM), IETF(IP), MTP3/SSCF/SSCOP, (pico;), ATS, 가
 RLAN, RNC, RNC, UR, B, RLAN, RNC, UE, B, RLAN, 가가
 RLAN, B, UE, RLAN, B, RLAN, UE가, RLAN, IP, 가, IP v4, v6, RAN IP, 가
 13, RLAN, RNC, UR, C-RNS(Control Radio Network Subsystems), S-RNS(Serving Radio Network Subsys), GMM), (SM), (SMS) - RAN IP, SGSN, GPRS, (SGSN, GGSN), GGSN, SGNS, GGSN, Gn/Gp, SGSN, Gn/Gp, RAN IP, SGSN, AAA, 8, 9, CN, Gr, /
 u-PS, RLAN, RNC, SGSN, SGSN, RNC가, IP, lur

15 , IP RLAN RNC , .

16 RLAN , U- C- 가 15 16 .

RLAN B U- IP 가 IP lub
 C- U- C- IP , IP
 C- lur 가 가가 ,
 RIP GW 가 .
 RLAN C- U- , IP (mesh) ,
 C- U- (mesh) .

PCM , IP 가 U- C-
 l) C- U- , IP MGCP(Megaco; Media Gateway Control Protoco
 . Megaco ,

17 18 C- RLAN U- B, RNC(U- C-) RAN IP , UE
 Uu ,

RLAN PCM IP ISP PCM RAN IP
 PCM
 (CODEC; Coder/Decoder) (vocoder)가
 가 AMR G.729 19 21 RLAN U- ISP
 UE AMR 19 , G.729 가 21 . IP
 , IP

UE가 ISP , RNC RAN IP
 가 20 U- UE AMR ISP
 G.729 . RAN IP (RIP GW) AMR/G.729
 GW 20 G.729 B AMR RIP
 IP U- RLAN U- C-
 U- U-

22 , IP TCP/UDP SIP(Session Initiated Protocol) H.323 ()
 H.323/SIP) C- U-

2G	Second Generation	2
2.5G	Second Generation Revision	2

3GPP	Third Generation Partnership Project	3
AAA functions	Authentication, Authorization and Accounting functions	/ 가/
AAL2	ATM Adaptation Layer Type 2	ATM 2
AAL5	ATM Adaptation Layer Type 5	ATM 5
AMR	A type of voice data compression	
ATM	Asynchronous Transfer Mode	
CDMA	Code Division Multiple Access	
CN	Core Network	
CODECs	Coder/Decoders	/ ()
C-RNSs	Control Radio Network Subsystems	
CS	Circuit Switched	
ETSI	European Telecommunications Standard Institute	
ETSI-SMG	ETSI - Special Mobile Group	ETSI -
FA	Forwarding Address	
FN	Foreign Network	
G.729	A type of voice data compression	

GGSN	Gateway GPRS Support Node	GPRS
GMM	GPRS Mobility Management	GPRS
GMSC	Gateway Mobile Switching Center	
GPRS	General Packet Radio Service	
GSM	Global System for Mobile Telecommunications	
GTP	GPRS Tunneling Protocol	GPRS
GW	Gateway	
H.323/SIP	H.323 Format for a Session Initiated Protocol	H.323
HLR	Home Location Register	
HN	Home Network	
HSS	Home Service Server	
IP	Internet Protocol	
ISDN	Intergrated Services Digital Network	
ISP	Internet Service Provider	
Iu-CS	Iu sub Interface for Circuit Switched service	Iu
Iu-PS	Iu sub Interface for Packet Switched service	Iu
IWU	Inter Working Unit	
M3UA	Message Transfer Part Level 3 SCCP SS7 Adaptation Layer	3 SSCP SS7
MAC	Medium Access Control	
MAP	Mobile Application Part	
MSC	Mobile Switching Center	
NRT	Non-Real Time	

PCM	Pulse Code Modulation	
PLMN	Public Land Mobile Network	
PS	Packet Switched	
PSTN	Public Switch Telephone Network	
RANAP	Radio Access Network Application Part	
RAN IP	Radio Access Network Internet Protocol	
RIP GW	RAN IP Gateway	RAN IP
RLAN	Radio Local Area Network	LAN
RLC	Radio Link Control	
RNC	Radio Network Controller	
RRC	Radio Resource Control	
RT	Real Time	
SCCP/MTP	Signaling Connection Control Part, Message Transfer Part	/
SGSN	Serving GPRS Support Node	GPRS
SCTP	Stream Control Transmission Protocol	
SM	Session Management	
SMS	Short Message Service	
S-RNS	Serving Radio Network Subsystems	
SS7	Signaling System 7	7
SSCF	Service Specific Coordination Function	
SSCOP	Service Specific Connection Oriented Protocol	

TDD	Time Division Duplex	
UDP/IP	User Data Protocol for the Internet Protocol	IP
UE	User Equipment	
UMTS	Universal Mobile Telecommunications System	
UTRAN	UMTS Terrestrial Radio Access Network	UMTS
VLR	Visitor Location Register	

(57)

1.

(UE) UE / LAN(RLAN)

, Uu (UE) 1 (TDD) CDMA(W-CDMA)
 1 (IP) 가 1 (RNC) ,

GPRS (GGSN)

(RAN IP)

RAN IP RNC IP lu-PS 가 GPRS (SGSN) RLAN.

2.

1 (PCM)

1 RNC IP RLAN. 가

3.

1 UE TDD W-CDMA , Uu

1 RNC IP RLAN. 가

4.

1 IP 2 RNC 가 2

1 RNC IP 2 RNC RLAN. 가

5.

4 RAN IP SGSN 2 RNC RLAN.

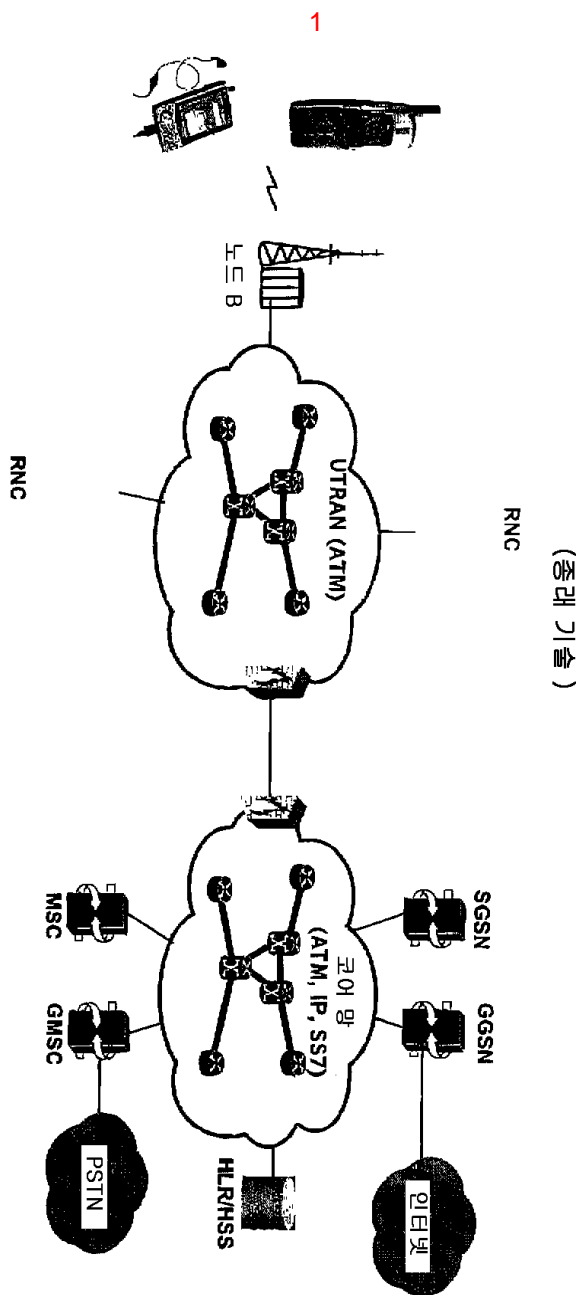
6.

1 UE TDD W-CDMA , Uu

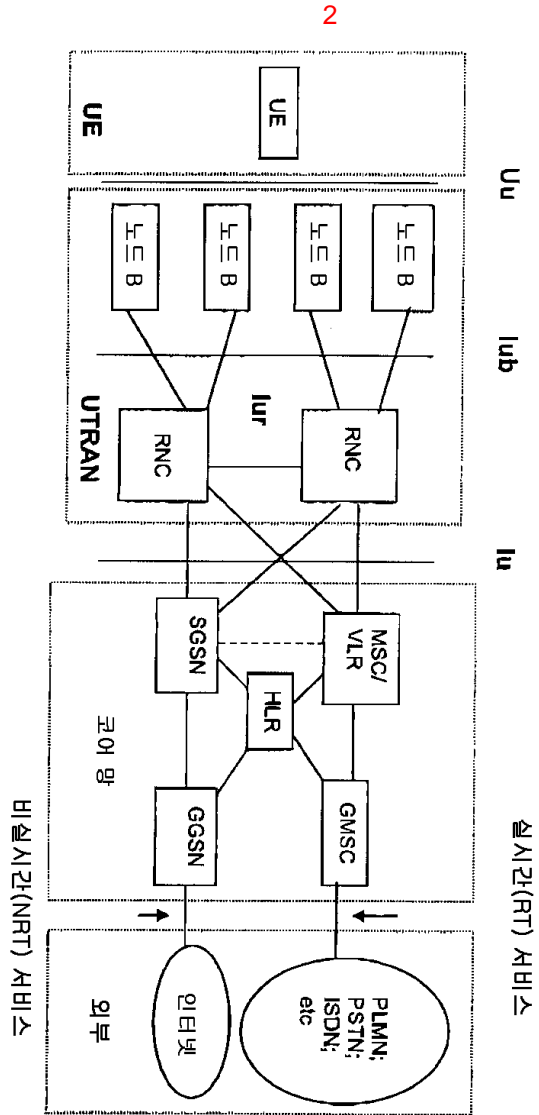
IP 가 RNC

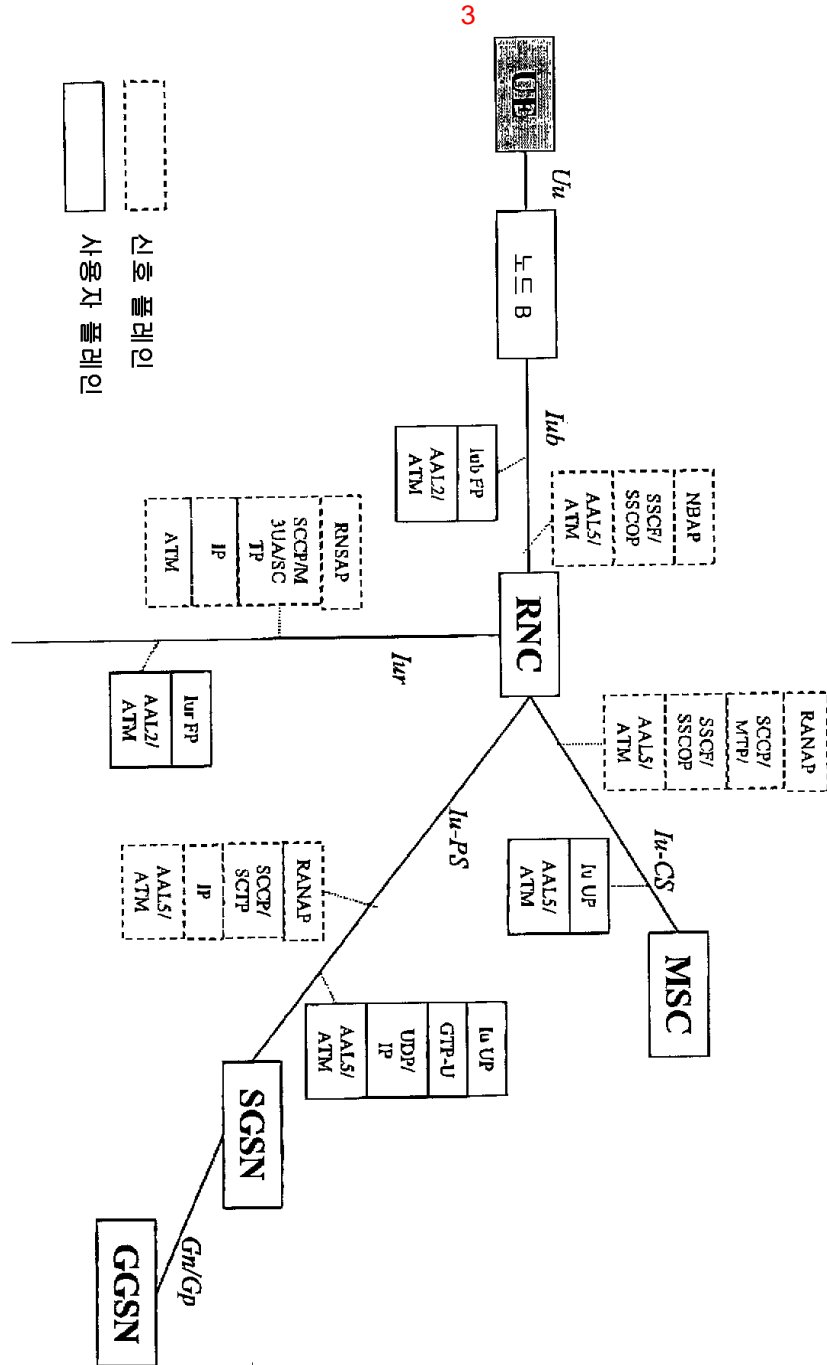
RAN IP SGSN IP RNC 가

RNC IP RLAN. 가

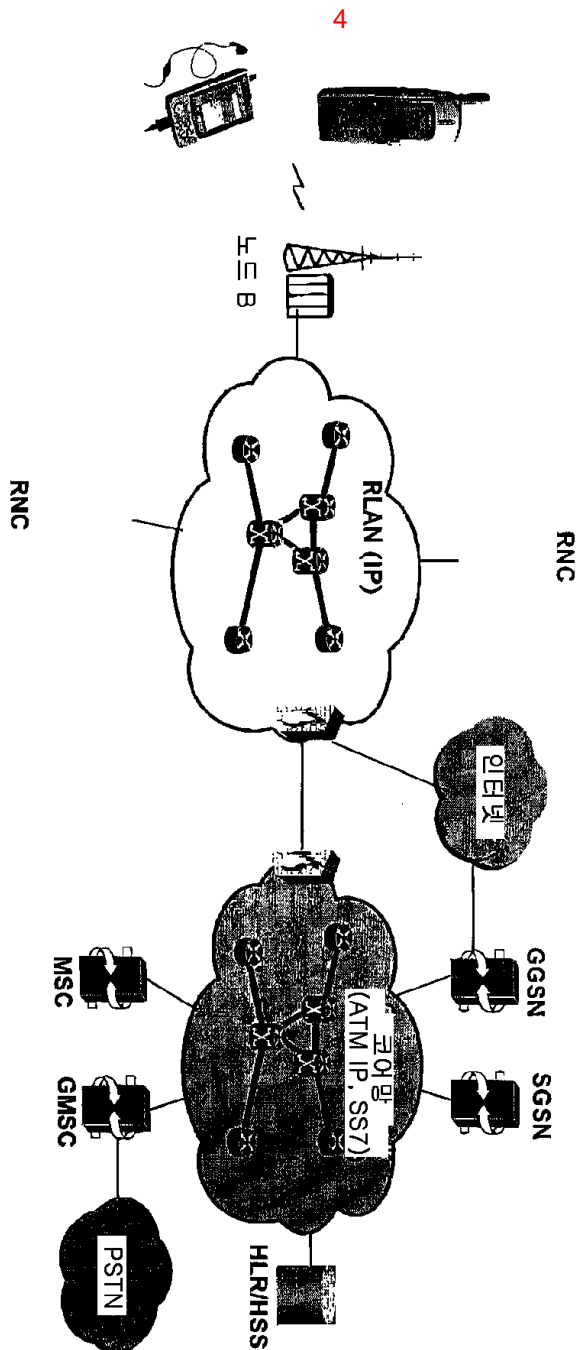


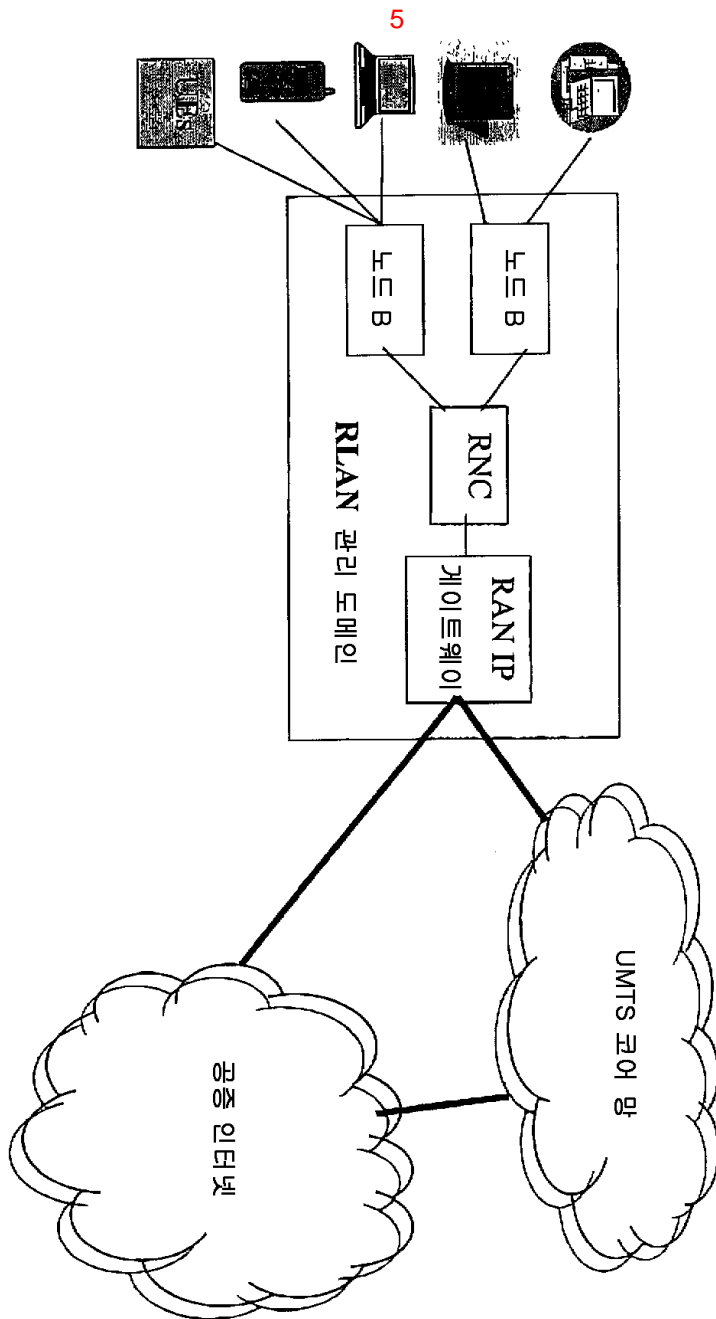
(종래 기술)

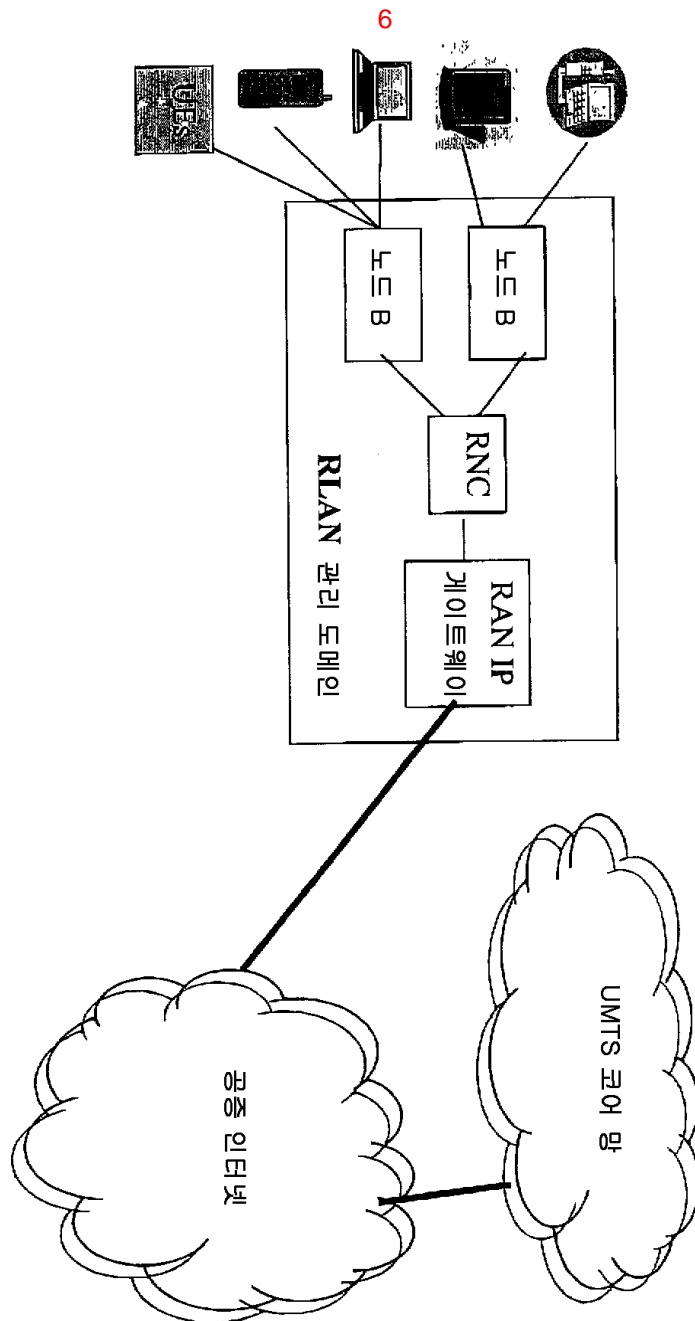




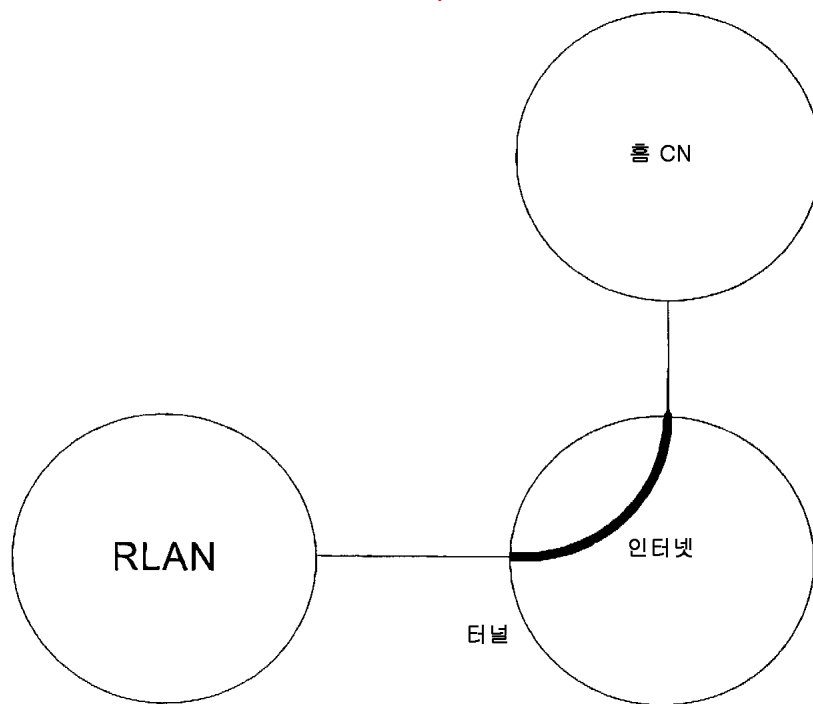
(중대 기술)



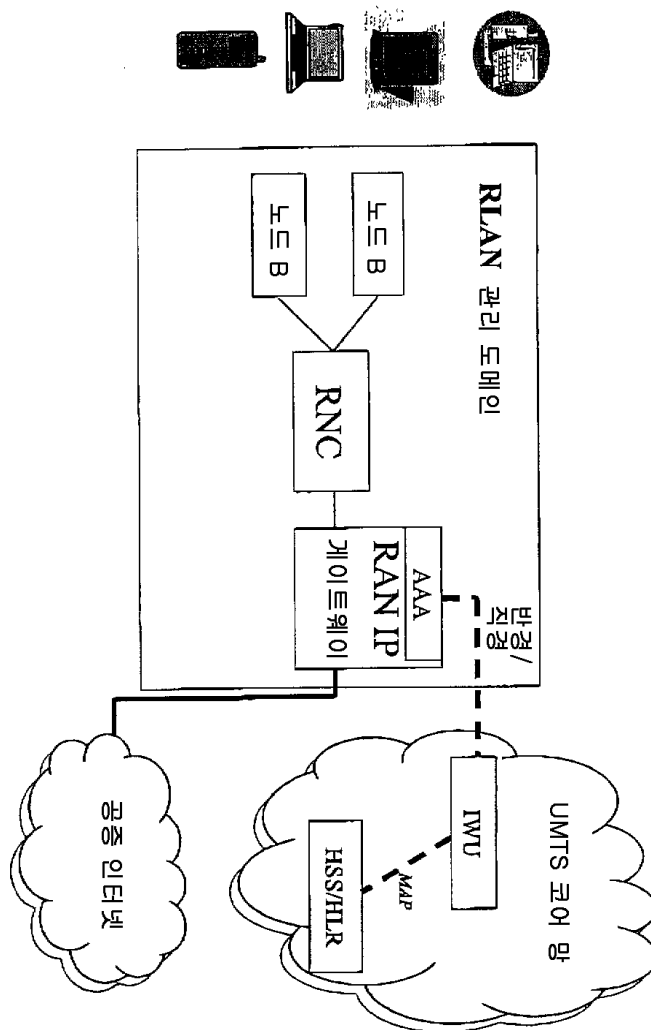




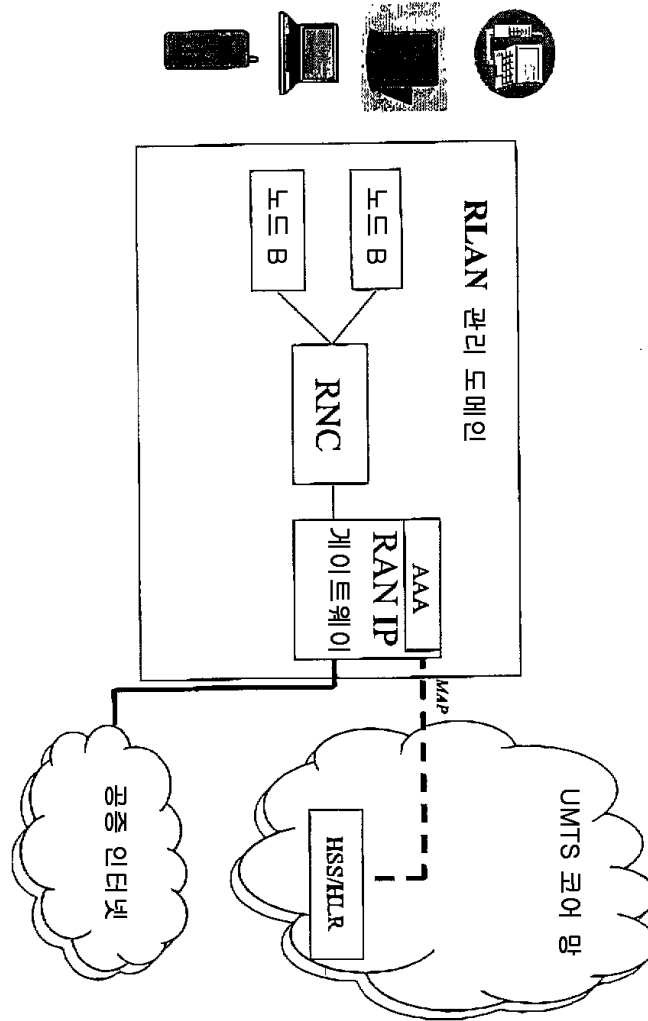
7



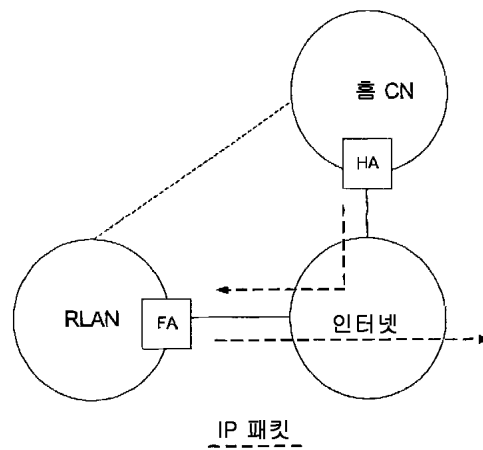
8



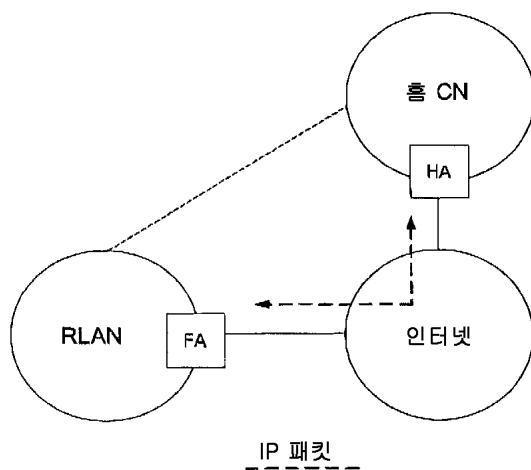
9



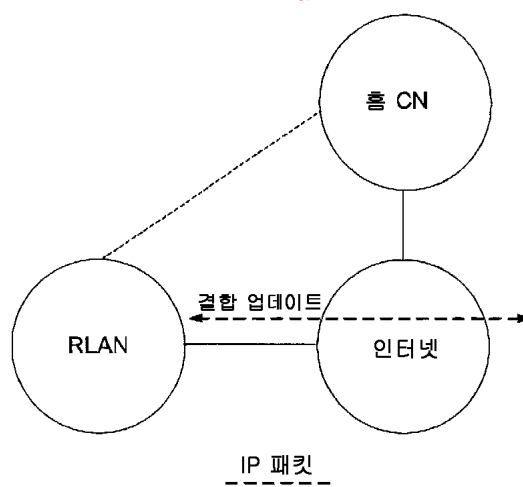
10a



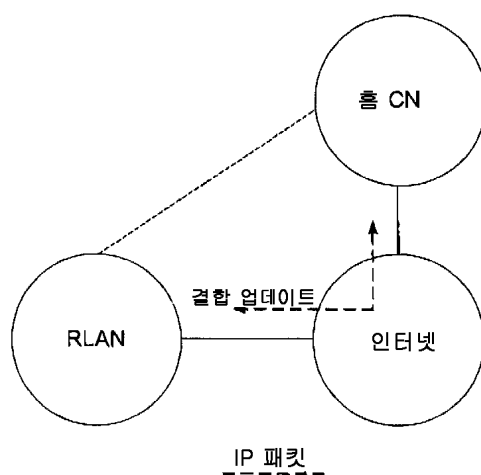
10b



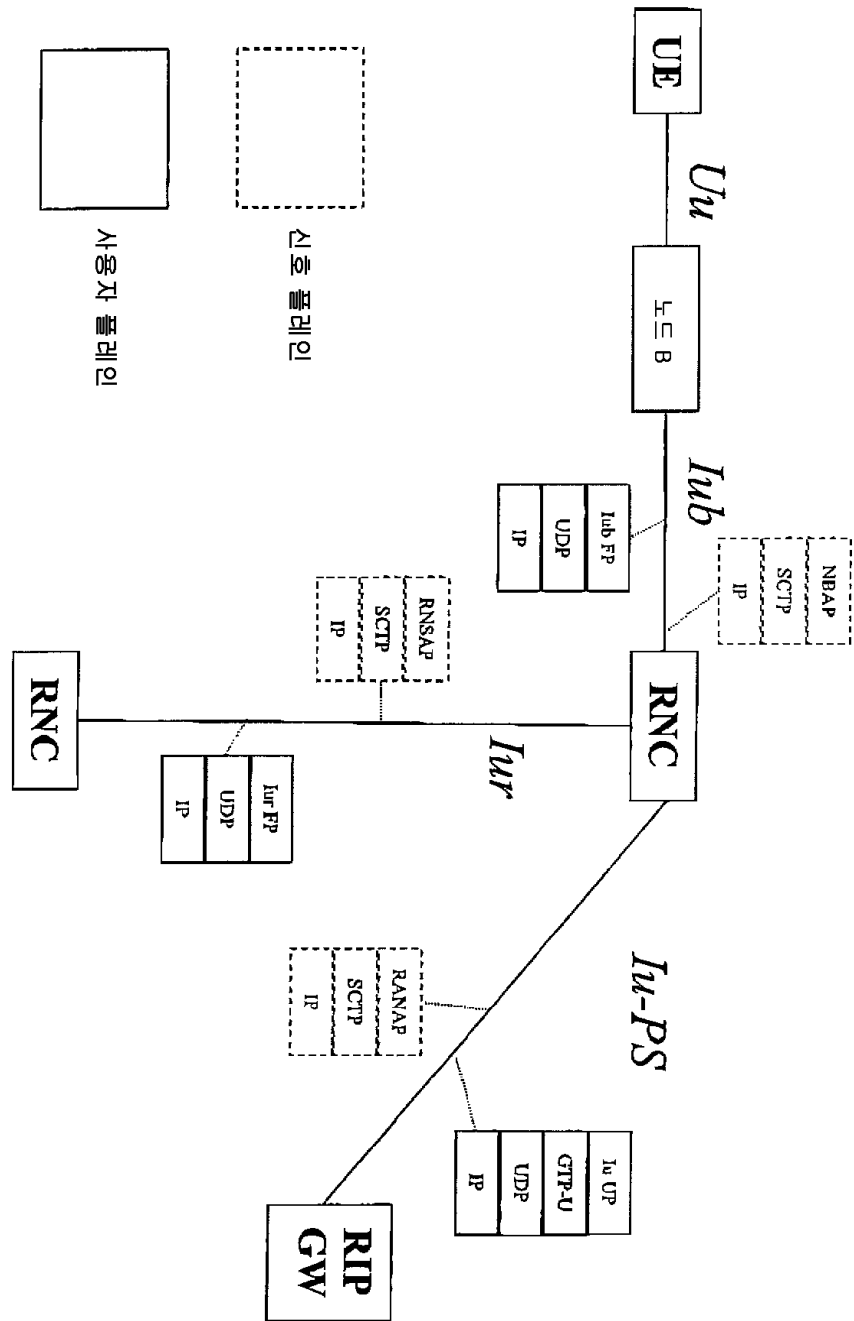
11a

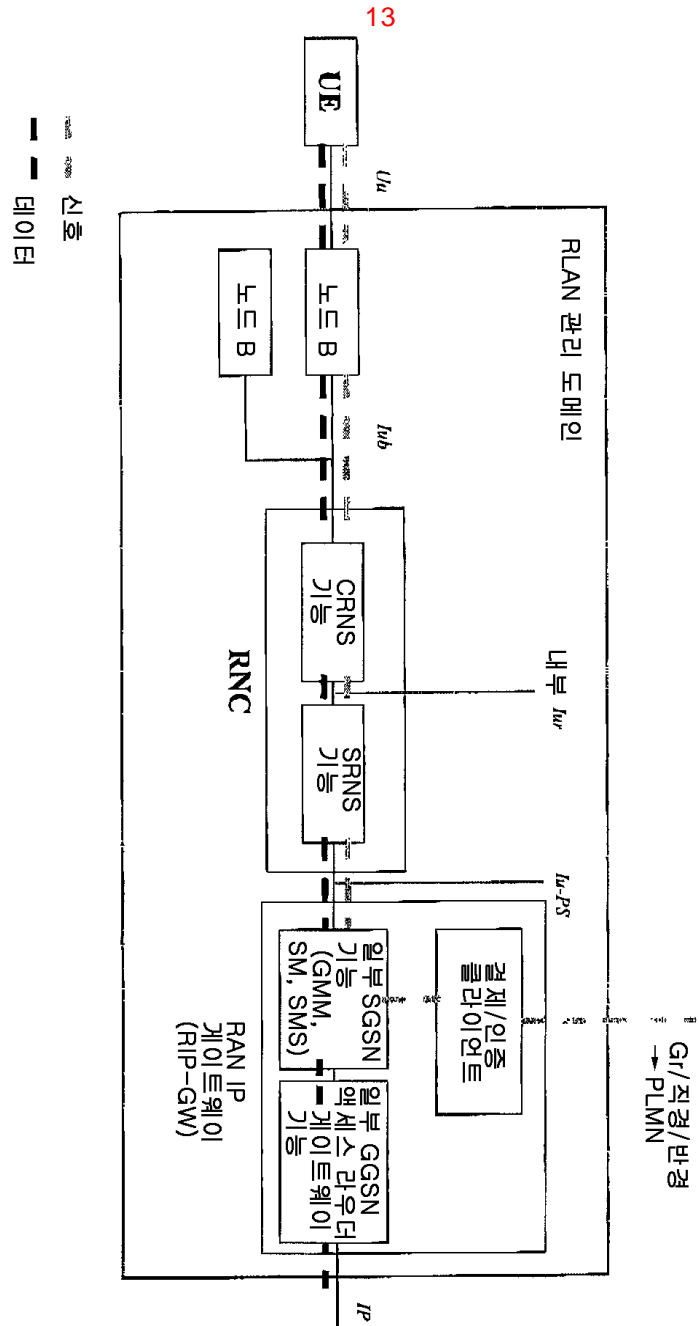


11b

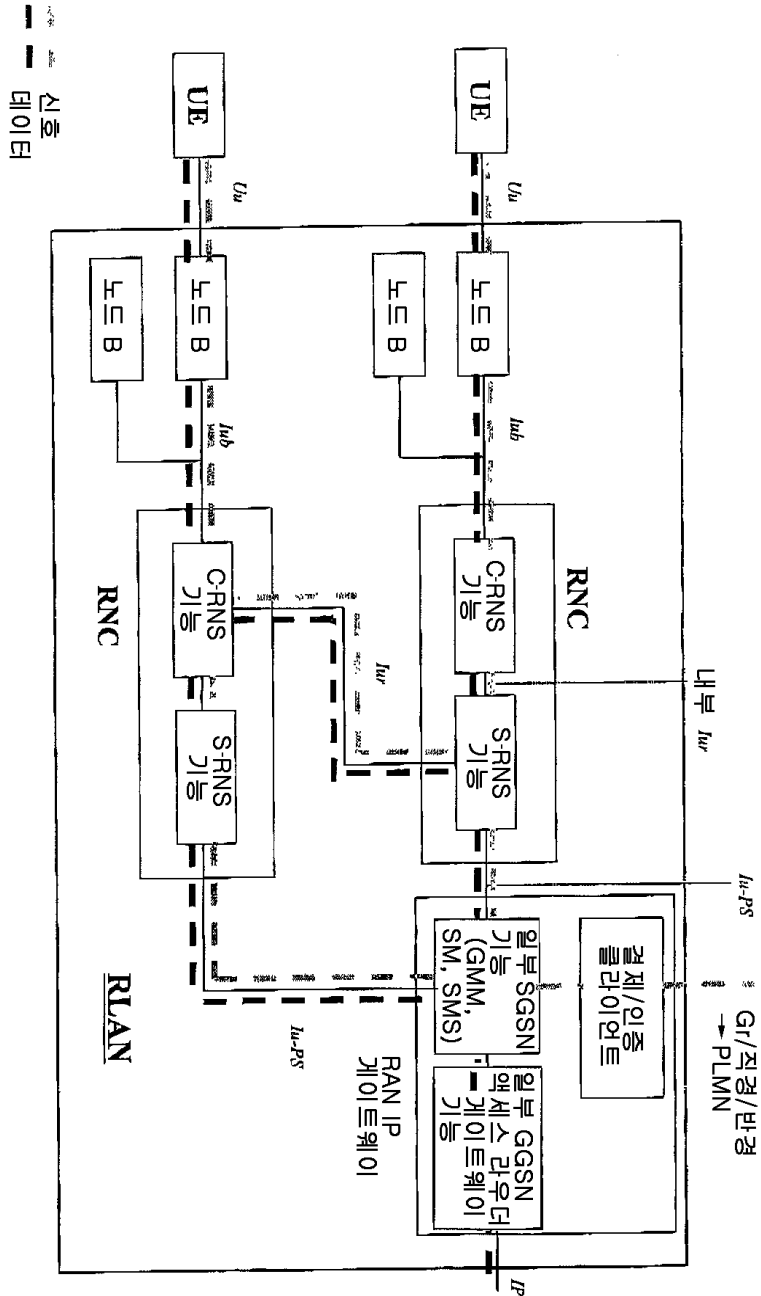


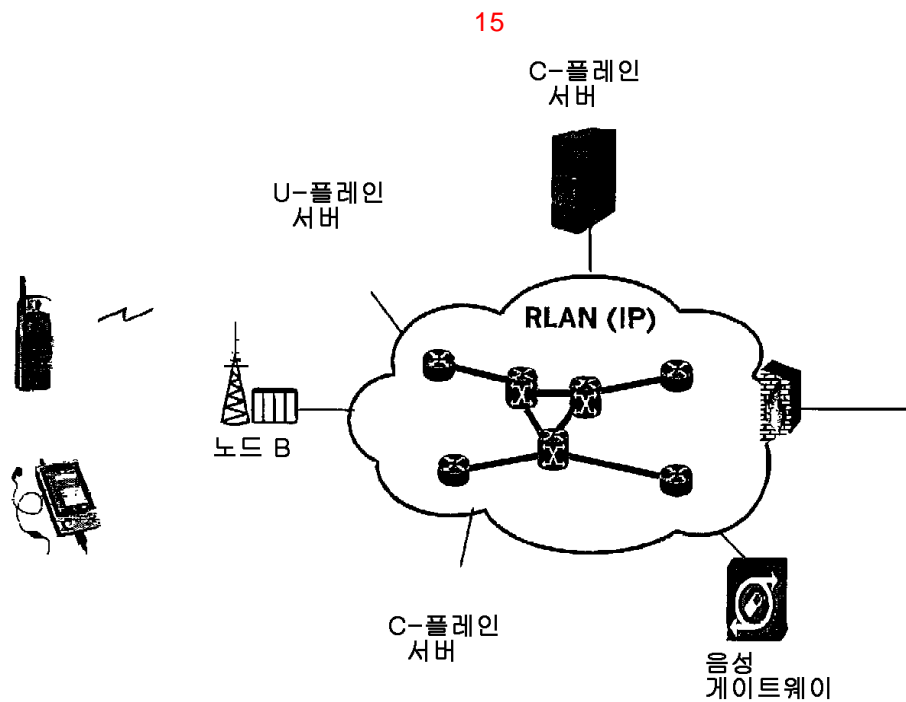
12

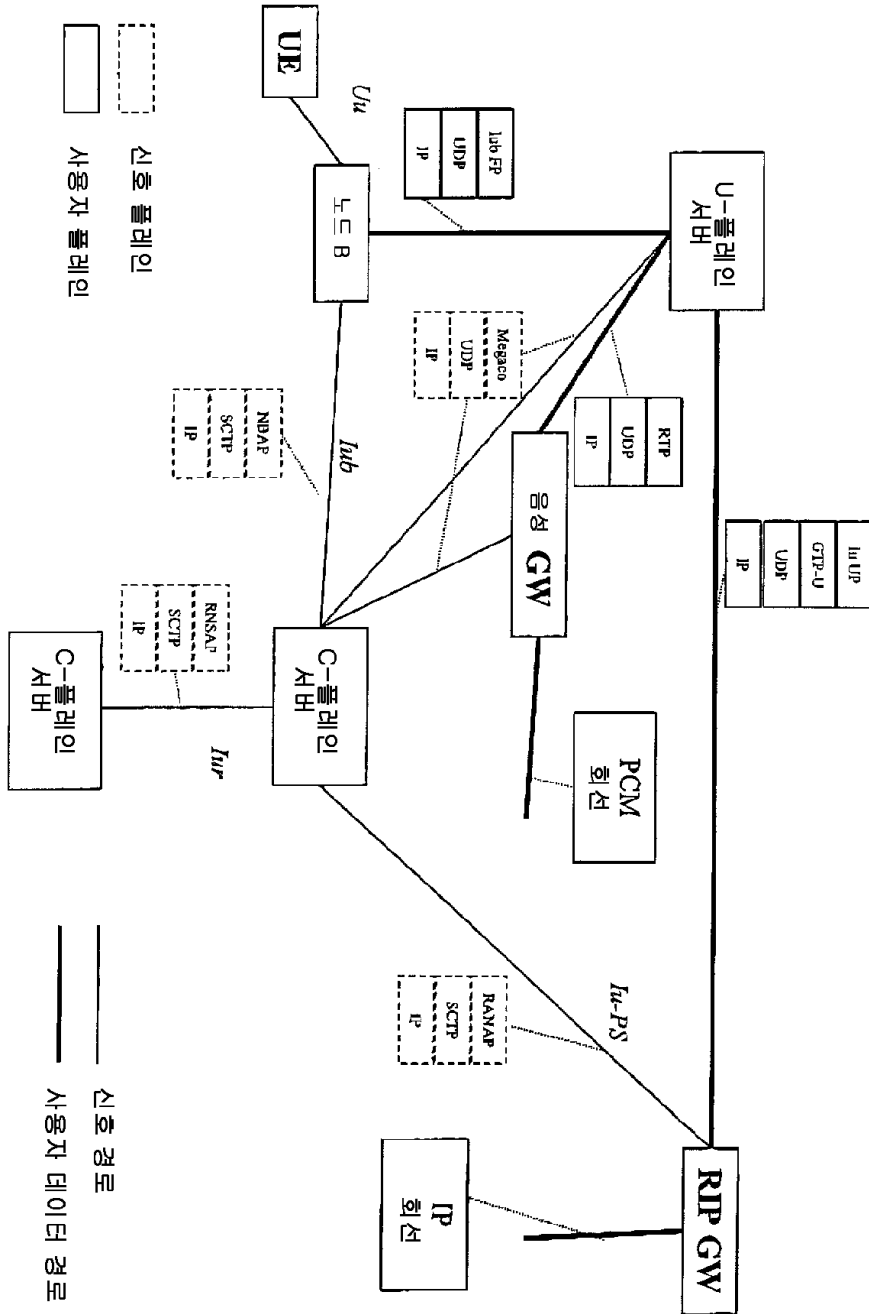


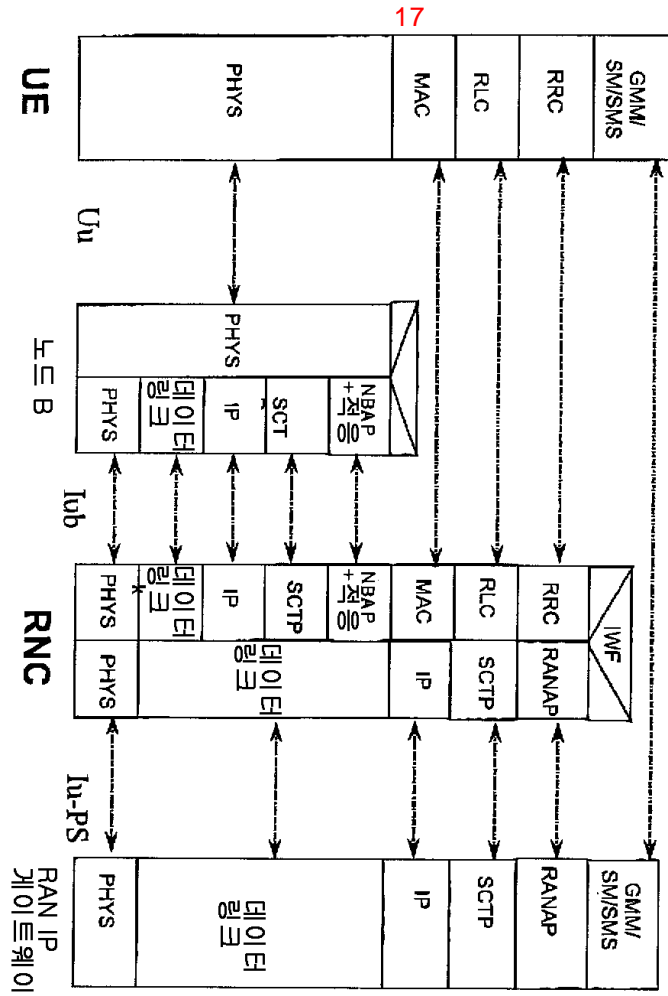


14

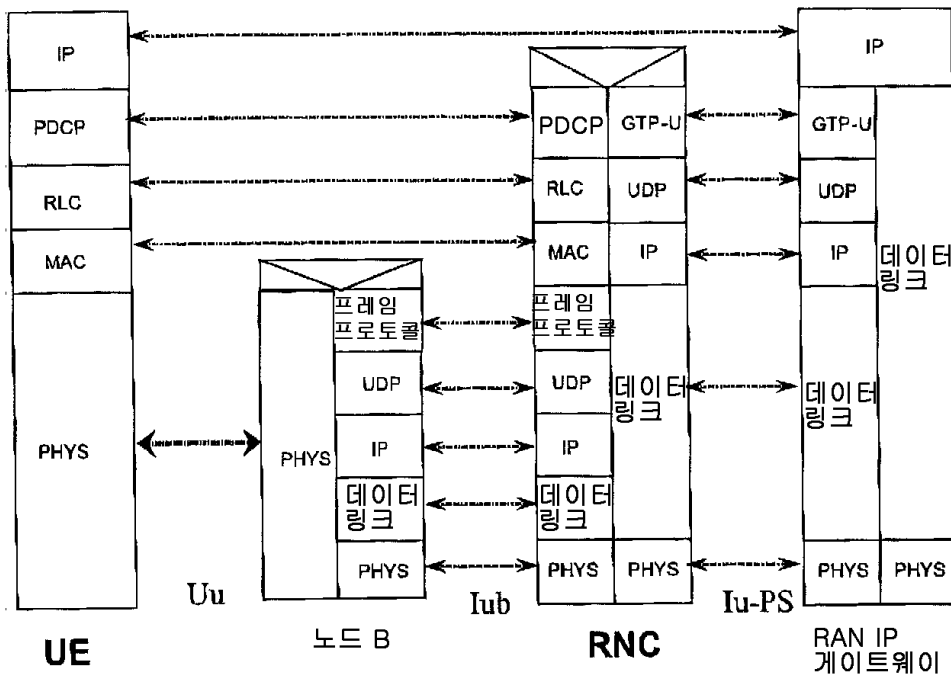




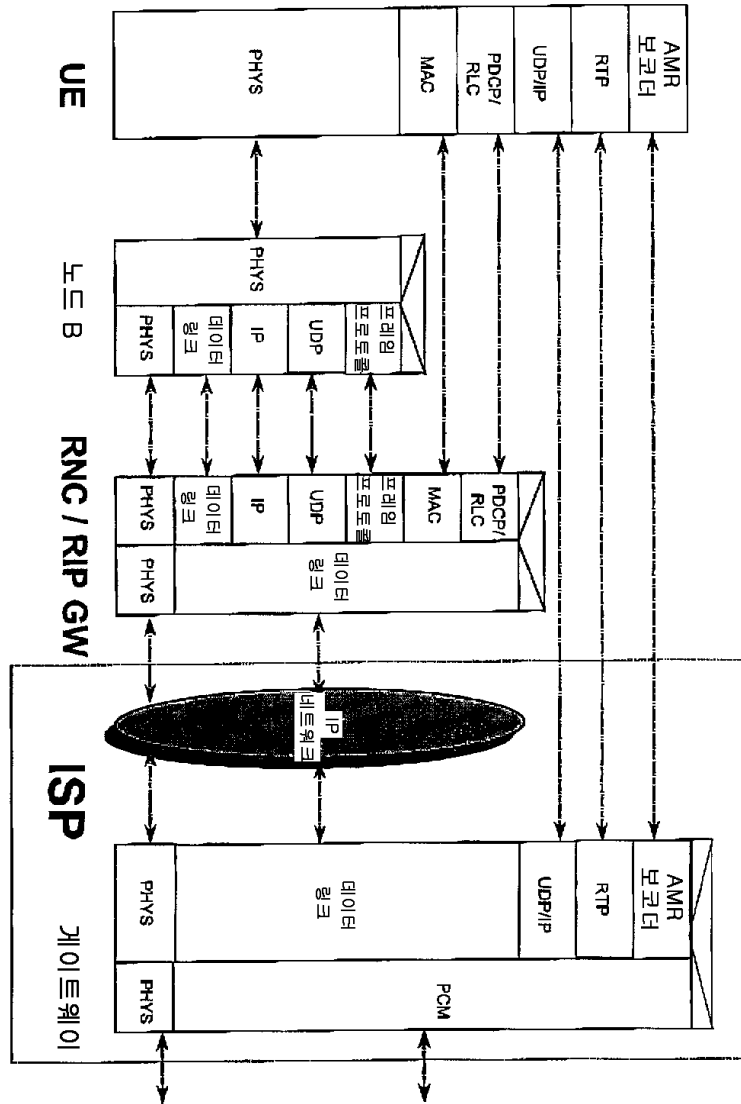


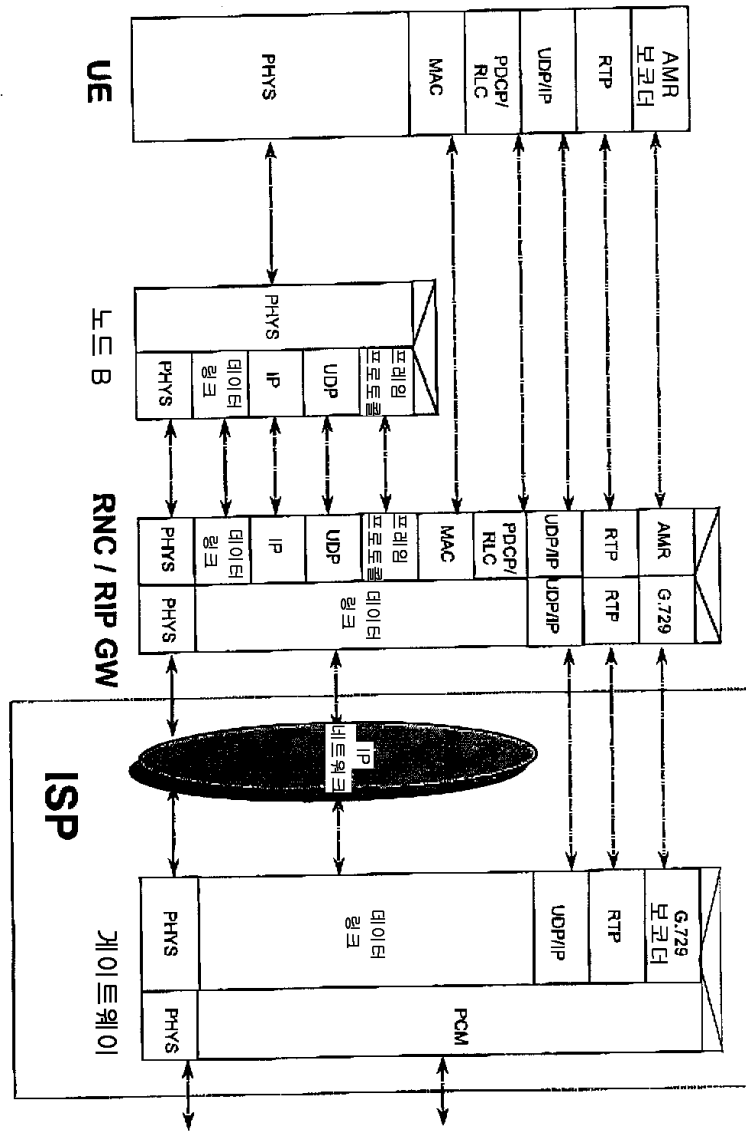


18
U-플레인 프로토콜 스택

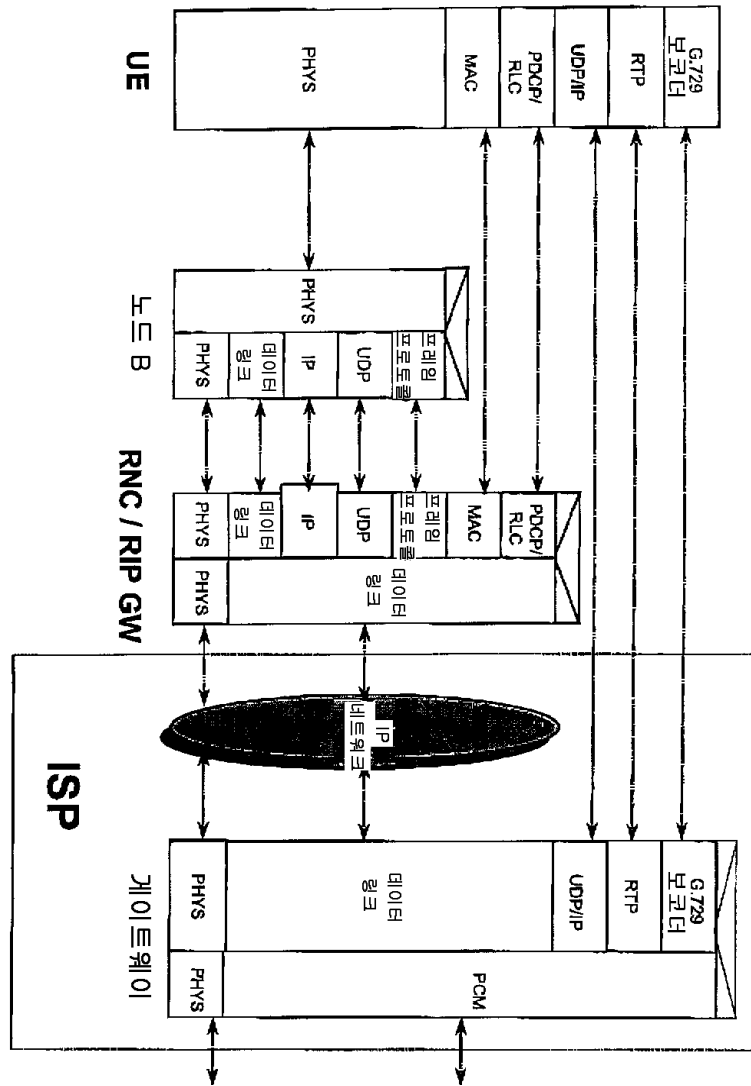


U-플레인 구조 (응성)





21



U-플레인 구조 (응성)

C-플레인 구조 (응용)

