

# (Wireless LAN)

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LG

/

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1.

2.4GHz IMS(Industry, Medical and Science) IEEE 802.11b (Bluetooth)가 , IEEE 802.11a ETSI BRAN Hiperlan2 5GHz IP 3GPP IP 가 가 가 가 가 가 a. : , , b. : 가 가 , c. : 가

, IP

, 3GPP

## 2.

### 2.1

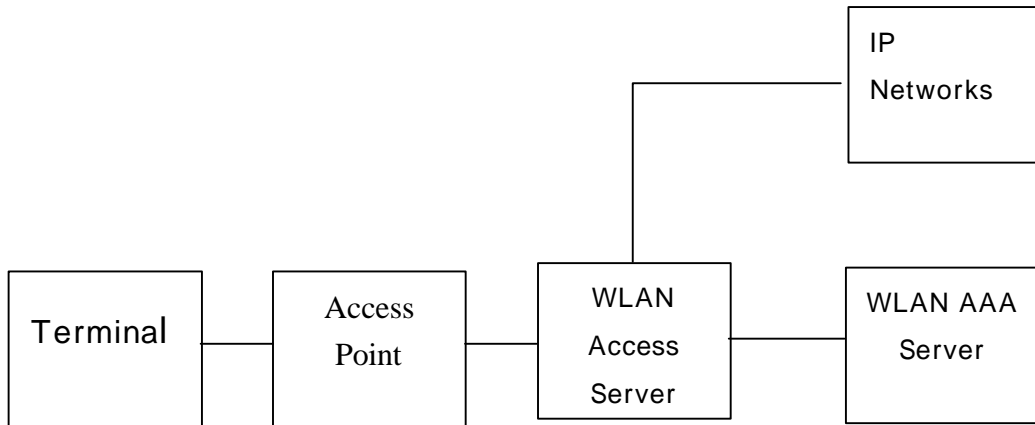
/ 가

가

Attribute	802.11b	Bluetooth	802.11a	HiperLan/2
	2.4 GHz	2.4 GHz	5 GHz	5 GHz
	DSSS	FHSS	OFDM	OFDM
	22 MHz	1MHz	22 MHz	22 MHz
	45 m( ) 90 m( )	1m	30m ( ) 60m( )	30m ( ) 60m( )
	1,2,6,11 Mbps	720 Kbps	6,9,12,18,36,54 Mbps (AP )	6,9,12,18,36,54 Mbps (AP )
	o o	o o 가 o	o 802.11b	o

2.2 (Reference Model)

가 . IEEE , MAC  
 LLC 802.11 . IETF  
 layer 3 가

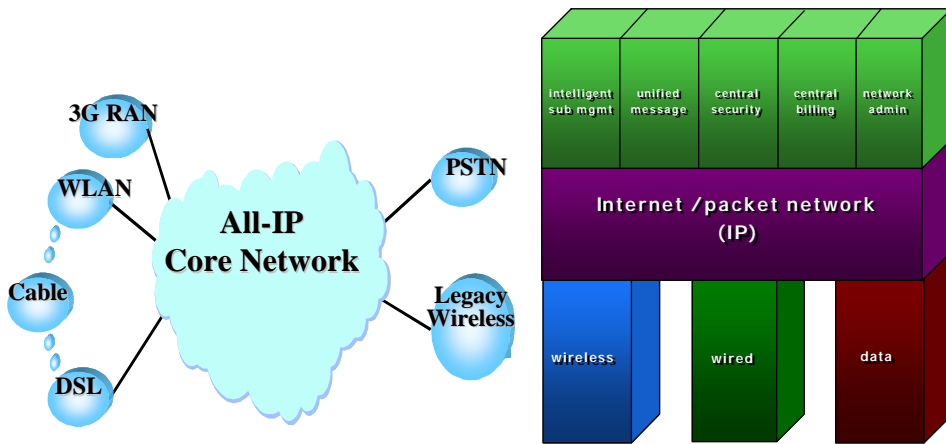


1:

- a. Terminal( )  
 , PDA
- b. Access Point( )  
 IEEE ETSI (Base Station)
- c. WLAN Access Server( )  
 , IP  
 AAA , IP  
 DHCP , 가
- d. WLAN AAA Server  
 (Authorization), (Authentication),  
 (Accounting)

3. : /

IP  
ADSL, ISDN,  
IP  
All-IP  
All-IP  
3GPP 3GPP2  
IP  
가



2 : All-IP

4.

4.1

Seamless

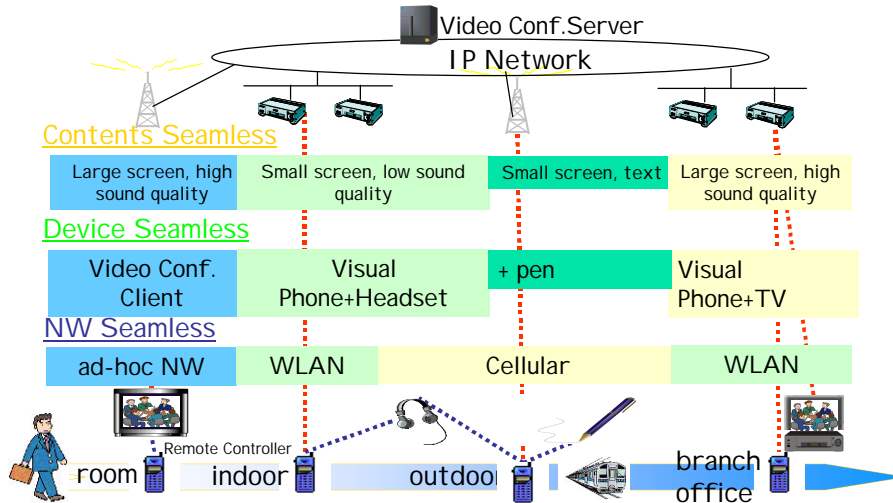
가

3

가

Seamless

(Contents Seamless), (Device Seamless)  
 (Network Seamless)



3:

4.2

(Tight Interworking) (Loose Interworking)  
 Interworking) 3GPP

( 4(a) UMTS

(Interworking Unit, IWU)

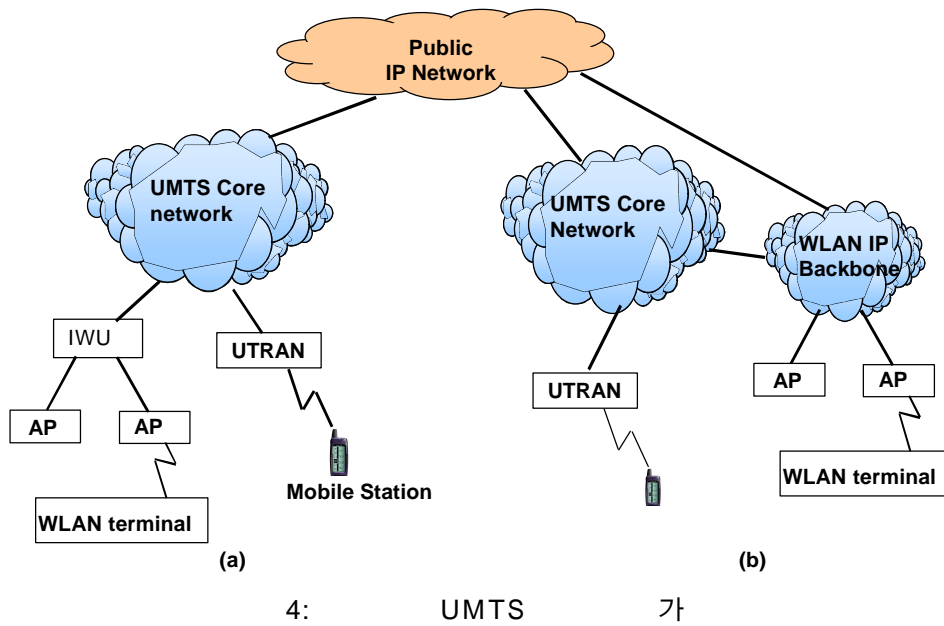
UMTS

WLAN UMTS

4(b) UMTS

IP layer  
UMTS

가 , UMTS  
가 . ,



4.3

ETSI/BRAN Hiperlan2 3

“Requirement and Architecture for Interworking between  
HIPERLAN/2 and 3<sup>rd</sup> Generation Cellular systems” , 3GPP

TR 22.934, TR 23.934

. IEEE 802.11 TG h 802.11a HIPERLAN/2

, WNG SC(WLAN Next Generation Standing Committee)

/	- - /
	- -
	- -
	- Layer 3 - - -
QoS	- QoS

## 5. (3GPP)

3GPP 가  
 (3GPP ) , 3GPP  
 (Access Control)  
 가 3GPP  
 , 가 가 (Home Network)  
 (Visited Network) 가

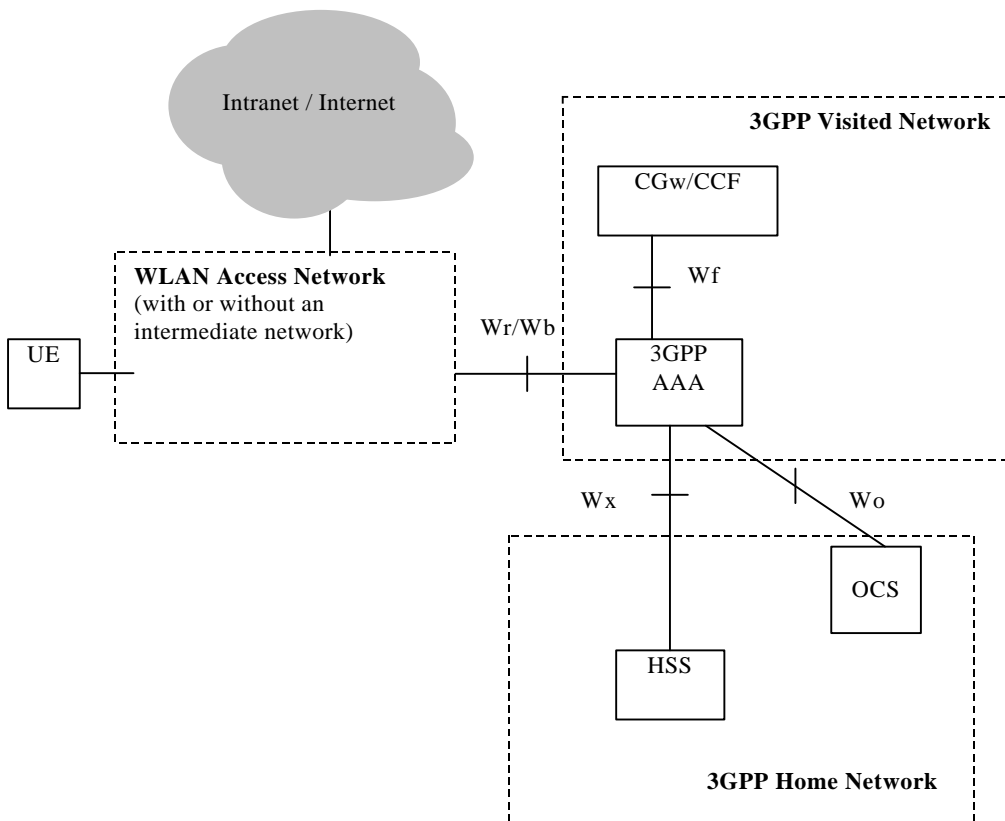
### 5.1 (Reference Model)

- 3GPP
- (user equipment, UE) : UE UICC(Universal IC Card UMTS IC Card) USIM(UMTS Subscriber Identity Module) 가 가 , 3GPP , WLAN , UICC 가 PDA가
  - AAA : 3GPP AAA 가

- AAA : 3GPP AAA , 가
- HLR/HSS : Wr , Wb 가
- HLR/HSS: HLR/HSS 가 , 가
- CGw/CCF : (Charging Gateway, CGw) , DIAMETER (Charging Collection Function) . Wf 가
- OCS(Online Charging System) : (Pre-paid)가 , DIAMETER Wo 3GPP AAA .

A. 1

. Wx Wo



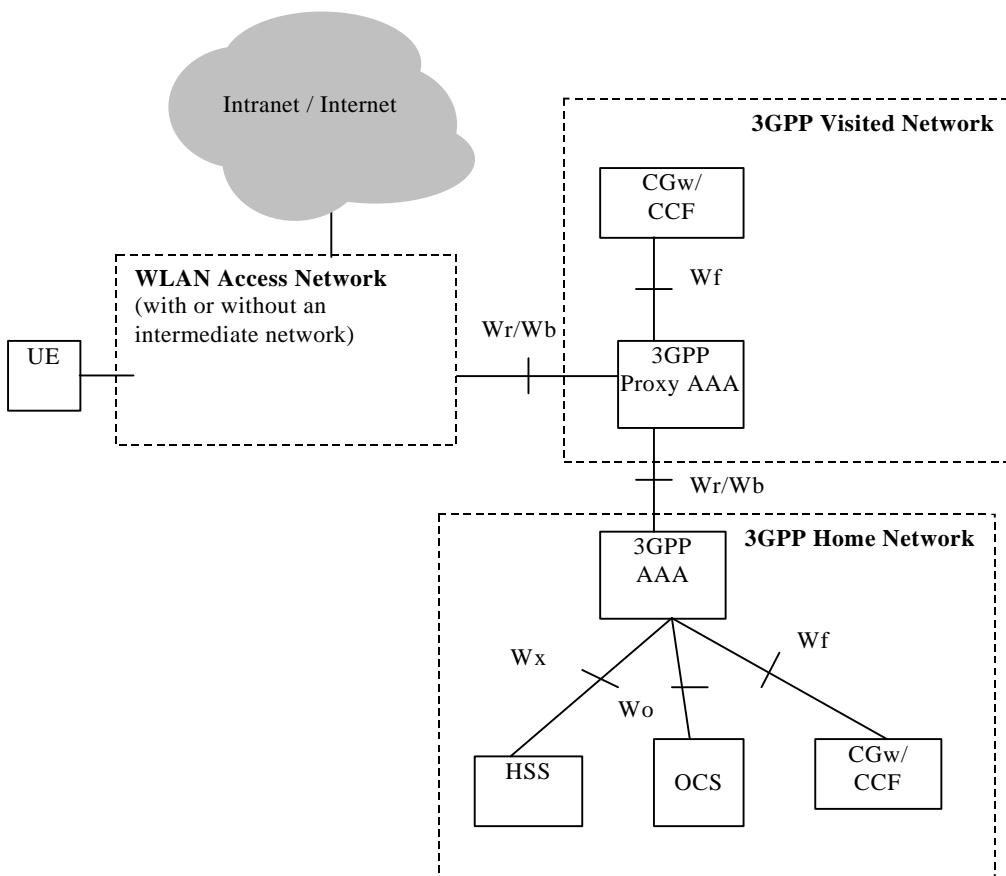


5: ( 1)

3GPP (Inter Operator) . 3GPP  
Wr/Wb

B. 2

가 . 3GPP 3GPP , Wr/Wb  
. 3GPP AAA 3GPP AAA



6: ( 2)

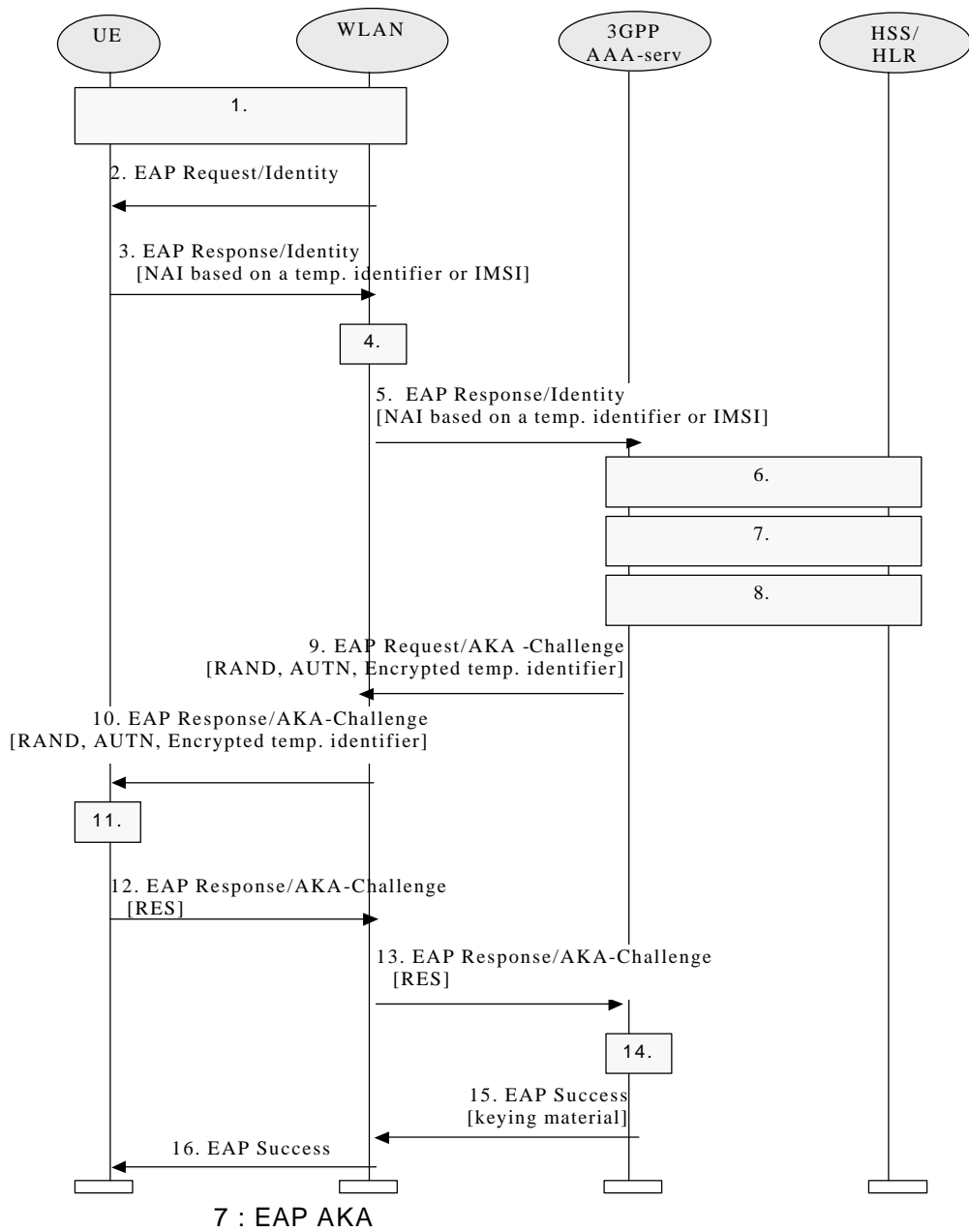
5.2

- (End-to-End Authentication) :  
3GPP AAA . . . . . 3GPP  
EAP(Extensible Authentication Protocol)  
RFC 2284 . . . . .
- :  
Access  
Network . . . . . 3GPP . . . . .  
IEEE 802.11 . . . . . IEEE  
8.2.11i . . . . .  
- Wr . . . . . : Wr . . . . .  
DIAMETER  
RADIUS . . . . .

5.3 USIM

- USIM . . . . . AKA(Authentication and Key Agreement) . . . . .  
3GPP . . . . .  
EAP/AKA . . . . . Internet Draft  
draft-arkko-pppex-eap-aka . . . . . 03 . . . . .  
EAP/AKA . . . . . USIM . . . . .
- 1. . . . . , EAP가 . . . . .
- 2. UE EAP Request/Identity . . . . . EAP . . . . .
- 3. UE EAP AKA . . . . . UE NAI(Network Access Identifier)

4. 3GPP AAA 가 NAI
5. 3GPP AAA EAP Response/Identity
6. 3GPP AAA (RAND, AUTN, XRES, IK, CK) 가  
가 HSS/HLR
7. 3GPP AAA 가 가  
HSS/HLR 3GPP AAA 가 가
8. Key material IK CK Key material
9. 3GPP AAA RAND, AUTN EAP Request/AKA-Challenge
10. EAP Request/AKA-Challenge
11. USIM UMTS USIM AUTN  
USIM RES
12. EAP Response/AKS-Challenge RES
13. EAP Response/AKS-Challenge 3GPP AAA
14. 3GPP AAA 가 XRES RES
15. , 3GPP AAA EAP Success  
Keying material
16. UE EAP Success  
EAP AKA exchange  
key material



6.

3GPP

(Seamless Service)

- [1] 3GPP TR 22.934, "Feasibility study on 3GPP system to WLAN interworking", Release 6, Feb. 2002.
- [2] 3GPP TR 23.934, "3GPP system to WLAN interworking; Functional and architectural definition", Release 6, June 2002.
- [3] ANSI/IEEE Std 802.11, 1999 Edition: "Wireless LAN medium access control (MAC) and physical layer (PHY) specifications".
- [4] IEEE Std 802.11a-1999 (Supplement to IEEE 802.11, 1999 Edition): "Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications: Higher-speed Physical Layer Extension in the 5 GHz Band".
- [5] IEEE Std 802.11b-1999 (Supplement to IEEE 802.11, 1999 Edition): "Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications: Higher-speed Physical Layer Extension in the 2.4 GHz Band".
- [6] "Wireless LAN Technology Directions," Dataquest, 2000. 10. 4.
- [7] "Differentiating 802.11b LANs," Network World Fusion, 2001. 3. 19.
- [8] "IEEE 802.11b High Rate Wireless LAN," Intel, 2000. 9. 21.
- [9] [www.etsi.org](http://www.etsi.org)
- [10] [www.hiperlan2.com](http://www.hiperlan2.com)
- [11] [www.mobilestar.com](http://www.mobilestar.com)