

RECOMMENDATION ITU-R F.1399\*<sup>\*</sup> \*\*

## VOCABULARY OF TERMS FOR WIRELESS ACCESS

(Questions ITU-R 215/8 and ITU-R 140/9)

(1999)

## 1 Introduction

This Recommendation consists primarily of those terms and definitions that are considered essential to the understanding and application of the principles of wireless access. However, they are not exclusive to wireless access and are recommended also for application, in so far as they are relevant, to other types of telecommunication systems and services.

Included are terms that may already be defined in the Radio Regulations and other ITU-R/ITU-T Recommendations. However, the definitions given here embrace only the essential concepts and on this basis it is considered that they are not inconsistent with the more specialized definitions that appear in those texts.

Where a truncated term is widely used in an understood context, the complete term is quoted following the colloquial form.

Some definitions include terms in italic face to indicate that these terms are defined elsewhere in this Recommendation.

Technologies in use today for implementing wireless access include cellular systems, cordless phone and cordless telecommunication systems, satellite systems, etc. New technologies and systems such as IMT-2000, wireless broadband ISDN, wireless ATM, HAPS, etc., also form part of wireless access if they satisfy the basic criteria of end-user radio connection(s) to core networks (see § 4.3 for list of acronyms and abbreviations).

Wireless access may be considered from many perspectives, for example:

- *Mobility capabilities* of the terminal: fixed, nomadic (may be used in different places but the terminal must be stationary while in use), mobile, restricted mobility (e.g. within a single cell), etc.
- *Service support capabilities*: narrow-band, broadband, multimedia, etc.
- *Type of telecommunication service*: conversational, distribution, information retrieval.
- *Connectivity*: (which would depend on the switched network that the terminal accesses, e.g. Internet, PSTN, etc.). (See § 4.3 for list of acronyms and abbreviations.)
- *Radio transmission technology*: access technique (TDMA, CDMA, etc.), modulation technique (analogue, digital, etc.), duplex technique (FDD, TDD, etc.), etc. (See § 4.3 for list of acronyms and abbreviations.)
- *Delivery mechanism*: terrestrial, satellite, etc.

Of particular interest are the mobility characteristics of wireless access systems; thus this Recommendation provides definitions of the terms “fixed”, “mobile” and “nomadic” wireless access.

The purpose of this Recommendation is to specify terms and definitions for terrestrial wireless access.

## 2 Scope

The Recommendation specifies definitions for terms in the field of terrestrial wireless access. Wireless access applications may be provided within the definitions of the radio services FS, MS, FSS and MSS contained in the Radio Regulations.

---

\* This Recommendation was developed jointly by Radiocommunication Study Groups 8 (Working Party 8A) and 9 (Working Party 9B), and any further revision should be undertaken jointly.

\*\* This Recommendation should be brought to the attention of Radiocommunication Study Groups 4 (Working Party 4A), 8 (Working Party 8A) and Coordination Committee Vocabulary (CCV).

The ITU has deprecated the use of the term “loop” (see References below: CCITT Blue Book, Vol. I, Fascicle I.3, 1988); for this reason, and more so because this term does not make any sense with radio technologies, the use of the terms that include loop are deprecated. These include wireless local loop, radio local loop, and wireless access local loop.

It should be noted that in many cases systems may be able to support a mixture of users (i.e. fixed, mobile and nomadic) and possibly with restrictions on the type of mobility. It is not practical to define terms for each possible combination, but those above should suffice to refer to the primary characteristics of the system.

### 3 References

The following references have been used in the development of the vocabulary of terms for wireless access:

- ITU, terms and definitions; abbreviations and acronyms; recommendations on means of expression (Series B), General Telecommunications Statistics (Series C), CCITT Blue Book, Vol. I, Fascicle I.3, 1988.
- Recommendation ITU-R F.592-2: Terminology used for radio-relay systems.
- Recommendation ITU-R M.1224: Vocabulary of terms for International Mobile Telecommunications-2000 (IMT-2000).
- ITU-T Recommendation D.000: Terms and definitions for the Series-D Recommendations.
- ITU-T Recommendation E.600: Terms and definitions of traffic engineering.
- ITU-T Recommendation G.100: Definitions used in Recommendations on general characteristics of international telephone connections and circuits.
- ITU-T Recommendation I.112: Vocabulary of terms for ISDNs.
- ITU-T Recommendation I.113: Vocabulary of terms for broadband aspects of ISDNs.
- ITU-T Recommendation I.114: Vocabulary of terms for universal personal telecommunication.
- ITU-T Recommendation J.112: Transmission systems for interactive cable television services.

### 4 Recommendations

The ITU Radiocommunications Assembly recommends that the terms and definitions for wireless access in this Recommendation be adopted.

#### 4.1 Vocabulary of terms: Main terms

##### 4.1.1 **Wireless access**; *Accès hertzien, Accès sans fil; Acceso inalámbrico*:

End-user radio connection(s) to core networks.

NOTE 1 – Core networks include, for example, PSTN, ISDN, PLMN, PSDN, Internet, WAN/LAN, CATV, etc. (See § 4.3 for list of acronyms and abbreviations.)

NOTE 2 – The *end-user* may be a single *user* or a *user* accessing the services on behalf of multiple *users*.

##### 4.1.2 **Fixed wireless access (FWA)**; *Accès hertzien fixe; Acceso inalámbrico fijo*:

*Wireless access* application in which the location of the *end-user termination* and the network access point to be connected to the end-user are fixed.

##### 4.1.3 **Mobile wireless access (MWA)**; *Accès hertzien mobile; Acceso inalámbrico móvil*:

*Wireless access* application in which the location of the *end-user termination* is mobile.

##### 4.1.4 **Nomadic wireless access (NWA)**; *Accès hertzien transportable ou nomade; Acceso inalámbrico nómada*:

*Wireless access* application in which the location of the *end-user termination* may be in different places but it must be stationary while in use.

## 4.2 Vocabulary of terms: Other terms

### 4.2.1 **Broadband wireless access (BWA);** *Accès hertzien à large bande; Acceso inalámbrico de banda ancha:*

*Wireless access* in which the connection(s) capabilities are higher than the primary rate.

### 4.2.2 **End-user;** *Utilisateur final ou usager final; Usuario final:*

A human being, organization, or telecommunications system that accesses the network in order to communicate via the services provided by the network.

(See ITU-T Recommendation J.112.)

### 4.2.3 **End-user connection point;** *Point de connexion d'utilisateur final; Punto de conexión del usuario final:*

Point at which the *end-user* obtains the communications service (see Fig. 1).

### 4.2.4 **End-user termination, end-user radio termination;** *Terminaison radioélectrique d'utilisateur final; Terminación de usuario final; Terminación radioeléctrica del usuario final:*

The *end-user* radio equipment antenna (see Fig. 1)

### 4.2.5 **High altitude platform station (HAPS);** *Station placée sur une plate-forme à haute altitude; Estación en plataforma a gran altitud:*

A station located on an object at an altitude of 20 to 50 km and at a specified nominal, fixed point relative to the Earth (See Note 1).

*F:* Station installée sur un objet placé à une altitude comprise entre 20 et 50 km et en un point spécifié, nominal, fixe par rapport à la Terre.

*S:* Estación situada sobre un objeto a una altitud de 20 a 50 km y en un punto nominal, fijo y especificado con respecto a la Tierra

(See RR No. S1.66A.)

NOTE 1 – Systems using HAPS which consist of a HAPS and ground stations located at the end-user termination provide wireless access serving as links for various communications. The communication mode of a system using HAPS is, for the time being, limited to FWA applications on account of technical reasons at the ground station equipment. However, nomadic or mobile wireless access applications are also expected in the future.

### 4.2.6 **Multipoint systems;** *Systèmes multipoint; Sistemas multipunto:*

A generic term for P-MP, MP-MP and variations/hybrids of these.

### 4.2.7 **Point-to-multipoint system;** *Système point à multipoint; Sistema punto a multipunto:*

A system that establishes connections between a single specified point and more than one other specified points.

NOTE 1 – It should be noted that wireless access systems commonly feature air-side concentration in order to preserve valuable spectrum resources, although not necessarily so (as, for example, in some lower density, rural systems). Generally point-to-multipoint systems offer FWA, hence the use of the term “fixed wireless access” defined above to distinguish such point-to-multipoint systems from mobile or nomadic wireless access systems.

### 4.2.8 **Point-to-point system;** *Système point à point; Sistema punto a punto:*

A system that establishes a connection between two end points only.

NOTE 1 – Where these are cascaded geographically, such point-to-point systems are also commonly referred to as “radio-relay systems”, and if using digital technology thereby termed “digital radio-relay systems” (see Recommendation ITU-R F.592).

### 4.2.9 **Station;** *Station radioélectrique; Estación radioeléctrica:*

The common name for all the radio equipment at one and the same place (see Fig. 1).

NOTE 1 – The term “station” may refer to any *end-user* radio equipment or network radio equipment.

4.2.10 **Teledensity, access density;** *Densité d'accès, densité de terminaisons; Teledensidad, densidad de accesos:*

Number of *end-user terminations* per square kilometre.

4.2.11 **Teledensity, terminal density;** *Densité de terminaux; Teledensidad, densidad de terminales:*

Number of *end-user* terminals per square kilometre.

4.2.12 **Teledensity, telephone density;** *Télédensité, densité téléphonique; Penetración, densidad telefónica; teledensidad:*

The number of telephones (or lines) relative to a characteristic element such as number of inhabitants (telephones per 100 population), number of households, business premises, area units, income groups, etc., used generally for planning purposes.

(See TERMITE – TERMIInology of Telecommunications – ITU, Serial number: MT1886, Modified: June 1997.)

4.2.13 **Termination, radio termination;** *Terminaison radioélectrique; Terminación, terminación radioeléctrica:*

The physical location of the radio equipment antenna.

4.2.14 **Total station density;** *Densité totale de stations radioélectriques; Densidad total de estaciones radioeléctricas:*

The total number of *stations* per square kilometer in a service area.

4.2.15 **Total transmitter density;** *Densité totale d'émetteurs; Densidad total de emisoras:*

The total number of transmitters per square kilometer in a service area.

4.2.16 **User;** *Utilisateur; Usuario:*

Any entity external to the network which utilizes connections through the network for communication.

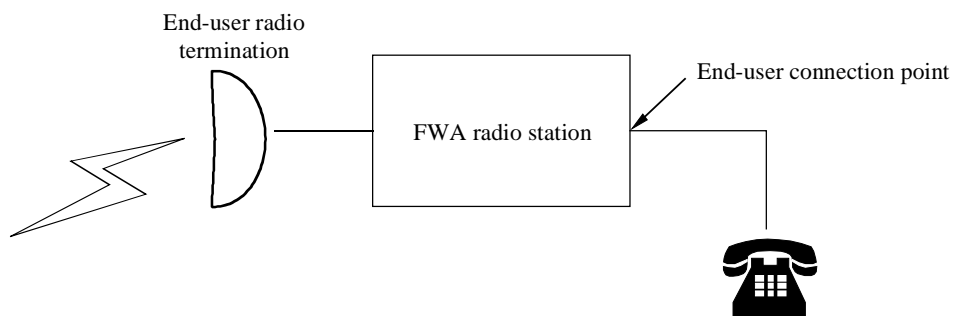
(See ITU-T Recommendation E.600.)

### 4.3 Acronyms and abbreviations used in wireless access

ATM	Asynchronous transfer mode
BWA	Broadband wireless access
CATV	Community antenna television
CDMA	Code division multiple access
FDD	Frequency duplex division
FDMA	Frequency division multiple access
FSS	Fixed-satellite service
FWA	Fixed wireless access
HAPS	High altitude platform stations
IMT-2000	International Mobile Telecommunications-2000
ISDN	Integrated services digital network
LAN	Local area network
MP	Multipoint
MP-MP	Multipoint-to-multipoint
MSS	Mobile-satellite-service
MWA	Mobile wireless access
NWA	Nomadic wireless access
P-P	Point-to-point
P-MP	Point-to-multipoint
PLMN	Public land mobile network
PSDN	Public switched data network
PSTN	Public switched telephone network

- TDD Time division duplex
- TDMA Time division multiple access
- WAN Wide area network

FIGURE 1  
Illustration of terms



1399-01

---