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**ITU-T**

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**P.10**

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SERIES P: TELEPHONE TRANSMISSION QUALITY,  
TELEPHONE INSTALLATIONS, LOCAL LINE  
NETWORKS

Vocabulary and effects of transmission parameters on  
customer opinion of transmission quality

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**Vocabulary of terms on telephone transmission  
quality and telephone sets**

ITU-T Recommendation P.10

(Previously CCITT Recommendation)

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ITU-T P-SERIES RECOMMENDATIONS

TELEPHONE TRANSMISSION QUALITY, TELEPHONE INSTALLATIONS, LOCAL LINE NETWORKS

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## **ITU-T RECOMMENDATION P.10**

### **VOCABULARY OF TERMS ON TELEPHONE TRANSMISSION QUALITY AND TELEPHONE SETS**

#### **Source**

ITU-T Recommendation P.10 was revised by ITU-T Study Group 12 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 3<sup>rd</sup> of December 1998.

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## **Recommendation P.10**

### **VOCABULARY OF TERMS ON TELEPHONE TRANSMISSION QUALITY AND TELEPHONE SETS**

*(Geneva, 1980; amended at Malaga-Torremolinos, 1984; Melbourne, 1988 and  
Helsinki, 1993; revised in 1998)*

#### **1 Introduction**

This Recommendation contains terms and definitions appropriate to the work of Study Group 12.

Terms which appear in the International Electrotechnical Vocabulary (IEV) have their IEV number reproduced here for reference purposes. Terms of the ITU-T have been classified in a manner similar to that used in the IEV.

#### **2 Terms and definitions**

This Recommendation defines the following terms:

##### **01 Tests**

###### **01.01 acceptance test**

*F: essai d'acceptation*

*S: prueba de aceptación*

A contractual test to prove to the customer that the device meets certain conditions of its specification.

151.04.20

###### **01.02 type test**

*F: essai de type*

*S: prueba tipo*

A test of one or more devices made to a certain design to show that the design meets certain specifications.

151.04.15

##### **02 Telephone set components**

###### **02.01 supra-aural earphones (see Recommendation P.57)**

*F: écouteurs supra-auraux*

*S: auriculares supraurales*

Earphones which rest upon the pinna and have an external diameter (or maximum dimension) of at least 45 mm.

## **02.02 supra-concha earphones** (see Recommendation P.57)

*F: écouteurs supraconques*

*S: auriculares supraconcha*

Earphones which are intended to rest upon the ridges of the concha cavity and have an external diameter (or maximum dimension) greater than 25 mm and less than 45 mm.

## **02.03 Y-ratio**

*F: rapport Y*

*S: relación Y*

The ratio between the sending and receiving efficiencies of a passive telephone set circuit.

## **04 Telephone set types**

### **04.01 group-audio terminals**

*F: terminal audio de communication de groupe*

*S: terminal audio de grupo*

A hands-free set primarily designed for use by several users.

### **04.02 hands-free (telephone) set**

*F: poste (téléphonique) mains libres*

*S: aparato telefónico manos libres; teléfono manos libres*

A *telephone set* using a loudspeaker associated with an amplifier as a telephone receiver and which may be used without a handset.

722.04.11

### **04.03 loudspeaking (telephone) set**

*F: poste (téléphonique) à écoute (ou à réception) amplifiée sur haut-parleur*

*S: aparato telefónico con altavoz; teléfono de altavoz*

A handset *telephone* using a *loudspeaker* associated with an amplifier as a *telephone receiver*.

722.04.10

### **04.04 multimedia terminals**

*F: terminaux multimédias*

*S: terminales multimedios*

Terminals for multimedia services usually including video and/or audio and/or data.

### **04.05 telephone set; telephone instrument**

*F: poste téléphonique; appareil téléphonique; téléphone*

*S: aparato telefónico; teléfono*

An assembly of apparatus for *telephony* including at least a *telephone transmitter*, a *telephone receiver* and the wiring and components immediately associated with these transducers.

NOTE – A telephone set usually includes other components such as a *switchhook*, a built-in *telephone alerter*, and a *dial*.

722.04.01



## **04.06 telephone station**

*F: poste téléphonique (installé)*

*S: estación telefónica*

A *telephone set* with associated wiring and auxiliary equipment connected to a *telephone network* for the purpose of *telephony*.

NOTE – The auxiliary equipment may include, for example, an external *call-indicating device*, a protector, a *local battery*.

722.04.02

## **05 Telephone set accessories**

### **05.01 acoustic shock suppressor (in telephony)**

*F: antichoc (en téléphonie)*

*S: supresor de choque acústico; antichoque (en telefonía)*

A device associated with a *telephone station* and intended to prevent *acoustic shocks*, by setting an upper limit to the absolute values of the instantaneous electrical voltage that can be applied to the *telephone earphone*.

722.05.07

## **08 Private telephone systems**

### **08.01 private (telephone) installation**

*F: installation (téléphonique) intérieure*

*S: instalación (telefónica) privada*

A *telephone network* installed on the premises of a single individual or organization.

NOTE – By convention, private telephone installations include sets of *telephone stations* which are connected to one *subscriber's line*.

722.08.01

## **10 Telephone calls description**

### **10.01 call**

*F: communication*

*S: comunicación*

The establishment and use of a *complete connection* following a *call attempt*.

722.10.04; identical to 701.03.05

### **10.02 call attempt (by a user)**

*F: (tentative d')appel (par un usager)*

*S: intento de llamada (por un usuario)*

A sequence of operations made by a user of a telecommunication network trying to obtain the desired user or service.

Associated term: to *call*.

722.10.01; identical to 701.03.04

### 10.03 connection

F: chaîne de connexion

S: conexión; cadena de conexión

A temporary association of transmission channels or telecommunication circuits, switching and other functional units set up to provide the means of a transfer of information between two or more points in a telecommunication network.

722.10.02; identical to 701.03.01

### 10.04 (complete) connection

F: chaîne de connexion complète; (chemin de) communication

S: conexión (completa); cadena de conexión completa

A connection between users' terminals.

722.10.03; identical to 701.03.02

## 12 Local line networks

### 12.01 local line network

F: réseau local de lignes (téléphoniques)

S: red local de líneas (telefónicas)

All the subscribers' telephone lines and ancillary equipment provided to connect subscribers to their local switching entity.

722.12.01

### 12.02 Local (telephone) System (LS) (see Recommendation G.101)

F: système (téléphonique) local (LS)

S: sistema (telefónico) local (LS)

The combination of subscriber's station, subscriber's line and feeding bridge if existing.

NOTE – This term is used in the context of transmission planning and performance.

722.16.16

### 12.03 subscriber system (in transmission planning) (see Recommendation G.101)

F: système d'abonné (en planification de la transmission)

S: sistema de abonado (en planificación de transmisión)

A subscriber's line associated with that part of the private telephone installation connected to this line during a telephone call; see Figure 1/G.101 (see also Recommendation P.10, term 12.04).

NOTE – This term is used in the context of transmission planning and performance.

722.16.17

### 12.04 subscriber's (telephone) line; subscriber loop (in telephony)

F: ligne (téléphonique) d'abonné; ligne (de) réseau

S: línea (telefónica) de abonado; bucle de abonado (en telefonía)

A link between a public switching entity and a telephone station or a private telephone installation or another terminal using signals compatible with the telephone network.

NOTE – In French, the term "ligne de réseau" is used only when the private telephone installation is a *private branch exchange* or an *internal telephone system*.

722.12.02

### **13 Telephone station usage**

#### **13.01 acoustic hood**

*F:* *abri téléphonique; abriphone*

*S:* *cabina acústica; burbuja acústica*

A hood lined with sound-absorbing material to facilitate the use of a *telephone station* by reducing the *ambient noise* level.

722.13.03

#### **13.02 telephone booth**

*F:* *cabine téléphonique*

*S:* *cabina telefónica cerrada*

A small cabin containing a *telephone station* and providing a certain measure of acoustic insulation and privacy for the user.

722.13.04

#### **13.03 telephone stall**

*F:* *cabine téléphonique ouverte*

*S:* *cabina telefónica abierta*

A *telephone booth* without a door.

722.13.05

### **15 Transmission performance**

#### **15.01 Absolute Category Rating (ACR) (see Recommendation P.800)**

*F:* *évaluation par catégories absolues (ACR)*

*S:* *evaluación por categorías absolutas (ACR)*

Test method in which subjects are asked to express opinion judgements using absolute quality scales (excellent, good, ...).

#### **15.02 acceptance scale (see Recommendation P.85)**

*F:* *échelle d'acceptabilité*

*S:* *escala de aceptabilidad*

Opinion scale for measuring the overall quality of the message on a service point of view. Acceptance requires a Yes/No answer.

#### **15.03 acoustic shock (in telephony)**

*F:* *choc acoustique (en téléphonie)*

*S:* *choque acústico (en telefonía)*

Any temporary or permanent disturbance of the functioning of the ear, or of the nervous system, which may be caused to the user of a *telephone earphone* by a sudden sharp rise in the acoustic pressure produced by it.

NOTE – An acoustic shock usually results from the occurrence, in abnormal circumstances, of short-lived high voltages at the terminals of a *telephone set*.

722.15.20

**15.04 articulation scale** (see Recommendation P.85)

*F: échelle de netteté*

*S: escala de articulación*

Opinion scale for measuring the impression of clarity felt by a listener. How distinguishable are the words composing the message?

**15.05 Comparison Category Rating (CCR)** (see Recommendation P.800)

*F: évaluation par catégories de comparaison (CCR)*

*S: evaluación por categorías de comparación (CCR)*

Test method in which subjects are asked to express opinion judgements using comparison category scale (much better, better, slightly better, ...).

**15.06 Comparison Mean Opinion Score (CMOS)** (see Recommendation P.800)

*F: note moyenne d'opinion par comparaison (CMOS)*

*S: nota media de opinión sobre las comparaciones (CMOS)*

The mean of opinion scores such as defined in 15.15, when the CCR method is used to evaluate the performance of a telephone transmission system.

**15.07 Degradation Category Rating (DCR)** (see Recommendation P.800)

*F: évaluation par catégories de dégradation (DCR)*

*S: evaluación por categorías de degradación (DCR)*

A modification of the ACR test method where subjects compare the system under test with a reference system and express their opinion using a degradation scale (degradation inaudible, audible but not annoying, slightly annoying, ...).

**15.08 Degradation Mean Opinion Score (DMOS)** (see Recommendation P.800)

*F: note moyenne d'opinion de la dégradation (DMOS)*

*S: nota media de opinión sobre las degradaciones (DMOS)*

The mean of opinion scores such as defined in 15.15, when the DCR method is used to evaluate the performance of a telephone transmission system.

**15.09 echo (in telephony)** (see Recommendation P.561)

*F: écho (en téléphonie)*

*S: eco (en telefonía)*

An unwanted delayed version of the directly transmitted signal, returned to the listener.

NOTE 1 – Distinction is made between talker echo and listener echo (see definitions in Recommendation G.100).

NOTE 2 – An echo is usually considerably attenuated with respect to the direct signal.

NOTE 3 – Typically, the talker is also the listener.

**15.10 interruptibility** (see Recommendation G.114)

*F: interruptibilité*

*S: interrumpibilidad*

The possibility for one party in a telephone conversation to interrupt the other party, as in normal conversation. Interruptibility can be affected by the use of voice-activated devices, by total transmission time, etc.

**15.11 intra-concha earphones** (see Recommendation P.57)

*F: écouteurs intraconques*

*S: auriculares intraconcha*

Earphones which are intended to rest within the concha cavity of the ear. They have an external diameter (or maximum dimension) of less than 25 mm but are not made to enter the ear canal.

**15.12 listening effort scale** (see Recommendations P.800, P.830)

*F: échelle d'effort d'écoute*

*S: escala de esfuerzo de escucha*

Opinion scale for measuring the difficulty of the task performed by a person listening to a voice message, in order to understand the content of the message.

**15.13 Mean Opinion Score (MOS)** (see Recommendation P.800)

*F: note moyenne d'opinion (MOS)*

*S: nota media de opinión (MOS)*

The mean of opinion scores such as defined in 15.15.

**15.14 Modulated Noise Reference Unit (MNRU)** (see Recommendation P.810)

*F: appareil de référence à bruit modulé (MNRU)*

*S: unidad de referencia de ruido modulado (MNRU)*

A device producing a calibrated distortion which is subjectively similar to that produced by logarithmically companded PCM systems. The MNRU distortion is expressed in decibels corresponding to the ratio of a signal to the multiplicative noise.

**15.15 opinion score (in telephony)**

*F: note d'opinion (en téléphonie)*

*S: nota de opinión (en telefonía)*

The value on a predefined scale that a subject assigns to his opinion of the performance of the telephone transmission system used either for conversation or only for listening to spoken material.

722.15.24

## 16 Measuring apparatus

### 16.01 acoustic coupler (in telephonometry)

*F: coupleur acoustique (en téléphonométrie)*

*S: acoplador acústico (en telefonometría)*

A cavity of defined shape and volume used for the testing of *telephone earphones* or *telephone transmitters* in conjunction with a calibrated microphone adapted to measure the pressure developed within the cavity.

722.16.12

### 16.02 artificial conversational speech (see Recommendation P.59)

*F: conversation artificielle*

*S: voz artificial de conversación*

A signal which reproduces the on-off characteristics of human conversational speech for characterizing speech processing systems which have speech detectors, such as hands-free telephones, echo control devices, Digital Circuit Multiplication Equipment (DCME) and Asynchronous Transfer Mode (ATM) systems.

### 16.03 artificial ear

*F: oreille artificielle*

*S: oído artificial*

A device for the calibration of earphones incorporating an *acoustic coupler* and a calibrated microphone for the measurement of sound pressure and having an overall acoustic impedance similar to that of the average human ear over a given frequency band.

722.16.13

### 16.04 artificial mouth

*F: bouche artificielle*

*S: boca artificial*

A device consisting of a *loudspeaker* mounted in an enclosure and having a directivity and radiation pattern similar to those of the average human mouth.

722.16.14

### 16.05 artificial voice

*F: voix artificielle*

*S: voz artificial*

A mathematically defined signal which reproduces human speech characteristics, relevant to the characterisation of linear and nonlinear telecommunication systems. It is intended to give a satisfactory correlation between objective measurements and tests with real speech.

722.16.15

### 16.06 acoustic artificial voice

*F: voix artificielle acoustique*

*S: voz artificial acústica*

Acoustic signal at the Mouth Reference Point (MRP) of the artificial mouth. It complies with the same time and spectral specifications as the electrical artificial voice.

### **16.07 artificial mouth excitation signal**

*F: signal d'excitation de la bouche artificielle*

*S: señal de excitación de boca artificial*

A signal applied to the artificial mouth in order to produce the acoustic artificial voice. It is obtained by equalizing the electrical artificial voice for compensating the sensitivity/frequency characteristic of the mouth.

### **16.08 Composite Source Signal (CSS)**

*F: signal de source composite (CSS)*

*S: señal de fuente compuesta (CSS)*

Signal composed in time by various signal elements.

### **16.09 ear simulator (see Recommendation P.57)**

*F: simulateur d'oreille*

*S: simulador de oído*

Device for measuring the output sound pressure of an earphone under well-defined loading conditions in a specified frequency range. It consists essentially of a principal cavity, acoustic load networks, and a calibrated microphone. The location of the microphone is chosen so that the sound pressure at the microphone corresponds approximately to the sound pressure existing at the human ear drum.

### **16.10 electrical artificial voice**

*F: voix artificielle électrique*

*S: voz artificial eléctrica*

The artificial voice produced as an electric signal, for testing transmission channels or other electric devices.

### **16.11 Head and Torso Simulator (HATS) (see Recommendation P.58)**

*F: simulateur de tête et de torse (HATS)*

*S: simulador de cabeza y torso (HATS)*

Manikin extending downward from the top of the head to the waist, designed to simulate the sound pick-up characteristics and the acoustic diffraction produced by a median human adult and to reproduce the acoustic field generated by the human mouth.

### **16.12 Modulation Transfer Function (MTF) (see Recommendation P.501)**

*F: fonction de transfert de modulation (MTF)*

*S: función de transferencia de modulación (MTF)*

Modulation signal, derived from the envelope of a test signal. Typically, the modulation is determined in different bands. The procedure is widely used in room acoustics, mainly for determining speech intelligibility of reverberant speech signals using the STI method.

### **16.13 occluded-ear simulator (see Recommendation P.57)**

*F: simulateur d'oreille occluse*

*S: simulador de oído ocluido*

Ear simulator which simulates the inner part of the ear canal, from the tip of an ear insert to the ear drum.

#### **16.14 PCM Digital Reference Sequence (DRS)**

*F: séquence numérique MIC de référence (DRS)*

*S: secuencia de referencia digital MIC (DRS)*

A PCM digital reference sequence is one of the set of possible PCM code sequences that, when decoded by an ideal decoder, produces an analogue sinusoidal signal at the reference frequency (i.e. 1020 Hz) at a level of 0 dBm0. Conversely, an analogue sinusoidal signal at 0 dBm0 at the reference frequency applied to the input of an ideal coder will generate a PCM digital reference sequence (see 2.9/G.101).

#### **16.15 Q** (see Recommendations P.800, P.810 and P.830)

*F: Q*

*S: Q*

The ratio, in dB, of speech-power-to modulated noise power in the Modulated Noise Reference Unit, as described in Recommendation P.810.

#### **16.16 $Q_N$** (see Recommendations P.810 and P.830)

*F:  $Q_N$*

*S:  $Q_N$*

Q for a narrow-band Modulated Noise Reference Unit.

#### **16.17 $Q_W$** (see Recommendations P.810 and P.830)

*F:  $Q_W$*

*S:  $Q_W$*

Q for a wideband Modulated Noise Reference Unit.

#### **16.18 Speech Transmission Index (STI)**

*F: indice de transmission de la parole (STI)*

*S: índice de transmisión vocal (STI)*

Index indicating the speech intelligibility especially in reverberant condition, derived from measuring the MTF.

### **17 Telephony**

#### **17.01 Acoustic Reference Level (ARL)** (see Recommendations P.310, 311, 341, 342)

*F: niveau de référence acoustique (ARL)*

*S: nivel acústico de referencia (ARL)*

The acoustic level at MRP which results in a –10 dBm0 output at the digital interface.

#### **17.02 acoustical telephony gain (telephonic transfer function)** (see Recommendation P.58)

*F: gain acoustique téléphonique (fonction de transfert téléphonique)*

*S: ganancia acústica telefónica (función de transferencia telefónica)*

Ratio of the pressure at the ear reference point of a listener to the pressure at the mouth reference point of a talker connected by a telephone channel.



**17.03 acoustically closed earphones (nominally sealed)** (see Recommendation P.57)

*F:* écouteurs acoustiquement fermés (nominalement hermétiques)

*S:* auriculares acústicamente cerrados (nominalmente herméticos)

Earphones which are intended to prevent any acoustic coupling between the external environment and the ear canal.

**17.04 acoustically open earphones (nominally unsealed)** (see Recommendation P.57)

*F:* écouteurs acoustiquement ouverts (nominalement non hermétiques)

*S:* auriculares abiertos acústicamente (nominalmente no herméticos)

Earphones which intentionally provide an acoustic path between the external environment and the ear canal.

**17.05 band sensation level**

*F:* niveau de sensation dans la bande

*S:* nivel de sensación en la banda

Difference, expressed in decibels, between the sound integrated over a frequency band and the sound pressure level in that band at the threshold of audibility, there being no other disturbing sound.

**17.06 circum-aural earphones** (see Recommendation P.57)

*F:* écouteurs circumauraux

*S:* auriculares circumaurales

Earphones which enclose the pinna and seat on the surrounding surface of the head. Contact to the head is normally maintained by compliant cushions. Circum-aural earphones may touch, but not significantly compress the pinna.

**17.07  $\Delta_{SM}$  (DELSM)**

*F:*  $\Delta_{SM}$  (DELSM)

*S:*  $\Delta_{SM}$  (DELSM)

Delta  $\Delta_{SM}$  is defined as the difference between the sending sensitivity of a telephone set using a **real mouth and voice**,  $S_{MJ}$ , and that using a diffuse room noise source  $S_{MJ/RN}$ , such that

$$\Delta_{SM} = S_{MJ/RN} - S_{MJ} \text{ dB.}$$

(See also Recommendations P.11, P.64, P.76, P.79 and the *Handbook on Telephonometry*.)

NOTE – For most practical purposes  $\Delta_{SM}$  will be closely approximated by the quantity  $\Delta_{Sm}$ , which is easier to determine.

**17.08  $\Delta_{Sm}$  (DELSm)**

*F:*  $\Delta_{Sm}$  (DELSm)

*S:*  $\Delta_{Sm}$  (DELSm)

Delta  $\Delta_{Sm}$  is defined as the difference between the sending sensitivity of a telephone set using an **artificial mouth**  $S_{mJ}$ , and that using a diffuse room noise source  $S_{mJ/RN}$ , such that

$$\Delta_{Sm} = S_{mJ/RN} - S_{mJ} \text{ dB.}$$

(See also Recommendations P.11, P.64, P.76, P.79 and the *Handbook on Telephonometry*.)

**17.09 double talk**

*F: parole simultanée*

*S: habla simultánea*

An operation mode, where two users are speaking simultaneously.

**17.10 Ear Canal Entrance Point (EEP)** (see Recommendation P.57)

*F: point d'entrée du canal auditif (EEP)*

*S: punto de entrada del conducto auditivo (EEP)*

A point located at the centre of the ear canal opening.

**17.11 ear canal extension** (see Recommendation P.57)

*F: prolongateur de conduit auditif*

*S: prolongación del conducto auditivo*

Cylindrical cavity, extending the simulation of the ear canal provided by the Occluded Ear Simulator (Recommendation P.57, Type 2) out to the concha cavity.

**17.12 Ear Reference Point (ERP)** (see Recommendation P.57)

*F: point de référence oreille (ERP)*

*S: punto de referencia oído (ERP)*

A virtual point for geometric reference located at the entrance to the listener's ear, traditionally used for calculating telephonometric loudness ratings.

**17.13 ear cap reference plane**

*F: plan de référence écouteur*

*S: plano de referencia auricular*

That plane formed by the contacting points of a flat surface against a telephone ear cap.

**17.14 Ear Cap Reference Point (ECRP)**

*F: point de référence écouteur (ECRP)*

*S: punto de referencia auricular (ECRP)*

Point in the *ear cap reference plane*, used as a reference parameter.

**17.15 eardrum reference point (DRP)** (see Recommendation P.57)

*F: point de référence tympan (DRP)*

*S: punto de referencia tímpano (DRP)*

A point located at the end of the ear canal, corresponding to the eardrum position.

**17.16 earphone coupling loss ( $L_E$ )**

*F: affaiblissement de couplage de l'écouteur ( $L_E$ )*

*S: pérdida por acoplamiento del auricular ( $L_E$ )*

That quantity defined as the receiving sensitivity of a handset (usually as a function of frequency) when applied to an artificial ear minus the receiving sensitivity of the same handset on a human ear.

**17.17 guard-ring**

*F: anneau de garde*

*S: anillo de guarda*

Annular ring fitted, during tests, onto the transmitter housing of a telephone handset, to localize the sound source in a prescribed position relative to the microphone.

**17.18 Hands-Free Reference Point (HFRP)** (see Recommendations P.340, 341, 342)

*F: point de référence mains libres*

*S: punto de referencia manos libres*

A point located on the axis of the artificial mouth, at 50 cm from the outer plane of the lip ring, where the level calibration is made, under free-field conditions. It corresponds to the measurement point 11, as defined in Recommendation P.51.

**17.19 insert earphones** (see Recommendation P.57)

*F: inserts*

*S: auriculares de inserción*

Earphones which are intended to partially or completely enter the ear canal.

**17.20 lip plane** (see Recommendations P.51, 58)

*F: position équivalente des lèvres*

*S: plano de labios; posición equivalente de los labios*

Outer plane of the lip ring. The lip plane (of the artificial mouth or the HATS) is normally different from the plane of the mouth simulator orifice. The lip plane is vertically oriented when the HATS is in the reference position

**17.21 lip ring** (see Recommendations P.51, 58)

*F: anneau de garde (pour les lèvres)*

*S: anillo de labios*

Circular ring of thin rigid rod, having a diameter of 25 mm and less than 2 mm thick. It shall be constructed of non-magnetic material and be solidly fixed to the artificial mouth or the HATS. The lip ring defines both the reference axis of the mouth and the mouth reference point.

**17.22 Listener Sidetone Rating (LSTR)**

*F: affaiblissement d'effet local pour l'auditeur (LSTR)*

*S: índice de efecto local para el oyente (LSTR)*

The loudness of a diffuse room noise source as heard at the subscriber's (earphone) ear via the electric sidetone path in the telephone instrument, compared with the loudness of the Intermediate Reference System (IRS) overall, in which the comparison is made incorporating a speech signal heard via the human sidetone path ( $L_{MEHS}$ ) as a masking threshold.

### 17.23 loudness rating

*F:* équivalent pour la sonie

*S:* índice de sonoridad

A measure, expressed in decibels, for characterizing the *loudness* performance of *complete telephone connections* or of parts thereof such as *sending system, line, receiving system*.

NOTE – (added by the ITU-T) – This definition is very general and corresponds to what is described as *loudness loss* in ITU-T texts; in those texts, the term "loudness rating" should be confined to measurements in conformity with Recommendation P.76, and may be abbreviated as LR.

722.17.25

### 17.24 metre air path

*F:* trajet d'un mètre à l'air libre

*S:* trayecto de un metro en el aire

Measured reference of sound pressure loss over a 1-metre air path. In an anechoic environment, the sound pressure attenuation of such a path is approximately 30 dB measured from the MRP.

### 17.25 modal distance

*F:* distance modale

*S:* distancia modal

Distance between the centre of the microphone protective grid or front sound opening on a handset, and the centre of the guard-ring.

### 17.26 modal gauge

*F:* jauge modale

*S:* calibre modal

Template used to check a guard-ring position on a handset relative to the receiver *earcap reference plane*.

### 17.27 modal position

*F:* position modale

*S:* posición modal

Prescribed position and inclination of a handset relative to a fixed sound source.

### 17.28 mouth reference point (MRP) (see Recommendations P.51, 58)

*F:* point de référence bouche (MRP)

*S:* punto de referencia boca (MRP)

Point 25 mm in front of and on the axis of the lip plane of the artificial mouth or a typical human mouth (see Figure A.1/P.64).

**17.29 obstacle effect; obstruction effect**

*F: effet d'obstacle; effet d'obstruction*

*S: efecto de obstáculo; efecto de obstrucción*

The change in the acoustic field close to a human or artificial mouth as obstacles (e.g. telephone transmitter) are brought into close proximity.

**17.30 occlusion effect**

*F: effet d'occlusion*

*S: efecto de oclusión*

The change in human sidetone that occurs when the ear canal is occluded, e.g. by a telephone receiver.

**17.31 optimum listening level**

*F: niveau d'écoute optimal*

*S: nivel de escucha óptimo*

The speech level that in a listening or conversation test corresponds to the highest opinion score on a *Quality scale* (a rating scale going from "Excellent" to "Bad").

NOTE – It has been shown that the *optimum* listening level may be significantly higher than the preferred listening level. This indicates the importance of making a distinction between the optimum and *preferred* listening levels.

**17.32 orthoreference acoustic gain for telephony** (see Recommendation P.58)

*F: gain acoustique en condition d'orthoréférence pour la téléphonie*

*S: ganancia acústica de ortorreferencia para telefonía*

Ratio of the pressure at the ear reference point of the listener to the pressure at the mouth reference point of the talker under orthoreference conditions for telephony.

**17.33 orthoreference condition for telephony** (see Recommendation P.58)

*F: conditions d'orthoréférence pour la téléphonie*

*S: condición de ortorreferencia para telefonía*

Acoustic path between a talker and a listener, facing each other at a distance of 1 metre in the free field.

**17.34 orthotelephonic gain (insertion gain)** (see Recommendation P.58)

*F: gain orthotéléphonique (gain d'insertion)*

*S: ganancia ortotelefónica (ganancia de inserción)*

Ratio of the total electroacoustic gain to the orthotelephonic acoustic reference gain.

**17.35 pinna simulator** (see Recommendation P.57)

*F: simulateur de pavillon*

*S: simulador del pabellón auricular*

A device which has the approximate shape of dimensions of a median adult human pinna.

### **17.36 preferred listening level**

*F: niveau d'écoute préféré*

*S: nivel de escucha preferido*

The speech level that, in a listening or conversation test, is judged as preferred on a *Loudness Preference* scale [a rating scale going from "(Much) Louder than Preferred" to "(Much) Quieter than Preferred"].

NOTE – See "optimum listening level".

### **17.37 reference axis (of the mouth or the HATS)**

*F: axe de référence (de la bouche ou du simulateur de tête et de torse)*

*S: eje de referencia (de la boca o del simulador de cabeza y torso)*

The line perpendicular to the lip plane containing the centre of the lip ring.

### **17.38 reference position of HATS**

*F: position de référence du simulateur de tête et de torse*

*S: posición de referencia del simulador de cabeza y torso*

The reference position of the HATS in the test space is intended to simulate a person in the upright position. The HATS is in the reference position when the following conditions are met:

- the reference point coincides with the test point;
- the HATS reference plane is horizontal.

### **17.39 sidetone balance network**

*F: réseau d'équilibrage d'effet local*

*S: red equilibradora del efecto local*

An electrical network as part of a 2- to 4-wire balance point within a telephone set circuit for the purpose of controlling the telephone sidetone path loss.

### **17.40 Sidetone Masking Rating (STMR)**

*F: affaiblissement d'effet local par la méthode de masquage (STMR)*

*S: índice de enmascaramiento del efecto local (STMR)*

The loudness of a telephone sidetone path compared with the loudness of the Intermediate Reference System (IRS) overall in which the comparison is made incorporating the speech signal heard via the human sidetone path  $L_{MEHS}$  as a masking threshold.

### **17.41 sidetone path**

*F: trajet d'effet local*

*S: trayecto de efecto local*

Any path, acoustic, mechanical or electrical, by which a telephone user's speech and/or room noise is heard in his own ear(s) (at ERP).

#### 17.42 sidetone path loss

*F:* affaiblissement du trajet d'effet local

*S:* atenuación de trayecto de efecto local

The loss of the sidetone path expressed as a loss compared with the speech at the MRP. Symbols in common use are:

$L_{MEHS}$  for sidetone paths within a human head;

$L_{MEST}$  for electro-acoustic sidetone paths within the telephone set;

$L_{MEMS}$  for mechanical sidetone paths within a telephone handset;

$L_{RNST}$  for electro-acoustic sidetone path from a diffuse room noise source to the earphone.

Each of these paths may be measured as sensitivities, in which case they become  $S_{MEHS}$ ,  $S_{MEST}$ ,  $S_{MEMS}$  and  $S_{RNST}$ , and experience a change of sign. Thus, for example,  $S_{MEST} = -L_{MEST}$ .

#### 17.43 single talk

*F:* parole unique

*S:* monólogo

An operation mode, where only one user is speaking.

#### 17.44 speech volume penalty

*F:* pénalisation en volume sonore

*S:* penalización en volumen sonoro

The reduction in a subscriber's talking level (usually expressed as a function of a speech sidetone rating, e.g. STMR) due to the presence of sidetone.

#### 17.45 talking resistance

*F:* résistance de conversation

*S:* resistencia de conversación

Fixed resistance used for test purposes, which has a resistance equal to that of a carbon microphone at a particular current.

#### 17.46 Terminal Coupling Loss (TCL); Weighted Terminal Coupling Loss (TCLw) (see Recommendations P.30 and P.310)

*F:* équivalent de couplage du terminal (TCL); équivalent pondéré de couplage du terminal (TCLw)

*S:* atenuación por acoplamiento de terminal (TCL); atenuación por acoplamiento de terminal ponderada (TCLw)

The (frequency-dependent) coupling loss between the receiving port and the sending port of a terminal due to:

- acoustical coupling at the user interface;
- electrical coupling due to crosstalk in the handset cord or within the electrical circuits;
- seismic coupling through the mechanical parts of the terminal.

NOTE 1 – The receiving port and the sending port of a digital voice terminal is a 0 dBr point.

NOTE 2 – The coupling at the user interface will depend on the conditions.

NOTE 3 – Weighted Terminal Coupling Loss should use the weighting of G.122.

**17.47 virtual source function**

*F: fonction de source virtuelle*

*S: función de la fuente virtual*

The change in virtual source position as a function of some other parameter, e.g. frequency, proximity of obstacles.

**17.48 virtual source position**

*F: position de la source virtuelle*

*S: posición de la fuente virtual*

That position within a human or artificial mouth at which emitted sounds appear to have their source.

**17.49 weighted terminal coupling loss**

*F: équivalent pondéré de couplage du terminal: voir équivalent de couplage du terminal (17.46)*

*S: atenuación ponderada por acoplamiento de terminal: véase atenuación por acoplamiento de terminal (17.46)*

See *terminal coupling loss* (17.46)

**17.50 zero sidetone line impedance ( $Z_{S0}$ )**

*F: impédance de ligne à effet local nul ( $Z_{S0}$ )*

*S: impedancia de línea de efecto local nulo ( $Z_{S0}$ )*

That circuit impedance which, when connected across the terminals of a telephone set, causes the sidetone to be reduced to zero.

**18 Voice service measurements****18.01 active time**

*F: durée d'activité*

*S: tiempo activo; tiempo de actividad*

Aggregate of all intervals of time when speech is deemed to be present according to the criterion adopted by ITU-T (see Recommendation P.56) for the purpose of measurement

**18.02 active speech level (see Recommendation P.56)**

*F: niveau vocal actif*

*S: nivel de habla activa*

A quantity, expressed in decibels relative to a stated reference, e.g. volts or pascals, formed by averaging the speech-signal's power over the active time, according to Recommendation P.56, method B.



### **18.03 activity factor**

*F:* *coefficient d'activité*

*S:* *factor de actividad*

Ratio of the active time to total timed elapsed during a measurement, usually expressed as a percentage.

### **18.04 crest factor**

*F:* *facteur de crête*

*S:* *factor de cresta*

Peak-to-RMS ratio of a signal.

### **18.05 double talk interval**

*F:* *intervalle de parole simultanée*

*S:* *intervalo de habla simultánea*

The interval during which both directions of transmission are experiencing incident speech spurts. (At the In-service Non-intrusive Measurement Device (INMD) monitoring point, this will be different from the double talk experienced by both parties due to the delay between the termination points and the measurement equipment.)

### **18.06 echo loss**

*F:* *affaiblissement d'écho*

*S:* *atenuación del eco*

The echo loss (Recommendation G.122) is derived from the integral of the power transfer characteristic weighted by a negative slope of 3 dB/octave starting at 300 Hz and extending to 3400 Hz. The echo loss should be calculated with the speech echo path delay removed. This echo loss figure has been found to give better agreement with subjective opinion for individual connections than an unweighted echo path loss. For a flat echo path frequency response, echo loss is equal to speech echo path loss and echo path loss.

### **18.07 echo path**

*F:* *trajet d'écho*

*S:* *trayecto de eco*

The round-trip electrical path starting from the point of incident speech measurement and ending at the point where the correlated reflected speech is measured.

### **18.08 echo path loss**

*F:* *affaiblissement sur le trajet d'écho*

*S:* *atenuación del trayecto de eco*

The echo path has a unique impulse response. The Echo Path Loss is the integral of the impulse response (in the frequency domain). Echo Path Loss is not dependent on the speaker.

### **18.09 noise level**

*F:* *niveau de bruit*

*S:* *nivel de ruido*

The electrical energy (measured in dBmp) caused by spurious signals. Spurious signals, i.e. noise, can be generated internally to the circuit or may be the result of interference from external sources.

### **18.10 speech activity factor**

*F: facteur d'activité vocale*

*S: factor de actividad de la voz*

See *activity factor*.

### **18.11 speech echo path delay**

*F: temps de propagation sur le trajet d'écho vocal*

*S: retardo del trayecto de eco de la voz*

It is the period (in ms) between the detection of an incident signal at a zero reference point, on a four-wire point, to the detection of its corresponding reflected signal at the same four-wire point (on the opposite direction). (For multiple echo path reflections, the speech echo path delay should be calculated for each detection of the corresponding reflected signal.)

### **18.12 speech echo path loss**

*F: affaiblissement sur le trajet d'écho vocal*

*S: atenuación del trayecto de eco de la voz*

It is the ratio of the r.m.s. values of the incident to reflected speech signals with the speech echo path delay removed. The Speech Echo Path Loss is highly dependent on the speaker.

### **18.13 speech level**

*F: niveau vocal*

*S: nivel vocal; nivel de voz*

A general term embracing speech volume, active speech level and any other similar quantity expressed in decibels relative to a stated reference.

### **18.14 speech pause interval (or quiet interval)**

*F: intervalle de pause du signal vocal (ou silence)*

*S: intervalo de pausa de las señales de voz (o intervalo de silencio)*

A period of time during which speech levels are absent due to inter syllabic and conversational pauses. (Intersyllabic pauses are the gaps inherent in the articulation process. Such gaps are short approximately up to 350 ms and are not noticed as such by the listener. These pauses should be considered as part of the utterance and therefore included in a measurement of speech level. Conversational pauses are generally longer. They will be noticed by the listener, either consciously or subconsciously, and should be excluded from the measurement of speech level since they do not contribute to the subjective loudness of the speech. When these pauses are excluded, the measurement is said to be made when the talker is "active".)

### **18.15 speech spurt (or utterance) interval**

*F: intervalle d'activité vocale*

*S: intervalo de emisión de palabras (o de vocalización)*

A period of time during which speech is present due to syllabic emphasis.

### **18.16 speech volume or volume**

*F: volume ou volume vocal*

*S: volumen o volumen de la voz*

A quantity which is related to speech power and is measured at a stated point in a telephone circuit by means of a specified instrument, suitable for rapid real-time control or adjustment of level by a human observer (e.g. vu meter, ARAEN volume meter, peak programme meter).

## **19 Speech signal processing**

### **19.01 Automatic Speech Recognition (ASR)**

*F: reconnaissance vocale automatique (ASR)*

*S: reconocimiento automático de la voz (ASR)*

A process or a technology which accepts natural speech signal as input and provides, at the output, a coded version of what has been said (word, command, expression, sentence, etc.).

### **19.02 ASR system**

*F: système de reconnaissance vocale automatique*

*S: sistema de reconocimiento automático de la voz*

An implementation in hardware or software that accepts natural speech signal as input and provides, at the output, a coded version of what has been said ( word, command, expression, sentence, etc.).

### **19.03 continuous speech understanding system**

*F: système de compréhension de parole continue*

*S: sistema de comprensión de voz continua*

A system that can recognize continuous speech, often having phoneme-sized references, using lexical, syntactic, semantic, and pragmatic knowledge, and reacts appropriately (therefore having interpreted the message and found the corresponding action to be taken). This term describes the final objective of ASR research.

### **19.04 diphone synthesis**

*F: synthèse par dipphones*

*S: síntesis por dífonos*

*Synthesis* technique bases on the use of segments of speech which correspond to two consecutive sounds and cover an interval of time going from the middle part of the first sound to the middle part of the second sound.

### **19.05 formant synthesis**

*F: synthèse par formants*

*S: síntesis por formadoras*

*Synthesis* technique based on the use of formant and excitation parameters in which the target positions of those parameters (associated with each phonetic unit) and rules of interpolation act, are used.

## **19.06 speaking rate**

*F: débit de parole*

*S: régimen de la voz*

Speaking rate may be expressed in words, syllables or phonemes per second; it takes into account speech pauses. The minimum duration to be measured must be one sentence.

## **19.07 Text-To-Speech Synthesis (TTS)**

*F: synthèse vocale à partir du texte (TTS)*

*S: síntesis de la voz a partir del texto (TTS)*

A TTS process generates a speech signal from text codes. It is usually composed of the two parts:

- a language-dependent text processing part (the high level processing part), which generates from the character string (by reading rules, vocabulary and semantic analysis) a set of phonetic, prosodic, etc., parameters which are used by:
  - an acoustical signal generating part, the synthesiser itself, which generates the audible speech.

## **19.08 voice server**

*F: serveur vocal*

*S: servidor vocal*

Voice servers are automatic devices having similar functions as human operators. The voice servers are connected to a speech application platform or to the telephone network and communicate with users by speech. Voice servers are usually able to handle a large number of ports. Voice servers store and/or retrieve voice messages and voice prompts. Other speech-processing technologies like *recognition*, *understanding* and *synthesis of speech* and general signal-processing technologies like noise processing, echo control, DTMF processing, could be also implemented in voice servers.

## **20 Voice services: performance of an automatic speech recognition system**

### **20.01 complexity for an ASR system**

*F: complexité d'un système ASR*

*S: complejidad del sistema de reconocimiento automático de la voz*

A measure of the mean length of the sentences which are accepted by the system.

### **20.02 connected-word mode**

*F: mots attachés*

*S: modo de palabras conectadas*

A *string of words* spoken carefully, but with no explicit pauses between them.

### **20.03 continuous-speech mode**

*F: parole continue*

*S: modo de voz continua*

A *string of words* spoken fluently and rapidly as in conversational speech.

#### **20.04 deletion error**

*F: erreur par omission*

*S: error por omisión*

An error in ASR process in which a valid spoken word is ignored and no response is produced by the system.

#### **20.05 insertion**

*F: insertion*

*S: inserción*

A case of recognition due to either a spurious noise or an utterance which is not legitimate according to the syntax. Such a noise is either not properly rejected or a word not belonging to the recognition vocabulary is falsely accepted as an utterance from the active vocabulary.

#### **20.06 isolated-word mode**

*F: mots détachés*

*S: modo de palabras aisladas*

Single words pronounced with explicit pauses between them.

#### **20.07 rejection**

*F: rejet*

*S: rechazo*

The ability to reject spurious inputs e.g. noise, or utterances which are not parts of the active vocabulary.

- False acceptance (non-reject): a case of failure to reject input utterances which are not parts of the active vocabulary, thus resulting in the selection of a word in the vocabulary (very damaging from an ergonomic point of view).
- Wrong rejection: a case of failure to recognize a valid utterance, which is thus rejected by the system.

#### **20.08 speech database or corpus**

*F: base de données vocales ou corpus*

*S: base de datos de voz*

A structured set of pre-recorded speech (phonemes, syllables, words or sentences, whether or not meaningful) from one or more talkers which may be used in either ASR system development and testing. In the latter case, it includes two distinct subsets, i.e. *training* and *test data*.

#### **20.09 string of words**

*F: suite de mots*

*S: sucesión de palabras*

A sequence of words or expressions that are processed as a single unit in the ASR process (e.g. a telephone number).

### **20.10 substitution error**

*F: erreur de substitution*

*S: error de sustitución*

An error in *ASR* process in which a valid word (i.e. one in the recognition vocabulary) is incorrectly recognized as another word in the recognition vocabulary.

### **20.11 test data**

*F: données de test*

*S: datos de prueba*

Utterances used to test and *ASR system*, which have not been previously used in developing or modifying that system. The same set of test data may be used repeatedly to compare various system (or subsequently as *training data*) but not for continuing tests of an algorithm or system development.

### **20.12 training data**

*F: données d'apprentissage*

*S: datos de aprendizaje*

Utterances used to construct the parametric representations of speech elements which the *ASR system* will have to recognize. These data should not be used to test the system.

NOTE – A part of the training data is often used as development data to further improve these parametric representations.

## **25 Video and multimedia services: General terms**

### **25.01 block**

*F: bloc*

*S: bloque*

Group of pels. For example, a block of  $8 \times 8$  pels is the smallest coding block used in MPEG-1 algorithms. There are 1320 blocks in a SIF image, 44 in the horizontal direction (352 pels/8) and 30 in the vertical direction (240 lines/8).

### **25.02 Common Intermediate Format (CIF)**

*F: format intermédiaire commun (CIF)*

*S: formato intermedio común (CIF)*

Common Intermediate Format used by H.261 coders, 352 luminance pels  $\times$  288 lines.

### **25.03 digital transport**

*F: transport numérique*

*S: transporte digital*

Communication using digital methods for the transmission of signals from one point to another.

#### **25.04 Rec. ITU-R BT.601 format**

*F: format de la Rec. UIT-R BT.601*

*S: formato de la Rec. UIT-R BT.601*

ITU-R (formerly CCIR) digital video standard using interlaced formats of 720 luminance pels  $\times$  480 lines  $\times$  30 Hz and 720 luminance pels  $\times$  576 lines  $\times$  25 Hz.

#### **25.05 lip synchronization**

*F: synchronisation labiale*

*S: sincronización labial*

Operation to provide the feeling that the speaking motion of the displayed person is synchronized with that person's voice. The minimization of the relative delay between the visual display of a person speaking and the audio of the voice of the person speaking. The objective is to achieve a natural relationship between the visual image and the aural message for the viewer/listener.

#### **25.06 motion video**

*F: vidéo animée*

*S: vídeo animado*

Temporally varying visual imagery intended to communicate or convey movement or change.

#### **25.07 MPEG standards**

*F: normes MPEG (groupe d'experts en images animées)*

*S: estándares del grupo de expertos de imágenes en movimiento (MPEG)*

Multimedia/systems standards developed by the Moving Picture Expert Group (MPEG), a Working Group organized by ISO.

#### **25.08 pel (or pixel)**

*F: pixel*

*S: pel (o píxel)*

A picture element that describes the brightness or colour of a discrete point in an image.

#### **25.09 QCIF**

*F: quart de format CIF (QCIF)*

*S: cuarto del formato intermedio común CIF (QCIF)*

Quarter CIF, 176 luminance pels  $\times$  144 lines.

#### **25.10 resolution**

*F: résolution*

*S: resolución*

A parameter that specifies the ability to distinguish video detail in the spatial dimension or the temporal dimension.

### **25.11 scene cut**

*F: transition*

*S: transición*

*Video imagery* where consecutive frames are highly uncorrelated.

### **25.12 SIF**

*F: format d'entrée de source (SIF)*

*S: formato de entrada de fuente (SIF)*

Source Input Format used by MPEG coders, a progressive, non-interlaced format of 352 luminance pels  $\times$  240 lines  $\times$  29.97 Hz or 352 luminance pels  $\times$  288 lines  $\times$  25 Hz.

### **25.13 spatial application**

*F: application spatiale*

*S: aplicación espacial*

An application needing high spatial resolution, possibly at the expense of reduced temporal resolution (or increases  *jerkiness*). Example spatial applications include the ability to read small characters and see fine detail in *still video* or *motion video* which contains a very limited amount of movement.

### **25.14 spatial performance**

*F: performance spatiale*

*S: calidad de funcionamiento espacial*

A measure of the ability of a video transmission system to accurately reproduce still scenes.

### **25.15 still video**

*F: image fixe*

*S: imagen fija*

*Video imagery* that conveys no motion or change.

### **25.16 temporal application**

*F: application temporelle*

*S: aplicación temporal*

An application needing high temporal resolution (or reduced  *jerkiness*), possibly at the expense of reduced spatial resolution. Example temporal applications include the ability to accurately discern moving image features, such as facial expressions and lip movements.

### **25.17 temporal performance**

*F: performance temporelle*

*S: calidad de funcionamiento temporal*

A measure of the ability of a video transmission system to accurately reproduce motion or changing scenes.



### **25.18 transmission service channel**

*F: canal de transmission*

*S: canal de servicio de transmisión*

A transmission service channel is the one-way transmission path between two designated points (for example, analogue input, analogue output).

### **25.19 video**

*F: vidéo*

*S: vídeo*

- 1) The visually displayed images of *video teleconferencing/video telephony*.
- 2) A signal that contains timing/synchronization information as well as luminance (intensity) and chrominance (colour) information that when displayed on an appropriate device gives a visual representation of the original image sequence.
- 3) Of or pertaining to the visually displayed images of *video teleconferencing/video telephony*.

### **25.20 video frame**

*F: image vidéo*

*S: trama de vídeo*

One complete scanned image or picture from a set comprising *video imagery*. A video frame is usually composed of two interfaced fields.

### **25.21 video imagery**

*F: imagerie vidéo*

*S: imágenes vídeo*

A sequence of video frames.

### **25.22 Video Teleconferencing/Video Telephony service (VTC/VT)**

*F: service de visioconférence/visiophonie*

*S: servicio de videoconferencia/videotelefonía*

The transmission of video signals capable of portraying motion and the accompanying audio signal(s) between two or more locations using bidirectional transmission facilities. Both analogue and digital transmission may be used. A typical example of this service is interactive video teleconferencing between groups or personnel located at two or more locations.

## **26 Video and multimedia services: Visual degradations**

### **26.01 block distortion**

*F: distorsion en blocs*

*S: distorsión de bloque*

Distortion of the image characterized by the appearance of an underlying block encoding structure. Also called *tiling*.

### **26.02 blurring**

*F: flou; défocalisation*

*S: borrosidad*

A global distortion over the entire image, characterized by reduced sharpness of edges and spatial detail.

### **26.03 colour errors**

*F: erreurs de couleur*

*S: errores de color*

Distortion of all or a portion of the final image characterized by the appearance of unnatural or unexpected hues or saturation levels. These hues or saturation levels were not present in the original image.

### **26.04 edge busyness**

*F: dégradation de contour*

*S: vibración de contorno*

Distortion concentrated at or near the edge of objects, and further categorized by its temporal and spatial characteristics.

### **26.05 error blocks**

*F: erreurs en blocs*

*S: bloques con errores*

A form of *block distortion* where one or more blocks in the image bear no resemblance to the current or previous scene and often contrast greatly with adjacent blocks.

### **26.06 jerkiness (or jerky motion)**

*F: sautellement; mouvement saccadé*

*S: trepidación*

Motion that was original smooth and continuous is perceived as a series of distinct "snapshots".

### **26.07 motion-related artefacts**

*F: artefacts liés au mouvement*

*S: parásitos relacionados con el movimiento*

Distortion of motion video potentially observable by the viewer. In some instances, the distortion becomes more observable with increased motion. The distortion may appear as *smearing*, *block distortion*, *jerkiness*, or other impairments.

### **26.08 motion response degradation**

*F: dégradation du rendu du mouvement*

*S: degradación de la respuesta del movimiento*

The deterioration of motion video such that the *video imagery* has suffered a loss of spatio-temporal resolution.

### **26.09 mosquito noise**

*F: papillotement*

*S: ruido mosquito*

A form of *edge busyness* distortion sometimes associated with movement, characterized by moving artefacts around edges and/or blotchy noise patterns superimposed over the objects (resembling a mosquito flying around a person's head and shoulders).

### **26.10 object persistence**

*F: persistance des objets*

*S: persistencia de objetos*

Distortion where the object(s) that appeared in a previous *video frame* (and should no longer appear) remain(s) in current and subsequent *video frames* as an outline or faded image.

### **26.11 object retention**

*F: rémanence d'objets*

*S: retención de objetos*

Distortion where a fragment of an object that appeared in a previous *video frame* (and should no longer appear) remains in the current and subsequent *video frames*.

### **26.12 quantization noise**

*F: bruit de quantification*

*S: ruido de cuantificación*

A "snow" or "salt and pepper" effect similar to a random noise process but not uniform over the image.

### **26.13 scene cut response**

*F: réponse à une transition*

*S: respuesta a una transición*

The perceived impairments associated with a scene cut. For example, a slow build-up of a video image instead of an instantaneous change of images.

### **26.14 smearing**

*F: effet de traînée; maculage*

*S: efecto estela*

A localized distortion over a sub-region of the received image, characterized by reduced sharpness of edges and spatial detail. For example, the portrayal of a fast-moving object may exhibit smearing.

### **26.15 spatial edge noise**

*F: bruit de contour spatial*

*S: ruido de contorno espacial*

A form of *edge busyness* characterized by spatially varying distortion in close proximity to the edges of objects.

## 26.16 temporal edge noise

*F:* bruit de contour temporel

*S:* ruido de contorno temporal

A form of *edge busyness* characterised by time-varying sharpness (shimmering) to edges of objects.

## 26.17 tiling

*F:* effet de tuile; tuilage

*S:* enlosamiento

See the definition of "block distortion".

## 27 Video and multimedia services: Video testing

### 27.01 gamma

*F:* gamma

*S:* gamma

A parameter that describes the discrimination between the grey level steps on a visual display. The relation between the screen luminance and the input signal voltage is non-linear, with the voltage raised to an exponent gamma. To compensate for this non-linearity, a correction factor that is an inverse function of gamma is generally applied in the camera. Gamma also has an impact on colour rendition.

### 27.02 optimization tests

*F:* essais d'optimisation

*S:* pruebas de optimización

Subjective tests that are typically carried out during either the development or the standardization of a new algorithm or system. The goal of these tests is to evaluate the performance of new tools in order to optimize the algorithms or the systems that are under study.

### 27.03 qualification tests

*F:* essais de qualification

*S:* pruebas de calificación

Subjective tests that are typically carried out in order to compare the performance of commercial systems or equipment. These tests must be carried out under test conditions that are as much representative as possible of the real conditions of use.

### 27.04 Spatial perceptual Information (SI)

*F:* informations perceptives spatiales (SI)

*S:* información de percepción espacial (SI)

A measure that generally indicates the amount of spatial detail of a picture. It is usually higher for more spatially complex scenes. It is not meant to be a measure of entropy nor associated with the information defined in communication theory. The Spatial perceptual Information, SI, is based on the Sobel filter. Each video frame (luminance plane) at time  $n$  ( $F_n$ ) is first filtered with the Sobel filter [Sobel( $F_n$ )]. The standard deviation over the pixels ( $\text{std}_{\text{space}}$ ) in each Sobel-filtered frame is then computed. This operation is repeated for each frame in the video sequence and results in a time series of spatial information of the scene. The maximum value in the time series ( $\text{max}_{\text{time}}$ ) is chosen to

represent the spatial information content of the scene. This process can be represented in equation form as:

$$SI = \max_{\text{time}} \{ \text{std}_{\text{space}} [\text{Sobel}(F_n)] \}$$

### **27.05 Temporal perceptual Information (TI)**

*F: informations perceptives temporelles (TI)*

*S: información de percepción temporal (TI)*

A measure that generally indicates the amount of temporal changes of a video sequence. It is usually higher for high motion sequences. It is not meant to be a measure of entropy nor associated with the information defined in communication theory. The measure of Temporal Information, TI, is computed as the maximum over time ( $\max_{\text{time}}$ ) of the standard deviation over space ( $\text{std}_{\text{space}}$ ) of  $M_n(i,j)$  over all  $i$  and  $j$ .

$$TI = \max_{\text{time}} \{ \text{std}_{\text{space}} [M_n(i,j)] \}$$

where  $M_n(i,j)$  is the difference between pixels at the same position in the frame, but belonging to two subsequent frames; that is

$$M_n(i,j) = F_n(i,j) - F_{n-1}(i,j)$$

where  $F_n(i,j)$  is the pixel at the  $i^{\text{th}}$  row and  $j^{\text{th}}$  column of  $n^{\text{th}}$  frame in time.

### **27.06 transparency (fidelity)**

*F: transparence (fidélité)*

*S: transparencia (fidelidad)*

A concept describing the performance of a codec or a system in relation to an ideal transmission system without any degradation. Two types of transparency can be defined.

The first type describes how well the processed signal conforms to the input signal, or ideal signal, using a mathematical criterion. If there is no difference, the system is fully transparent. The second type describes how well the processed signal conforms to the input signal, or ideal signal, for a human observer. If no difference can be perceived under any experimental condition, the system is perceptually transparent. The term "transparent" without explicit reference to a criterion will be used for systems that are perceptually transparent.

### **27.07 replication**

*F: duplication*

*S: reiteración*

Repeated presentation of the same circuit condition (with the same source material) to the same subject.

### **27.08 reliability of a subjective test**

*F: fiabilité d'un essai subjectif*

*S: fiabilidad de una prueba subjetiva*

- a) Intra-individual ("within subject") reliability refers to the agreement between a certain subject's repeated ratings of the same test condition.
- b) Inter-individual ("between subjects") reliability to the agreement between different subject's ratings of the same test condition.

### **27.09 validity of a subjective test**

*F: validité d'un essai subjectif*

*S: validez de una prueba subjetiva*

Agreement between the mean value of ratings obtained in a test and the true value which the test purports to measure.

### **27.10 reference conditions**

*F: conditions de référence (ancrage)*

*S: condiciones de referencia*

Dummy conditions added to the test conditions in order to anchor the evaluations coming from different experiments.

### **27.11 explicit reference (source reference)**

*F: référence explicite (référence source)*

*S: referencia explícita (referencia fuente)*

The condition used by the assessors as reference to express their opinion, when the DCR method is used. This reference is displayed first within each pair of sequences. Usually the format of the explicit reference is the format used at the input of the codecs under test (e.g. Rec. ITU-R BT.601, CIF, QCIF, SIF, etc.).

### **27.12 implicit reference**

*F: référence implicite*

*S: referencia implícita*

The condition used by the assessors as reference to express their opinion on the test material, when the ACR method is used. If the implicit reference is suggested by the experimenter, it must be well known to all the assessors (e.g. conventional TV systems, reality), but the condition is not explicitly presented to the subjects as a reference by the experimentator.

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