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**Series H**

**Supplement 2**

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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

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**H.248.x sub-series packages guide – Release 6**

ITU-T H-series Recommendations – Supplement 2

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ITU-T H-SERIES RECOMMENDATIONS  
AUDIOVISUAL AND MULTIMEDIA SYSTEMS

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## **Supplement 2 to ITU-T H-series Recommendations**

### **H.248.x sub-series packages guide – Release 6**

#### **Summary**

This Supplement summarizes packages that have been standardized in the time-frame from June 2000 to November 2004. It identifies packages that meet H.248.x sub-series requirements for package definition and are for general use by the wider standards community.

H.248.x sub-series packages guide – Release 6 provides for the:

- identification of packages that are considered technically consistent with H.248.x sub-series principles and packages definition rules in clause 12/H.248.1;
- identification of packages that are currently being worked upon;
- identification of packages that have worked upon over a certain period of time;
- identification of packages with overlapping functionality.

Implementors are encouraged to review the packages in this Supplement before proposing new packages.

Revision 6 contains the revision of packages in H.248.2, H.248.9, H.248.23 and new packages defined in H.248.26, H.248.32, H.248.33, H.248.34 and H.248.35.

#### **Source**

Supplement 2 to ITU-T H-series Recommendations was agreed on 26 November 2004 by ITU-T Study Group 16 (2005-2008).

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## Supplement 2 to ITU-T H-series Recommendations

### H.248.x sub-series packages guide – Release 6

#### 1 Scope

This Supplement summarizes packages that have been standardized in the time-frame from June 2000 to November 2004. It identifies packages that meet H.248.x sub-series requirements for package definition and are for general use by the wider standards community.

H.248.x sub-series packages guide – Release 6 provides for the:

- identification of packages that are considered technically consistent with H.248.x sub-series principles and packages definition rules in clause 12/H.248.1;
- identification of packages that are currently being worked upon;
- identification of packages that have worked upon over a certain period of time;
- identification of packages with overlapping functionality.

ITU-T Study Group 16 invites packages authors/editors to share their current and future work on packages in the form of contribution, liaison or communication to ITU-T Study Group 16. This will assist ITU-T Study Group 16 in producing future releases of this Supplement. ITU-T Study Group 16 will then endeavour to provide constructive comments to assist you in your packages work. If ITU-T SG 16 determines that your packages are consistent with H.248 and particularly, clause 12/H.248.1, it will include these in the "Externally defined Packages that meet requirements" clause of the H.248.x sub-series packages guide.

#### 2 References

- ITU-T Recommendation Q.1950 (2002), *Bearer independent call bearer control protocol*.

See clauses below for individual references.

#### 3 Definitions

None.

#### 4 Abbreviations

None.

## 5 ITU-T Study Group 16 packages

| Package name and description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Identity                                                                                 |                                                                                                                                | Reference                                      | Status |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Text                                                                                     | Binary                                                                                                                         |                                                |        |
| Annex E/H.248.1<br><b>Basic Packages</b><br>The packages contained in this annex are: <ul style="list-style-type: none"> <li>• Generic package</li> <li>• Base Root package</li> <li>• Tone Generator package</li> <li>• Tone Detection package</li> <li>• Basic DTMF Generator package</li> <li>• DTMF Detection package</li> <li>• Call Progress Tones Generator Package</li> <li>• Call Progress Tones Detection Package</li> <li>• Analog Line Supervision Package</li> <li>• Basic Continuity Package</li> <li>• Network Package</li> <li>• RTP Package</li> <li>• TDM Circuit Package</li> </ul> | g<br>root<br>tonegen<br>tonedet<br>dg<br>dd<br>cg<br>cd<br>al<br>ct<br>nt<br>rtp<br>tdmc | 0x0001<br>0x0002<br>0x0003<br>0x0004<br>0x0005<br>0x0006<br>0x0007<br>0x0008<br>0x0009<br>0x000a<br>0x000b<br>0x000c<br>0x000d | Annex E/H.248.1<br>(2002) plus Cor.1<br>(2004) | Done   |

| Package name and description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Identity                                                  |                                                                              | Reference                      | Status                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Text                                                      | Binary                                                                       |                                |                                                          |
| <p><b>H.248.2 Facsimile, text conversation and call discrimination packages</b></p> <p>This Recommendation describes packages for fax, text telephone, call type discrimination, and data call detection.</p> <p>The packages contained in this Recommendation are:</p> <p><i>The Call Type Discrimination package</i> defines control and monitoring of a PSTN line for the signalling protocols used in the beginning of a session of data transmission for fax, text telephony or data.</p> <p><i>The Text Telephone package</i> defines control of a PSTN text telephone session in any of the modes supported by the automoding text telephone ITU-T Rec. V.18.</p> <p><i>The Fax package</i> defines control of a PSTN fax transmission.</p> <p><i>The Fax/Textphone/Modem Tones Detection package</i> defines control over a termination for detection of any signals from a fax, text telephone or data modem during a connection in voice mode.</p> <p><i>The Text Conversation package</i> defines control over a real-time interactive text conversation session using a universal presentation format and transferred with a transport method from a multimedia protocol in any network environment.</p> <p><i>The IP Fax package</i> defines control over facsimile transmission in a packet network.</p> | ftmd (v2)<br>txc<br>txp<br>ctyp (v2)<br>fax<br>ipfax (v2) | 0x000e<br>0x000f<br>0x0010<br>0x0011<br>0x0012<br>0x0013                     | H.248.2 (2005)                 | Version 1<br>done.<br>ftmd & ctype<br>version 2<br>Done. |
| <p><b>H.248.3 IP Phone Packages</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | dis<br>key<br>kp<br>labelkey<br>kf<br>ind<br>ks<br>anci   | 0x0014<br>0x0015<br>0x0016<br>0x0017<br>0x0018<br>0x0019<br>0x001a<br>0x001b | H.248.3 (2000)<br>Cor.1 (2004) | Done                                                     |

| Package name and description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Identity                                                                                 |                                                                                              | Reference       | Status |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------|--------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Text                                                                                     | Binary                                                                                       |                 |        |
| <b>H.248.6 Dynamic Tone definition package</b><br>This package defines a mechanism to redefine existing tones and create new tones for playback. The existing tones are the ones described in supported packages that extend the tonegen generic package.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | dtd                                                                                      | 0x001c                                                                                       | H.248.6 (2000)  | Done   |
| <b>H.248.7 Generic Announcement Package</b><br>This package supports announcement functionality at a Media Gateway. This announcement could be realized by the Media Gateway as different sorts of messaging. For example, it could be an audio announcement, a text message or a composition of text messages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | an                                                                                       | 0x001d                                                                                       | H.248.7 (2004)  | Done   |
| <b>H.248.9 Advanced Announcement Server Packages</b><br>The Basic Audio package provides support for the standard IVR operations of PlayAnnouncement, PlayCollect, and PlayRecord. It supports direct references to simple audio as well as indirect references to simple and complex audio. It provides audio variables, control of audio interruptability, digit buffer control, special key sequences, and support for reprompting during data collection. The Advanced Audio Package extends the Base Package by providing an arbitrary number of user-defined qualifiers to be used in resolving complex audio structures. For example, the user could define qualifiers for any or all of the following: language, accent, audio file format, gender, speaker, or customer.<br>The Jan./2005 Revision includes: <ul style="list-style-type: none"> <li>• new variable type "tone" for dynamic audio segment specification</li> <li>• Set extension of basic syntax: introduction of a new selector for text attributes</li> <li>• Variable type "Phrase": introduction of subtypes</li> <li>• Signal PlayCollect: enhanced functionality, new parameters</li> </ul> | aasb<br>aasdc(v2)<br>aasrec<br>aassm<br>bavvsyx<br>vvsyx(v2)<br>setsyx(v2)<br>phrsyx(v2) | 0x0033<br>0x0034(v2)<br>0x0035<br>0x0036<br>0x0047<br>0x0048(v2)<br>0x0049(v2)<br>0x004a(v2) | H.248.9 (2005)  | Done   |
| <b>H.248.10 Congestion Package</b><br>This package makes it possible for the MG to control its load.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | chp                                                                                      | 0x0029                                                                                       | H.248.10 (2001) | Done   |
| <b>H.248.11 Media Gateway Overload Control Package</b><br>This is a more in-depth proposal than H.248.10.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ocp                                                                                      | 0x0051                                                                                       | H.248.11 (2002) | Done   |

| Package name and description                                                                                                                                                                                                                                                                                                                                                              | Identity                                                            |                                                                       | Reference                            | Status |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------|--------|
|                                                                                                                                                                                                                                                                                                                                                                                           | Text                                                                | Binary                                                                |                                      |        |
| <p><b>H.248.12 H.248 packages for H.323 and Annex C/H.324 interworking</b></p> <p>This Recommendation gathers together packages for H.245, H.245 parameters specific to H-series audiovisual terminal and Annex C/H.324 for use with the H.248 gateway control protocol. The packages in this Recommendation are in conformance with clause 12/H.248.1 package definition guidelines.</p> | <p>h245</p> <p>h323bc</p> <p>h324</p> <p>h245com</p> <p>h245ind</p> | <p>0x002a</p> <p>0x002b</p> <p>0x002c</p> <p>0x002d</p> <p>0x002e</p> | H.248.12 (2001)                      | Done   |
| <p><b>Annex A/H.248.12 Extended H.324, H.245 Command and H.245 Indication Packages</b></p> <p>This annex introduces package extensions that allow the MGC to control the interworking between H.324 and H.323.</p>                                                                                                                                                                        | <p>h324ext</p> <p>h245comext</p> <p>h245indext</p>                  | <p>0x0063</p> <p>0x0064</p> <p>0x0065</p>                             | Annex A/H.248.12                     | Done   |
| <p><b>H.248.13 Quality Alert Ceasing Package</b></p> <p>This package enables the MG to indicate when a line has returned to normal quality.</p>                                                                                                                                                                                                                                           | qac                                                                 | 0x0037                                                                | H.248.13 (2002)                      | Done   |
| <p><b>H.248.14 Inactivity Alert Package</b></p> <p>This is used by MG to poll whether or not the MGC is still alive.</p>                                                                                                                                                                                                                                                                  | It                                                                  | 0x0045                                                                | H.248.14 (2002)                      | Done   |
| <p><b>H.248.15 SDP H.248 Package Attribute</b></p> <p>This Recommendation describes SDP attributes to allow the text local and remote descriptor to contain properties.</p>                                                                                                                                                                                                               | NA                                                                  | NA                                                                    | H.248.15 (2002)                      | Done   |
| <p><b>H.248.16 Extended DTMF Detection Package</b></p>                                                                                                                                                                                                                                                                                                                                    | <p>xdd</p> <p>edd</p>                                               | <p>0x0052</p> <p>0x0066</p>                                           | H.248.16 (2002)<br>plus Cor.1 (2004) | Done   |

| Package name and description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Identity                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                 | Reference                                    | Status      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Text                                                                                                                                                                                                                                                                      | Binary                                                                                                                                                                                                                          |                                              |             |
| <p><b>H.248.17 Line Test Packages</b></p> <p>This Recommendation contains a number of packages that enables line tests to be performed.</p> <ul style="list-style-type: none"> <li>• Quiet Termination Test Component</li> <li>• Loopback Line Test Response</li> <li>• ITU 404 Hz Line Test Package</li> <li>• ITU 816 Hz Line Test Package</li> <li>• ITU 1020 Hz Line Test Package</li> <li>• ITU 2100 Hz Disable Tone Line Test Package</li> <li>• ITU 2100 Hz Disable Echo Canceller Tone Line Test Package</li> <li>• ITU 2804 Hz Tone Line Test Package</li> <li>• ITU Noise Test Tone Line Test Package</li> <li>• ITU Digital Pseudo Random Test Tone Line Test Package</li> <li>• ITU ATME No. 2 Test Line Response Package</li> <li>• ANSI 1004 Hz Test Tone Line Test Package</li> <li>• ANSI Test Responder Line Test Package</li> <li>• ANSI 2225 Hz Test Progress Tone Line Test Package</li> <li>• ANSI Digital Test Signal Line Test Package</li> <li>• ANSI Inverting Loopback Line Test Response</li> </ul> | <p>qtlr</p> <p>lltr</p> <p>itult404</p> <p>itult816</p> <p>itult1020</p> <p>itultdist</p> <p>itultdisecd</p> <p>itult2804</p> <p>itultntt</p> <p>itultdprt</p> <p>itultatme2</p> <p>ansilt1004</p> <p>ansiltres</p> <p>ansilt2225</p> <p>ansiltdts</p> <p>ansiinvlltr</p> | <p>0x0053</p> <p>0x0054</p> <p>0x0055</p> <p>0x0056</p> <p>0x0057</p> <p>0x0058</p> <p>0x0059</p> <p>0x005a</p> <p>0x005b</p> <p>0x005c</p> <p>0x005d</p> <p>0x005e</p> <p>0x005f</p> <p>0x0060</p> <p>0x0061</p> <p>0x0062</p> | <p>H.248.17 (2002)<br/>plus Cor.1 (2004)</p> | <p>Done</p> |
| <p><b>H.248.18 Profile Handling Package</b></p> <p>This package enables the MGC to determine what packages are on the MG.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>prp</p>                                                                                                                                                                                                                                                                | <p>0x0050</p>                                                                                                                                                                                                                   | <p>H.248.18 (2002)</p>                       | <p>Done</p> |

| Package name and description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Identity                                                                                                                               |                                                                                                                                                           | Reference       | Status |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Text                                                                                                                                   | Binary                                                                                                                                                    |                 |        |
| <p><b>H.248.19 Decomposed Multipoint Control Unit, Audio, Video and Data Conferencing Packages</b></p> <p>This Recommendation describes the decomposition of a Media Control Unit, requirements and packages for media resource functions.</p> <ul style="list-style-type: none"> <li>• Floor Control Package</li> <li>• Indication of Being Viewed Package</li> <li>• Volume Control Package</li> <li>• Volume Detection Package</li> <li>• Volume Level Mixing Package</li> <li>• Mixing Volume Level Control Package</li> <li>• Voice Activated Video Switch Package</li> <li>• Lecture Video Mode Package</li> <li>• Contributing Video Source Package</li> <li>• Video Window Package</li> <li>• Tiled Window Package</li> </ul> | <p>fcp</p> <p>indview</p> <p>vcp</p> <p>vdp</p> <p>vlmp</p> <p>mvlcp</p> <p>vavsp</p> <p>lvmp</p> <p>cvsp</p> <p>vwp</p> <p>tilwin</p> | <p>0x006e</p> <p>0x006f</p> <p>0x0070</p> <p>0x0072</p> <p>0x0073</p> <p>0x0074</p> <p>0x0075</p> <p>0x0076</p> <p>0x0077</p> <p>0x0078</p> <p>0x0079</p> | H.248.19 (2004) | Done   |
| <p><b>H.248.20 The use of Local and Remote Descriptors with H.221/H.223 multiplexing</b></p> <p>This Recommendation describes how the local and remote descriptors are filled in for H.221 and H.223 multiplexing terminations.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | NA                                                                                                                                     | NA                                                                                                                                                        | H.248.20 (2002) | Done   |
| <p><b>H.248.21 Semi-permanent Connection Handling Package</b></p> <p>This Recommendation describes a package to enable the Media Gateway Controller to indicate to the Media Gateway that terminations and the connection between the "semi-permanent" marked terminations shall be treated as semi-permanent.</p>                                                                                                                                                                                                                                                                                                                                                                                                                    | semper                                                                                                                                 | 0x006a                                                                                                                                                    | H.248.21 (2004) | Done   |

| Package name and description                                                                                                                                                                                                                                                                                                                                                      | Identity                    |                                      | Reference                            | Status |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------|--------------------------------------|--------|
|                                                                                                                                                                                                                                                                                                                                                                                   | Text                        | Binary                               |                                      |        |
| <p><b>H.248.22 Shared Risk Group Package</b></p> <p>H.248.22 describes a package to enable the Media Gateway Controller (MGC) to indicate to the Media Gateway (MG) to use or to not use network resources associated with a shared risk group when setting up connections. A shared risk group is a group of resources that share the same risk of failure.</p>                  | shrisk                      | 0x006b                               | H.248.22 (2003)                      | Done   |
| <p><b>H.248.23 Enhanced Alerting Packages</b></p> <p>This Recommendation defines two packages that provide enhanced alerting and data transfer capabilities for H.248:</p> <ul style="list-style-type: none"> <li>Enhanced Alerting Package</li> <li>Analogue Display Signalling Package</li> </ul> <p>Version 2 of the packages increases the ring candences from 15 to 256.</p> | Alert v2<br>Andisp v2       | 0x003b<br>0x003c                     | H.248.23 (2005)                      | Done   |
| <p><b>H.248.24 MF Tone Generation and Detection Packages</b></p> <p>This Recommendation defines two packages that provide multi-frequency tone generation and detection capabilities for H.248:</p> <ul style="list-style-type: none"> <li>Multifrequency Tone Generation Package</li> <li>Multifrequency Tone Detection Package</li> </ul>                                       | mfg<br>mfd                  | 0x003d<br>0x003e                     | H.248.24 (2003)                      | Done   |
| <p><b>H.248.25 Basic CAS Packages</b></p> <p>This Recommendation defines Basic Channel Associated Signalling (CAS) and R1 packages and supplemental CAS packages:</p> <ul style="list-style-type: none"> <li>Basic CAS Package</li> <li>Robbed Bit Signalling Package</li> <li>Operator Services and Emergency Services Package</li> <li>Operator Package</li> </ul>              | bcas<br>rbs<br>oses<br>osex | 0x003f<br>0x0040<br>0x0041<br>0x0042 | H.248.25 (2003)<br>plus Cor.1 (2004) | Done   |

| Package name and description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Identity                                                 |                                                         | Reference       | Status |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------|-----------------|--------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Text                                                     | Binary                                                  |                 |        |
| <p><b>H.248.26 Enhanced Analog Lines Packages</b></p> <p>This Recommendation defines two packages that provide support for extended line supervision and metering analog lines capabilities for H.248:</p> <ul style="list-style-type: none"> <li>Extended Analogue Line Supervision Package</li> <li>Automatic Metering Package</li> </ul> <p>Amendment 1 introduces:</p> <ul style="list-style-type: none"> <li>A phased metering signal to the amet package</li> <li>A new package for metering pulse detection</li> </ul> | <p>xal</p> <p>amet(v2)</p> <p>metd</p>                   | <p>0x0043</p> <p>0x0044(v2)</p> <p>0x0096</p>           | H.248.26 (2005) | Done   |
| <p><b>H.248.27 Supplemental Tones Packages</b></p> <p>This Recommendation defines three packages that provide additional tones capabilities for H.248:</p> <ul style="list-style-type: none"> <li>Conferencing Tones Generation Package</li> <li>Diagnostic Tones Package</li> <li>Carrier Tones Generation Package</li> </ul>                                                                                                                                                                                                | <p>conftn</p> <p>test</p> <p>carr</p>                    | <p>0x0038</p> <p>0x0039</p> <p>0x003a</p>               | H.248.27 (2003) | Done   |
| <p><b>H.248.28 International CAS Packages</b></p> <p>The International CAS package (icas) provides an extension to the Basic CAS packages, defining additional line signals and events required for international signalling protocols.</p> <ul style="list-style-type: none"> <li>International CAS Package</li> <li>CAS Blocking Package</li> </ul>                                                                                                                                                                         | <p>icas</p> <p>casblk</p>                                | <p>0x007b</p> <p>0x007c</p>                             | H.248.28 (2004) | Done   |
| <p><b>H.248.29 International CAS Compelled Register Signalling Packages</b></p> <ul style="list-style-type: none"> <li>International CAS Compelled Package</li> <li>International Compelled with Overlap Package</li> <li>International CAS Compelled with end-to-end Package</li> <li>Generic CAS Compelled Register Signalling Package</li> </ul>                                                                                                                                                                           | <p>icasc</p> <p>icasco</p> <p>icasce</p> <p>icascgen</p> | <p>0x007d</p> <p>0x007e</p> <p>0x007f</p> <p>0x0094</p> | H.248.29 (2005) | Done   |

| Package name and description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Identity                  |                             | Reference       | Status |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------------|-----------------|--------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Text                      | Binary                      |                 |        |
| <p><b>H.248.30 RTCP Extended Reporting Packages</b></p> <p>This Recommendation describes a set of Extended Performance Metrics for Voice over IP QoS reporting that provide more detailed insight into call quality and causes of degradation than basic RTCP statistics. The metrics described in this Recommendation are consistent with those described in the RTCP XR Voice over IP Metrics Payload described in IETF RFC 3611.</p> <ul style="list-style-type: none"> <li>• RTCP XR Base Package</li> <li>• RTCP XR Burst Metrics Package</li> </ul> | <p>rtepxr</p> <p>xrbm</p> | <p>0x0080</p> <p>0x0081</p> | H.248.30 (2004) | Done   |
| <p><b>H.248.31 Jitter Buffer Extension Package</b></p> <p>This Recommendation defines a package that extends the base network package; it allows the media gateway controller (MGC) to specify the nominal value and the minimum value of the adaptive jitter buffer on the media gateway (MG).</p> <ul style="list-style-type: none"> <li>• Adaptive Jitter Buffer Package</li> <li>• Jitter Buffer Package</li> </ul>                                                                                                                                   | <p>ajb</p>                | <p>0x007a</p>               | H.248.31 (2004) | Done   |
| <p><b>H.248.32 Detailed Congestion Reporting Package</b></p> <p>This Recommendation defines a package that allows the MG to report its resource usage to the MGC; based on that report, the MGC may take corrective action to improve the efficiency of the whole system.</p> <ul style="list-style-type: none"> <li>• Detailed Congestion Control Package</li> </ul>                                                                                                                                                                                     | <p>dcr</p>                | <p>0x0092</p>               | H.248.32 (2005) | Done   |
| <p><b>H.248.33 PCM Frame Spare Bit Package</b></p> <p>This Recommendation describes a relay mechanism of PCM frame spare bits, by using H.248 events and signals. The scope is limited on spare bits <math>S_i</math> and <math>S_{a4}</math>-<math>S_{a8}</math> of the 2048 kbit/s Basic Frame Structure [see ITU-T Rec. G.704]. These bits are typically designated for national and international use, specific point-to-point applications, etc.</p>                                                                                                 | <p>pcmsb</p>              | <p>0x0085</p>               | H.248.33 (2005) | Done   |

| Package name and description                                                                                                                                                                                                                                                                                                                                                                                                    | Identity |        | Reference                                                           | Status      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|---------------------------------------------------------------------|-------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                 | Text     | Binary |                                                                     |             |
| <p><b>H.248.34 Stimulus Analogue Line Package</b></p> <p>The Stimulus Analogue Line package defines H.248 signals and events that are exchanged between a MG and MGC for controlling analogue POTS lines. The signals and events defined in the package are stimulus in nature and enable the full set of POTS services that are delivered via a V5 LE and AN to be ubiquitously provided in a NGN MG and MGC architecture.</p> | stimal   | 0x0093 | H.248.34 (2005)<br>NOTE – Also contained in ES/TISPAN-03009-NGN-R1. | Done        |
| <p><b>H.248.35 Coin package</b></p> <p>This Recommendation defines a package that provides control of coin phones for H.248.</p>                                                                                                                                                                                                                                                                                                | coin     | 0x0095 | H.248.35 (2005)                                                     | Done        |
| <p><b>H.248.36 Hanging Termination Package</b></p>                                                                                                                                                                                                                                                                                                                                                                              | hangterm | 0x00?? | H.248.hangterm<br>DC45 ITU-T SG 16<br>Geneve 11/2004                | In progress |

## 6 Externally defined packages that meet requirements

The packages identified in this clause are consistent with regard to the package definition rules contained clause 12/H.248.1.

### 6.1 ITU-T Study Group 11

| Package name and description                                                                                                                                                                                                                                                                                                               | Identity |        | Reference  | Status |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|------------|--------|
|                                                                                                                                                                                                                                                                                                                                            | Text     | Binary |            |        |
| <b>Bearer Characteristics Package</b><br>This package contains the functionality required to identify which bearer services are to be supported by a MG.                                                                                                                                                                                   | bcp      | 0x001e | A.3/Q.1950 | Done   |
| <b>Bearer Network Connection Cut Through Package</b><br>This package provides the functionality to be able to determine the cut through capabilities of the bearer network.                                                                                                                                                                | bnct     | 0x001f | A.4/Q.1950 | Done   |
| <b>Reuse Idle Package</b><br>This package provides the ability to determine the reuse of idle bearer functionality network.                                                                                                                                                                                                                | ri       | 0x0020 | A.5/Q.1950 | Done   |
| <b>Generic Bearer Connection Package</b><br>This package provides the functionality to be able to establish/modify/release a bearer connection.                                                                                                                                                                                            | gb       | 0x0021 | A.6/Q.1950 | Done   |
| <b>Bearer Control Tunnelling Package</b><br>This package describes the functionality to be able to support the transport of "Bearer Information Transport" information between an MGC and MG.                                                                                                                                              | bt       | 0x0022 | A.7/Q.1950 | Done   |
| <b>Basic Call Progress Tones Generator with Directionality</b><br>This package defines the basic call progress tones as signals and extends the allowed values of the tl parameter of playtone in tonegen. In addition, this package extends the Tone Generator Package with the ability to specify in which direction the tone is played. | bcp      | 0x0023 | A.8/Q.1950 | Done   |

| Package name and description                                                                                                                                                                                                                                                                                                                    | Identity           |                       | Reference      | Status |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------|----------------|--------|
|                                                                                                                                                                                                                                                                                                                                                 | Text               | Binary                |                |        |
| <p><b>Expanded Call Progress Tones Generator Package</b></p> <p>This package defines the expanded call progress tones as signals and extends the allowed values of the tl parameter of playtone in tonegen. In addition, this package extends the Tone Generator Package with the ability to specify in which direction the tone is played.</p> | xcg                | 0x0024                | A.9/Q.1950     | Done   |
| <p><b>Basic Services Tones Generation Package</b></p> <p>This package defines signals for use by telephony services and allows for specification of directionality.</p>                                                                                                                                                                         | srvtn              | 0x0025                | A.10/Q.1950    | Done   |
| <p><b>Expanded Services Tones Generation Package</b></p> <p>This package defines additional signals for use by telephony services and allows for specification of directionality.</p>                                                                                                                                                           | xsrvtn             | 0x0026                | A.11/Q.1950    | Done   |
| <p><b>Intrusion Tones Generation Package</b></p> <p>This package defines for use by operator-based telephony services and allows for specification of directionality.</p>                                                                                                                                                                       | int                | 0x0027                | A.12/Q.1950    | Done   |
| <p><b>Business Tones Generation Package</b></p> <p>This package defines for use by business telephony services and allows for specification of directionality.</p>                                                                                                                                                                              | biztn              | 0x0028                | A.13/Q.1950    | Done   |
| <p><b>Bearer Characteristics Package v2</b></p> <p>Version 2 introduces a new value for TDM bearer characteristics.</p>                                                                                                                                                                                                                         | bcp<br>(Version 2) | 0x001e<br>(Version 2) | Annex A/Q.1950 | Done   |
| <p><b>Connection Group Identity Package</b></p> <p>The Connection Group ID is required information in a BIWF if a connection is to be established in the direction toward the BICC Access Network and the private virtual facility capability is invoked.</p>                                                                                   | xg                 | 0x0067                | Annex E/Q.1950 | Done   |
| <p><b>SPNE Control Package</b></p> <p>This package defines properties and events for SPNE functions controlled by or integrated into a media gateway. Note that echo cancellers associated with media gateways are assumed to be compliant with ITU-T Rec. G.168 as indicated in ITU-T Rec. G.177.</p>                                          | spne               | 0x0069                | Q.115.0        | Done   |

## 6.2 3GPP CN4

| Package name and description                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Identity    |        | Reference             | Status |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|-----------------------|--------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Text        | Binary |                       |        |
| <p><b>3GUP (User Plane) package</b></p> <p>This package identifies that the User Plane package is used for the termination. It also contains some parameters for the User Plane functions in the MGW.</p>                                                                                                                                                                                                                                                                                           | threegup    | 0x002f | 3GPP TS 29.232        | Done   |
| <p><b>Circuit Switched Data package</b></p> <p>This package contains the information needed to be able to support GSM and UMTS Circuit Switched Data from the media gateway.</p>                                                                                                                                                                                                                                                                                                                    | threegcsd   | 0x0030 | 3GPP TS 29.232        | Done   |
| <p><b>TFO package</b></p> <p>This package defines events and properties for Tandem Free Operation (TFO) control. TFO uses inband signalling and procedures for Transcoders to enable compressed speech to be maintained between a tandem pair of transcoders. This package allows an MGW which has inserted a transcoder to support TFO.</p>                                                                                                                                                        | threegtfo   | 0x0031 | 3GPP TS 29.232        | Done   |
| <p><b>3G Expanded Call Progress Tones Generator Package</b></p> <p>This package extends "Expanded Call Progress Tones Generator Package" as defined in ITU-T Rec. Q.1950. The package adds a new toneId for CAMEL prepaid warning tone.</p>                                                                                                                                                                                                                                                         | threegxcg   | 0x0032 | 3GPP TS 29.232        | Done   |
| <p><b>3G Modification of Link Characteristics Package</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                       | threegmlc   | 0x0046 | 3GPP TS 29.232        | Done   |
| <p><b>CTM Text Transport</b></p> <p>The CTM text transport package is intended for enabling robust real-time text conversation through a voice channel primarily intended for communication over mobile networks. This package includes the mechanisms needed to transport T.140 text conversation streams in a voice channel environment, using the CTM Cellular Text Telephone Modem specified in 3GPP TS 26.226. The transport mechanism allows for alternating transport of voice and text.</p> | threegtcm   | 0x0068 | 3GPP TS 29.232 v5.2.0 | Done   |
| <p><b>Enhanced Circuit Switched Data Package</b></p> <p>This package extends "Circuit Switched Data Package", as defined in 15.1.2 of the referenced document. This package adds a new property to define the user bitrate at a Nb/Iu termination.</p>                                                                                                                                                                                                                                              | threegcsden | 0x0082 | 3GPP TS 29.232 v5.7.0 | Done   |

| Package name and description                                                                                                                                                                                                                                                                        | Identity    |        | Reference             | Status |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|-----------------------|--------|
|                                                                                                                                                                                                                                                                                                     | Text        | Binary |                       |        |
| <b>IP Transport Package</b><br>This package contains the information needed to be able to support IP transport from RAN to the media gateway.                                                                                                                                                       | threegiptra | 0x0083 | 3GPP TS 29.232 v5.7.0 | Done   |
| <b>Flexible Tone Generator Package</b><br>This package extends "3G Expanded Call Progress Tones Generator Package", as defined in 15.1.4 of the referenced document. This package adds a new tone for call duration control in CAMEL phase 4, supporting variable sequence of tones and burst list. | threegflex  | 0x0084 | 3GPP TS 29.232 v5.7.0 | Done   |

### 6.3 ITU-T Study Group 9

| Package name and description                                                                                                                                                                             | Identity |        | Reference     | Status |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|---------------|--------|
|                                                                                                                                                                                                          | Text     | Binary |               |        |
| <b>ISUP Trunk Tones Generator Package</b><br>This package defines the ISUP trunk tones played from a trunk gateway as signals and extends the allowed values of the tl parameter of playtone in tonegen. | isuptn   | 0x006c | Annex B/J.171 | Done   |

## 7 Packages undergoing development

The packages identified in this clause are currently under development and/or have not been reviewed by SG 16. The packages identified here may have inconsistencies with regard to the package definition rules contained in clause 12/H.248.1. The packages below may also overlap in functionality.

### 7.1 ATMF (ATM Forum)

| Package name and description                                                                                                                                                                            | Identity |        | Reference | Status |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|-----------|--------|
|                                                                                                                                                                                                         | Text     | Binary |           |        |
| ATMF are no longer defining their own packages. Reference is made to IETF developed packages. For more information, see BTD-VMOA-LESH248-01.02 LES Using AAL2 – H.248 Signalling Addendum October 2001. |          |        |           |        |

## 7.2 ETSI Tispan

| Package name and description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Identity                                       |                                                                    | Reference              | Status      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------|------------------------|-------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Text                                           | Binary                                                             |                        |             |
| <p><b>Aggregate Bearer Control Package</b></p> <p>This package defines aggregate bearer load control information flows between a MG and MGC in order to provide admission control functionality based on aggregate bandwidth usage measurements and transport network QoS performance.</p>                                                                                                                                                                                                                                                             | aggr                                           | ?                                                                  | DTS 03022 v0.0.3       | In progress |
| <p><b>TIPHON Extended H.248/MEGACO package (EMP) Specification; ICF Control over Reference Point</b></p> <p>This package defines a property to enable the MGC to act as a MIDCOM Agent and control a "gateway" acting as a Middlebox.</p> <ul style="list-style-type: none"> <li>• Middle Box Package</li> </ul>                                                                                                                                                                                                                                       | emb                                            | 0x008a                                                             | ETSI TS 101 332 (2002) | Done        |
| <p><b>H.248 profile for gate control</b></p> <p>The referenced document defines a profile of the MEGACO protocol for controlling gates between IP transport domains. It also defines specific packages that are required by this profile specification.</p> <ul style="list-style-type: none"> <li>• Differentiated Services Package</li> <li>• Gate Management Package</li> <li>• Traffic Management Package</li> <li>• Gate Recovery Information Package</li> <li>• NAT Traversal Package</li> <li>• MPLS Package</li> <li>• VLAN Package</li> </ul> | ds<br>gm<br>tman<br>gri<br>ntr<br>mpls<br>vlan | 0x008b<br>0x008c<br>0x008d<br>0x008e<br>0x008f<br>0x0090<br>0x0091 | ETSI TS 102 333 (2004) | Done        |

### 7.3 IETF Megaco

NOTE – The packages are official work items adopted by the IETF Megaco work group. These references can be found at the URL <ftp://www.ietf.org/internet-drafts/>.

| Package name and description                                                                                                                                                                                                           | Identity |        | Reference (Note)                   | Status  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|------------------------------------|---------|
|                                                                                                                                                                                                                                        | Text     | Binary |                                    |         |
| <b>Megaco/H.248 sub-series NAS Packages</b> <ul style="list-style-type: none"><li>• Basic NAS package</li><li>• NAS incoming package</li><li>• NAS outgoing package</li><li>• NAS control package</li><li>• NAS root package</li></ul> | nas      | 0x004b | draft-ietf-megaco-naspkg-05.txt    | Expired |
|                                                                                                                                                                                                                                        | nasin    | 0x004c |                                    |         |
|                                                                                                                                                                                                                                        | nasout   | 0x004d |                                    |         |
|                                                                                                                                                                                                                                        | nasctl   | 0x004e |                                    |         |
|                                                                                                                                                                                                                                        | nasroot  | 0x004f |                                    |         |
| <b>Megaco R2 packages and Call Flows</b>                                                                                                                                                                                               | NA       | NA     | draft-ietf-megaco-r2pacakge-04.txt | Expired |

#### 7.4 IETF individual submissions

NOTE – This clause identifies packages that individuals have submitted to the IETF. These have not been taken as official work items of the IETF Megaco work group.

| Package name and description                                                                                                                                                                                                                                                                                                                                                                     | Identity                 |                            | Reference                                | Status                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------|------------------------------------------|----------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                  | Text                     | Binary                     |                                          |                                  |
| <b>MF Tone Generation and Detection Packages</b>                                                                                                                                                                                                                                                                                                                                                 |                          |                            | draft-bothwell-megaco-mftonepkgs-03.txt  | Expired. Superseded by H.248.24. |
| <b>ISDN Package for Megaco</b>                                                                                                                                                                                                                                                                                                                                                                   | NA                       | NA                         | draft-bouwen-megaco-isdn-pack-00.txt     | Expired                          |
| <b>Enhanced Alerting Packages for Megaco/H.248 sub-series</b>                                                                                                                                                                                                                                                                                                                                    |                          |                            | draft-boyle-megaco-alerting-03.txt       | Expired. Superseded by H.248.23. |
| <b>Supplemental Tones Packages for Megaco/H.248 sub-series</b>                                                                                                                                                                                                                                                                                                                                   |                          |                            | draft-boyle-megaco-tonepkgs-07.txt       | Expired. Superseded by H.248.27. |
| <b>MGC Cookie Package for Megaco/H.248 sub-series</b>                                                                                                                                                                                                                                                                                                                                            | mgcckie                  | 0x00??                     | draft-cutler-megaco-mgc-cookie-02.txt    | Expired                          |
| <b>Megaco/H.248 sub-series Basic CAS Packages</b>                                                                                                                                                                                                                                                                                                                                                |                          |                            | draft-manyfolks-megaco-caspackage-02.txt | Expired. Superseded by H.248.25. |
| <b>Enhanced Line Services Packages</b>                                                                                                                                                                                                                                                                                                                                                           |                          |                            | draft-taylor-megaco-enhlpkgs-01.txt      | Expired. Superseded by H.248.26. |
| <b>Name Pattern Package for Megaco</b>                                                                                                                                                                                                                                                                                                                                                           | nampat                   | 0x00??                     | draft-rosen-megaco-namepatterns-01.txt   | Expired                          |
| <b>Megaco/H.248 sub-series QoS Packages</b><br>The referenced document is in progress and defines the basic QoS Package that addresses the different means of supporting Quality of Service (QoS) on IP networks. This memo also defines the RSVP package (that falls into the Integrated services model) and the Differentiated services package in association with the Megaco/H.248 Protocol. | bqos<br>rsvp<br>diffserv | 0x00??<br>0x00??<br>0x00?? | draft-madhubabu-megaco-qospackage-00.tx  | Expired                          |

| Package name and description                                                                                                                                                                                            | Identity |        | Reference                              | Status  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|----------------------------------------|---------|
|                                                                                                                                                                                                                         | Text     | Binary |                                        |         |
| <b>MEGACO/H.248 FXO Packages</b><br>The referenced document describes the events and signals helpful for signalling between Central Office (CO) and Foreign Exchange Office (FXO) at Customer Premises Equipment (CPE). | ??       | ??     | draft-sridhar-megaco-fxopackage-01.txt | Expired |
| <b>AAL2 Package</b>                                                                                                                                                                                                     | ??       | ??     | draft-barr-megaco-aal2bearer-00.txt    | Expired |
| <b>Megaco ATM Package</b>                                                                                                                                                                                               | NA       | NA     | draft-rosen-megaco-atm-package-01.txt  | Expired |

## 8 H.248 sub-series MIBS

NOTE – These references can be found at the URL <ftp://www.ietf.org/internet-drafts/>.

| <b>MIB name</b>            | <b>Reference (Note)</b>                     |
|----------------------------|---------------------------------------------|
| H.248 sub-series MIB       | <draft-ietf-megaco-mib-06.txt>              |
| H.248 Ringing MIB          | <draft-pitchandi-megaco-ringing-mib-00.txt> |
| H.248 sub-series Tones MIB | <draft-doyle-megaco-tonesmib-00>            |



## SERIES OF ITU-T RECOMMENDATIONS

|                 |                                                                                             |
|-----------------|---------------------------------------------------------------------------------------------|
| Series A        | Organization of the work of ITU-T                                                           |
| Series D        | General tariff principles                                                                   |
| Series E        | Overall network operation, telephone service, service operation and human factors           |
| Series F        | Non-telephone telecommunication services                                                    |
| Series G        | Transmission systems and media, digital systems and networks                                |
| <b>Series H</b> | <b>Audiovisual and multimedia systems</b>                                                   |
| Series I        | Integrated services digital network                                                         |
| Series J        | Cable networks and transmission of television, sound programme and other multimedia signals |
| Series K        | Protection against interference                                                             |
| Series L        | Construction, installation and protection of cables and other elements of outside plant     |
| Series M        | Telecommunication management, including TMN and network maintenance                         |
| Series N        | Maintenance: international sound programme and television transmission circuits             |
| Series O        | Specifications of measuring equipment                                                       |
| Series P        | Telephone transmission quality, telephone installations, local line networks                |
| Series Q        | Switching and signalling                                                                    |
| Series R        | Telegraph transmission                                                                      |
| Series S        | Telegraph services terminal equipment                                                       |
| Series T        | Terminals for telematic services                                                            |
| Series U        | Telegraph switching                                                                         |
| Series V        | Data communication over the telephone network                                               |
| Series X        | Data networks, open system communications and security                                      |
| Series Y        | Global information infrastructure, Internet protocol aspects and next-generation networks   |
| Series Z        | Languages and general software aspects for telecommunication systems                        |