RECOMMENDATION ITU-R S.1252

NETWORK MANAGEMENT – PAYLOAD CONFIGURATION OBJECT CLASS DEFINITIONS FOR SATELLITE SYSTEM NETWORK ELEMENTS FORMING PART OF SDH TRANSPORT NETWORKS IN THE FIXED-SATELLITE SERVICE

(Question ITU-R 201/4)

(1997)

The ITU Radiocommunication Assembly,

considering

a) that digital satellite systems will remain as constituent elements of public/private networks in a technology independent way;

b) that ITU-T Recommendation G.707 (1996) specifies the Synchronous Digital Hierarchy (SDH);

c) that ITU-T Recommendations G.803 and G.805 define the architecture of SDH transport networks which should be reflected in the management functionality definitions;

d) that ITU-T Recommendation G.783 specifies the general characteristics and functions of synchronous multiplexing equipment which have to be measured and controlled via the management system;

e) that ITU-T Recommendations G.831 and G.784 define the management principles and capabilities of SDH transport networks with which this Recommendation has to be compatible;

f) that ITU-T Recommendation G.774 defines the managed objects for terrestrial SDH transport networks which form the precedents for the object definitions in this Recommendation;

g) that compatibility with the Telecommunications Management Network (TMN) as defined in ITU-T Recommendation M.3000 is desirable;

h) that ITU-T Recommendation G.861 defines the principles and guidelines for the integration of satellite and radio systems in SDH transport networks including their management capabilities;

j) that Recommendation ITU-R S.1149 specifies aspects of satellite-based SDH transport networks,

recommends

that digital satellite systems in the FSS comply with the management functionality defined in this Recommendation to facilitate their integration with SDH transport networks.

CONTENTS

1 Scope of this Recommendation

This Recommendation deals with satellite specific payload configuration.

Payload configuration deals with the control of the adaptation functions which sit between the layers of the SDH architecture, see ITU-T Recommendation G.805. It does not cover the control of SDH cross-points which come under the “fabric” managed object class.

2 Introduction to payload configuration

The existing terrestrial Recommendation on this subject is ITU-T Recommendation G.774-02 (1993). This was extensively revised in 1996 with many of the object classes being updated to Revision 1 status, indicated by adding R1 to the end of the object class name. This Recommendation follows the 1996 practice.

Traditional terrestrial SDH payload configuration operations may be applied to the terrestrial SDH adaptation functions which might be found in satellite earth stations.

2.1 Satellite specific payloads

Specialized adaptation equipment functions have been defined in Recommendation ITU-R S.1149 to support asymmetric and point-to-multipoint working in satellite systems and this Recommendation defines the corresponding payload configuration management object classes to control these specialized adaptation functions.

This Recommendation is concerned with the lowest level details of the network management concept. This level is referred to as the “Network Element” level.

One objective is to ensure that these features are compatible with terrestrial SDH transport network management systems.

2.2 Consideration of satellite operational scenarios

The satellite SDH operational scenarios are defined in Recommendation ITU-R S.1149.

2.2.1 Scenario 1

Scenario 1 employs a standard terrestrial payload, STM-1, in a standard terrestrial manner and therefore does not require payload configuration applied to its Higher Order Satellite Section Adaptation (HSSA) function.

2.2.2 Scenario 2

Scenario 2 employs a standard STM-0 (51M) signal format in both directions of transmission but with asymmetric loading of the multiple receive direction signals compared to the transmit direction signal. Multiplexing and demultiplexing of Lower Order Virtual Containers (LOVCs) (VC-2, VC-12) and possibly Higher Order Virtual Container (HOVC) (VC-3) and asymmetry reconciliation are performed in the Higher Order Satellite Path Adaptation (HSPA) function which is a satellite specific function. Therefore, a specialized payload configuration control method had to be defined.

TABLE 1

Scenario 2 – Arrangements

Transport signal	Possible signal components Several receive, STM-0 format, signals may be supported. Total traffic must fit into an STM-0
STM-0 (51M)	One AU-3 = VC-3
	One to seven – TUG-2s
	One to twenty-one – TU-2s
	One to twenty-one – VC-12s
	Other combinations are for further study

AU: Administration Unit.

TU: Tributary Unit.

TUG: Tributary Unit Group.

VC: Virtual Container.

To control the various options in scenario 2 a special object class has been created, called modifiableSatVC3AsymTTP, as a subclass of the satVC3AsymTTP object class defined in Recommendation ITU-R S.1250.

A special AUG payload configure class was not required as only one AU-3 can be carried in a STM-0.

2.2.2.1 Scenario 2 – payload configuration object class definitions in GDMO format

modifiableSatVC3AsymTTPSource

modifiableSatVC3AsymTTPSource **MANAGED OBJECT CLASS**

DERIVED FROM "Recommendation ITU-R S.1250": satVC3AsymTTPSource**;**

CHARACTERIZED BY

"ITU-T Recommendation M.3100":supportableClientListPackage**,**

modifiableSatVC3AsymTTPSourcePackage **PACKAGE**

BEHAVIOUR

modifiableSatVC3AsymTTPSourceBehaviour **BEHAVIOUR**

DEFINED AS

"This object class models the process of controlling the Adaptation function HSPA located between the lower order path connection LPC-*m*, in scenario 2, and the corresponding Higher Order Satellite Path Termination (HSPT). Scenarios are defined in Recommendation ITU-R S.1149.

The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

satVC3AsymTTPSourceStructure **GET,**

clientTypeStructure **GET;**

ACTIONS

defineSatVC3AsymTTPSourceStructure**,**

defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 01**};**

modifiableSatVC3AsymTTPSink

modifiableSatVC3AsymTTPSink **MANAGED OBJECT CLASS**

DERIVED FROM "Recommendation ITU-R S.1250": satVC3AsymTTPSink**;**

CHARACTERIZED BY

"ITU-T Recommendation M.3100":supportableClientListPackage**,**

modifiableSatVC3AsymTTPSinkPackage **PACKAGE**

BEHAVIOUR

modifiableSatVC3AsymTTPSinkBehaviour **BEHAVIOUR**

DEFINED AS

"This object class models the process of controlling the Adaptation function HSPA located between the lower order path connection LPC-*m*, in scenario 2, and the corresponding Higher Order Satellite Path Termination (HSPT). Scenarios are defined in Recommendation ITU-R S.1149.

The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

satVC3AsymTTPSinkStructure **GET,**

clientTypeStructure **GET;**

ACTIONS

defineSatVC3AsymTTPSinkStructure**,**

defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 02**};**

2.2.3 Scenario 3 – payload configuration

The information model for the payload configuration process is based upon the signal structures.

This part of the Recommendation defines those subclasses which are special to scenario 3 satellite systems as defined in Recommendation ITU-R S.1149.

Extensions to the following definitions will be possible by simply incorporating new items in the ASN.1 Productions listing rather than requiring the development of new subclasses.

Note that terrestrial object classes covering configuration actions, which may be used on the terrestrial side of the Synchronous Baseband Equipement (SBE), are always symmetrical as full two-way working has been assumed. This is not the situation within the satellite specific parts of the system so flexibility in the action and parameter definitions has been provided to support unidirectional, asymmetrical and point-to-multipoint modes of operation.

Scenario 3 introduces two new payload types, called SSTM-2*n* and SSTM-1*k*. These are created by the Lower order Satellite Section Adaptation function (LSSA).

The scenario 3 payloads are shown in Table 2 taken from Recommendation ITU-R S.1149.

2.2.3.1 Scenario 3 – Multiplex section bit rates

TABLE 2

Sub-STM-1 synchronous signal, payload, SSOH and bit rates

Module designation	Payload		Satellite Section Overhead (SSOH) Rate (kbit/s)	Satellite Intra Office Section (S-IOS) Rate (kbit/s)
	Composition	Rate (kbit/s)		
SSTM-11	1 × TU-12	2 304	128	2 432
SSTM-12	2 × TU-12	4 608	128	4 736
SSTM-21	1 × TUG-2	6 912	128	7 040
SSTM-22	2 × TUG-2	13 824	128	13 952
SSTM-23	3 × TUG-2	20 736	128	20 864
SSTM-24	4 × TUG-2	27 684	128	27 812
SSTM-25	5 × TUG-2	34 560	128	34 688
SSTM-26	6 × TUG-2	41 472	128	41 600

NOTE 1 – The need for a higher maximum SSTM-2*n* is for further study.

Scenario 3 – Satellite Specific Tributary Unit Groups

Two Satellite Tributary Unit Groups (STUGs) have been defined, STUG-2*n* made up of 1 to 6 TUG-2s and STUG-1*k* made up of 1 to 2 TU-12s.

In object information terms these are identified as:

stug11Source	stug11Sink
stug12Source	stug12Sink
stug21Source	stug21Sink
stug22Source	stug22Sink
stug23Source	stug23Sink
stug24Source	stug24Sink
stug25Source	stug25Sink
stug26Source	stug26Sink

The bidirectional case has not been included because the method of applying loopbacks (the main reason for the bidirectional object classes) in scenario 3 has not been defined.

Therefore for the purposes of scenario 3 payload control it is necessary to define 16 object classes as shown in Table 3.

TABLE 3

Satellite object classes for scenario 3

New object classes	Related to	Action
modifiableSatTUG11AdaptSource	satTUG11Source	defineClientType
modifiableSatTUG11AdaptSink	satTUG11Sink	defineClientType
modifiableSatTUG12AdaptSource	satTUG12Source	defineClientType
modifiableSatTUG12AdaptSink	satTUG12Sink	defineClientType
modifiableSatTUG21AdaptSource	satTUG21Source	defineSTUG21Structure
modifiableSatTUG21AdaptSink	satTUG21Sink	defineSTUG21Structure
modifiableSatTUG22AdaptSource	satTUG22Source	defineSTUG22Structure
modifiableSatTUG22AdaptSink	satTUG22Sink	defineSTUG22Structure
modifiableSatTUG23AdaptSource	satTUG23Source	defineSTUG23Structure
modifiableSatTUG23AdaptSink	satTUG23Sink	defineSTUG23Structure
modifiableSatTUG24AdaptSource	satTUG24Source	defineSTUG24Structure
modifiableSatTUG24AdaptSink	satTUG24Sink	defineSTUG24Structure
modifiableSatTUG25AdaptSource	satTUG25Source	defineSTUG25Structure
modifiableSatTUG25AdaptSink	satTUG25Sink	defineSTUG25Structure
modifiableSatTUG26AdaptSource	satTUG26Source	defineSTUG26Structure
modifiableSatTUG26AdaptSink	satTUG26Sink	defineSTUG26Structure

2.2.3.2 Definition of actions:

defineClientType

From the definition of scenario 3 in Recommendation ITU-R S.1149, it is clear that the clientTYPE specified in the current version is type (9) c2048ByteSynchronousMappingClientType. However, to allow for future changes to Recommendation ITU-R S.1149 a full list of client types has been included.

defineSTUG21Structure

This is set as 1 × TUG-2 default at creation time.

Each TUG-2 is structured according to a TUG2StructureInfo parameter where the time sequence of the TUG/TU determines which element of the parameter applies, i.e. one TUG-2 = (0), three TU-12s = (1) and 4 TU-11s = (2). All tributaries can be marked as cross-connectable (1) or not (2) or unknown (3) using the connectionInfo parameter. The unknown case permits the network element to make its own decision.

defineSTUG22Structure

This is set as 2 × TUG-2 default at creation time.

Each TUG-2 is structured according to a TUG2StructureInfo parameter where the time sequence of the TUs determines which element of the parameter applies, i.e. one TUG-2 = (0), three TU-12s = (1) and 4 TU-11s = (2). All tributaries can be marked as cross-connectable (1) or not (2) or unknown (3) using the connectionInfo parameter. The unknown case permits the network element to make its own decision.

defineSTUG23Structure

This is set as 3 × TUG-2 default at creation time.

Each TUG-2 is structured according to a TUG2StructureInfo parameter where the time sequence of the TUs determines which element of the parameter applies, i.e. one TUG-2 = (0), three TU-12s = (1) and 4 TU-11s = (2). All tributaries can be marked as cross-connectable (1) or not (2) or unknown (3) using the connectionInfo parameter. The unknown case permits the network element to make its own decision.

defineSTUG24Structure

This is set as 4 × TUG-2 default at creation time.

Each TUG-2 is structured according to a TUG2StructureInfo parameter where the time sequence of the TUs determines which element of the parameter applies, i.e. one TUG-2 = (0), three TU-12s = (1) and 4 TU-11s = (2). All tributaries can be marked as cross-connectable (1) or not (2) or unknown (3) using the connectionInfo parameter. The unknown case permits the network element to make its own decision.

defineSTUG25Structure

This is set as 5 × TUG-2 default at creation time.

Each TUG-2 is structured according to a TUG2StructureInfo parameter where the time sequence of the TUs determines which element of the parameter applies, i.e. one TUG-2 = (0), three TU-12s = (1) and 4 TU-11s = (2). All tributaries can be marked as cross-connectable (1) or not (2) or unknown (3) using the connectionInfo parameter. The unknown case permits the network element to make its own decision.

defineSTUG26Structure

This is set as 6 × TUG-2 default at creation time.

Each TUG-2 is structured according to a TUG2StructureInfo parameter where the time sequence of the TUs determines which element of the parameter applies, i.e. one TUG-2 = (0), three TU-12s = (1) and 4 TU-11s = (2). All tributaries can be marked as cross-connectable (1) or not (2) or unknown (3) using the connectionInfo parameter. The unknown case permits the network element to make its own decision.

The flexibility provided by these object classes is not as great as that supported by the terrestrial object classes because there is only one payload structure defined for each SSTM and this is continuous from 1 to its maximum. However, there is still a need for the modifiable object class type to allow for the identification of SSTMs that contain tributaries that are of the notCrossConnectable type.

2.2.3.3 Scenario 3 – Definition of payload configuration object classes in GDMO format

modifiableSatTUG11AdaptSource

modifiableSatTUG11AdaptSource **MANAGED OBJECT CLASS**

DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSource**;**

CHARACTERIZED BY

"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**

modifiableSatTUG11AdaptSourcePackage **PACKAGE**

BEHAVIOUR

modifiableSatTUG11AdaptSourceBehaviour **BEHAVIOUR**

DEFINED AS

"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding Satellite Section Termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.

The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES
clientTypeStructure **GET;**
ACTIONS
defineClientTypeStructure**;;;**
REGISTERED AS **{**rRecS.1252MObjectClass 03**};**

---

modifiableSatTUG11AdaptSink
modifiableSatTUG11AdaptSink **MANAGED OBJECT CLASS**
DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSink**;**
CHARACTERIZED BY
"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**
modifiableSatTUG11AdaptSinkPackage **PACKAGE**
BEHAVIOUR
modifiableSatTUG11AdaptSinkBehaviour **BEHAVIOUR**
DEFINED AS
"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.
The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**
ATTRIBUTES
clientTypeStructure **GET;**
ACTIONS
defineClientTypeStructure**;;;**
REGISTERED AS **{**rRecS.1252MObjectClass 04**};**

---

modifiableSatTUG12AdaptSource
modifiableSatTUG12AdaptSource **MANAGED OBJECT CLASS**
DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSource**;**
CHARACTERIZED BY
"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**
modifiableSatTUG12AdaptSourcePackage **PACKAGE**
BEHAVIOUR
modifiableSatTUG12AdaptSourceBehaviour **BEHAVIOUR**
DEFINED AS
"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.
The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**
ATTRIBUTES
clientTypeStructure **GET;**
ACTIONS
defineClientTypeStructure**;;;**
REGISTERED AS **{**rRecS.1252MObjectClass 05**};**

---

modifiableSatTUG12AdaptSink
modifiableSatTUG12AdaptSink **MANAGED OBJECT CLASS**
DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSink**;**
CHARACTERIZED BY
"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**
modifiableSatTUG12AdaptSinkPackage **PACKAGE**

BEHAVIOUR

modifiableSatTUG12AdaptSinkBehaviour **BEHAVIOUR**

DEFINED AS

"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.

The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

clientTypeStructure **GET;**

ACTIONS

defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 06**};**

modifiableSatTUG21AdaptSource

modifiableSatTUG21AdaptSource **MANAGED OBJECT CLASS**

DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSource**;**

CHARACTERIZED BY

"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**

modifiableSatTUG21AdaptSourcePackage **PACKAGE**

BEHAVIOUR

modifiableSatTUG21AdaptSourceBehaviour **BEHAVIOUR**

DEFINED AS

"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.

The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

satTUG21AdaptSourceStructure **GET,**

clientTypeStructure **GET;**

ACTIONS

defineSatTUG21AdaptSourceStructure**,**

defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 07**};**

modifiableSatTUG21AdaptSink

modifiableSatTUG21AdaptSink **MANAGED OBJECT CLASS**

DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSink**;**

CHARACTERIZED BY

"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**

modifiableSatTUG21AdaptSinkPackage **PACKAGE**

BEHAVIOUR

modifiableSatTUG21AdaptSinkBehaviour **BEHAVIOUR**

DEFINED AS

"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.

The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

satTUG21AdaptSinkStructure **GET,**

clientTypeStructure **GET;**

ACTIONS

defineSatTUG21AdaptSinkStructure

defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 08**};**

---

modifiableSatTUG22AdaptSource

modifiableSatTUG22AdaptSource **MANAGED OBJECT CLASS**

DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSource**;**

CHARACTERIZED BY

"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**

modifiableSatTUG22AdaptSourcePackage **PACKAGE**

BEHAVIOUR

modifiableSatTUG22AdaptSourceBehaviour **BEHAVIOUR**

DEFINED AS

"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.

The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

satTUG22AdaptSourceStructure **GET,**

clientTypeStructure **GET;**

ACTIONS

defineSatTUG22AdaptSourceStructure**,**

defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 09**};**

---

modifiableSatTUG22AdaptSink

modifiableSatTUG22AdaptSink **MANAGED OBJECT CLASS**

DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSink**;**

CHARACTERIZED BY

"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**

modifiableSatTUG22AdaptSinkPackage **PACKAGE**

BEHAVIOUR

modifiableSatTUG22AdaptSinkBehaviour **BEHAVIOUR**

DEFINED AS

"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.

The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

satTUG22AdaptSinkStructure **GET,**

clientTypeStructure **GET;**

ACTIONS

defineSatTUG22AdaptSinkStructure

defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 10**};**

---

modifiableSatTUG23AdaptSource

modifiableSatTUG23AdaptSource **MANAGED OBJECT CLASS**
DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSource**;**
CHARACTERIZED BY
"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**
modifiableSatTUG23AdaptSourcePackage **PACKAGE**
BEHAVIOUR
modifiableSatTUG23AdaptSourceBehaviour **BEHAVIOUR**
DEFINED AS
"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.
The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**
ATTRIBUTES
satTUG23AdaptSourceStructure **GET,**
clientTypeStructure **GET;**
ACTIONS
defineSatTUG23AdaptSourceStructure**,**
defineClientTypeStructure**;;;**
REGISTERED AS **{**rRecS.1252MObjectClass 11**};**

---

modifiableSatTUG23AdaptSink

modifiableSatTUG23AdaptSink **MANAGED OBJECT CLASS**
DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSink**;**
CHARACTERIZED BY
"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**
modifiableSatTUG23AdaptSinkPackage **PACKAGE**
BEHAVIOUR
modifiableSatTUG23AdaptSinkBehaviour **BEHAVIOUR**
DEFINED AS
"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.
The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**
ATTRIBUTES
satTUG23AdaptSinkStructure **GET,**
clientTypeStructure **GET;**
ACTIONS
defineSatTUG23AdaptSinkStructure
defineClientTypeStructure**;;;**
REGISTERED AS **{**rRecS.1252MObjectClass 12**};**

---

modifiableSatTUG24AdaptSource

modifiableSatTUG24AdaptSource **MANAGED OBJECT CLASS**
DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSource**;**
CHARACTERIZED BY
"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**
modifiableSatTUG24AdaptSourcePackage **PACKAGE**
BEHAVIOUR
modifiableSatTUG24AdaptSourceBehaviour **BEHAVIOUR**

DEFINED AS

"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.

The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

satTUG24AdaptSourceStructure **GET,**

clientTypeStructure **GET;**

ACTIONS

defineSatTUG24AdaptSourceStructure**,**

defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 13**};**

---

modifiableSatTUG24AdaptSink

modifiableSatTUG24AdaptSink **MANAGED OBJECT CLASS**

DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSink**;**

CHARACTERIZED BY

"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**

modifiableSatTUG24AdaptSinkPackage **PACKAGE**

BEHAVIOUR

modifiableSatTUG24AdaptSinkBehaviour **BEHAVIOUR**

DEFINED AS

"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.

The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

satTUG24AdaptSinkStructure **GET,**

clientTypeStructure **GET;**

ACTIONS

defineSatTUG24AdaptSinkStructure

defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 14**};**

---

modifiableSatTUG25AdaptSource

modifiableSatTUG25AdaptSource **MANAGED OBJECT CLASS**

DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSource**;**

CHARACTERIZED BY

"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**

modifiableSatTUG25AdaptSourcePackage **PACKAGE**

BEHAVIOUR

modifiableSatTUG25AdaptSourceBehaviour **BEHAVIOUR**

DEFINED AS

"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.

The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

satTUG25AdaptSourceStructure **GET,**
clientTypeStructure **GET;**

ACTIONS

defineSatTUG25AdaptSourceStructure**,**
defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 15**};**

---

modifiableSatTUG25AdaptSink

modifiableSatTUG25TTPAdaptSink **MANAGED OBJECT CLASS**
DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSink**;**
CHARACTERIZED BY
"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**
modifiableSatTUG25AdaptSinkPackage **PACKAGE**
BEHAVIOUR
modifiableSatTUG25AdaptSinkBehaviour **BEHAVIOUR**
DEFINED AS
"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.
The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

satTUG25AdaptSinkStructure **GET,**
clientTypeStructure **GET;**

ACTIONS

defineSatTUG25AdaptSinkStructure
defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 16**};**

---

modifiableSatTUG26AdaptSource

modifiableSatTUG26TTPAdaptSource **MANAGED OBJECT CLASS**
DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSource**;**
CHARACTERIZED BY
"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**
modifiableSatTUG26AdaptSourcePackage **PACKAGE**
BEHAVIOUR
modifiableSatTUG26AdaptSourceBehaviour **BEHAVIOUR**
DEFINED AS
"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.
The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**

ATTRIBUTES

satTUG26AdaptSourceStructure **GET,**
clientTypeStructure **GET;**

ACTIONS

defineSatTUG26AdaptSourceStructure**,**
defineClientTypeStructure**;;;**

REGISTERED AS **{**rRecS.1252MObjectClass 17**};**

---

modifiableSatTUG26AdaptSink

modifiableSatTUG26AdaptSink **MANAGED OBJECT CLASS**
DERIVED FROM "Recommendation ITU-R S.1250"**:** satLSAdaptSink**;**
CHARACTERIZED BY
"ITU-T Recommendation M.3100"**:**supportableClientListPackage**,**
modifiableSatTUG26AdaptSinkPackage **PACKAGE**
BEHAVIOUR
modifiableSatTUG26AdaptSinkBehaviour **BEHAVIOUR**
DEFINED AS
"This object class models the process of controlling the Adaptation function located between the lower order path connection LPC-*m*, in scenario 3, and the corresponding satellite section termination (SST). Scenarios are defined in Recommendation ITU-R S.1149.
The Adaptation functionality may be different between transmit and return directions to support asymmetric and point to multipoint operation."**;;**
ATTRIBUTES
satTUG26AdaptSinkStructure **GET,**
clientTypeStructure **GET;**
ACTIONS
defineSatTUG26AdaptSinkStructure
defineClientTypeStructure**;;;**
REGISTERED AS **{**rRecS.1252MObjectClass 18**};**

– – – – – – – – – – – –

Note that there is no Package definition section because all required Packages have been defined within the Object Class definitions.

3 Attributes

satVC3AsymTTPSourceStructure

satVC3AsymTTPSourceStructure **ATTRIBUTE**
DERIVED FROM "ITU-T Recommendation M.3100:1992": supportableClientListPackage**;**
BEHAVIOUR
satVC3AsymTTPSourceBehaviour **BEHAVIOUR**
DEFINED AS
"This attribute supports the interrogation of the existing structure applied to an adaptation function."**;;**
PARAMETERS satVC3AsymTTPSourceStructure
WITH INFORMATION SYNTAX SDHConfASN1. satVC3AsymTTPSourceStructureInfo
REGISTERED AS **{**rRecS.1252Attribute 01**};**

– – – – – – – – – – – –

satVC3AsymTTPSinkStructure

satVC3AsymTTPSinkStructure **ATTRIBUTE**
DERIVED FROM "ITU-T Recommendation M.3100:1992": supportableClientListPackage**;**
BEHAVIOUR
satVC3AsymTTPSourceBehaviour **BEHAVIOUR**
DEFINED AS
"This attribute supports the interrogation of the existing structure applied to an adaptation function."**;;**
PARAMETERS satVC3AsymTTPSinkStructure
WITH INFORMATION SYNTAX SDHConfASN1. satVC3AsymTTPSinkStructureInfo
REGISTERED AS **{**rRecS.1252Attribute 02**};**

– – – – – – – – – – – –

clientTypeStructure

clientTypeStructure **ATTRIBUTE**

DERIVED FROM "ITU-T Recommendation M.3100:1992": supportableClientListPackage**;**

BEHAVIOUR

clientTypeStructureBehaviour **BEHAVIOUR**

DEFINED AS

"This attribute supports reading of the existing Client Type structure applied to an adaptation function."**;;**

PARAMETERS clientTypeStructure

WITH INFORMATION SYNTAX SDHConfASN1. clientTypeStructureInfo

REGISTERED AS **{**rRecS.1252Attribute 03**};**

---

4 Actions

To support asymmetric and point-to-multipoint operation, the Source and Sink Adaptation Structure information, called for by the actions relating to the two directions of transmission within the same system, may be different.

The definition of client types for the higher order multiplex is not supported in this scenario as it has been assumed that this operation has been (or will be) performed at some previous (or later stage) in the multiplexing (demultiplexing) process.

4.1 Definition of satellite VC-3 structure for scenario 2 applications

defineSatVC3AsymTTPSourceStructure **ACTION**

BEHAVIOUR

defineSatVC3AsymTTPSourceStructureBehaviour **BEHAVIOUR**

DEFINED AS

"This Action selects between the various ways of building up STM-0 structures from TU-2s and TU-12s.:

(1-7) × TUG-2

(1-21) × TU-12.

The following rules of procedure apply:

– Nothing changes if the object configuration already matches the **satVC3AsymTTPSourceStructureInfo** parameter.

– In all other cases an attempt is made to establish the new structure as defined in the **satVC3AsymTTPSourceStructureInfo** parameter. If the establishment process fails then an error is reported and no change is made. If the attempt is successful then a success report is generated and returned to the managing system.

– The action will fail if any of the following problems are encountered:

  – A change is requested on a connection point that is already committed. All relevant connection points must be disconnected before any rearrangement attempt.

  – The multiplexing structure requested is not supported by the adaptation function.

  – One or more connection terminations is classified as not-cross-connectable.

– The adaptation function may make its own choice about connection points marked as **unknown** in the **connectionInfo** parameter."**;;**

MODE CONFIRMED;

PARAMETERS defineSDHStructureError**;**

WITH INFORMATION SYNTAX SDHConfASN1.SatVC3AsymTTPSourceStructureInfo**;**

REGISTERED AS **{**rRecS.1252Action 01**};**

4.2 Definition of satellite TUG structure

Source structure

defineSatTUGXXAdaptSourceStructure **ACTION**

BEHAVIOUR

defineSatTUGXXAdaptSourceStructureBehaviour **BEHAVIOUR**

DEFINED AS

"This Action selects between the various ways of building up STUGXX structures from TU-2s and TU-12s.:

(1-6) × TUG-2

(4-21) × TU-12.

The following rules of procedure apply:

– Nothing changes if the object configuration already matches the **satTUGXXAdaptSourceStructureInfo** parameter.

– In all other cases an attempt is made to establish the new structure as defined in the **satTUGXXAdaptSourceStructureInfo** parameter. If the establishment process fails then an error is reported and no change is made. If the attempt is successful then a success report is generated and returned to the managing system.

– The action will fail if any of the following problems are encountered:

  – A change is requested on a connection point that is already committed. All relevant connection points must be disconnected before any rearrangement attempt.

  – The multiplexing structure requested is not supported by the adaptation function.

  – One or more connection terminations is classified as not-cross-connectable.

– The Adaptation function may make its own choice about connection points marked as **unknown** in the **connectionInfo** parameter."**;;**

MODE CONFIRMED;

PARAMETERS defineSDHStructureError**;**

WITH INFORMATION SYNTAX SDHConfASN1.SatTUGAdaptSourceStructureInfo**;**

REGISTERED AS **{**rRecS.1252Action 02**};**

– – – – – – – – – – –

Sink structure

defineSatTUGXXAdaptSinkStructure **ACTION**

BEHAVIOUR

defineSatTUGXXAdaptSinkStructureBehaviour **BEHAVIOUR**

DEFINED AS

"This Action selects between the various ways of breaking down STUGXX structures into TU-2s and TU-12s.:

(1-6) × TUG-2

(4-21) × TU-12.

The following rules of procedure apply:

– Nothing changes if the object configuration already matches the **satTUGXXAdaptSourceStructureInfo** parameter.

– In all other cases an attempt is made to establish the new structure as defined in the **satTUGXXAdaptSourceStructureInfo** parameter. If the establishment process fails then an error is reported and no change is made. If the attempt is successful then a success report is generated.

– The action will fail if any of the following problems are encountered:
  – A change is requested on a connection point that is already committed. All relevant connection points must be disconnected before any rearrangement attempt.
  – The multiplexing structure requested is not supported by the adaptation function.
  – One or more connection terminations is classified as not-cross-connectable.
– The Adaptation function may make its own choice about connection points marked as **unknown** in the **connectionInfo** parameter."**;;**

MODE CONFIRMED;
PARAMETERS defineSDHStructureError**;**
WITH INFORMATION SYNTAX SDHConfASN1.SatTUGXXAdaptSinkStructureInfo**;**
REGISTERED AS **{**rRecS.1252Action 03**};**

4.3 Definition of client type

defineClientTypeStructure **ACTION**
BEHAVIOUR
defineClientTypeStructureBehaviour **BEHAVIOUR**
DEFINED AS
"This action selects the payload indicator to be carried along with the payload inside the SDH lower order Virtual Containers and thereby also the adaptation function that needs to be employed.

The use of multiple types of adaptation for single client types is still under study.

– If the parameter is set to **noClient** then the contained object is deleted. Otherwise a CTP which corresponds to the client TTP is created and the existing contained object is deleted.
– The action will fail if the client type is not supported by the network element.
– If the action succeeds then the signalLabel in byte V5 bits 5-7 must be updated according to the new structure;
– When applied to a sink VC the "expected signal label" is updated,
– When applied to a source VC the "sent signal label" is updated."**;;**

MODE CONFIRMED;
PARAMETERS defineSDHStructureError**;**
WITH INFORMATION SYNTAX SDHConfASN1.DefineClientTypeStructureInfo**;**
REGISTERED AS **{**rRecS.1252Action 04**};**

---

5 Notifications

None.

6 Parameters

defineSDHStructureError **PARAMETER**
CONTEXT SPECIFIC-ERROR**;**
WITH SYNTAX SDHConfASN1.DefineSDHStructureError**;**
REGISTERED AS **{**rRecS.1252Parameter 01**};**

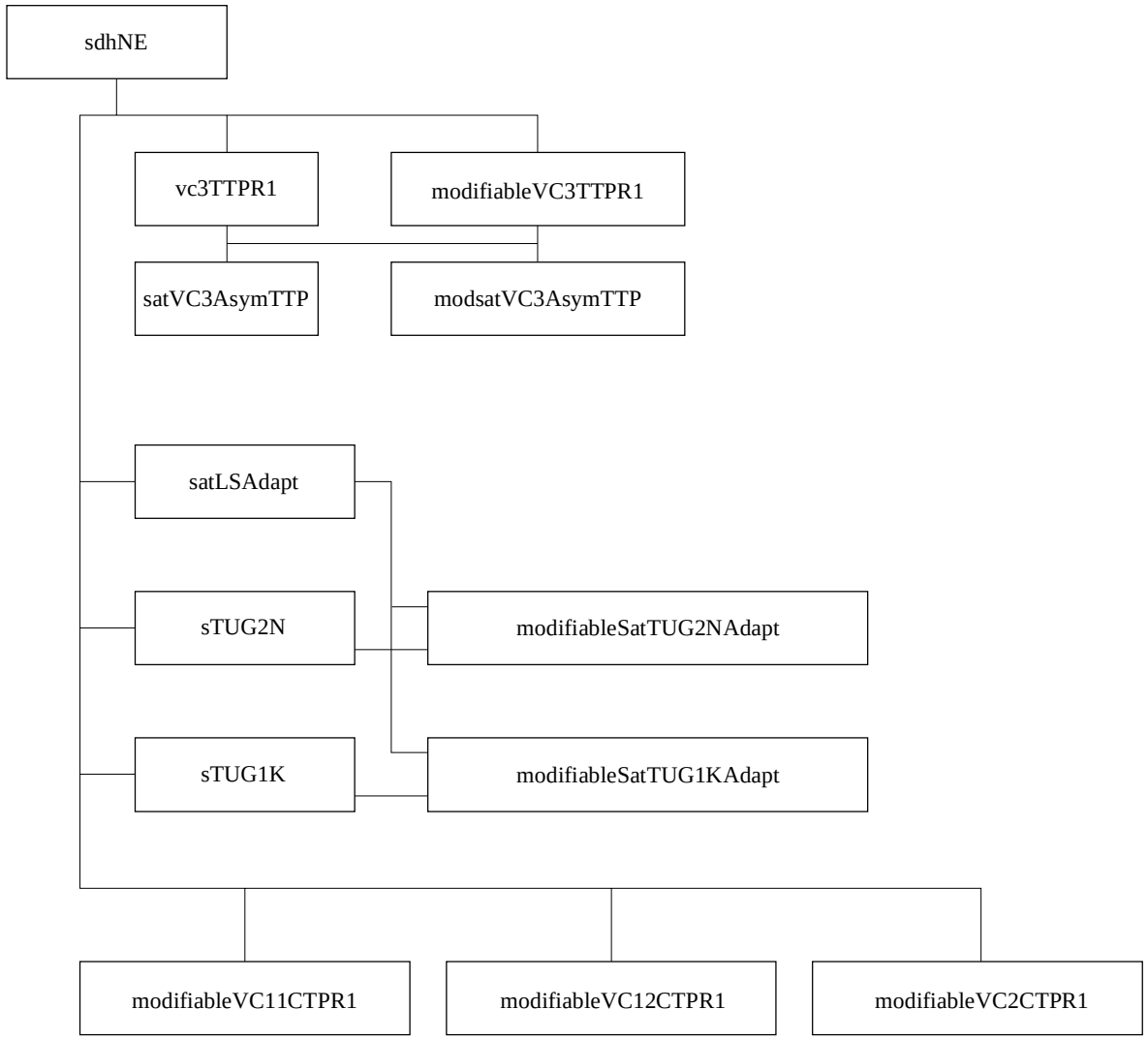
---

7 Name bindings

The name bindings defined in this Recommendation are illustrated in Fig. 1.

FIGURE 1

Naming hierarchy



7.1 Name binding definitions

modifiableSatVC3AsymTTPSource/Sink - satVC3AsymTTPSource/Sink **NAME BINDING**

SUBORDINATE OBJECT CLASS "Recommendation ITU-R S.1252: 1997": modifiableSatVC3AsymTTPSource/Sink **AND SUBCLASSES;**

NAMED BY

SUPERIOR OBJECT CLASS "Recommendation ITU-R S.1250: 1997": satVC3AsymTTPSource/Sink

AND SUBCLASSES;

WITH ATTRIBUTE "Recommendation ITU-R S.1250: 1997": satVC3AsymTTPSource/SinkId**;**

BEHAVIOUR

modifiableSatVC3AsymTTPSource/Sink - satVC3AsymTTPSource/SinkBehaviour **BEHAVIOUR**

DEFINED AS

"The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the NE."**;;**

REGISTERED AS **{**rRecS.1252NameBinding 01**};**

_ _ _ _ _ _ _ _ _ _ _ _

modifiableSatTUG1KAdaptSource/Sink - satTUG1KSource/Sink **NAME BINDING**
SUBORDINATE OBJECT CLASS "Recommendation ITU-R S.1252: 1997": modifiableSatTUG1KAdaptSource/Sink **AND SUBCLASSES;**
NAMED BY
SUPERIOR OBJECT CLASS "Recommendation ITU-R S.1250: 1997": satTUG1KSource/Sink
AND SUBCLASSES;
WITH ATTRIBUTE "Recommendation ITU-R S.1250: 1997": satTUG1KSource/SinkId**;**
BEHAVIOUR
modifiableSatTUG1KAdaptSource/Sink-satTUG1KSource/SinkBehaviour **BEHAVIOUR**
DEFINED AS
"The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the NE."**;;**
REGISTERED AS **{**rRecS.1252NameBinding 02**};**

Flexibility for growth

Extensive use is made of the ASN.1 Type ENUMERATED in the following ASN.1 Production to allow flexibility for growth in functionality. See ITU-T Recommendation X.680 (1995) ASN.1, Amendment 1 – Rules of extensibility.

8 Supporting ASN.1 – Productions

```
SDHConfASN1{itu(0)recommendations(0)s(19)1252(1252)InformationModel(0)asn1Module(2)sdhconf(0)}
DEFINITIONS IMPLICIT TAGS ::=
BEGIN
-- EXPORTS everything
sdhConf OBJECT IDENTIFIER ::= itu(0)recommendation(0)s(19)1252(1252)informationModel(0)}
S.1252MObjectClass  OBJECT IDENTIFIER ::= {sdhConf  managedObjectClass(3)}
S.1252Action  OBJECT IDENTIFIER  ::= {sdhConf  action(9)}
S.1252NameBinding  OBJECT IDENTIFIER  ::= {sdhConf  nameBinding(6)}
S.1252Parameter  OBJECT IDENTIFIER  ::= {sdhConf  parameters(5)}

DefineClientTypeStructureInfo  ::= ClientType
                                   -- ordered according to the time sequence—
ClientType  ::= ENUMERATED         {
                                noClient                                    (0)

                                c139264AsynchronousMappingClientType        (1)

                                c44736AsynchronousMappingClientType         (2)

                                c34AsynchronousMappingClientType            (3)

                                c6312AsynchronousMappingClientType          (4)
                                c6312BitSynchronousMappingClientType        (5)
                                c6312ByteSynchronousMappingClientType       (6)

                                c2048AsynchronousMappingClientType          (7)
                                c2048BitSynchronousMappingClientType        (8)
                                c2048ByteSynchronousMappingClientType       (9)

                                c1544AsynchronousMappingClientType          (10)
                                c1544BitSynchronousMappingClientType        (11)
                                c1544ByteSynchronousMappingClientType       (12)

                                aTMClientType                               (13)
```

```
                    fDDIClientType                              (14)

                    mANClientType                               (15)

                    c51AsynchronousMappingClientType            (16)
                    c51BitSynchronousMappingClientType          (17)
                    c51ByteSynchronousMappingClientType         (18)

                    c17AsynchronousMappingClientType            (19)
                    c17BitSynchronousMappingClientType          (20)
                    c17ByteSynchronousMappingClientType         (21)

                    c8AsynchronousMappingClientType             (22)
                    c8BitSynchronousMappingClientType           (23)
                    c8ByteSynchronousMappingClientType          (24)

                    c34BitSynchronousMappingClientType          (25)
                    c34ByteSynchronousMappingClientType         (26)

                    c44736BitSynchronousMappingClientType       (27)
                    c44736ByteSynchronousMappingClientType      (28)

                    c155AsynchronousMappingClientType           (29)
                    c155BitSynchronousMappingClientType         (30)
                    c155ByteSynchronousMappingClientType        (31)

                    csatelliteSpecialMapping1ClientType         (32)
                    csatelliteSpecialMapping2ClientType         (33)
                    csatelliteSpecialMapping3ClientType         (34)
                    csatelliteSpecialMapping4ClientType         (35)
                    csatelliteSpecialMapping5ClientType         (36)
                    csatelliteSpecialMapping6ClientType         (37)
                        }

ConnectionInfo  ::= ENUMERATED      {
                        crossConnectable        (1)
                        notCrossConnectable     (2)
                        unknown                 (3)}

DefineSDHStructureError  ::=    ENUMERATED  {
                    structureNotSupported               (0)
                    tpNotCrossConnectable               (1)
                    tpAlreadyCrossConnected             (2)
                    unknown                             (3)
                            }


satTUGXXAdaptSourceStructureInfo   ::= CHOICE {
            1 × VC-12 into a TU-12 into a STUG-11                                   (1)
            2 × VC-12s into two TU-12s into a STUG-12                               (2)

            3 × VC-12s into three TU12s into a TUG-2 into a STUG-21                 (3)
            4 × VC-12s into four TU-12s into two TUG-2s into a STUG-22              (4)
            5 × VC-12s into five TU-12s into two TUG-2s into a STUG-22              (5)
            6 × VC-12s into six TU-12s into two TUG-2s into a STUG-22               (6)
```

7 × VC-12s into seven TU-12s into three TUG-2s into a STUG-23 (7)
8 × VC-12s into eight TU-12s into three TUG-2s into a STUG-23 (8)
9 × VC-12s into nine TU-12s into three TUG-2s into a STUG-23 (9)
10 × VC-12s into ten TU-12s into four TUG-2s into a STUG-24 (10)
11 × VC-12s into eleven TU-12s into four TUG-2s into a STUG-24 (11)
12 × VC-12s into twelve TU-12s into four TUG-2s into a STUG-24 (12)
13 × VC-12s into thirteen TU-12s into five TUG-2s into a STUG-25 (13)
14 × VC-12s into fourteen TU-12s into five TUG-2s into a STUG-25 (14)
15 × VC-12s into fifteen TU-12s into five TUG-2s into a STUG-25 (15)
16 × VC-12s into sixteen TU-12s into six TUG-2s into a STUG-26 (16)
17 × VC-12s into seventeen TU-12s into six TUG-2s into a STUG-26 (17)
18 × VC-12s into eighteen TU-12s into six TUG-2s into a STUG-26 (18)

1 × VC-12 into one TU-12 into one TUG-2 into a STUG-21 (19)
2 × VC-12s into two TU-12s into one TUG-2 into a STUG-21 (20)

1 × VC-2 into a TU-2 into a TUG-2 into a STUG-21 (21)
2 × VC-2s into two TU-2s into two TUG-2s into a STUG-22 (22)
3 × VC-2s into three TU-2s into three TUG-2s into a STUG-23 (23)
4 × VC-2s into four TU-2s into four TUG-2s into a STUG-24 (24)
5 × VC-2s into five TU-2s into five TUG-2s into a STUG-25 (25)
6 × VC-2s into six TU-2s into six TUG-2s into a STUG-26 (26)

-- combinations—

for STUG-22, one VC-2 plus one VC-12 (27)
one VC-2 plus two VC-12s (28)

for STUG-23, one VC-2 plus four VC-12s (29)
one VC-2 plus five VC-12s (30)
one VC-2 plus six VC-12s (31)

two VC-2s plus one VC-12 (32)
two VC-2s plus two VC-12s (33)
two VC-2s plus three VC-12s (34)

for STUG-24, one VC-2 plus seven VC-12s (35)
one VC-2s plus eight VC-12s (36)
one VC-2s plus nine VC-12s (37)

two VC-2s plus four VC-12s (38)
two VC-2s plus five VC-12s (39)
two VC-2s plus six VC-12s (40)

three VC-2s plus one VC-12 (41)
three VC-2s plus two VC-12s (42)
three VC-2s plus three VC-12s (43)

for STUG-25, one VC-2 plus ten VC-12s (44)
one VC-2s plus eleven VC-12s (45)
one VC-2s plus twelve VC-12s (46)

two VC-2s plus seven VC-12s (47)
two VC-2s plus eight VC-12s (48)
two VC-2s plus nine VC-12s (49)

three VC-2s plus four VC-12 (50)
three VC-2s plus five VC-12s (51)
three VC-2s plus six VC-12s (52)

four VC-2s plus one VC-12 (53)
four VC-2s plus two VC-12s (54)
four VC-2s plus three VC-12s (55)

for STUG-26, one VC-2 plus thirteen VC-12s (56)
one VC-2s plus fourteen VC-12s (57)
one VC-2s plus fifteen VC-12s (58)

two VC-2 plus ten VC-12s (59)
two VC-2s plus eleven VC-12s (60)
two VC-2s plus twelve VC-12s (61)

three VC-2s plus seven VC-12s (62)
three VC-2s plus eight VC-12s (63)
three VC-2s plus nine VC-12s (64)

four VC-2s plus four VC-12s (65)
four VC-2s plus five VC-12s (66)
four VC-2s plus six VC-12s (67)

five VC-2s plus one VC-12s (68)
five VC-2s plus two VC-12s (69)
five VC-2s plus three VC-12s (70)

} -- ordered according to time sequence—

satTUGXXAdaptSinkStructureInfo ::= CHOICE {"same range and numbering as for the source but there may be a different selection between Source and Sink"}.

satVC3AsymTTPSourceStructureInfo ::= CHOICE {
nochange (0)
one VC-3 (1)
one TUG-2 + padding to 51.84M STM-0 format (2)
two TUG-2s + padding to 51.84M STM-0 format (3)
three TUG-2s + padding to 51.84M STM-0 format (4)
four TUG-2s + padding to 51.84M STM-0 format (5)
five TUG-2s + padding to 51.84M STM-0 format (6)
six TUG-2s + padding to 51.84M STM-0 format (7)
seven TUG-2s + padding to 51.84M STM-0 format (8)

one TU-12s + padding to 51.84M STM-0 format (9)
two TU-12s + padding to 51.84M STM-0 format (10)
three TU-12s + padding to 51.84M STM-0 format (11)
four TU-12s + padding to 51.84M STM-0 format (12)
five TU-12s + padding to 51.84M STM-0 format (13)
six TU-12s + padding to 51.84M STM-0 format (14)
seven TU-12s + padding to 51.84M STM-0 format (15)
eight TU-12s + padding to 51.84M STM-0 format (16)
nine TU-12s + padding to 51.84M STM-0 format (17)
ten TU-12s + padding to 51.84M STM-0 format (18)
eleven TU-12s + padding to 51.84M STM-0 format (19)

twelve TU-12s + padding to 51.84M STM-0 format (20)
thirteen TU-12s + padding to 51.84M STM-0 format (21)
fourteen TU-12s + padding to 51.84M STM-0 format (22)
fifteen TU-12s + padding to 51.84M STM-0 format (23)
sixteen TU-12s + padding to 51.84M STM-0 format (24)
seventeen TU-12s + padding to 51.84M STM-0 format (25)
eighteen TU-12s + padding to 51.84M STM-0 format (26)
nineteen TU-12s + padding to 51.84M STM-0 format (27)
twenty TU-12s + padding to 51.84M STM-0 format (28)
twenty one TU-12s + padding to 51.84M STM-0 format (29)
} --ordered according to time sequence—

-- other combinations are FFS—

satVC3AsymTTPSinkStructureInfo ::= CHOICE {
nochange (0)
one VC-3 (1)
one TUG-2 + padding to 51.84M STM-0 format (2)
two TUG-2s + padding to 51.84M STM-0 format (3)
three TUG-2s + padding to 51.84M STM-0 format (4)
four TUG-2s + padding to 51.84M STM-0 format (5)
five TUG-2s + padding to 51.84M STM-0 format (6)
six TUG-2s + padding to 51.84M STM-0 format (7)
seven TUG-2s + padding to 51.84M STM-0 format (8)

one TU-12s + padding to 51.84M STM-0 format (9)
two TU-12s + padding to 51.84M STM-0 format (10)
three TU-12s + padding to 51.84M STM-0 format (11)
four TU-12s + padding to 51.84M STM-0 format (12)
five TU-12s + padding to 51.84M STM-0 format (13)
six TU-12s + padding to 51.84M STM-0 format (14)
seven TU-12s + padding to 51.84M STM-0 format (15)
eight TU-12s + padding to 51.84M STM-0 format (16)
nine TU-12s + padding to 51.84M STM-0 format (17)
ten TU-12s + padding to 51.84M STM-0 format (18)
eleven TU-12s + padding to 51.84M STM-0 format (19)
thirteen TU-12s + padding to 51.84M STM-0 format (21)
fourteen TU-12s + padding to 51.84M STM-0 format (22)
fifteen TU-12s + padding to 51.84M STM-0 format (23)
sixteen TU-12s + padding to 51.84M STM-0 format (24)
seventeen TU-12s + padding to 51.84M STM-0 format (25)
eighteen TU-12s + padding to 51.84M STM-0 format (26)
nineteen TU-12s + padding to 51.84M STM-0 format (27)
twenty TU-12s + padding to 51.84M STM-0 format (28)
twenty one TU-12s + padding to 51.84M STM-0 format (29)
} --ordered according to time sequence—

-- other combinations are FFS—