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中华人民共和国通信行业标准

YD/T 1180—2002

No.7信令网网络管理接口技术规范——MTP和SCCP部分

No.7 Signaling Network Management Interface Technical Specification —MTP and SCCP Part

2002-02-01 发布　　2002-02-01 实施

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前　　言

随着我国电信网络的发展和维护需求的增长，No.7 信令网作为电信网的重要支撑网之一，成为发展综合业务、智能业务以及其他各种新业务的必备条件。而 No.7 信令网网络管理系统则是 No.7 信令网稳定和可靠运行的必要手段，而且会有力地促进 No.7 信令网络的运行维护管理工作，提高管理效率和网络运行质量。因此，为适应技术发展的需要，特制定本标准。

本标准是参考国际电信联盟电信标准部（ITU-T）的有关建议以及我国通信行业相关标准并结合我国国内具体情况编制的。

本标准规定了 No.7 信令网络管理接口技术规范（MTP 部分和 SCCP 部分）。本标准涉及的网络管理接口信息模型基于 GDMO/ASN1。

附录 A 为提示的附录。

附录 B 和附录 C 为标准的附录。

本标准由信息产业部电信研究院提出并归口。

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No.7 信令网网络管理接口技术规范 ——MTP 和 SCCP 部分

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1 范围

本标准规定了 No.7 信令网网络管理接口中 MTP 和 SCCP 部分的管理功能需求和基于 CMIP 的信息模型。

本标准适用于采用 Q3 接口的 No.7 信令网网络管理。

2 引用标准

下列标准所包含的条文，通过在本标准中引用而成为本标准的条文。本标准出版时，所示版本均为有效。所有标准都会被修订，使用本标准的各方应探讨使用下列标准最新版本的可能性。

YD/T 852-1996 (1996)	电信管理网总体设计原则
YD/T 871-1996 (1996)	电信管理网通用网络信息模型
ITU-T 建议 Q.822 (1994)	Q3 接口的第一阶段、第二阶段和第三阶段描述：性能管理
ITU-T 建议 X.208 (1988)	ASN.1 标准
ITU-T 建议 X.283 (1993)	OSI 相关管理信息单元
ITU-T 建议 X.721 (1992)	信息技术—开放系统互连—管理信息结构：管理信息定义
ITU-T 建议 X.722 (1992)	被管对象定义准则
ITU-T 建议 X.723 (1993)	通用管理信息
ITU-T 建议 Q.751.1 (1995)	MTP 的网元管理信息模型
ITU-T 建议 Q.751.2 (1997)	SCCP 的网元管理信息模型
ITU-T 建议 Q.751.3 (1997)	MTP 计费的网元管理信息模型
ITU-T 建议 Q.752 (1997)	No.7 信令系统的监视和测量
ITU-T 建议 Q.753 (1997)	No.7 信令系统管理功能 MRVT、SRVT 和 CVT 以及 QMASE 用户的定义
ITU-T 建议 Q.754 (1997)	No.7 信令系统管理应用业务元（ASE）的定义
ITU-T 建议 Q.755 (1993)	No.7 信令系统协议测试

3 缩略语

ASN.1	抽象语法记法 1
CIC	电路识别码
GDMO	被管对象定义指南
HSTP	高级信令转接点

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ISDN	综合业务数字网
ISTP	国际信令转接点
ISUP	ISDN 用户部分
LSTP	低级信令转接点
MSU	消息信号单元
MTP	消息传递部分
NE	网元
OMAP	操作维护应用部分
OSI	开放系统互连
SAP	业务接入点
SCCP	信令连接控制部分
SEP	信令终结点
SLC	信令链路码
SLS	信令链路选择码
SP	信令点
STEP	信令转接终结点
STP	信令转接点
TCAP	事务能力应用部分
TMN	电信管理网
TUP	电话应用部分

4 No.7 信令网网络管理结构

No.7 信令网网管系统监控 No.7 信令网内 STP 及 SP 的网元设备，监视 STP/SP 设备以及与其相连的信令链路和路由运行状况，完成对信令网的性能管理、告警及故障管理、配置管理功能。整个网管系统应独立于 No.7 信令网网络和设备之外，系统应保证任何情况下都不会干扰 No.7 信令网的正常运行。网管系统可以通过 Q3 接口和 No.7 信令网网元管理器或网元设备相连，对 No.7 信令网进行管理和监控。网络管理的结构如图 1 所示。

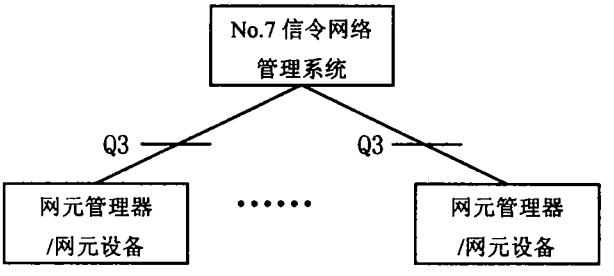

图 1 No.7 信令网网络管理物理结构

5 管理接口功能需求

5.1 配置管理

配置管理功能主要包括物理设备的配置管理和逻辑设备的配置管理。

接口支持对各设备定义的管理信息的查询或修改，并支持动态管理。当管理信息发生改变时，接口应支持属性/状态改变的上报，上报的通知中应指明哪个管理对象的什么属性发生了怎样的改变；当增加/删除一个逻辑或物理设备时，接口应支持对象创建/删除的上报，上报的通知中应指明是创建还是删除了哪个管理对象。

5.1.1 物理设备的配置

5.1.1.1 信令转接点设备

信令转接点（STP, Signal Transfer Point）设备是进行信令转接的交换机，它应满足 No.7 信令方式中消息传递部分(MTP)、信令连接控制部分(SCCP)、事务能力应用部分(TCAP)和运行维护应用部分(OMAP)规定的功能。信令转接点设备分为国际信令转接点（ISTP）、高级信令转接点（HSTP）和低级信令转接点（LSTP）3 类。接口支持对下列信息的查询和修改（标记*的为可修改信息）：

— 设备标识；
— 设备名称；
— 设备制造商；
— 设备版本号；
— 制造商特定的设备类型和型号；
— 物理位置（*），指机房所在位置；
— 使用者标记（*）；
— 联系方法（*）；
— 网元的连接密码；
— 网元地址，指网元的网络业务接入地址，可以为 X.25 地址或 TCP/IP 地址；
— 管理状态，locked 或 unlocked（*）；
— 运行状态，enabled 或 disabled；
— 使用状态，idle、active 或 busy；
— 网元状态(Unknow、Unav、ModuleTrouble、Normal)。

5.1.1.2 信令点设备

信令点（SP, Signal Point）设备是信令网传送各种信令消息的源点或目的地点，它应满足 No.7 信令方式中部分消息传递部分（MTP）功能和全部电话用户部分（TUP）和/或 ISUP 的功能。

信令点设备主要有：在 PSTN 中，包括数字程控电话交换机（DC1 平面、DC2 平面）和智能网控制点 SCP；在移动网中，包括移动交换中心（MSC）、基站控制中心（BSC）、本地用户位置寄存器（HLR）、来访用户位置寄存器（VLR）和 SCP 等。当然，随着 No.7 信令网支撑业务的增多，信令点还可以是拨号接入服务器、寻呼中心和卫星移动电话交换中心等。

网管接口支持对下列信息的查询和修改（标记*的为可修改信息）：

— 设备标识；
— 设备名称；
— 设备制造商；
— 设备版本号；
— 制造商特定的设备类型和型号；
— 物理位置（*），指机房所在位置；
— 使用者标记（*）；
— 联系方法（*）；
— 网元的连接密码；
— 网元地址，指网元的网络业务接入地址，可以为 X.25 地址或 TCP/IP 地址；
— 管理状态（*），locked 或 unlocked；
— 运行状态，enabled 或 disabled；
— 使用状态，idle、active 或 busy；
— 网元状态(Unknow、Unav、ModuleTrouble、Normal)。

5.1.1.3 物理模块

STP 与 STP 之间、STP 与 SP 之间的信令链路是通过交换机的物理模块连接的。根据设备类型的不

同，设备的物理模块可分为信令处理模块、中继模块或综合处理模块等。

网管接口应支持对以下物理模块信息的查询和修改（标记为*的为可修改信息）：

— 模块类型；
— 模块的物理标识或逻辑标识；
— 模块可承载的最大信令链路数（如 $n\times$64kbit/s, $n\times$2Mbit/s）；
— 模块当前承载的信令链路数（如 $m\times$64kbit/s, $m\times$2Mbit/s）；
— 各端口/时隙使用状态；
— 物理模块运行状态，enabled 或 disabled。

5.1.2 逻辑设备的配置

5.1.2.1 MTP 的配置管理

消息传递部分（MTP, Message Transfer Part）是在信令网中提供可靠的信令消息的传递。它包括信令数据链路级（第一级）、信令数据链路控制级（第二级）和信令网功能级（第三级）。

5.1.2.1.1 信令点管理

信令点是 No.7 信令网中的一个逻辑节点，它是被管交换网元的一部分。MTP 包括信令终结点（SEP, Signal End Point）、信令转接点（STP, Signal Transfer Point）、信令转接和终结点（STEP）3 种类型的信令节点。接口支持对信令点的查询、创建、修改和删除。

网管接口应支持对下列信令点信息的查询和修改（标记*的为可修改信息）：

— 信令点编码（由网络指示语和点码组成）；
— 信令点类型（STP、SEP、STEP）；
— 信令点名称；
— 信令点状态(unknow,signPointDown,routeSetTrouble,congested,normal)；
— 信令点相关路由组的总数；
— 信令点相关故障路由组的总数；
— MTP 屏蔽数据(*)。

5.1.2.1.2 信令链路管理

信令链路是两个相邻信令点之间的物理连接的逻辑信道表示。接口应支持对 No.7 信令链路的创建、查询和删除，支持对 No.7 信令链路的激活和去活，支持对 No.7 信令链路的禁止和解禁止，支持对相关信令链路终端模块的查询。

网管接口应支持对下列链路信息的查询和修改（标记*的为可修改信息）：

— 信令链路编码（SLC）（取值范围为 0～15）；
— 正常情况下分配给该链路的信令链路选择码；
— 当前分配给该链路的信令选择码；
— 信令链路类型，标识物理通道类型，GROUND 或 SATELLITE；
— 信令链路速率，64K、$N\times$64kbit/s 或 2Mbit/s；
— 链路终端模块的标识、端口标识和时隙标识（*）（时隙标识可选）；
— 链路管理状态，locked 或 unlocked（*）；
— 链路运行状态，enabled 或 disabled；
— 链路使用状态，idle、active 或 busy；
— 信令链路状态，normal、deactivated、failed、localBlocked、remoteBlocked、 localInhibited 或 remoteInhibited；
— 链路告警等级设置（*）。

5.1.2.1.3 信令链路组管理

No.7 信令链路组是两个相邻信令点之间的若干信令链路的集合。链路组中的所有链路必须具有相同的信令标识和方向，链路组的容量等于组内所有链路容量的总和。接口应支持对 No.7 信令链路组数

据的查询和修改，支持对 No.7 信令链路组数据的创建和删除，支持对 N0.7 信令链路组中的信令链路的增加和减少，支持对链路组内负荷分担的查询和修改。

网管接口应支持对下列链路组信息的查询和修改（标记*的为可修改信息）：

— 相邻信令点编码（由网络指示语和点码组成）；
— 链路组名称；
— 链路组类型（可选），指 A 链路、B 链路、C 链路、D 链路、E 链路或 F 链路；
— 链路组内的信令链路总数；
— 链路组内激活的信令链路数；
— 链路组运行状态，enabled 或 disabled；
— 链路组可用状态；
— 链路组告警等级设置（*）；
— MTP 屏蔽数据（*）。

5.1.2.1.4 信令路由管理

信令路由是一个信令点到达消息目的地所经过多个信令点的预先确定的信令消息路径。

网管接口支持对 No.7 信令路由的增加和删除。

网管接口应支持对下列路由信息的查询和修改（标记*的为可修改信息）：

— 路由标识；
— 路由优先级；
— 路由状态；
— 组成该路由的首段信令链路组。

5.1.2.1.5 信令路由组管理

信令路由组是指到达特定目的地的一组信令路由的集合。

网管接口应支持对 No.7 信令路由组的创建、查询、修改和删除，支持路由之间负荷分担方式的查询和修改。

网管接口应支持对下列路由组信息的查询和修改（标记*的为可修改信息）：

— 路由组标识；
— 目的信令点编码标识；
— 路由组名称；
— 路由组内各路由之间的负荷分担方式（*），主备或负荷分担等；
— 路由组运行状态，enabled 或 disabled；
— 路由组告警等级设置（*）。

5.1.2.1.6 性能门限管理

网管接口定义了专门的性能门限值，当检测到的性能数据值超过门限值时，则产生 QoS 告警。

网管接口支持对下列性能门限值的查询和修改（标记*的为可修改信息）：

— 链路不可用时长门限（*）；
— 链路故障次数门限（*）；
— 本地忙时长门限（*）；
— 链路组不可用时长门限（*）；
— 相邻 SP 不可接入次数门限（*）。

5.1.2.2 SCCP 的配置管理

信号连接控制部分（SCCP, Signaling Connection Control part）为消息传递部分（MTP）提供附加功能，以便通过 No.7 信令网，在电信网的交换局和交换局、交换局和专用中心（如管理和维护中心）之间传递电路相关和电路非相关的信令信息，建立无连接和面向连接的网络业务。

5.1.2.2.1 SCCP 对象管理

SCCP 提供 4 种业务：0—基本无连接类，1—有序的无连接类，2—基本面向连接类，3—流量控制面向连接类。

网管接口应支持对下列 SCCP 相关信息的查询和修改（标记*的为可修改信息）：

— SCCP 的版本；
— SCCP 的名称；
— 为实体提供服务的 SCCP 业务接入点（SAP）的名称集；
— 系统属性，End System—SCCP 的目的节点，Intermediate System—SCCP 中继节点；
— 允许子系统退出服务的初始定时器值；
— 子系统准备退出服务与实际退出服务之间的初始定时器值；
— 获取子系统状态信息所允许的最大延迟定时器值；
— SCCP 屏蔽数据（*）。

5.1.2.2.2 SCCP 接入点管理

网管接口应支持对下列 SCCP 接入点相关信息的查询和修改（标记*的为可修改信息）：

— 接入点名称；
— 接入点逻辑地址，地址中包括 SSN（Subsystem Number）；
— 接入点可用状态，allowed、prohibited 和 congested；
— 相关域指针(*)，用于指向反映 SCCP 子系统状态的一组远端 MTP 接入点；
— 信令点重起后子系统的可用性，需要网络支持，缺省为 True；
— 数据链路层的 SAP 地址。

5.1.2.2.3 SCCP 路由管理

SCCP 路由是 SCCP 消息的被叫用户地址选路时预先确定的信令消息路径。SCCP 的寻址方式可采用全局码（GT, Global Title）翻译寻址方式和 DPC+SSN 寻址方式两种。

网管接口应支持对 SCCP 路由的创建、删除、查询和修改。

网管接口应支持对下列 SCCP 路由相关信息的查询和修改（标记*的为可修改信息）：

— SCCP 路由名称；
— SCCP 路由控制的管理信息；
— 路由管理状态（*），locked 或 unlocked；
— 全局码地址信息；
— 全局码编码方式；
— 全局码编号计划；
— 全局码翻译类型；
— 地址属性指示语，Unkown、Subscriber、National 或 International；
— 全局码指示语；
— 子系统号 SSN；
— SCCP 实体组（*），指 GT 翻译后产生的一组接入点（类型包括没有 SSN 的端节点实体组、有 SSN 的端节点实体组和中继节点实体组）；
— SCCP 实体组的共享模式（*）；决定组内各实体之间的负荷分担方式。

5.2 性能管理

性能管理是对 NO.7 信令网中的链路、路由及设备的性能进行监测和评估。其目的是在网络性能劣化到可接受的水平之前，系统采取相应的措施，确保所要求的业务质量目标。

网管接口应支持对信令设备的性能信息和信令网络状态信息的采集。

5.2.1 性能检测要求

— 支持对 STP/SP 消息统计测量信息及系统报告的采集，采集的数据分为两类：周期性测量数据，

可设定时间间隔，周期性地启动程序自动进行测量，周期可分为 5min、15min 和 30min；按命令进行的测量数据，由操作员在需要的时候发出命令启动测量；

— 能够通过集中的操作管理设定对全网进行的测量与统计，并能够根据操作员的要求修改测量和统计项目；

— 能够设置不同种类和级别的性能告警门限，逾门限时产生相应的告警信息。

5.2.2 性能分析参数

5.2.2.1 MTP 部分的监视和测量

5.2.2.1.1 信令点的性能数据

— 相邻信令点不可达次数：参考 Q.752/5.1；
— 相邻信令点不可达时长：参考 Q.752/5.2；
— 由于路由错误导致丢失的 MSU 数目：参考 Q.752/5.5；
— 发送的 MSU 的用户部分不可达的次数：参考 Q.752/5.6；
— 接收的 MSU 的用户部分不可达的次数：参考 Q.752/5.7；
— 接收的 TFC 的数目：参考 Q.752/5.8。

5.2.2.1.2 信令链路的故障统计数据

— 链路可用时长：参考 Q.752/1.1；
— 链路定位和证实次数：参考 Q.752/1.7；
— 收到的错误 MSU 的次数：参考 Q.752/1.8；
— 收到的否定证实的次数：参考 Q.752/1.9；
— 本地倒换次数：参考 Q.752/1.10；
— 链路不可用时长：参考 Q.752/2.1；
— 链路故障导致的不可用时长：参考 Q.752/2.7；
— 远端处理机故障引起的不可用时长：参考 Q.752/2.9。

5.2.2.1.3 信令链路的拥塞统计数据

— 链路组不可用时长：参考 Q.752/4.2；
— 链路拥塞次数：参考 Q.752/3.6；
— 链路拥塞时长：参考 Q.752/3.7；
— 由于拥塞导致丢失的 MSU 的数目：参考 Q.752/3.10；
— 导致丢失 MSU 的拥塞事件次数：参考 Q.752/3.11；
— 本地忙时长：参考 Q.752/2.15。

5.2.2.1.4 信令链路的禁止统计数据

— 本地禁止时长：参考 Q.752/2.5；
— 远端禁止时长：参考 Q.752/2.6；
— 本地禁止次数：参考 Q.752/2.13；
— 远端禁止次数：参考 Q.752/2.14。

5.2.2.1.5 信令链路的负荷统计数据

— 发送的字节数：参考 Q.752/3.1；
— 接收的字节数：参考 Q.752/3.4；
— 重传的字节数：参考 Q.752/3.2；
— 发送的 MSU 数：参考 Q.752/3.3
— 接收的 MSU 数：参考 Q.752/3.5。

5.2.2.1.6 信令路由的性能数据

— 路由组不可用：参考 Q.752/4.9；
— 路由组不可用时长：参考 Q.752/4.10；

— 接收到来自某一个信令点的消息单元 MSU 的字节数：参考 Q.752/6.1；
— 发送到某一个信令点的消息单元的字节数：参考 Q.752/6.2；
— 处理的相应某种业务的消息单元的字节数：参考 Q.752/6.3；
— 接收到的来自某一个信令点相应某种业务的 MSU 的字节数：参考 Q.752/6.4；
— 发送到某一个信令点相应某种业务的 MSU 的字节数：参考 Q.752/6.5；
— 处理的来自某一个信令点到某一个信令点相应某种业务的 MSU 的字节数：参考 Q.752/6.6；
— 处理的来自某一个信令点到某一个信令点相应某种业务的 MSU 的数目：参考 Q.752/6.7。

5.2.2.2 SCCP 部分的监视和测量

5.2.2.2.1 SCCP 实体的性能数据

— 发送的 UDT 消息：参考 Q.752/9bis.1；
— 发送的 UDTS 消息：参考 Q.752/9bis.2；
— 接收的 UDT 消息：参考 Q.752/9bis.3；
— 接收的 UDTS 消息：参考 Q.752/9bis.4；
— 发送到 MTP 的 CR 消息：参考 Q.752/9bis.5；
— 发送到 MTP 的 CREF 消息：参考 Q.752/9bis.6；
— 从 MTP 收到的 CR 消息：参考 Q.752/9bis.7；
— 从 MTP 收到的 CREF 消息：参考 Q.752/9bis.8；
— 发送到 MTP 的 RSR 消息：参考 Q.752/9bis.9；
— 从 MTP 接收到的 RSR 消息：参考 Q.752/9bis.10；
— 发送到 MTP 的 ERR 消息：参考 Q.752/9bis.11；
— 从 MTP 接受到的 ERR 消息：参考 Q.752/9bis.12；
— 发送的 XUDT 消息：参考 Q.752/9bis.13；
— 发送的 XUDTS 消息：参考 Q.752/9bis.14；
— 接收的 XUDT 消息：参考 Q.752/9bis.15；
— 接收的 XUDTS 消息：参考 Q.752/9bis.16。

5.2.2.2.2 SCCP 无连接业务的性能数据

— 重装错误—接收的段越序：参考 Q.752/7.11；
— 重装错误—无装配空间：参考 Q.752/7.12；
— 字段错误—字段不支持：参考 Q.752/7.19；
— 字段错误—装配失败：参考 Q.752/7.21；
— 字段错误—错误的字段：参考 Q.752/7.20。

5.2.2.2.3 SCCP 路由控制的性能数据

— 路由故障—对这种类型的地址未翻译：参考 Q.752/7.1；
— 路由故障—对这种特定的地址未翻译：参考 Q.752/7.2；
— 路由故障—网络故障：参考 Q.752/7.3；
— 路由故障—网络拥塞：参考 Q.752/7.4；
— 路由故障—子系统故障：参考 Q.752/7.5；
— 路由故障—子系统拥塞：参考 Q.752/7.6；
— 路由故障—未装用户：参考 Q.752/7.7；
— 检测出语法错误：参考 Q.752/7.8；
— 路由故障原因未知：参考 Q.752/7.9。

5.2.2.2.4 SSN 相关的性能数据

— 处理的消息总数：参考 Q.752/9.3；
— 本地子系统预定的消息：参考 Q.752/9.4；

— 要求全局码翻译的信息总数：参考 Q.752/9.5；
— 起始端每个 SSN 发出的 UDT 消息总数：参考 Q.752/9.6；
— 目的地每个 SSN 接收的 UTD 总数：参考 Q.752/9.7；
— 发送到备用子系统的消息：参考 Q.752/9.8；
— 目的地每个 SSN 从 MTP 接收的 DT1 消息：参考 Q.752/9.9；
— 起始端每个 SSN 发送到 MTP 的 DT1 消息：参考 Q.752/9.10；
— 目的地每个 SSN 从 MTP 接收的 DT2 消息：参考 Q.752/9.11；
— 起始端每个 SSN 发送到 MTP 的 DT2 消息：参考 Q.752/9.12；
— 起始端每个 SSN 发送到 MTP 的 ED 消息：参考 Q.752/9.13；
— 目的地每个 SSN 从 MTP 接收的 ED 消息：参考 Q.752/9.14。

5.3 故障管理

网管接口应支持对 STP/SP 输出的所有告警或告警提示信息的采集和查询，支持对相应 STP/SP 设备的故障同步。

告警应包含如下信息：

— 通知标识符；
— 相关告警标识；
— 告警源标识；
— 告警发生时刻；
— 告警清除时刻；
— 告警类型；
— 可能原因；
— 告警级别。

告警级别有如下 6 种取值：

— 严重告警（Critical），指造成通信阻断的告警；
— 重大告警（Major），影响业务的告警；
— 次要告警（Minor），指不影响现有业务的故障告警；
— 警告告警（Warning），向维护人员提示的信息；
— 不确定告警（Indeterminate），指该告警的级别不能确定；
— 告警清除（Cleared），指已经清除了通知中指明的一个或多个告警。

告警的主要监控参量：

— 链路告警包括外部原因引起的告警、外部管理操作使链路停止工作、硬件引起的链路故障和链路维护闭塞；
— 链路组告警，链路组故障；
— 路由组告警包括由于收到 TFP 使目的地不可达、链路组故障使非相邻目的地不可达和链路组故障使相邻目的地不可达；
— 系统 CPU 过负荷告警；
— 设备告警包括软件告警和硬件告警；
— 传输告警（帧校验码、线路信号监视告警、帧失步、复帧失步告警、入中继无信号告警和滑码告警等）；
— 电源告警。

附录 A
（提示的附录）
被管对象类的非正式描述

A1 网元层对象的非正规描述

此类对象中 managedSwitchingElement 是全局对象，其他对象包容在此对象的下面。

A1.1 Managed Switching Element

含义 ：被监控的交换网元。

A1.1.1 属性（Attribute）

1) managedElementId

名称		managedElementId
操作		GET
取值	范围	网元的名字，如“BEIJING-TSH3”
	缺省	
行为		表示网元对象实例

2) systemTitle

名称		systemTitle
操作		GET-REPLACE
取值	范围	
	缺省	和 managedElementId 取值相同
行为		系统名称

3) administrativeState

名称		administrativeState
操作		GET-REPLACE
取值	范围	locked/unlocked
	缺省	unlocked
行为		管理状态

4) operationalState

名称		operationalState
操作		GET
取值	范围	disabled/enabled
	缺省	enabled
行为		运行状态

5) usageState

名称		usageState
操作		GET
取值	范围	idle/active/busy
	缺省	idle
行为		使用状态

6) vendorName

名称		vendorName
操作		GET-REPLACE
取值	范围	
	取值	缺省值可取 S12、Siemens、Nortel、Erission 和 Huawei 等
行为		生产厂商名称

7) version

名称		version
操作		GET-REPLACE
取值	范围	根据网元是不同厂家的交换机，获得不同的软件版本号
	缺省	
行为		当接收到网元的报告时，要根据 version 来决定分析的方法

8) signature

名称		signature
操作		GET-REPLACE
取值	范围	
	缺省	
行为		网元自身标识

9) neStatus

名称		neStatus
操作		GET
取值	范围	可用/可用但有故障/不可用/未知
	缺省	未知
行为		反映网元及设备的状态

10) neTypePointer

名称		neTypePointer
操作		GET
取值	范围	neType 的 neTypeDN，如 HSTP、DC1、DC2 和 SCP 等。要列出所有的 neType，由用户选择输入。
	缺省	
行为		注：与 neType 的 DN 相一致。

11) neAddress

名称		neAddress
操作		GET
取值	范围	IP 地址/X.25 地址
	缺省	
行为		表示网元地址

12) comMethod

名称		comMethod
操作		GET-REPLACE
取值	范围	电话号码、寻呼号码和移动号码
	缺省	空值
行为		网元联系方式

13) switchFrame

名称		switchFrame
操作		GET
取值	范围	
	缺省	
行为		交换模块的大小

14) neKeyword

名称		neKeyword
操作		GET-REPLACE
取值	范围	可打印字符串
	缺省	“888888”
行为		用于控制用户对网元的访问

15) locationName

名称		locationName
操作		GET-REPLACE
取值	范围	字符串
	缺省	
行为		网元地理位置

16) userLabel

名称		userLabel
操作		GET-REPLACE
取值	范围	字符串
	缺省	
行为		使用者标记

A1.1.2 通知（Notifications）

1) communicationsAlarm: 当侦听到网元连接中断的事件后产生此告警。

2) processingErrorAlarm：处理出错告警。

3) environmentAlarm：环境告警。

4) equipmentAlarm：设备告警。

5) stateChange: 状态改变通知。

A1.2 MTP Signalling Point

含义：在 managedSwitchingElement 上定义的七号信令点，对应 MTP 网。通过配置管理功能创立，或者以初始化/同步/通知机制自动创立。

A1.2.1 属性（Attribute）

1) mtpSignPointId

名称		mtpSignPointId
操作		GET
取值	范围	取整数 0～3，与 networkIndicator 相同
	缺省	
行为		用于命名实例

注：在用户界面上出现的都是 SSF(Sub Service Field)的形式。SSF 与 networkIndicator 的关系如下：

NetworkIndicator	SSF
InternationalNetwork1(0)	INTAL1
InternationalNetwork2(1)	INTAL2
NationalNetwork1(2)	NAT
NationalNetwork2(3)	LOCAL

2) pointCode

名称		pointCode
操作		GET
取值	范围	限定整数
	缺省	
行为		表示 SP 的 pointCode

3) spType

名称		spType
操作		GET
取值	范围	SETP/STEP/STP
	缺省	
行为		表示 SP 的类型，如 SEP、STEP 和 STP

4) networkIndicator

名称		networkIndicator
操作		GET
取值	范围	
	缺省	
行为		表示该信令点所属的网络指示字

5) mtpSignPointName

名称		mtpSignPointName
操作		GET-REPLACE
取值	范围	
	缺省	
行为		mtpSignPoint 的别名

6) mtpSignPointStatus

名称		mtpSignPointStatus
操作		GET
取值	范围	未知、信令点故障、路由组故障、拥塞和正常
	缺省	未知
行为		反映信令点及相关路由组的状态

7) totalNbrofSignRouteSet

名称		totalNbrofSignRouteSet
操作		GET-REPLACE
取值	范围	整数
	缺省	0
行为		统计路由组的总数，用于 mtpSignPointStatus 的状态变化。当创建/删除 signRoutesetNePart 时,重置此值

8) nbrofSignRouteSetTrouble

名称		nbrofSignRouteSetTrouble
操作		GET-REPLACE
取值	范围	整数
	缺省	0
行为		统计不可用的路由组的总数

A1.2.2 通知（Notifications）

1) stateChange

2) ss7OnOccurEvent

A1.3 Signalling Link Set Termination Point

含义：在 mtpSignPoint 下定义的 Linkset，通过配置管理功能创立，或者以初始化/同步/Notification 机制自动创立。

A1.3.1 属性（Attribute）

1) signLinkSetTpId

名称		signLinkSetTpId
操作		GET
取值	范围	
	缺省	
行为		注：可与 adjPc 一致。

2) adjPc

名称		adjPc
操作		GET
取值	范围	
	缺省	
行为		相邻 SP 的 pointCode

3) usageState

名称		usageState
操作		GET
取值	范围	idle/active/busy
	缺省	idle
行为		描述资源使用状态

4) operationalState

名称		operationalState
操作		GET
取值	范围	disabled/enabled
	缺省	enabled
行为		反映运行状态

5) availabilityStatus

名称		availabilityStatus
操作		GET
取值	范围	
	缺省	dependency
行为		描述资源可用状态 (参见 ITU-T Q.751 Annex C)

6) numberOfTotalSignLinkTps

名称		numberOfTotalSignLinkTps
操作		GET-REPLACE
取值	范围	
	缺省	0
行为		子类 signLinkTp 的数目。当增加/删除 signLinkTp 的实例时，要修改该属性值。

7) numberOfNormallyActiveSignLinkTps

名称		numberOfNormallyActiveSignLinkTps
操作		GET-REPLACE
取值	范围	当所包含的 signLinkTp 的操作变化时，重新设置此属性
	缺省	0
行为		usageState = ACTIVE 的 signLinkTp 的数目。当此属性值由 0 到非 0，或者相反时，将影响 operaionalState 的值

8) signLinkSetTpName

名称		signLinkSetTpName
操作		GET-REPLACE
取值	范围	与 remoteSignPoint 的 mtpSignpointName 相一致。当 signLinkSetTpId 选定后，此值就确定了
	缺省	
行为		signLinkSetTp 对象的名称

9) signLinkSetType

名称		signLinkSetType
操作		GET-REPLACE
取值	范围	未知、A、B、C、D、E 和 F
	缺省	未知
行为		标识不同的 linkSetTp 的类型

10) alarmSeverityAdjust

名称		alarmSeverityAdjust
操作		GET-REPLACE
取值	范围	
	缺省	equal
行为		用于调整告警的等级

A1.3.2 通知（Notifications）

1) stateChange
2) attributeValueChange
3) objectCreation/objectDeletion
4) communicationsAlarm

A1.3.3 动作（Actions）

1) localInhibit
2) localUninhibit
3) actSignLinkTp
4) deactSignLinkTp

A1.4 Signalling Link Termination Point(signLinkTp)

含义：在 signLinkSetTp 上定义的 signLinkTp，通过配置管理子系统创立，或者以初始化/同步/Notification 机制自动创立。

A1.4.1 属性（Attribute）

1) slCode

名称		slCode
操作		GET
取值	范围	0～15
	缺省	
行为		若在同一链路组中已经赋过的值，则该值不能再次出现

2) slsCodeNormalList

名称		slsCodeNormalList
操作		GET
取值	范围	
	缺省	
行为		该属性标明哪些 SLS 缺省情况下被赋给该 signLinkTp。该属性可以在系统内部改变。

3) slsCodeCurrentList

名称		slsCodeCurrentList
操作		GET
取值	范围	
	缺省	
行为		该属性标明哪些 SLS 目前被赋给该 signLinkTp。必须保证所有的 SLS 都被覆盖，并且一个 signLinkSetTp 实例下的所有 signLinkTp 中，属性 slsCodeCurrentList 不能包含两次相同的 SLS。该属性可以在系统内部改变。

4) linkTpStatus

名称		linkTpStatus
操作		GET
取值	范围	
	缺省	normal/deactivated/failed/localBlocked/remoteBlocked/ localInhibited/remoteInhibited
行为		

5) administrativeState

名称		administrativeState
操作		GET-REPLACE
取值	范围	locked/unlocked
	缺省	unlocked
行为		描述资源管理状态

6) operationalState

名称		operationalState
操作		GET
取值	范围	disabled/enabled
	缺省	enabled
行为		运行状态

7) usageState

名称		usageState
操作		GET
取值	范围	idle/active/busy
	缺省	idle
行为		使用状态

8) linkTpType

名称		linkTpType
操作		GET
取值	范围	GROUND/SATELLITE
	缺省	
行为		signLinkTp 用来表示物理通道的类型

9) linkRate

名称		linkRate
操作		GET
取值	范围	*N*×64kbit/s 或 2Mbit/s
	缺省	
行为		信令链路的速率

10) relatedNeModuleTns

名称		relatedNeModuleTns
操作		GET-REPLACE
取值	范围	
	缺省	
行为		相关的信令模块（和中继模块）的端口及时隙

11) alarmSeverityAdjust

名称		alarmSeverityAdjust
操作		GET-REPLACE
取值	范围	
	缺省	equal
行为		用于调整告警的等级

A1.4.2 通知（Notifications）

1) stateChange
2) attributeValueChange
3) objectCreation/objectDeletion
4) qualityofServiceAlarm
5) ss7OnOccEvent
6) communicationsAlarm

A1.4.3 动作（Action）

1) localInhibit
2) localUninhibit
3) actSignLinkTp
4) deactSignLinkTp

A1.5 Signalling Route Set Network Element Part

含义：在 mtpSignPoint 上定义的信令路由组部分，通过配置管理功能创立，或者以初始化/同步/Notification 机制自动创立。

A1.5.1 属性（Attribute）

1) signRouteSetNePartId

名称		signRouteSetNePartId
操作		GET
取值	范围	参考 signLinksetTp 的 Id
	缺省	
行为		用于命名 signRouteSetNePart 实例，取值和目的信令点的码字相同。

2) operationalState

名称		operationalState
操作		GET
取值	范围	disabled/enabled
	缺省	enabled
行为		反映运行状态

3) destinationPointCode

名称		destinationPointCode
操作		GET
取值	范围	
	缺省	
行为		标识一个 signRouteSetNePart 实例的目的信令点。

4) signRouteSetLdshMethod

名称		signRouteSetLdshMethod
操作		GET-REPLACE
取值	范围	
	缺省	
行为		标识负载均衡方法

5) alarmSeverityAdjust

名称		alarmSeverityAdjust
操作		GET-REPLACE
取值	范围	
	缺省	equal
行为		用于调整告警的等级

A1.5.2 通知（Notifications）

1) stateChange
2) attributeValueChange
3) objectCreation/objectDeletion
4) ss7OnOccEvent
5) communicationsAlarm

A1.6 Signalling Route Network Element Part

含义：在 mtpSignPoint 上定义的信令路由部分，通过配置管理功能创立，或者以初始化/同步

/Notification 机制自动创立。

A1.6.1 属性（Attribute）

1) signRouteNePartId

名称		signRouteSetNePartId
操作		GET
取值	范围	
	缺省	
行为		用于命名 signRouteSetNePart 实例，取值可用相邻信令点的码字。

2) signLinkSetTpPointer

名称		signLinkSetTpPointer
操作		GET
取值	范围	
	缺省	
行为		标识该 signRoute 中的首段信令链路组

3) signRouteNePartPriority

名称		signRouteNePartPriority
操作		GET
取值	范围	
	缺省	
行为		标识信令路由的级别

4) administrativeState

名称		administrativeState
操作		GET-REPLACE
取值	范围	locked/unlocked
	缺省	unlocked
行为		描述资源管理状态

5) operationalState

名称		operationalState
操作		GET
取值	范围	disabled/enabled
	缺省	enabled
行为		运行状态

6) availabilityStatus

名称		availabilityStatus
操作		GET
取值	范围	
	缺省	
行为		可用状态

7) alarmSeverityAdjust

名称		alarmSeverityAdjust
操作		GET-REPLACE
取值	范围	
	缺省	equal
行为		用于调整告警的等级

A1.6.2 通知（Notifications）

1) stateChange
2) attributeValueChange
3) objectCreation/objectDeletion
4) communicationsAlarm

A1.7 NeModule

含义：有信令数据链路终端的网元模块，以及所带的时隙，当对 signLinkTp 操作时，由用户定义。

A1.7.1 属性（Attribute）

1) operationalState

名称		operationalState
操作		GET
取值	范围	enabled/disabled
	缺省	enabled
行为		反映运行状态

2) neModuleId

名称		neModuleId
操作		GET
取值	范围	
	缺省	
行为		标识 neModule 实例

3) modTypePointer

名称		modTypePointer
操作		GET
取值	范围	
	缺省	
行为		模块类型指针，指向相应的 neModuleType 对象实例。

4) transmissionRate

名称		transmissionRate
操作		GET
取值	范围	
	缺省	64kbit/s
行为		表示传输速率，并隐含传输类型。比如 56kbit/s 和 64kbit/s 表示数字传输，4.8kbits 表示模拟传输，2Mbit/s 表示高速数字链路。

5) moduleTnInfoList

名称		moduleTnInfoList
操作		GET-REPLACE
取值	范围	
	缺省	
行为		模块中所有时隙的信息列表，包括端口号、时隙号（可选）、端口/时隙使用状态和所关联的信令链路对象实例。

A1.7.2 通知（Notifications）

1) stateChange
2) attributeValueChange
3) equipmentAlarm

A1.7.3 动作（Actions）

1) disableModule
2) enableModule
3) initModule

A2 类型对象和辅助对象的非正规描述

类型对象是用户可管理的类型，如模块类型和网元类型等，辅助对象用于对其他对象的操作。

A2.1 neModuleType

含义：标识一类模块类型(信令模块、中继模块和系统管理模块等)，由用户设定，并可设置某些相关的参数。

A2.1.1 属性（Attribute）

1) modTypeId

名称		modTypeId
操作		GET
取值	范围	
	缺省	
行为		标识一类 neModuleType

2) modTypeName

名称		modTypeName
操作		GET
取值	范围	
	缺省	
行为		模块类型名称

A2.2 neType

含义：标识一类网元类型(HSTP、DC1、DC2 和 SCP 等)，由用户设定，并可设置某些相关的参数。

A2.2.1 属性（Attribute）

1) neTypeId

名称		neTypeId
操作		GET
取值	范围	
	缺省	
行为		标识一类 neType

2) neTypeName

名称		neTypeName
操作		GET
取值	范围	
	缺省	
行为		网元类型名称

附录 B
（标准的附录）
MTP 部分管理信息模型

B1 MTP 部分管理对象继承关系

MTP 部分管理对象继承关系如图 B1 所示。

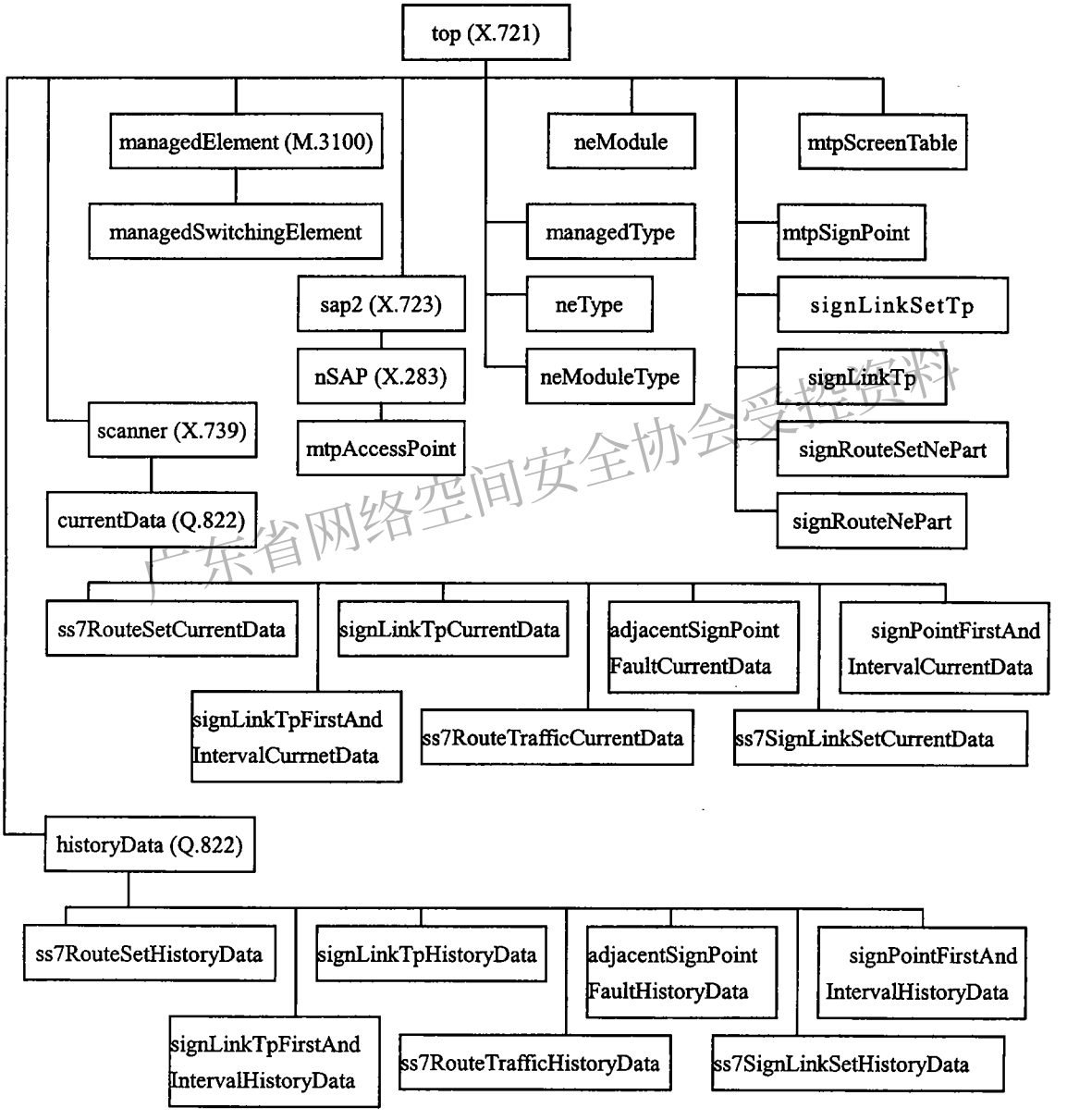

图 B1 MTP 部分管理对象继承树

B2 MTP 部分管理对象包含关系图

MTP 部分管理对象包含关系如图 B2 所示。

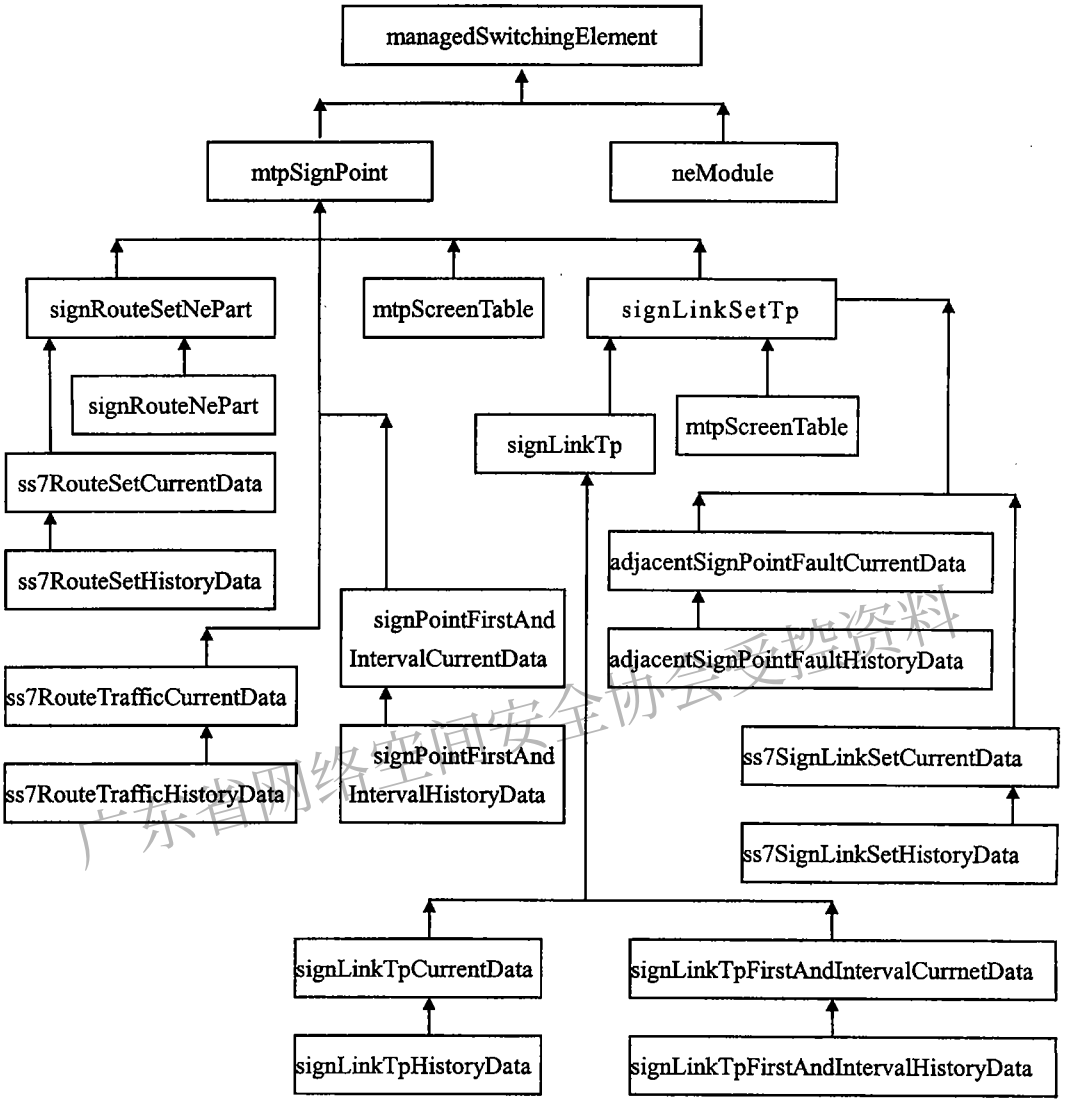

图 B2 MTP 部分管理对象包含树

辅助管理对象包含关系如图 B3 所示。

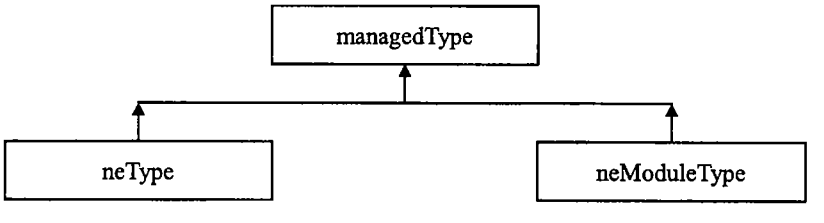

图 B3 辅助管理对象包含树

B3 MTP 部分管理对象信息模型

```
-- ****************************************************
-- *Configuration Managed Objects Class    NE level       *
-- ****************************************************
--     Managed Switching Element
managedSwitchingElement MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. M.3100 (1995)":managedElement;
    CHARACTERIZED BY  managedSwitchingElementPackage PACKAGE
      BEHAVIOUR    managedSwitchingElementBehaviour BEHAVIOUR DEFINED AS
          "The Managed Switching Element represents, for management purposes, an exchange, i.e. the
aggregate of traffic carrying devices, switching stages, controlling and signalling means at a network node
that enables subscriber lines to be interconnected and packets to be forwarded as required by individual
users.";;
    ATTRIBUTES
          "ITU-T Rec. M.3100 (1995)": vendorName    GET-REPLACE;;;
     CONDITIONAL PACKAGES
        managedSwitchingElementAtrPackage PRESENT IF "an instance supports it , net defined",
        managedSwitchingElementNamePackage PRESENT IF "an instance supports it";
REGISTERED AS { mtpObjectClass 2 };

--     MTP Signalling Point
mtpSignPoint MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY mtpSignPointPackage PACKAGE
        BEHAVIOUR mtpSignPointBehaviour BEHAVIOUR DEFINED AS
            "A signalling point is a node in the signalling network. It is part of a managed switching
element (exchange). The MTP permits three types of node:
            -    SEP: the signalling end point, this type of SP contains MTP and ISUP (and or other
MTP Users), but cannot act as an intermediate MTP transfer node in the SS No.7 network. (It can act as an
SCCP Relay Node.)
            -    STP: the MTP signalling transfer point, this type of SP acts as an intermediate node
between SEPs to transfer messages through the SS No.7network, it only contains MTP. (In case of an STP,
OMAP, and hence also TC and SCCP may be present.)
            -    STEP: MTP signalling transfer and end point, the type combines the previous
mentioned types, thus acting both as a SEP and as a STP.
            A mtpSignPoint can have the MTP status:
            -    allowed, this means that the mtpSignPoint is accessible and is functioning normally
(operational state = enabled, availability status = ).
            -    congested, this means that the mtpSignPoint is accessible but is heavily loaded
(operational state = enabled, availability status = { degraded }).
            -    prohibited, this means that the mtpSignPoint not accessible (operational state =
disabled).
            During MTP restart, the proceduralStatus is {initializing} until the restart is finished.";;
```

ATTRIBUTES

mtpSignPointId GET,

pointCode GET,

spType GET,

networkIndicator GET;

NOTIFICATIONS

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":stateChange;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the object-Creation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

mtpSignPointNamePackage PRESENT IF "an instance supports it",

mtpSignPointStatusPackage PRESENT IF "an instance supports it",

qualityofServiceAlarmPackage PRESENT IF "an instance supports it",

ss7OnOccEventPackage PRESENT IF "an instance supports it";

REGISTERED AS { mtpObjectClass 6 };

-- Signalling Link Set Termination Point

signLinkSetTp MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY signLinkSetTpPackage PACKAGE

BEHAVIOUR signLinkSetTpBehaviour BEHAVIOUR DEFINED AS

"This managed object class represents the SS No. 7 signalling link set termination point. Link sets are defined in Recommendation Q.704.

The states are directly related to the set of link termination point's states, except for the optional administrativeState.

General principles on state information:

- The states of the managed object linkset are only readable, except for the optional administrativeState.
- Activation and deactivation of a linkset may be done via operations on the links (e.g. by using scoping functions) or the optional administrativeState can be used for this.

Based on these principles the states of a linkset are defined as follows:

- operational state (read-only for the OS). The operational state is enabled whenever one link of the linkset is enabled, i.e. neither FAILED nor DEACTIVATED nor LOCAL BLOCKED nor REMOTE BLOCKED.
- usage state (read-only for the OS). The usage state reflects the usage of the belonging links. It is ACTIVE if at least one of the belonging links is ACTIVE and no link is BUSY. It contains BUSY if one of the belonging links is BUSY. It is IDLE if all links are UNAVAILABLE.
- availability status (read-only for the OS). The availability status indicates unavailability or reduced availability of the belonging links. It contains DEPENDENCY if all the belonging links are unavailable for user traffic. It contains DEGRADED if at least one belonging link is not available for user traffic.

For the different reasons of unavailability (failed, deactivated, local blocked, remote blocked, local inhibited and remote inhibited) see 3.2.1/Q.704.

If the 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992':communicationsAlarm notification is used, the following probable causes can apply:

Probable Cause=403 (LinkSetFailure), which represents measurements Q.752/4.3 (PerceivedSeverity=Maj/Min/War) and Q.752/4.4 (PerceivedSeverity=Cleared). State change notifications are emitted for all state and status changes. ";;

ATTRIBUTES

signLinkSetTpId GET,

adjPc GET ,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992": usageState GET,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":operationalState GET,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":availabilityStatus GET;

NOTIFICATIONS

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":stateChange;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChangeNotification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

communicationsAlarmPackage PRESENT IF "an instance supports it",

totalLinkNbrAllocationPackage PRESENT IF "an instance supports it",

noBasicLinkAllocationPackage PRESENT IF "Basic link allocation is not done",

signLinkSetTpNamePackage PRESENT IF "an instance supports it",

signLinkSetTypePackage PRESENT IF "an instance supports it, new added",

alarmSeverityAdjustPackage PRESENT IF "an instance supports it";

REGISTERED AS { mtpObjectClass 8 };

-- Signalling Link Termination Point

signLinkTp MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY signLinkTpPackage PACKAGE

BEHAVIOUR signLinkTpBehaviour BEHAVIOUR DEFINED AS

"This managed object represents the termination of the signalling link within the signalling point as defined in Recommendation Q.703. The signLinkTp object class represents that part of a signalling link which is located in one NE.

The following state and status attributes are supported:

administrative state:

- locked: it is administratively not permitted to transport traffic on the link termination point.
- unlocked: it is administratively permitted to transport user part traffic or test traffic on the link termination point.

operational state:

- enabled: the link termination point is operationally able to transport user part traffic or

test traffic.

- disabled: the link termination point is operationally unable to transport user part traffic or test traffic.

The operational state is disabled whenever the link termination point status contains Failed, Deactivated, Local Blocked, Remote Blocked, or the procedural status is Initializing.

usage state:

- idle: the link termination point carries no user part traffic (test traffic may be present).
- active: the link termination point is not congested. Currently the link termination point carries user part traffic.
- busy: the link termination point is congested due to user part traffic.

The usage state is idle whenever the link termination point status is not empty i.e. the usage state immediately reflects the availability of the signLinkTp for user traffic. For national MTP options applying several congestion levels an additional attribute indicating these levels may be added.

Link termination point status. This is a set-valued attribute. The following statusses can exist alone or in combinations with each other. The exact definition for each of the following SS7-functional states is to be gained from Q.704

- local blocked
- remote blocked
- local inhibited
- remote inhibited
- failed
- deactivated.

If the 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992':communicationsAlarm notification is used, the following probable causes can apply:

Probable Cause = 102 (slFailure) which represents measurement Q.752/1.2 - measurement Q.752/1.6 (SpecificProblems=003 abnormalFIBRorBSNR, 004 excessiveAckDelay, 005 excessiveErrorRate, 006 excessiveCongDuration) and Q.752/1.12.(PerceivedSeverity=cleared)

If the ss7OnOccEventPackage is present, the event notifications with the following probable causes can apply:

Probable Cause = 110 (localChangeOver) which represents measurement Q.752/1.10 (PerceivedSeverity=Maj/Min/War) and measurement Q.752/1.11 (PerceivedSeverity=Cleared).

Probable Cause = 210 (remoteProcOutage) which represents measurements Q.752/2.10 (PerceivedSeverity=Maj/Min/War) and Q.752/2.11 (PerceivedSeverity=Cleared).

Probable Cause = 216 (start of local inhibition) which represents measurement Q.752/2.16 (PerceivedSeverity=Maj/Min/War) and Q.752/2.17 (PerceivedSeverity=Cleared).

Probable Cause = 218 (start of remote inhibition) which represents measurement Q.752/2.18 (PerceivedSeverity=Maj/Min/War) and Q.752/2.19 (PerceivedSeverity=Cleared).

A create or set request is rejected, if

i) a pointer would reference an instance, which does not belong to the appropriate object class

OR ii) a pointer would reference an instance which is not existing

OR iii) a signDataLinkTpPointer would reference a signDataLinkTp which is not in the same mtpSignPoint

OR iv) a signDataLinkTpPointer would reference a signDataLinkTp which has a

different value of adjPc than the superior signLinkSetTp

OR v) the link would reference a datalink and a mtpL2ProtocolProfile whose transmissionRates is not the same

OR vi) the link would reference a mtpL2ProtocolProfile where the appropriate packages for the congestionControlMethod of the superior signLinkSetTp are not present (see B.1.2.9.2)

OR vii) the spTimersProfilePackage is present in the superior mtpSignPoint AND the link would reference a mtpL2ProtocolProfile whose l2TimerT2 is not bigger than the q704t17 of the spTimersProfile referenced by the mtpSignPoint

OR viii) the spTimersPackage is present in the superior mtpSignPoint AND the link would reference a mtpL2ProtocolProfile whose l2TimerT2 is not bigger than the q704t17 of the mtpSignPoint.

The rejection also takes place if only a single pointer within the signDataLinkList or the signTermList (if present) is wrong.

A delete request is rejected, if the linkTpStatus does not contain the value deactivated,";;

ATTRIBUTES

slCode GET,
slsCodeNormalList GET,
slsCodeCurrentList GET,
linkRate GET,
linkTPStatus GET,
"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":administrativeState GET-REPLACE,
"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":operationalState GET,
"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":usageState GET;

ACTIONS

localInhibit,
localUninhibit,
actSignLinkTp,
deactSignLinkTp;

NOTIFICATIONS

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992" : stateChange;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChangeNotification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

communicationsAlarmPackage PRESENT IF "an instance supports it",
ss7OnOccEventPackage PRESENT IF "an instance supports it",
signLinkTpEquipmentPackage PRESENT IF "an instance supports it",
qualityofServiceAlarmPackage PRESENT IF "an instance supports it",
alarmSeverityAdjustPackage PRESENT IF "an instance supports it";

REGISTERED AS { mtpObjectClass 9 };

-- Signalling Route Set Network Element Part

signRouteSetNePart MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY signRouteSetNePartPackage PACKAGE

BEHAVIOUR signRouteSetNePartBehaviour BEHAVIOUR DEFINED AS

"A Signalling Route Set is a complete set of routes that can be used to carry traffic toward a specific destination signalling point.

The signRouteSetNePart Managed Object class defines the management capabilities of the resources which represent a specific destination SP and its accessibility as seen from the own SP. This SP may be the originating SP of the MTP messages or an STP.

A particular signRouteSetNePart may be related to one or more Signalling Route Sets on network level.

The administrativeState attribute describes whether it is administratively permitted to route SS No. 7 MSUs towards the respective destination point. Before the administrative state of a signRouteSetNePart can be set to 'unlocked', there must be at least one signRouteNePart contained within the signRouteSetNePart.

The operationalState attribute describes whether the respective destination signalling point is accessible - ('enabled') or not ('disabled'). If the operational states of all signRouteNePart instances contained in the signRouteSetNePart are 'disabled', then the operational state of the signRouteSetNePart is 'disabled', in any other case it is 'enabled'.

The usageState attribute is used to reflect route set congestion. The value is 'busy' in case of route set congestion.

If the 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2: 1992':communicationsAlarm notification is present, it indicates at least the following probable causes:

Probable Cause = 411(RouteSetUnavailable), which represents measurements Q.752/4.11 (PerceivedSeverity=Maj/Min/War) and Q.751/4.12 (PerceivedSeverity=Cleared).

If the ss7OnOccEventPackage is present, event notifications with the following probable cause can apply:

Probable Cause = 002 (remoteUserPartUnavailable), with the involved user part as parameter. Possible values for SpecificProblems are: 007 'unknown', 008 'unequipped' and 009 'inaccessibleRemoteUser'.

An activation or deactivation of a signRouteSetNePart must lead to the activation respectively deactivation of all contained signRouteNeParts.";;

ATTRIBUTES

signRouteSetNePartId GET,

destinationPointCode GET,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":operationalState GET,

signRouteSetLdshMethod GET-REPLACE;

NOTIFICATIONS

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":stateChange;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChangeNotification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and

objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

communicationsAlarmPackage PRESENT IF "an instance supports it",

signRouteSetNePartNamePackage PRESENT IF "the instance supports it",

ss7OnOccEventPackage PRESENT IF "an instance supports it",

alarmSeverityAdjustPackage PRESENT IF "an instance supports it";

REGISTERED AS { mtpObjectClass 13 };

SignRouteNePart MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY signRouteNePartPackage PACKAGE

BEHAVIOUR signRouteNePartBehaviour BEHAVIOUR DEFINED AS

"A signalling route (A,C,B)i is defined as an ordered sequence of the near end signalling point A (i.e. the network element), an adjacent SP C and the destination SP B. The adjacent SP C may be identical with the destination B, or it may or may not be directly interconnected to the destination SP.

The adjacent SP C must be directly connected to the near end SP by at least one linkset which is intended to convey MSUs sent from A to B (hence the use of the term 'adjacent').

Two signalling routes (A,C,B)i and (A,C',B)j are distinct if the adjacent SP is different.

The signRouteNePart Managed Object class defines the management capabilities of the resources which define a specific route segment (Link Set to be traversed) and its priority within the routeset as seen from the own SP.

A particular signRouteNePart is related to one or more Signalling Routes on the network level.

The priority in which the network Signalling Routes are used, is defined by means of assigning priorities to all involved route segments. If from a particular SP two or more route segments are used with the same priority, loadsharing between Signalling Routes may occur. A Combined Link Set is a set of Link Sets used with the same priority by message routing.

The signLinkSetTp used for routing is allocated at creation time and cannot be changed during the existence of a particular signRouteNePart.";;

ATTRIBUTES

signRouteNePartId GET, --adjacent point code

signLinkSetTpPointer GET,

signRouteNePartPriority GET,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":administrativeState GET- REPLACE,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":operationalState GET,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992": availabilityStatus GET;

NOTIFICATIONS

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":stateChange;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChangeNotification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

communicationsAlarmPackage PRESENT IF "an instance supports it",

alarmSeverityAdjustPackage PRESENT IF "an instance supports it";

REGISTERED AS { mtpObjectClass 12 };

-- NeModule

neModule MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY neModulePackage PACKAGE

BEHAVIOUR neModuleBehaviour BEHAVIOUR DEFINED AS

"The neModule object class define one physical module, such as data link module, signaling module and so on. " ;;

ATTRIBUTES

neModuleId GET,

modTypePointer GET,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":operationalState GET,

transmissionRate GET ,

moduleTnInfoList GET-REPLACE;

ACTIONS

disableModule,

enableModule,

initModule;;;

REGISTERED AS { mtpObjectClass 51 };

mtpAccessPoint MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":nSAP;

CHARACTERIZED BY mtpAccessPointPkg PACKAGE

BEHAVIOUR mtpAccessPointBehaviour BEHAVIOUR DEFINED AS

"The sap2Address attribute contains the address of the mtpAccessPoint. It contains the Signalling Point Code (SPC), Service Indicator (SI) and MTP Network Identity (NI).

The userEntityNames attribute contains the distinguished names of the managed objects that represent the user entities that are using the mtpAccessPoint, e.g. the SCCP instance. The providerEntityNames attribute contains the distinguished names of the managed objects that represent the provider entities that are supporting the mtpAccessPoint, i.e., the instance of the MTP.

A mtpAccessPoint can have the MTP status:

– allowed, this means that the mtpAccessPoint is accessible and is functioning normally.

– congested, this means that the mtpAccessPoint is accessible but the path to it is heavily loaded.

– prohibited, this means that the mtpAccessPoint not accessible.

If the ss7OnOccEventPackage is present, event notification with the following probable causes can apply: Probable Cause = 001 (localUserPartUnavailable)";;

ATTRIBUTES

```
            mtpAccessPointStatus    GET;;;
    CONDITIONAL PACKAGES
        "ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the
objectCreation and objectDeletion notifications are supported by an instance of this class",
            ss7OnOccEventPackage PRESENT IF "an instance supports it";
REGISTERED AS { mtpObjectClass 3 };

mtpScreenTable MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY    mtpScreenTablePkg    PACKAGE
        BEHAVIOUR mtpScreenTableBehaviour BEHAVIOUR DEFINED AS
            "This managed object define MTP screen data and is used to inhibit/allow STP access by a
combination of designated DPCs or OPCs." ;;
        ATTRIBUTES
            mtpScreenTableId   GET,
            mtpScreenInfo GET-REPLACE;;;
    CONDITIONAL PACKAGES
            "ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the
attributeValueChange notification is supported by an instance of this class",
            "ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the
objectCreation and objectDeletion notifications are supported by an instance of this class";
REGISTERED AS {mtpObjectClass 100 };

-- ************************************************
-- *          type tree definitions                *
-- ************************************************
-- 7.1.34 managed Type
managedType MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY managedTypePackage PACKAGE
        BEHAVIOUR     managedTypeBehaviour BEHAVIOUR DEFINED AS
            "this class is used as the global class to manage all the type-related instances ";;
        ATTRIBUTES
            managedTypeId                GET;;;
REGISTERED AS { mtpObjectClass 68};

-- 7.1.35    neModuleType
neModuleType MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY neModuleTypePackage PACKAGE
        BEHAVIOUR    neModuleTypeBehaviour BEHAVIOUR DEFINED AS
            "...";;
        ATTRIBUTES
```

```
            modTypeId              GET,
            modTypeName            GET;;;
    CONDITIONAL PACKAGES
      n7ModulePackage PRESENT IF "module type belongs to ne signalling terminal module:
IPTMN7,  CCSMN7,HCCSM etc";
REGISTERED AS { mtpObjectClass 69};

-- 7.1.35  neType
neType MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY neTypePackage PACKAGE
        BEHAVIOUR  neTypeBehaviour BEHAVIOUR DEFINED AS
        " this class is used to identify the NE type,for example HSTP,LSTP,C1 or C2 ";;
        ATTRIBUTES
            neTypeId  GET,
             neTypeName  GET;;;
REGISTERED AS { mtpObjectClass 70};

-- ********************************************
-- * Performance Managed Object Class  NE level  *
-- ********************************************
--routeSetCurrentData MANAGED OBJECT CLASS
ss7RouteSetCurrentData MANAGED OBJECT CLASS
    DERIVED FROM  "ITU-T Rec. Q.822 (1994)":currentData;
    CHARACTERIZED BY ss7RouteSetCurrentDataPackage PACKAGE
        BEHAVIOUR ss7RouteSetCurrentDataBehaviour BEHAVIOUR DEFINED AS
            "This managed object class contains all permanent signalling point duration data. The
granularityPeriod is 30 minutes. The attributes are read-only.";;
        ATTRIBUTES
            routeSetUnavailable              GET ,    -- Measurement  Q.752/4.9
            routeSetUnavailableDuration GET ;;;  -- Measurement  Q.752/4.10
REGISTERED AS { mtpObjectClass 29 };

--routeSetHistoryData
ss7RouteSetHistoryData MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
    CHARACTERIZED BY ss7RouteSetHistoryDataPkg  PACKAGE
        BEHAVIOUR  ss7RouteSetHistoryDataBhv BEHAVIOUR DEFINED AS
    "This managed object store history data of route set performance data. ";;
        ATTRIBUTES
            routeSetUnavailable              GET ,    -- Measurement  Q.752/4.9
            routeSetUnavailableDuration      GET ;;;  -- Measurement  Q.752/4.10
REGISTERED AS {mtpObjectClass 101};
```

```
--signallingLinkSetCurrentData MANAGED OBJECT CLASS
ss7SignLinkSetCurrentData MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":currentData;
    CHARACTERIZED BY ss7SignLinkSetCurrentDataPackage PACKAGE
        BEHAVIOUR ss7SignLinkSetCurrentDataBehaviour BEHAVIOUR DEFINED AS
            "This managed object class contains all signalling link set duration data. The granularity
Period is 30 minutes. The attributes are read-only.";;
        ATTRIBUTES
            SlsUnavailable    GET ;;; -- Measurement Q.752/4.2
    CONDITIONAL PACKAGES
        signLinkSetTpTrafficPackage PRESENT IF "an instance supports it";
REGISTERED AS { mtpObjectClass 31 };

--signallingLinkSetHistoryData
ss7SignLinkSetHistoryData    MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
    CHARACTERIZED BY ss7SignLinkSetHistoryDataPkg     PACKAGE
        BEHAVIOUR    ss7SignLinkSetHistoryDataBhv BEHAVIOUR DEFINED AS
    "This managed object store history data of signaling link set performance data.";;
        ATTRIBUTES
            SlsUnavailable    GET ;;; -- Measurement Q.752/4.2
    CONDITIONAL PACKAGES
        signLinkSetTpTrafficPackage PRESENT IF "an instance supports it";
REGISTERED AS {mtpObjectClass 102};

--ss7RouteTrafficCurrentData MANAGED OBJECT CLASS
ss7RouteTrafficCurrentData MANAGED OBJECT CLASS
    DERIVED    FROM    "ITU-T Rec. Q.822 (1994)":currentData;
    CHARACTERIZED BY ss7RouteTrafficCurrentDataPackage PACKAGE
      BEHAVIOUR ss7RouteTrafficCurrentDataBehaviour BEHAVIOUR DEFINED AS
            "This managed object store current route traffic data,Q.752 / 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7 ,
the attributes is read-only!";;
        ATTRIBUTES
            ReceivedOctetsOpc    GET,
                --Q.752/6.1, this is a set with variable length
            transmittedOctetsDpc    GET,
                --Q.752/6.2, this is a set with variable length
            handledOctetsSIO    GET,
                --Q.752/6.3, this is a set with variable length
            receivedOctetsOpcSIO    GET,
                --Q.752/6.4, this is a set with variable length
            transmittedOctetsDpcSIO    GET,
                --Q.752/6.5, this is a set with variable length
            handledOctetsOpcDpcSIO    GET,
```

```
                --Q.752/6.6, this is a set with variable length
            handledMSUsOpcDpcSIO    GET;;;
                --Q.752/6.7, this is a set with variable length
REGISTERED AS { mtpObjectClass 45 };

--ss7RouteTrafficHistoryData
ss7RouteTrafficHistoryData    MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
    CHARACTERIZED BY ss7RouteTrafficHistoryDataPkg    PACKAGE
        BEHAVIOUR    ss7RouteTrafficHistoryDataBhv BEHAVIOUR DEFINED AS
    "This managed object store history data of signaling point traffic data. ";;
        ATTRIBUTES
            ReceivedOctetsOpc    GET,
                --Q.752/6.1, this is a set with variable length
            transmittedOctetsDpc    GET,
                --Q.752/6.2, this is a set with variable length
            handledOctetsSIO    GET,
                --Q.752/6.3, this is a set with variable length
            receivedOctetsOpcSIO    GET,
                --Q.752/6.4, this is a set with variable length
            transmittedOctetsDpcSIO    GET,
                --Q.752/6.5, this is a set with variable length
            handledOctetsOpcDpcSIO    GET,
                --Q.752/6.6, this is a set with variable length
            handledMSUsOpcDpcSIO    GET;;;
                --Q.752/6.7, this is a set with variable length
REGISTERED AS {mtpObjectClass 103};

-- SS No.7 Mtp Signalling Point Fault Current Data
adjacentSignPointFaultCurrentData MANAGED OBJECT CLASS
    DERIVED FROM    "ITU-T Rec. Q.822 (1994)":currentData;
    CHARACTERIZED BY adjacentSignPointFaultCurrentDataPackage PACKAGE
        BEHAVIOUR adjacentSignPointFaultCurrentDataBehaviour BEHAVIOUR DEFINED AS
            "This managed object store current fault data of signal point, Q.752/5.1, 5.2 ";;
        ATTRIBUTES
            AdjacentInaccessibleEvents    GET,
                --Q.752/5.1
            adjacentInaccessibleDuration    GET;;;
                --Q.752/5.2
REGISTERED AS { mtpObjectClass 46 };

--adjacentSignPointFaultHistoryData
adjacentSignPointFaultHistoryData    MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
```

```
    CHARACTERIZED BY adjacentSignPointFaultHistoryDataPkg PACKAGE
        BEHAVIOUR    adjacentSignPointFaultHistoryDataBhv BEHAVIOUR DEFINED AS
    "This managed object store history data of adjacent signaling point fault data. ";;
        ATTRIBUTES
            AdjacentInaccessibleEvents    GET,
                --Q.752/5.1
            adjacentInaccessibleDuration    GET;;;
                --Q.752/5.2
REGISTERED AS {mtpObjectClass 104};

-- SS No.7 MTP Signalling Point first and delta data
signPointFirstAndIntervalCurrentData MANAGED OBJECT CLASS
        DERIVED FROM "ITU-T Rec. Q.822 (1994)":currentData;
        CHARACTERIZED BY signPointFirstAndIntervalCurrentDataPackage PACKAGE
                BEHAVIOUR      signPointFirstAndIntervalCurrentDataBehaviour      BEHAVIOUR
DEFINED AS
            "This managed object class contains information about signalling point. The preferred
granularityPeriods are 5 or  30 minutes. All attributes are read-only and are referenced by an instance of
ss7FirstAndIntervalThresholdData managed object class so does discardedMSUs attribute when it is used
as a first and interval measurement.";;
                ATTRIBUTES
                        discardedMSUsBecauseRouteFailure    GET,
                                -- Measurement Q.752/5.5
                        transmittedUPUnavailable    GET,
                                -- Measurement Q.752/5.6
                        receivedUPUnavailable    GET,
                                -- Measurement Q.752/5.7
                        receivedTFC    GET;;;
                                -- Measurement Q.752/5.8
REGISTERED AS { mtpObjectClass 47 };

-- SS No.7 MTP Signalling Point first and delta history data
signPointFirstAndIntervalHistoryData    MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
    CHARACTERIZED BY signPointFirstAndIntervalHistoryDataPkg    PACKAGE
        BEHAVIOUR    signPointFirstAndIntervalHistoryDataBhv BEHAVIOUR DEFINED AS
    "This managed object store history data of signaling point . ";;
        ATTRIBUTES
            discardedMSUsBecauseRouteFailure    GET,
                                -- Measurement Q.752/5.5
             transmittedUPUnavailable    GET,
                                -- Measurement Q.752/5.6
               receivedUPUnavailable    GET,
                                -- Measurement Q.752/5.7
```

```
                receivedTFC    GET;;;
                                        -- Measurement Q.752/5.8
REGISTERED AS {mtpObjectClass 105};

-- SS No.7 signalling linkTp first and interval data
signLinkTpFirstAndIntervalCurrentData MANAGED OBJECT CLASS
        DERIVED FROM    "ITU-T Rec. Q.822 (1994)":currentData;
        CHARACTERIZED BY signLinkTpFirstAndIntervalCurrentDataPackage PACKAGE
                BEHAVIOUR    signLinkTpFirstAndIntervalCurrentDataBehaviour    BEHAVIOUR
DEFINED AS
                "This managed object class contains the optional signalling link congestion data. The
preferred granularityPeriods are 5 and 30 minutes. The attributes slCongestedStarts, slCongestionStops and
congestionEventsMSULoss can be referenced from an instance of ss7FirstAndIntervalThresholdData when
they are used for a first and interval measurement. The attributes are read-only.";;
                ATTRIBUTES
                        slCongestedStarts                GET,
                                -- Measurement Q.752/3.6
                        slCongestionStops                GET,
                                -- Measurement Q.752/3.9
                        congestionEventsMSULoss          GET;;;
                                -- Measurement Q.752/3.11
REGISTERED AS { mtpObjectClass 48 };

-- SS No.7 signalling linkTp first and interval history data
signLinkTpFirstAndIntervalHistoryData      MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
    CHARACTERIZED BY signLinkTpFirstAndIntervalHistoryDataPkg PACKAGE
        BEHAVIOUR    signLinkTpFirstAndIntervalHistoryDataBhv BEHAVIOUR DEFINED AS
    "This managed object store history data of signaling link congestion data. ";;
        ATTRIBUTES
            slCongestedStarts                GET,
                                -- Measurement Q.752/3.6
             slCongestionStops                GET,
                                -- Measurement Q.752/3.9
congestionEventsMSULoss          GET;;;
                -- Measurement Q.752/3.11
REGISTERED AS {mtpObjectClass 106};

--SS No.7 signalling linkTp current data
signLinkTpCurrentData MANAGED OBJECT CLASS
      DERIVED FROM    "ITU-T Rec. Q.822 (1994)":currentData;
      CHARACTERIZED BY signLinkTpCurrentDataPackage PACKAGE
          BEHAVIOUR signLinkTpCurrentDataBehaviour BEHAVIOUR DEFINED AS
              "This managed object class contains the optional signalling link current data, including
```

q752 table1,table2 and table3.The attributes are read-only.";;;;
CONDITIONAL PACKAGES
q752TableOnePerfDataPackage PRESENT IF "an instance supports it",
-- Measurement Q.752/1.1,1.7,1.8,1.9,1.10
q752TableTwoPerfDataPackage PRESENT IF "an instance supports it",
-- Measurement Q.752/2.1,2.5,2.6,2.7,2.9,2.13,2.14,2.15
q752TableTriPerfDataPackage PRESENT IF "an instance supports it",
-- Measurement Q.752/3.1,3.2,3.3,3.4,3.5,3.6,3.7,3.10,3.11
signLinkTpTrafficPackage PRESENT IF "an instance supports it";
REGISTERED AS { mtpObjectClass 49 };

-- SS No.7 signalling linkTp history data
signLinkTpHistoryData MANAGED OBJECT CLASS
DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
CHARACTERIZED BY signLinkTpHistoryDataPkg PACKAGE
BEHAVIOUR signLinkTpHistoryDataBhv BEHAVIOUR DEFINED AS
"This managed object class contains the optional signalling link history data, including q752 table1,table2 and table3.The attributes are read-only.";;;;
CONDITIONAL PACKAGES
q752TableOnePerfDataPackage PRESENT IF "an instance supports it",
-- Measurement Q.752/1.1,1.7,1.8,1.9,1.10
q752TableTwoPerfDataPackage PRESENT IF "an instance supports it",
-- Measurement Q.752/2.1,2.5,2.6,2.7,2.9,2.13,2.14,2.15
q752TableTriPerfDataPackage PRESENT IF "an instance supports it",
-- Measurement Q.752/3.1,3.2,3.3,3.4,3.5,3.6,3.7,3.10,3.11
signLinkTpTrafficPackage PRESENT IF "an instance supports it";
REGISTERED AS {mtpObjectClass 107};

-- E.3.28 Performance Threshold data
-- performDataThreshold
performDataThreshold MANAGED OBJECT CLASS
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
CHARACTERIZED BY performDataThresholdPackage PACKAGE
BEHAVIOUR performDataThresholdBehaviour BEHAVIOUR DEFINED AS
"this class will be used to represent the the threshold for certain performance data,once the value of performance date over corresponding threshold,the QOS alarm will be submitted.";;
ATTRIBUTES
thresholdDataId GET,
linkUnavDurationThreshold GET-REPLACE,
-- alarm threshold for counter TAB2.1
linkTroubleNbrThreshold GET-REPLACE,
-- alarm threshold for counter TAB1.2
localBusyDurationThreshold GET-REPLACE,
-- alarm threshold for counter TAB2.15

```
            linkSetUnavDurationThreshold                GET-REPLACE,
                -- alarm threshold for counter TAB4.2
            adjSpInaccNbrThreshold                      GET-REPLACE;;;
                -- alarm threshold for counter TAB5.1
REGISTERED AS { mtpObjectClass 73 };


--  ************************************************************
--  package definitions for configuration management of Nelevel      *
--  ************************************************************
communicationsAlarmPackage PACKAGE
    NOTIFICATIONS
        "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":communicationsAlarm
        inaccessibleSp;
REGISTERED AS { mtpPackage 5 };

managedSwitchingElementNamePackage PACKAGE
    ATTRIBUTES
        ManagedSwitchingElementName   GET-REPLACE;
REGISTERED AS { mtpPackage 19 };

mtpSignPointNamePackage PACKAGE
    ATTRIBUTES
        mtpSignPointName GET-REPLACE;
REGISTERED AS { mtpPackage 25 };

noBasicLinkAllocationPackage PACKAGE
    ATTRIBUTES
        NumberOfNormallyActiveSignLinksTps   GET-REPLACE;
REGISTERED AS { mtpPackage 28 };

signLinkSetTpNamePackage PACKAGE
    ATTRIBUTES
        SignLinkSetTpName   GET-REPLACE;
REGISTERED AS { mtpPackage 35 };

signRouteSetNePartNamePackage PACKAGE
    ATTRIBUTES
        SignRouteSetNePartName   GET-REPLACE;
REGISTERED AS { mtpPackage 39 };

ss7OnOccEventPackage PACKAGE
    NOTIFICATIONS
        ss7OnOccEvent
```

```
        changeInLsToAdjSp
        inaccessibleSp
        remoteUserPartUnavailable;
REGISTERED AS { mtpPackage 49 };

qualityofServiceAlarmPackage PACKAGE
    NOTIFICATIONS
        "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992": qualityofServiceAlarm;
REGISTERED AS { mtpPackage 53 };

signLinkSetTpTrafficPackage PACKAGE
    BEHAVIOUR signLinkSetTpTrafficPackageBehaviour BEHAVIOUR DEFINED AS
        "This package supplies the attributes to represent the traffic(erl) of the signLinkSetTp.";;
    ATTRIBUTES
        signLinkSetTpTrafficin    GET,
        signLinkSetTpTrafficout    GET;
REGISTERED AS { mtpPackage 54 };

signLinkTpTrafficPackage PACKAGE
    BEHAVIOUR signLinkTpTrafficPackageBehaviour BEHAVIOUR DEFINED AS
        "This package supplies the attributes to represent the traffic(erl) of the signLinkTp.";;
    ATTRIBUTES
        signLinkTpTrafficin    GET,
        signLinkTpTrafficout    GET;
REGISTERED AS { mtpPackage 55 };

managedSwitchingElementAtrPackage    PACKAGE
     BEHAVIOUR managedSwitchingElementAtrPackageBehaviour BEHAVIOUR DEFINED AS
        "This package defines special information on managedSwitchingElement for Switch device,
including new attributes and new actions ";;
     ATTRIBUTES
        "ITU-T Rec. M.3100 (1995)": version                GET-REPLACE,
        "ITU-T Rec. M.3100 (1995)": locationName           GET-REPLACE,
        "ITU-T Rec. M.3100 (1995)": userLabel              GET-REPLACE,
        signature                                          GET-REPLACE,
        neStatus                                           GET,
        neTypePointer                                      GET,
        neAddress                                          GET,
        comMethod                                          GET-REPLACE,
        switchFrame                                        GET,
        neKeyword                                          GET-REPLACE;
REGISTERED AS { mtpPackage 62 };

signLinkTpEquipmentPackage PACKAGE
```

```
    BEHAVIOUR   signLinkTpEquipmentPackageBehaviour BEHAVIOUR DEFINED AS
        "This package defines equipment pointer of   signLinkTp for switch device ,including pointing
to signalling module's terminal, and datalink modules'64kbits channel";;
    ATTRIBUTES
        linkTpType              GET,
        relatedNeModuleTns      GET-REPLACE;
REGISTERED AS { mtpPackage 64 };

totalLinkNbrAllocationPackage PACKAGE
    ATTRIBUTES
        numberOfTotalSignLinkTps  GET-REPLACE;
REGISTERED AS { mtpPackage 74 };

n7ModulePackage   PACKAGE
    ATTRIBUTES
        maxCapacitySignLink         GET-REPLACE,
        linkFirstLevelThreshold     GET-REPLACE,
        linkSecondLevelThreshold    GET-REPLACE;
REGISTERED AS { mtpPackage 75 };

alarmSeverityAdjustPackage PACKAGE
    ATTRIBUTES
        alarmSeverityAdjust   GET-REPLACE;
REGISTERED AS {mtpPackage 77 };

mtpSignPointStatusPackage PACKAGE
   ATTRIBUTES
        mtpSignPointStatus          GET,
        totalNbrofSignRouteSet      GET-REPLACE,
        nbrofSignRouteSetTrouble    GET-REPLACE;
REGISTERED AS {mtpPackage 78 };

signLinkSetTypePackage PACKAGE
   ATTRIBUTES
        SignLinkSetType   GET-REPLACE;
REGISTERED AS {mtpPackage 79 };

-- THE Q752Table1data & Q752Table2data & Q752Table3data DATATYPE

q752TableOnePerfDataPackage PACKAGE
   ATTRIBUTES
      inServiceDuration                 GET,        -- Q.752 Table1.1
      alignmentAndProvingCounter        GET,        -- Q.752 Table1.7
      receivedErrorSUs                  GET,        -- Q.752 Table1.8
```

```
        receivedNegAckCounter          GET,          -- Q.752 Table1.9
        localChangeOverCounter         GET;          -- Q.752 Table1.10
REGISTERED AS {mtpPackage 81 };

q752TableTwoPerfDataPackage PACKAGE
    ATTRIBUTES
        notAvailableDuration                          GET,  -- Q.752 Table2.1
        localInhibitDuration                          GET,  -- Q.752 Table2.5
        remoteInhibitDuration                         GET,  -- Q.752 Table2.6
        notAvailableDurationBecauseLinkFailure        GET,  -- Q.752 Table2.7
        notAvailableDurationBecauseRemoteProcessor    GET,  -- Q.752 Table2.9
        localInhibitCounter                           GET,  -- Q.752 Table2.13
        localUninhibitCounter                         GET,  -- Q.752 Table2.14
        localBusyDuration                             GET;  -- Q.752 Table2.15
REGISTERED AS {mtpPackage 82 };

q752TableTriPerfDataPackage PACKAGE
    ATTRIBUTES
        transmittedOctets                 GET,      -- Q.752 Table3.1
        retransmittedOctets               GET,      -- Q.752 Table3.2
        transmittedMSUs                   GET,      -- Q.752 Table3.3
        receivedOctets                    GET,      -- Q.752 Table3.4
        receivedMSUs                      GET,      -- Q.752 Table3.5
        congestionCounter                 GET,      -- Q.752 Table3.6
        congestionDuration                GET,      -- Q.752 Table3.7
        discardedMSUsBecauseCongestion          GET,      -- Q.752 Table3.10
        congestionCounterCauseDiscardMSU        GET;      -- Q.752 Table3.11
REGISTERED AS {mtpPackage 83 };

-- ******************************************************
-- * E.4 Package definitions for performance management    *
-- ******************************************************
-- ********************************************
-- * 7.3 Parameter definitions                  *
-- ********************************************
changeInLsToAdjSp   PARAMETER
    CONTEXT   EVENT-INFO;
    WITH SYNTAX   MTPDefinedTypesModule.ChangeInLsToAdjSpInfo;
REGISTERED AS { mtpParameter 1 };

InaccessibleSp   PARAMETER
    CONTEXT   EVENT-INFO;
    WITH SYNTAX   MTPDefinedTypesModule.InaccessibleSpInfo;
REGISTERED AS { mtpParameter 2 };
```

```
remoteUserPartUnavailable    PARAMETER
      CONTEXT    EVENT-INFO;
      WITH SYNTAX    MTPDefinedTypesModule.UserPart;
REGISTERED AS { mtpParameter 3 };

--   ********************************************************
--   * Attribute definitions for configuration management    *
--   ********************************************************
--adjpc attribute
adjPc ATTRIBUTE
      WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.PointCode;
      MATCHES FOR EQUALITY;
      BEHAVIOUR adjPcBehaviour BEHAVIOUR DEFINED AS
      "This attribute represents the pointcode of an adjacent SP.";;
REGISTERED AS { mtpAttribute 1 };

destinationPointCode ATTRIBUTE
      WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.PointCode;
      BEHAVIOUR destinationPointCodeBehaviour BEHAVIOUR DEFINED AS
      "This attribute represents the destination signalling point of a route set.";;
REGISTERED AS { mtpAttribute 8 };

maxCapacitySignLink ATTRIBUTE
      WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.CapacityLink;
      BEHAVIOUR maxCapacitySignLinkBehaviour BEHAVIOUR DEFINED AS
      "This attribute represents the max capacity of a signalling link.";;
REGISTERED AS { mtpAttribute 9 };

linkTPStatus ATTRIBUTE
      WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.LinkTPStatus;
      MATCHES FOR EQUALITY;
      BEHAVIOUR linkTpStatusBehaviour BEHAVIOUR DEFINED AS
      "The linkTpStatus contains the SS No. 7 functional statuses as described in Recommendation Q.704.
Possible states indicated are local blocked, remote blocked, local inhibited, remote inhibited, failed and
deactivated.";;
REGISTERED AS { mtpAttribute 27 };

managedSwitchingElementName ATTRIBUTE
      WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.AdditionalName;
      MATCHES FOR EQUALITY;
      BEHAVIOUR managedSwitchingElementNameBehaviour BEHAVIOUR DEFINED AS
      "This attribute is an additional name for instances of the managedSwitchingElement managed object
class.";;
```

```
REGISTERED AS { mtpAttribute 34 };

mtpSignPointId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR mtpSignPointIdBehaviour BEHAVIOUR DEFINED AS
    "This attribute is used for naming instances.";;
REGISTERED AS { mtpAttribute 47 };

mtpSignPointName ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.AdditionalName;
    MATCHES FOR EQUALITY;
    BEHAVIOUR mtpSignPointNameBehaviour BEHAVIOUR DEFINED AS
    "This attribute is an additional name for instances of the mtpSignPoint managed object class.";;
REGISTERED AS { mtpAttribute 48 };

networkIndicator ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NetworkIndicator;
    MATCHES FOR EQUALITY;
    BEHAVIOUR networkIndicatorBehaviour BEHAVIOUR DEFINED AS
    "This attribute models the network indicator of the network the signalling point belongs to.";;
REGISTERED AS { mtpAttribute 49 };

numberOfNormallyActiveSignLinksTps ATTRIBUTE
    WITH ATTRIBUTE SYNTAX
MTPDefinedTypesModule.NumberOfNormallyActiveSignLinksTps;
    MATCHES FOR EQUALITY;
    BEHAVIOUR numberOfNormallyActiveSignLinksTpsBehaviour BEHAVIOUR DEFINED AS
    "This attribute represents the number of normally active signalling links in a link set, as defined in
clause 12/Q.704.";;
REGISTERED AS { mtpAttribute 51 };

-- RLL ADD THE FOLLOWING LINES
neModuleId ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NameType;
        MATCHES FOR EQUALITY;
        BEHAVIOUR neModuleIdBehaviour BEHAVIOUR DEFINED AS
        "..";;
REGISTERED AS { mtpAttribute 54 };

pointCode ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.PointCode;
        MATCHES FOR EQUALITY;
        BEHAVIOUR pointCodeBehaviour BEHAVIOUR DEFINED AS
```

"This attribute represents the pointcode of a certain SP.";;
REGISTERED AS { mtpAttribute 55 };
-- END RLL ADD

signLinkSetTpId ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR signLinkSetTpIdBehaviour BEHAVIOUR DEFINED AS
"This attribute is used for naming instances.";;
REGISTERED AS { mtpAttribute 91 };

signLinkSetTpName ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.AdditionalName;
MATCHES FOR EQUALITY;
BEHAVIOUR signLinkSetTpNameBehaviour BEHAVIOUR DEFINED AS
"This attribute is an additional name for instances of the signLinkSetTp managed object class.";;
REGISTERED AS { mtpAttribute 92 };

signRouteSetNePartId ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR signRouteSetNePartIdBehaviour BEHAVIOUR DEFINED AS
"This is the naming attribute of signRouteSetNePart. It identifies a signRouteSetNePart instance within the mtpSignPoint and may equal the signalling point code of the respective destination signalling point.";;
REGISTERED AS { mtpAttribute 98 };

signRouteSetNePartName ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.AdditionalName;
MATCHES FOR EQUALITY;
BEHAVIOUR signRouteSetNePartNameBehaviour BEHAVIOUR DEFINED AS
"Identifies a signRouteSetNePart instance within the managed object class; its value is unique within the signRouteSetNePart object class. In this attribute implementation or administration dependent information - like used for naming schemes - can be stored. If at creation time the value of this attribute given for the instance to be created already exists in another signRouteSetNePart instance, then the creation is rejected and not carried out.";;
REGISTERED AS { mtpAttribute 99 };

slCode ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.SlCode;
MATCHES FOR EQUALITY;
BEHAVIOUR slCodeBehaviour BEHAVIOUR DEFINED AS
"If one SLC has been assigned, it should be checked that this SLC will not be assigned again.";;
REGISTERED AS { mtpAttribute 104 };

slsCodeCurrentList ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.SLSCodeCurrentList;
MATCHES FOR SET-INTERSECTION;
BEHAVIOUR slsCodeCurrentListBehaviour BEHAVIOUR DEFINED AS
"This attribute indicates, which SLSs are currently assigned to this signLinkTp. It has to be ensured, that all SLSs are covered and no SLS exists more than one time within the slsCodeCurrentList attributes of the signLinkTp instances contained within one signLinkSetTp. This attribute can be changed from system inside.";;
REGISTERED AS { mtpAttribute 105 };

slsCodeNormalList ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.SLSCodeNormalList;
MATCHES FOR SET-INTERSECTION;
BEHAVIOUR slsCodeNormalListBehaviour BEHAVIOUR DEFINED AS
"This attribute indicates, which SLSs are administratively assigned to this signLinkTp for the case of normal operation.";;
REGISTERED AS { mtpAttribute 106 };

spType ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.SpType;
MATCHES FOR EQUALITY;
BEHAVIOUR spTypeBehaviour BEHAVIOUR DEFINED AS
"This attribute represents the SP-type: SEP, STEP or STP.";;
REGISTERED AS { mtpAttribute 114 };

transmissionRate ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.TransmissionRate;
MATCHES FOR EQUALITY;
BEHAVIOUR transmissionRateBehaviour BEHAVIOUR DEFINED AS
"This attribute represents the transmissionRate and implies the transmissionType (i.e. 56 and 64 kbits imply digital, 4.8 kbits implies analog transmission).";;
REGISTERED AS { mtpAttribute 133 };

signRouteSetLdshMethod ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.RouteSetLdshMethod;
BEHAVIOUR signRouteSetLdshMethodBehaviour BEHAVIOUR DEFINED AS
"this attribute will be used by signRouteSetNePart to identify the load sharing method on this routeset.";;
REGISTERED AS { mtpAttribute 134 };

linkTpType ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.LinkTpType;
BEHAVIOUR linkTpTypeBehaviour BEHAVIOUR DEFINED AS

"This attribute will be used by signLinkTp to identify the physical channel:go through GROUND or SATELLITE.";;
REGISTERED AS { mtpAttribute 205 };

mtpSignPointStatus ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.MtpSignPointStatus;
BEHAVIOUR mtpSignPointStatusBehaviour BEHAVIOUR DEFINED AS
"this attribute will be used by mtpSignPoint,to represent the status.";;
REGISTERED AS { mtpAttribute 207 };

totalNbrofSignRouteSet ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.EventCount;
BEHAVIOUR totalNbrofSignRouteSetBehaviour BEHAVIOUR DEFINED AS
"this attribute will be used by mtpSignPoint to represent the total number of signRouteSetNepart the signPoint include.";;
REGISTERED AS { mtpAttribute 208 };

nbrofSignRouteSetTrouble ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.EventCount;
BEHAVIOUR nbrofSignRouteSetTroubleBehaviour BEHAVIOUR DEFINED AS
"this attribute is used by mtpSignPoint to count the number of the unavailable routeset in the signPoint.";;
REGISTERED AS { mtpAttribute 209 };

signLinkSetTpTrafficin ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Traffic;
MATCHES FOR EQUALITY;
BEHAVIOUR signLinkSetTpTrafficinBehaviour BEHAVIOUR DEFINED AS
"this attribute will be used by signLinkSetTp,represent the incoming traffic every 15 minutes.";;
REGISTERED AS { mtpAttribute 211 } ;

signLinkSetTpTrafficout ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Traffic;
MATCHES FOR EQUALITY;
BEHAVIOUR signLinkSetTpTrafficoutBehaviour BEHAVIOUR DEFINED AS
"this attribute will be used by signLinkSetTp,represent the outgoing traffic every 15 minutes.";;
REGISTERED AS { mtpAttribute 212 };

signLinkTpTrafficin ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Traffic;
MATCHES FOR EQUALITY;
BEHAVIOUR signLinkTpTrafficinBehaviour BEHAVIOUR DEFINED AS
"this attribute will be used by signLinkTp,represent the incoming traffic every 15 minutes.";;
REGISTERED AS { mtpAttribute 213 };

signLinkTpTrafficout ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Traffic;
MATCHES FOR EQUALITY;
BEHAVIOUR signLinkTpTrafficoutBehaviour BEHAVIOUR DEFINED AS
"this attribute will be used by signLinkTp,represent the outgoing traffic every 15 minutes.";;
REGISTERED AS { mtpAttribute 214 };

linkFirstLevelThreshold ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.TrafficThreshold;
BEHAVIOUR linkFirstLevelThresholdBehaviour BEHAVIOUR DEFINED AS
"this attribute will be used to identify the first level threshold for signLinkTp,every time if the actual traffic of the signLinkTp over this threshold then an alarm will be submit.";;
REGISTERED AS { mtpAttribute 215 };

linkSecondLevelThreshold ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.TrafficThreshold;
BEHAVIOUR linkSecondLevelThresholdBehaviour BEHAVIOUR DEFINED AS
"this attribute will be used to identify the second level threshold for signLinkTp,every time if the actual traffic of the signLinkTp over this threshold then an alarm will be submit.";;
REGISTERED AS { mtpAttribute 216 };

neStatus ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NeStatus;
MATCHES FOR EQUALITY;
BEHAVIOUR neStatusBehaviour BEHAVIOUR DEFINED AS
"this attribute is used to identify if there are modules trouble in the managedSwitchingElement.";;
REGISTERED AS { mtpAttribute 217 };

signRouteNePartId ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR signRouteNePartIdBehaviour BEHAVIOUR DEFINED AS
"This is the naming attribute of signRouteNePart. It identifies a signRouteNePart instance within the signRouteSetNePart.";;
REGISTERED AS { mtpAttribute 221 };

signLinkSetTpPointer ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Pointer;
MATCHES FOR EQUALITY;
BEHAVIOUR signLinkSetTpPointerBehaviour BEHAVIOUR DEFINED AS
"References the signLinkSetTp which is intended to be used as first segment of the succession of linksets, which form the signalling route on the network level.
It is not allowed to reference a signLinksetTp, which is not contained in the same mtpSignPoint as the

```
signRouteSetNePart where the signRouteNePart is contained in.";;
REGISTERED AS { mtpAttribute 222 };

signRouteNePartPriority ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Priority;
    MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 223 };

switchFrame ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.SwitchFrame;
    MATCHES FOR EQUALITY;
    BEHAVIOUR switchFrameBehaviour BEHAVIOUR DEFINED AS
        "This attribute defines the size of an switch module.";;
REGISTERED AS { mtpAttribute 231 };

neTypeName ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.AdditionalName;
    MATCHES FOR EQUALITY;
    BEHAVIOUR neTypeNameBehaviour BEHAVIOUR DEFINED AS
      "this attribute indicates which type of ne,such as HSTP,LSTP,DC1SP,DC2SP,SCP,which should be
identical with neTypeId";;
REGISTERED AS { mtpAttribute 262 };

linkRate ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.LinkRate;
    MATCHES FOR EQUALITY;
    BEHAVIOUR linkRateBehaviour BEHAVIOUR DEFINED AS
      "This attribute indicates the signaling link rate: n*64kbit/s, 2Mbit/s, etc. ";;
REGISTERED AS { mtpAttribute 263 };

neAddress ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Address;
    MATCHES FOR EQUALITY;
    BEHAVIOUR neAddressBehaviour BEHAVIOUR DEFINED AS
    "This attribute indicates the address of   this managedSwitchElement";;
REGISTERED AS { mtpAttribute 264 };

comMethod ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.ComMethod;
    MATCHES FOR EQUALITY;
    BEHAVIOUR comMethodBehaviour BEHAVIOUR DEFINED AS
    "This attribute indicates how to communicate with this ne,such as TEL、BP etc";;
REGISTERED AS { mtpAttribute 265 };
```

```
nsapAddress ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Address;
    MATCHES FOR EQUALITY;
    BEHAVIOUR   nsapAddressBehaviour BEHAVIOUR DEFINED AS
    "This attribute indicates which   the nsap's address ,it can be the X.25 address of NE or the IP address
of NE";;
REGISTERED AS { mtpAttribute 267 };

neKeyword     ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR   neKeywordBehaviour BEHAVIOUR DEFINED AS
    "This attribute indicates the keyword to connect this NE ";;
REGISTERED AS { mtpAttribute 268 };

moduleTnInfoList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.ModuleTnInfoList;
    MATCHES FOR EQUALITY;
    BEHAVIOUR   moduleTnInfoListBehaviour BEHAVIOUR DEFINED AS
    "This attribute indicates module tn info list for one module";;
REGISTERED AS { mtpAttribute 270 };

relatedNeModuleTns ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NeModuleTns;
        MATCHES FOR EQUALITY;
        BEHAVIOUR relatedNeModuleTnsBehaviour BEHAVIOUR DEFINED AS
        "This attribute indicates related timeslots or physical port information of specific modules when
creating one signaling link, such as signaling module, and data link module ";;
REGISTERED AS { mtpAttribute 273 };

signature ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.AdditionalName;
        MATCHES FOR EQUALITY;
        BEHAVIOUR signatureBehaviour BEHAVIOUR DEFINED AS
            "This .....";;
REGISTERED AS { mtpAttribute 278 };

signLinkSetType ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.LinkSetType;
        MATCHES FOR EQUALITY;
        BEHAVIOUR signLinkSetTypeBehaviour BEHAVIOUR DEFINED AS
            "This .....";;
REGISTERED AS { mtpAttribute 282 };
```

```
modTypeId ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NameType;
                MATCHES FOR EQUALITY;
                BEHAVIOUR modTypeIdBehaviour BEHAVIOUR DEFINED AS
                    "This .....";;
REGISTERED AS { mtpAttribute 286};

managedTypeId ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NeType;
                MATCHES FOR EQUALITY;
                BEHAVIOUR managedTypeIdBehaviour BEHAVIOUR DEFINED AS
                    "This .....";;
REGISTERED AS { mtpAttribute 296};

numberOfTotalSignLinkTps ATTRIBUTE
      WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NumberOfTotalSignLinkTps;
            MATCHES FOR EQUALITY;
            BEHAVIOUR numberOfTotalSignLinkTpsBehaviour BEHAVIOUR DEFINED AS
                "This .....";;
REGISTERED AS { mtpAttribute 289 };

neTypeId    ATTRIBUTE
      WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NeType;
            MATCHES FOR EQUALITY;
            BEHAVIOUR neTypeIdBehaviour BEHAVIOUR DEFINED AS
                "This .....";;
REGISTERED AS { mtpAttribute 290 };

modTypeName ATTRIBUTE
     WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.AdditionalName;
     MATCHES FOR EQUALITY;
     BEHAVIOUR modTypeNameBehaviour BEHAVIOUR DEFINED AS
       "This attribute indicates which type of module, such as HCCM, CCSM, DTM, which should be
identical with modTypeId";;
REGISTERED AS { mtpAttribute 292 };

neTypePointer ATTRIBUTE
     WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Pointer;
     MATCHES FOR EQUALITY;
     BEHAVIOUR neTypePointerBehaviour BEHAVIOUR DEFINED AS
       "This attribute indicates which type of module, such as HSTP,LSTP,DC1SP,DC2SP,SCP, which
should be identical with one neType object instance";;
REGISTERED AS { mtpAttribute 293 };
```

```
modTypePointer ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Pointer;
    MATCHES FOR EQUALITY;
    BEHAVIOUR modTypePointerBehaviour BEHAVIOUR DEFINED AS
      "This attribute indicates which type of module, such as HCCM, CCSM, DTM, which should be identical with one neModuleType object instance";;
REGISTERED AS { mtpAttribute 294 };

alarmSeverityAdjust ATTRIBUTE
WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.AlarmSeverityAdjust;
     MATCHES FOR EQUALITY;
     BEHAVIOUR alarmSeverityAdjustBehaviour BEHAVIOUR DEFINED AS
     "This .....";;
REGISTERED AS { mtpAttribute 303};

mtpAccessPointStatus ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Status;
    MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 304 };

thresholdDataId ATTRIBUTE
  WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NameType;
  MATCHES FOR EQUALITY;
  BEHAVIOUR thresholdDataIdBehaviour BEHAVIOUR DEFINED AS
   "this attribute will be used as identifier attribute of infoData calss.";;
REGISTERED AS { mtpAttribute 332 };

linkUnavDurationThreshold ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.EventCount;
    MATCHES FOR EQUALITY;
    BEHAVIOUR linkUnavDurationThresholdBehaviour BEHAVIOUR DEFINED AS
      "this attribute will be used by performDataThreshold,to represent the threshold value for counter TAB1.2.";;
REGISTERED AS { mtpAttribute 339 };

linkTroubleNbrThreshold ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.EventCount;
    MATCHES FOR EQUALITY;
    BEHAVIOUR linkTroubleNbrThresholdBehaviour BEHAVIOUR DEFINED AS
      "this attribute will be used by performDataThreshold,to represent the alarm threshold for counter TAB1.2.";;
REGISTERED AS { mtpAttribute 400 };

localBusyDurationThreshold ATTRIBUTE
```

```
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.EventCount;
    MATCHES FOR EQUALITY;
    BEHAVIOUR localBusyDurationThresholdBehaviour BEHAVIOUR DEFINED AS
        "this attribute will be used by performDataThreshold,to represent the alarm threshold f  or
counter TAB2.15.";;
REGISTERED AS { mtpAttribute 401 };

linkSetUnavDurationThreshold ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.EventCount;
    MATCHES FOR EQUALITY;
    BEHAVIOUR linkSetUnavDurationThresholdBehaviour BEHAVIOUR DEFINED AS
        "this attribute will be used by performDataThreshold,to represent the alarm threshold for
counter TAB4.2.";;
REGISTERED AS { mtpAttribute 402 };

adjSpInaccNbrThreshold ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.EventCount;
    MATCHES FOR EQUALITY;
    BEHAVIOUR adjSpInaccNbrThresholdBehaviour BEHAVIOUR DEFINED AS
        "this attribute will be used by performDataThreshold,to represent the alarm threshold for counter
TAB5.1.";;
REGISTERED AS { mtpAttribute 501 };

-- ************************************************************
-- * E.5 Attribute Definitions for performance management of NE level *
-- ************************************************************
adjacentInaccessibleDuration ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Seconds;
    MATCHES FOR EQUALITY;
    BEHAVIOUR adjacentInaccessibleDurationBehaviour BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/5.2.";;
REGISTERED AS { mtpAttribute 135 };

adjacentInaccessibleEvents ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Peg;
    MATCHES FOR EQUALITY;
    BEHAVIOUR adjacentInaccessibleEventsBehaviour BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/5.1.";;
REGISTERED AS { mtpAttribute 136 };

congestionEventsMSULoss ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR congestionEventsMSULossBehaviour BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/3.11.";;
```

```
REGISTERED AS { mtpAttribute 137 };

discardedMSUsBecauseRouteFailure ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Peg;
        MATCHES FOR EQUALITY;
        BEHAVIOUR discardedMSUsBecauseRouteFailureBehaviour BEHAVIOUR DEFINED AS
          "This attribute represents measurement Q.752/5.5.";;
REGISTERED AS { mtpAttribute 138 };

receivedTFC ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.EventsCongestionLevel;
    BEHAVIOUR receivedTFCBehaviour BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/5.8.";;
REGISTERED AS { mtpAttribute 151 };

receivedUPUnavailable ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.EventsUP;
    BEHAVIOUR receivedUPUnavailableBehaviour BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/5.7. See also Recommendation Q.704/11.7.2.";;
REGISTERED AS { mtpAttribute 152 };

routeSetUnavailable ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Peg;
    MATCHES FOR EQUALITY;
    BEHAVIOUR routeSetUnavailableBehaviour BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/4.9. See also Recommendation Q.704/11.2.2.";;
REGISTERED AS { mtpAttribute 154 };

routeSetUnavailableDuration ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Seconds;
    MATCHES FOR EQUALITY;
    BEHAVIOUR routeSetUnavailableDurationBehaviour   BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/4.10. See also Recommendation Q.704/11.2.1.";;
REGISTERED AS { mtpAttribute 155 };

slCongestedStarts   ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR slCongestedStartsBehaviour   BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/3.6. See also 3.8/Q.704.";;
REGISTERED AS { mtpAttribute 160 };

slCongestionStops   ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR slCongestionStopsBehaviour   BEHAVIOUR DEFINED AS
```

```
        "This attribute represents measurement Q.752/3.9. See also 3.8/Q.704.";;
REGISTERED AS { mtpAttribute 161 };

slsUnavailable ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.Seconds;
    BEHAVIOUR slsUnavailableBehaviour BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/4.2.";;
REGISTERED AS { mtpAttribute 167 };

transmittedUPUnavailable ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.EventsUP;
    BEHAVIOUR transmittedUPUnavailableBehaviour BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/5.6. See also Recommendation Q.704/11.7.2.";;
REGISTERED AS { mtpAttribute 174 };

receivedOctetsOpc ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.RouteStatisticPerOpc;
        MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 177 };

transmittedOctetsDpc ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.RouteStatisticPerDpc;
        MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 178 };

handledOctetsSIO ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.RouteStatisticPerSIO;
        MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 179 };

receivedOctetsOpcSIO ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.RouteStatisticPerOpcSIO;
        MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 180 };

transmittedOctetsDpcSIO ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.RouteStatisticPerDpcSIO;
        MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 181 };

handledOctetsOpcDpcSIO ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.RouteStatisticPerOpcDpcSIO;
        MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 182 };
```

```
handledMSUsOpcDpcSIO ATTRIBUTE
WITH ATTRIBUTE SYNTAX    MTPDefinedTypesModule.RouteStatisticPerOpcDpcSIO;
          MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 183 };

inServiceDuration ATTRIBUTE
     WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
     MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 503 };

alignmentAndProvingCounter ATTRIBUTE
     WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
     MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 504 };

receivedErrorSUs ATTRIBUTE
     WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
     MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 505 };

receivedNegAckCounter ATTRIBUTE
     WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
     MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 506 };

localChangeOverCounter ATTRIBUTE
     WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
     MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 507 };

notAvailableDuration ATTRIBUTE
     WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
     MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 508 };

notAvailableDurationBecauseLinkFailure ATTRIBUTE
     WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
     MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 509 };

notAvailableDurationBecauseRemoteProcessor ATTRIBUTE
     WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
     MATCHES FOR EQUALITY;
```

```
REGISTERED AS { mtpAttribute 510 };

localInhibitDuration ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
    MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 512 };

remoteInhibitDuration ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
    MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 513 };

localInhibitCounter ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
    MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 514 };

localUninhibitCounter ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
    MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 515 };

transmittedOctets ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
    MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 517 };

receivedOctets ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
    MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 518 };

retransmittedOctets ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
    MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 519 };

transmittedMSUs ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
    MATCHES FOR EQUALITY;
REGISTERED AS { mtpAttribute 520 };

receivedMSUs ATTRIBUTE
    WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
```

```
        MATCHES FOR EQUALITY;
    REGISTERED AS { mtpAttribute 521 };

    congestionCounter ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
        MATCHES FOR EQUALITY;
    REGISTERED AS { mtpAttribute 523 };

    congestionDuration ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
        MATCHES FOR EQUALITY;
    REGISTERED AS { mtpAttribute 524 };

    localBusyDuration ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
        MATCHES FOR EQUALITY;
    REGISTERED AS { mtpAttribute 525 };

    discardedMSUsBecauseCongestion ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
        MATCHES FOR EQUALITY;
    REGISTERED AS { mtpAttribute 526 };

    congestionCounterCauseDiscardMSU ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.StatisticValue;
        MATCHES FOR EQUALITY;
    REGISTERED AS { mtpAttribute 527 };

    mtpScreenTableId ATTRIBUTE
         WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.NameType;
         MATCHES FOR EQUALITY;
    REGISTERED AS { mtpAttribute 549 };

    mtpScreenInfo ATTRIBUTE
        WITH ATTRIBUTE SYNTAX MTPDefinedTypesModule.MtpScreenInfo;
        MATCHES FOR EQUALITY;
    REGISTERED AS { mtpAttribute 550 };

    --*******************************
    --*  7.5    Action definitions    *
    --*******************************
    localInhibit ACTION
        BEHAVIOUR localInhibitBehaviour BEHAVIOUR DEFINED AS
        "This action inhibits the signalling link termination point. If the inhibition procedure completes
```

successfully the linkTpStatus contains localInhibit. This action is not performed if the linkTpStatus contains localInhibit.";;

MODE CONFIRMED;

WITH REPLY SYNTAX MTPDefinedTypesModule.ResultOfAction;

REGISTERED AS { mtpAction 2 };

localUninhibit ACTION

BEHAVIOUR localUninhibitBehaviour BEHAVIOUR DEFINED AS

"This action uninhibits the signalling link termination point. If the uninhibition procedure completes successfully the localInhibit is removed from linkTpStatus. This action is not performed if the linkTpStatus does not contain localInhibit.";;

MODE CONFIRMED;

WITH REPLY SYNTAX MTPDefinedTypesModule.ResultOfAction;

REGISTERED AS { mtpAction 3 };

disableModule ACTION

BEHAVIOUR disableTnBehaviour BEHAVIOUR DEFINED AS

"";;

MODE CONFIRMED;

WITH REPLY SYNTAX MTPDefinedTypesModule.ResultOfAction;

REGISTERED AS { mtpAction 14 };

enableModule ACTION

BEHAVIOUR enableTnBehaviour BEHAVIOUR DEFINED AS

"";;

MODE CONFIRMED;

WITH REPLY SYNTAX MTPDefinedTypesModule.ResultOfAction;

REGISTERED AS { mtpAction 15 };

initModule ACTION

BEHAVIOUR initTnBehaviour BEHAVIOUR DEFINED AS

" ";;

MODE CONFIRMED;

WITH REPLY SYNTAX MTPDefinedTypesModule.ResultOfAction;

REGISTERED AS { mtpAction 16 };

actSignLinkTp ACTION

BEHAVIOUR actSignLinkTpBehaviour BEHAVIOUR DEFINED AS

"This action activate the signalling link termination point.It will set administrativeState to LOCKED, and cause other operationalState and signLinkTpStatus changed.This action defined on signLinkTp.";;

MODE CONFIRMED;

WITH REPLY SYNTAX MTPDefinedTypesModule.ResultOfAction;

REGISTERED AS { mtpAction 18 };

```
deactSignLinkTp ACTION
    BEHAVIOUR deactSignLinkTpBehaviour BEHAVIOUR DEFINED AS
    "This action deactivate the signalling link termination point.It will set administrativeState to LOCKED, and cause other operationalState and signLinkTpStatus changed.This action defined on signLinkTp.";;
    MODE CONFIRMED;
    WITH REPLY SYNTAX MTPDefinedTypesModule.ResultOfAction;
REGISTERED AS { mtpAction 19 };


--  ************************************
--  * 7.6      Notification definitions        *
--  ************************************
ss7OnOccEvent   NOTIFICATION
     BEHAVIOUR ss7OnOccEventBhv BEHAVIOUR DEFINED AS
     "This notification is used to report the Q.752 on-occurrence measurement results and other MTP events, which are not reported as a communication alarm.";;
     WITH INFORMATION SYNTAX MTPDefinedTypesModule.SS7OnOccEventInfo;
REGISTERED AS { mtpNotification 1 };


-- ************************************************************
-- * Name Binding for Configuration Management of NE level *
-- ************************************************************
managedSwitchingElement-mtpSignPoint NAME BINDING
     SUBORDINATE OBJECT CLASS      mtpSignPoint;
     NAMED BY
     SUPERIOR OBJECT CLASSmanagedSwitchingElement;
     WITH ATTRIBUTE mtpSignPointId;
     BEHAVIOUR managedSwitchingElement-mtpSignPointBehaviour BEHAVIOUR DEFINED AS
     "An mtpSignPoint can be created by an operator or automatically.
     In case the spTimersProfilePackage is used, a create or set request is rejected, if
          i)   the spTimersProfilePointer does not reference an spTimersProfile
     OR  ii)   the spTimersProfilePointer would reference an instance which does not exist
     If the name package is supported: a create request with a value for the name attribute that is already used by another instance of the same object class will be rejected.
     An mtpSignPoint can be deleted if and only if it does not contain any other managed object class instances, except for contained measurements.";;
     CREATE;
     DELETE ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS { mtpNameBinding 1 };

mtpSignPoint-signRouteSetNePart NAME BINDING
     SUBORDINATE OBJECT CLASS      signRouteSetNePart;
```

NAMED BY
SUPERIOR OBJECT CLASSmtpSignPoint;
WITH ATTRIBUTE signRouteSetNePartId;
BEHAVIOUR mtpSignPoint-signRouteSetNePartBehaviour BEHAVIOUR DEFINED AS
"If the name package is supported: a create request with a value for the name attribute that is already used by another instance of the same object class will be rejected. ";;
CREATE;
DELETE ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS { mtpNameBinding 2 };

signRouteSetNePart-signRouteNePart NAME BINDING
SUBORDINATE OBJECT CLASS signRouteNePart;
NAMED BY SUPERIOR OBJECT CLASS signRouteSetNePart;
WITH ATTRIBUTE signRouteNePartId;
BEHAVIOUR signRouteSetNePart-signRouteNePartBehaviour BEHAVIOUR DEFINED AS
"If the name package is supported: a create request with a value for the name attribute that is already used by another instance of the same object class will be rejected.";;
CREATE;
DELETE;
REGISTERED AS { mtpNameBinding 3 };

signLinkSetTp-signLinkTp NAME BINDING
SUBORDINATE OBJECT CLASS signLinkTp AND SUBCLASSES;
NAMED BY
SUPERIOR OBJECT CLASS signLinkSetTp;
WITH ATTRIBUTE slCode;
BEHAVIOUR signLinkSetTp-signLinkTpBehaviour BEHAVIOUR DEFINED AS
"If the name package is supported: a create request with a value for the name attribute that is already used by another instance of the same object class will be rejected.";;
CREATE;
DELETE ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS { mtpNameBinding 4 };

mtpSignPoint-mtpAccessPoint NAME BINDING
SUBORDINATE OBJECT CLASS mtpAccessPoint;
NAMED BY
SUPERIOR OBJECT CLASS mtpSignPoint;
WITH ATTRIBUTE "ITU-T Rec. X.723 (1993)":sapId;
BEHAVIOUR mtpSignPoint-mtpAccessPointBehaviour BEHAVIOUR DEFINED AS
"If the name package is supported: a create request with a value for the name attribute that is already used by another instance of the same object class will be rejected.";;
CREATE;
DELETE;
REGISTERED AS { mtpNameBinding 1 };

mtpSignPoint-signLinkSetTp NAME BINDING
SUBORDINATE OBJECT CLASS signLinkSetTp;
NAMED BY
SUPERIOR OBJECT CLASS mtpSignPoint;
WITH ATTRIBUTE signLinkSetTpId;
BEHAVIOUR mtpSignPoint-signLinkSetTpBehaviour BEHAVIOUR DEFINED AS
"A creation request is only successful if a signRouteSetNePart exists within the mtpSignPoint for the value of attribute adjPC.
In case the lsTimersProfilePackage is used, create or set request is rejected, if
i) the lsTimersProfilePointer does not reference an lsTimersProfile
OR ii) the lsTimersProfilePointer would reference an instance which does not exist
If the name package is supported: a create request with a value for the name attribute that is already used by another instance of the same object class will be rejected.
If it is tried to delete a signLinkSetTp, which is referenced by at least one signRouteNePart, the deletion of the signLinkSetTp is rejected and not carried out.";;
CREATE;
DELETE ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS { mtpNameBinding 8 };

managedSwitchingElement-neModule NAME BINDING
SUBORDINATE OBJECT CLASS neModule;
NAMED BY
SUPERIOR OBJECT CLASS managedSwitchingElement;
WITH ATTRIBUTE neModuleId;
BEHAVIOUR managedSwitchingElement-neSignallingModuleBehaviour BEHAVIOUR DEFINED AS
"If the name package is supported: a create request with a value for the name attribute that is already used by another instance of the same object class will be rejected.
If an attempt is made to delete an lsTimersProfile which is still referenced by a signLinkSetTp the delete request will be rejected.";;
CREATE;
DELETE;
REGISTERED AS { mtpNameBinding 45 };

mtpSignPoint-mtpScreenTable NAME BINDING
SUBORDINATE OBJECT CLASS mtpScreenTable;
NAMED BY
SUPERIOR OBJECT CLASS mtpSignPoint;
WITH ATTRIBUTE mtpScreenTableId;
CREATE;
DELETE;
REGISTERED AS { mtpNameBinding 100 };

```
signLinkSetTp-mtpScreenTable NAME BINDING
    SUBORDINATE OBJECT CLASS    mtpScreenTable;
    NAMED BY
    SUPERIOR OBJECT CLASS       signLinkSetTp;
    WITH ATTRIBUTE      mtpScreenTableId;
    CREATE;
    DELETE;
REGISTERED AS { mtpNameBinding 101 };


-- ************************************************************
-- *    Name Binding for Performance Management of NE level                *
-- ************************************************************
signRouteSetNePart-ss7RouteSetCurrentData NAME BINDING
    SUBORDINATE OBJECT CLASS       ss7RouteSetCurrentData;
    NAMED BY
    SUPERIOR OBJECT CLASSsignRouteSetNePart;
    WITH ATTRIBUTE      "ITU X.739":scannerId;
    CREATE;
    DELETE;
REGISTERED AS { mtpNameBinding 22 };

signLinkSetTP-ss7SignLinkSetCurrentData NAME BINDING
    SUBORDINATE OBJECT CLASS       ss7SignLinkSetCurrentData;
    NAMED BY
    SUPERIOR OBJECT CLASSsignLinkSetTp;
    WITH ATTRIBUTE              "ITU X.739":scannerId;
    CREATE;
    DELETE;
REGISTERED AS { mtpNameBinding 26 };

mtpSignPoint-ss7RouteTrafficCurrentData NAME BINDING
    SUBORDINATE OBJECT CLASS          ss7RouteTrafficCurrentData;
    NAMED BY
    SUPERIOR OBJECT CLASS mtpSignPoint;
    WITH ATTRIBUTE              "ITU X.739":scannerId;
    CREATE;
    DELETE;
REGISTERED AS { mtpNameBinding 51};

signLinkSetTp-adjacentSignPointFaultCurrentData NAME BINDING
    SUBORDINATE OBJECT CLASS          adjacentSignPointFaultCurrentData;
    NAMED BY
    SUPERIOR OBJECT CLASS signLinkSetTp;
```

```
    WITH ATTRIBUTE          "ITU X.739":scannerId;
    CREATE;
    DELETE;
REGISTERED AS { mtpNameBinding 52};

mtpSignPoint-signPointFirstAndIntervalCurrentData NAME BINDING
    SUBORDINATE OBJECT CLASS   signPointFirstAndIntervalCurrentData;
    NAMED BY
    SUPERIOR OBJECT CLASS mtpSignPoint;
    WITH ATTRIBUTE          "ITU X.739":scannerId;
    CREATE;
    DELETE;
REGISTERED AS { mtpNameBinding 53};

signLinkTp-signLinkTpFirstAndIntervalCurrentData NAME BINDING
    SUBORDINATE OBJECT CLASS   signLinkTpFirstAndIntervalCurrentData;
    NAMED BY
    SUPERIOR OBJECT CLASS signLinkTp;
    WITH ATTRIBUTE          "ITU X.739":scannerId;
    CREATE;
    DELETE;
REGISTERED AS { mtpNameBinding 54};

signLinkTp-signLinkTpCurrentData NAME BINDING
    SUBORDINATE OBJECT CLASS        signLinkTpCurrentData;
    NAMED BY
    SUPERIOR OBJECT CLASS signLinkTp;
    WITH ATTRIBUTE          "ITU X.739":scannerId;
    CREATE;
    DELETE;
REGISTERED AS { mtpNameBinding 55};

-- ************************************************
-- * Name Binding for managedType tree            *
-- ************************************************
managedType-neType NAME BINDING
    SUBORDINATE OBJECT CLASS    neType;
    NAMED BY
    SUPERIOR OBJECT CLASS   managedType;
    WITH ATTRIBUTE neTypeId;
    CREATE;
    DELETE;
REGISTERED AS { mtpNameBinding 48 };
```

```
managedType-neModuleType NAME BINDING
    SUBORDINATE OBJECT CLASS     neModuleType;
    NAMED BY
    SUPERIOR OBJECT CLASS    managedType;
    WITH ATTRIBUTE modTypeId;
    CREATE;
    DELETE;
REGISTERED AS { mtpNameBinding 49 };

managedType-performDataThreshold NAME BINDING
    SUBORDINATE OBJECT CLASS performDataThreshold;
    NAMED BY
    SUPERIOR OBJECT CLASS managedType;
    WITH ATTRIBUTE thresholdDataId;
    CREATE;
    DELETE;
REGISTERED AS { mtpNameBinding 52 };

-- ************************************
-- * 7.8 Abstract syntax productions     *
-- ************************************
-- The syntax of this ASN.1 is based on Recommendation X.208. However, from Recommendation X.680,
-- the "ellipsis notation" is used.
MTPDefinedTypesModule
{itu-t(0) recommendation q(17) omap(751) mtp(1) informationModel(0) asn1Modules(2)
asnMtpDefinedTypesModule(0)}
DEFINITIONS IMPLICIT TAGS ::= BEGIN
IMPORTS
AdditionalText, AdditionalInformation, ObservedValue, Packages, SimpleNameType,
AttributeList, GroupObjects
    FROM Attribute-ASN1Module { joint-iso-ccitt ms(9) smi(3) part2(2) asn1Module(2) 1 }
AttributeId, ObjectInstance, Attribute, Scope, CMISFilter
    FROM CMIP-1 { joint-iso-ccitt ms cmip(1) modules(0) protocol(3) }
TimePeriod FROM MetricModule
    { joint-iso-ccitt ms function(2) part11(11) asn1Module 0 }
AdministrativeState, ProbableCause, SpecificProblems, PerceivedSeverity, NotificationIdentifier,
CorrelatedNotifications FROM Attribute-ASN1Module
    {joint-iso-itu-t ms smi part2 asn1Module 1}
    NameType, Pointer, ObjectList, PointerOrNull FROM ASN1DefinedTypesModule
    {ccitt recommendation m(13) gnm(3100) informationModel asn1Modules asn1DefinedTypesModule
(0)} ;
--RLL RECOMMENTED ObjectInstance FROM CMIP-1
    --RLL RECOMMENTED {joint-iso-ccitt ms(9) cmip(1) modules(0) protocol(3)};
mtpInformationModel OBJECT IDENTIFIER ::= {itu-t(0) recommendation q(17) omap(751) mtp(1)
```

```
informationModel(0)}
mtpObjectClass OBJECT IDENTIFIER ::= {mtpInformationModel managedObjectClass(3)}
mtpPackage OBJECT IDENTIFIER ::= {mtpInformationModel package(4)}
mtpParameter OBJECT IDENTIFIER ::= {mtpInformationModel parameter(5)}
mtpAttribute OBJECT IDENTIFIER ::= {mtpInformationModel attribute(7)}
mtpNameBinding OBJECT IDENTIFIER ::= {mtpInformationModel nameBinding(6)}
mtpAction OBJECT IDENTIFIER ::= {mtpInformationModel action(9)}
mtpNotification OBJECT IDENTIFIER ::= {mtpInformationModel notification(10)}
mtpSpecificExtensions OBJECT IDENTIFIER ::= { mtpInformationModel specificExtensions(0) }
AdditionalName ::= IA5String -- the size of this string is implementation dependent
administrativeStateLocked    AdministrativeState ::= locked
SLCode ::= INTEGER
CapacityLink ::= INTEGER (0..maxOctetsPerSecondLink)
CapacityLS ::= INTEGER (0..maxOctetsPerSecondLS)
ChangeInLsToAdjSpInfo ::= SEQUENCE {
        oldSignLinkSetTp        NameType,
        newSignLinkSetTp        NameType
}
CongestionLevel ::= ENUMERATED {
        none                    (0),
        congestionLevel1        (1),
        congestionLevel2        (2),
        congestionLevel3        (3)
}
EventsCongestionLevel ::= SEQUENCE {
        events                  INTEGER,
        conglevel               CongestionLevel
}
EventsUP   ::= SEQUENCE {
        events                  INTEGER,
        userpart                UserPart
}
InaccessibleSpInfo ::= SEQUENCE {
        networkIndicator        NetworkIndicator,
        pointCode               PointCode
}
LinkTPStatus ::= BIT STRING {
        localBlocked        (0),
        remoteBlocked       (1),
        localInhibited      (2),
        remoteInhibited     (3),
        failed              (4),
        deactivated         (5),
        normal              (6)
```

```
}
maxOctetsPerSecondLink    INTEGER ::= 8000
maxOctetsPerSecondLS    INTEGER ::= 128000
maxSpc INTEGER ::= 16776391
NetworkIndicator ::= ENUMERATED{
        internationalNetwork1        (0),
        internationalNetwork2        (1),
        nationalNetwork1             (2),
        nationalNetwork2             (3)
}
NumberOfNormallyActiveSignLinksTps ::= INTEGER (0..16)
PointCode ::= INTEGER (0..maxSpc)
PointCodeList ::= SEQUENCE OF PointCode
Priority ::= INTEGER
localUserPartUnavailable ProbableCause ::= globalValue: {mtpSpecificExtensions 001}
q752Item1p02 ProbableCause ::= globalValue: {mtpSpecificExtensions 102}
q752Item1p10 ProbableCause ::= globalValue: {mtpSpecificExtensions 110}
q752Item2p10 ProbableCause ::= globalValue: {mtpSpecificExtensions 210}
q752Item2p16 ProbableCause ::= globalValue: {mtpSpecificExtensions 216}
q752Item2p18 ProbableCause ::= globalValue: {mtpSpecificExtensions 218}
q752Item3p06 ProbableCause ::= globalValue: {mtpSpecificExtensions 306}
q752Item3p11 ProbableCause ::= globalValue: {mtpSpecificExtensions 311}
q752Item4p03 ProbableCause ::= globalValue: {mtpSpecificExtensions 403}
q752Item4p05 ProbableCause ::= globalValue: {mtpSpecificExtensions 405}
q752Item4p11 ProbableCause ::= globalValue: {mtpSpecificExtensions 411}
q752Item4p13 ProbableCause ::= globalValue: {mtpSpecificExtensions 413}
q752Item5p01 ProbableCause ::= globalValue: {mtpSpecificExtensions 501}
q752Item5p05 ProbableCause ::= globalValue: {mtpSpecificExtensions 505}
q752Item5p06 ProbableCause ::= globalValue: {mtpSpecificExtensions 506}
q752Item5p07 ProbableCause ::= globalValue: {mtpSpecificExtensions 507}
q752Item5p08 ProbableCause ::= globalValue: {mtpSpecificExtensions 508}
remoteUserPartUnavailable ProbableCause ::= globalValue: {mtpSpecificExtensions 002}
abnormalFIBRorBSNR SpecificProblems ::= {{mtpSpecificExtensions 003}}
excessiveAckDelay SpecificProblems ::= {{mtpSpecificExtensions 004}}
excessiveCongDuration SpecificProblems ::= {{mtpSpecificExtensions 006}}
excessiveErrorRate SpecificProblems ::= {{mtpSpecificExtensions 005}}
remoteUPInaccessible SpecificProblems ::= {{mtpSpecificExtensions 009}}
remoteUPUnequipped SpecificProblems ::= {{mtpSpecificExtensions 008}}
remoteUPUnknown SpecificProblems ::= {{mtpSpecificExtensions 007}}
ResultOfAction ::= ENUMERATED {
        success                      (0),
        unsuccessful                 (1),
        notPerformed                 (2),
        linkAlreadyInhibited         (3),
```

```
            linkNotInhibited                (4),
            wrongClassReferenced            (5),
            signTermNonExisting             (6),
            signTermAlreadyReferenced       (7),
            wrongSignLinkTpStatus           (8)
    }
    RouteSetUnavailable ::= OBJECT IDENTIFIER
    Seconds ::= INTEGER
    SIOType ::= SEQUENCE {
        service ENUMERATED {
            signallingNetworkManagement     (0),
            signallingNetworkTesting        (1),
            sccp                            (3),
            tup                             (4),
            isup                            (5),
            dup                             (6),
            mt                              (8),
            b-isup                          (9),
            --RLL isup                      (10)} ,
            siup                            (10)} ,
    subService ENUMERATED {
            internationalNetwork            (0),
            nationalNetwork                 (2)}
    }
    SlCode ::= INTEGER (0..15)
    Sls ::= INTEGER (0..15)
    SLSCodeCurrentList ::= SlsCodeList
    SlsCodeList ::= SET SIZE (0..16) OF Sls
    SLSCodeNormalList ::= SlsCodeList
    SpType ::= ENUMERATED
        {   sep             (0),
            step            (1),
            stp             (2)
    }
    SS7OnOccEventInfo ::= SEQUENCE{
            probableCause               ProbableCause,
            specificProblems        [1] SpecificProblems OPTIONAL,
            perceivedSeverity           PerceivedSeverity,
            notificationIdentifier  [5] NotificationIdentifier OPTIONAL,
            correlatedNotifications [6] CorrelatedNotifications OPTIONAL,
            additionalText              AdditionalText OPTIONAL,
            additionalInformation   [10] AdditionalInformation OPTIONAL
    }
    UserPart ::= ENUMERATED
```

```
{       isup            (5),
        sccp            (3),
        tup             (4),
        dup             (6),
        mt              (8),
        b-isup          (9),
        --RLL isup      (10)
        siup            (10)
}
ModPCE ::=INTEGER
SwitchFrame ::= SEQUENCE {
        barnNbr         [0]     INTEGER,
         -- depends on the size
        rowNbr          [1]     INTEGER,
         -- depends on the size
        rackNbr         [2]     INTEGER,
         -- for each row
        subRackNbr      [3]     INTEGER,
         -- for each rack
        socketNbr       [4]     INTEGER
         -- for each subrack,
}
TransmissionRate ::= ENUMERATED {
    kbits4point8    (0),
    kbits56         (1),
    kbits64         (2),
    mbits2          (3)
}
Traffic ::= INTEGER
Slc ::= INTEGER(0..15)
-- represent statistic period
RouteStatisticPerOpc ::= SEQUENCE{
                                    opc     PointCode,
                                    value   INTEGER
}
RouteStatisticPerDpc ::= SEQUENCE{
                                    dpc     PointCode,
                                    value   INTEGER
}
RouteStatisticPerSIO ::= SEQUENCE{
                                    sIO     SIOType,
                                    value   INTEGER
}
RouteStatisticPerOpcSIO ::= SEQUENCE{
```

```
                                        opc         PointCode,
                                        sIO         SIOType,
                                        value       INTEGER
}
RouteStatisticPerDpcSIO ::= SEQUENCE{
                                        dpc         PointCode,
                                        sIO         SIOType,
                                        value       INTEGER
}
RouteStatisticPerOpcDpcSIO ::= SEQUENCE{
                                        opc         PointCode,
                                        dpc         PointCode,
                                        sIO         SIOType,
                                        value       INTEGER
}
Peg ::= INTEGER
NeType ::= ENUMERATED {
        unknown             (0),
        hstp                (1),
        lstp                (2),
        istp                (3),
        dc1sp               (4),
        dc2sp               (5),
        lsp                 (6),
        scp                 (7)
}
ComMethod ::= SEQUENCE {
        telnbr              IA5String,
        bpnbr               IA5String,
        mobile              IA5String
}
Address ::= CHOICE {
        iPaddress       INTEGER,
        x25address          IA5String
}
ModuleTnInfoList ::= SEQUENCE OF    ModuleTnInfo
ModuleTnInfo ::= SEQUENCE {
        portNumber          INTEGER,
        tnNumber            INTEGER   OPTIONAL,
        tnStatus            TnStatus,
        chPointer           PointerOrNull
}
TnStatus ::= ENUMERATED {
        unknown             (0),
```

```
        seize                   (1),
        release                 (2),
        abnormal                (3)
}
DataLinkTn    ::= INTEGER (0..31)
DataLinkTnRange ::= SEQUENCE {
        dataLinkTn1             INTEGER (1..31),
        dataLinkTn2             INTEGER (1..31)
}
LinkSetType ::= ENUMERATED {
        unknown                 (0),
        aLink                   (1),
        bLink                   (2),
        cLink                   (3),
        dLink                   (4),
        eLink                   (5),
        fLink                   (6)
}
NumberOfTotalSignLinkTps ::= INTEGER(0..16)
SyncIndicator ::= ENUMERATED {
        unchecked               (0),
        consistant              (1),
        inconsistant            (2),
        failed                  (3),
        newCreated              (4),
        refreshed               (5),
        attributeChanged        (6),
        dbonly                  (7)
}
AutoSyncIndicator ::= BOOLEAN
ResultOfupdate ::= ENUMERATED {
        success                 (0),
        partlysuccess           (1),
        failed                  (2)
}
AlarmSeverityAdjust ::= ENUMERATED {
deGrade3                (-3),
deGrade2                (-2),
deGrade1                (-1),
equal                   (0),
upGrade1                (1),
upGrade2                (2),
upGrade3                (3)
}
```

```
linkSetFailure-N          ProbableCause ::= globalValue: {mtpSpecificExtensions 608}
slFailure-N               ProbableCause ::= globalValue: {mtpSpecificExtensions 609}
routeSetUnavailable-N ProbableCause ::= globalValue: {mtpSpecificExtensions 610}
ceRestart             ProbableCause ::= globalValue: {mtpSpecificExtensions 611}
tnNok                 ProbableCause ::= globalValue: {mtpSpecificExtensions 612}
route1stUnavailable       ProbableCause ::= globalValue: {mtpSpecificExtensions 615}
route2stUnavailable       ProbableCause ::= globalValue: {mtpSpecificExtensions 616}
route3stUnavailable       ProbableCause ::= globalValue: {mtpSpecificExtensions 617}
route4stUnavailable       ProbableCause ::= globalValue: {mtpSpecificExtensions 618}
iconicMapDriveOnly    ProbableCause ::= globalValue: {mtpSpecificExtensions 1000}
Time ::= GeneralizedTime
ResultOfneService ::= SEQUENCE{
        switchjobSeq          AdditionalText,
        reportBody            IA5String,
        spare1                AdditionalText,
        spare2                AdditionalText
}

RouteItf ::= SEQUENCE {
        pointCode                 PointCode,
        routePriority         [9] Priority OPTIONAL
}
ChangeAttribute ::= SEQUENCE {
        attributeValue            AttributeList
}
EventCount ::= INTEGER
TrafficThreshold ::= INTEGER (0..1000)
NeStatus ::= ENUMERATED {
        unknow                    (0),
        unav                      (1), -- NE not available.
        moduleTrouble             (2), -- NE available,but there are module trouble.
        normal                    (3)
}
MtpSignPointStatus ::= ENUMERATED {
        unknow                    (0),
        signPointDown             (1),
        routeSetTrouble           (2),
        normal                    (3),
        congested                 (4)
}
LinkTpType ::= ENUMERATED {
        ground                    (0),
        sat                       (1)
}
```

```
Reason ::= ENUMERATED {
        readError               (0),
        writeError              (1)
}
Failed ::= SEQUENCE {
        reason                  Reason
}
Partialsuccess ::= SEQUENCE {
        reason                  Reason
}
RouteSetLdshMethod ::= ENUMERATED {
        unknow                  (0),
        direct                  (1),
        masterSlave             (2),
        loadShare               (3)
}

StatisticValue ::= INTEGER
NeModuleTns ::= SET OF NeModuleTn
NeModuleTn ::= SEQUENCE {
    neModulePointer     [0]  Pointer,
    portNumber          [1]  INTEGER,
    tnNmber             [2]  INTEGER
}
Status ::= ENUMERATED {
    allowed     (0),
    prohibited  (1),
    congested   (2)}

NI ::= INTEGER (0..15)
SI ::= INTEGER (0..15)

MtpPcRange ::= SET OF SEQUENCE {
nI      [0] NI,
minPc   [1] PointCode,
maxPc   [2] PointCode
}
SIORange ::= SET OF SEQUENCE {
minSi   [0] SI,
maxSi   [1] SI,
minNi   [2] NI,
maxNi   [3] NI
}
MtpScreenInfo ::= SEQUENCE {
```

```
        forbidDPC       [0] MtpPcRange    OPTIONAL,
        forbidOPC       [1] MtpPcRange    OPTIONAL,
        permitDPC       [2] MtpPcRange    OPTIONAL,
        permitOPC       [3] MtpPcRange    OPTIONAL,
        forbidSIO       [4] SIORange      OPTIONAL
    }

    LinkRate ::=CHOICE {
        kbits64         INTEGER,
        mbits2          INTEGER
    }

    END
```

附录 C
（标准的附录）
SCCP 部分管理信息模型

C1 SCCP 部分管理对象继承关系图

SCCP 部分管理对象继承关系如图 C1 所示。

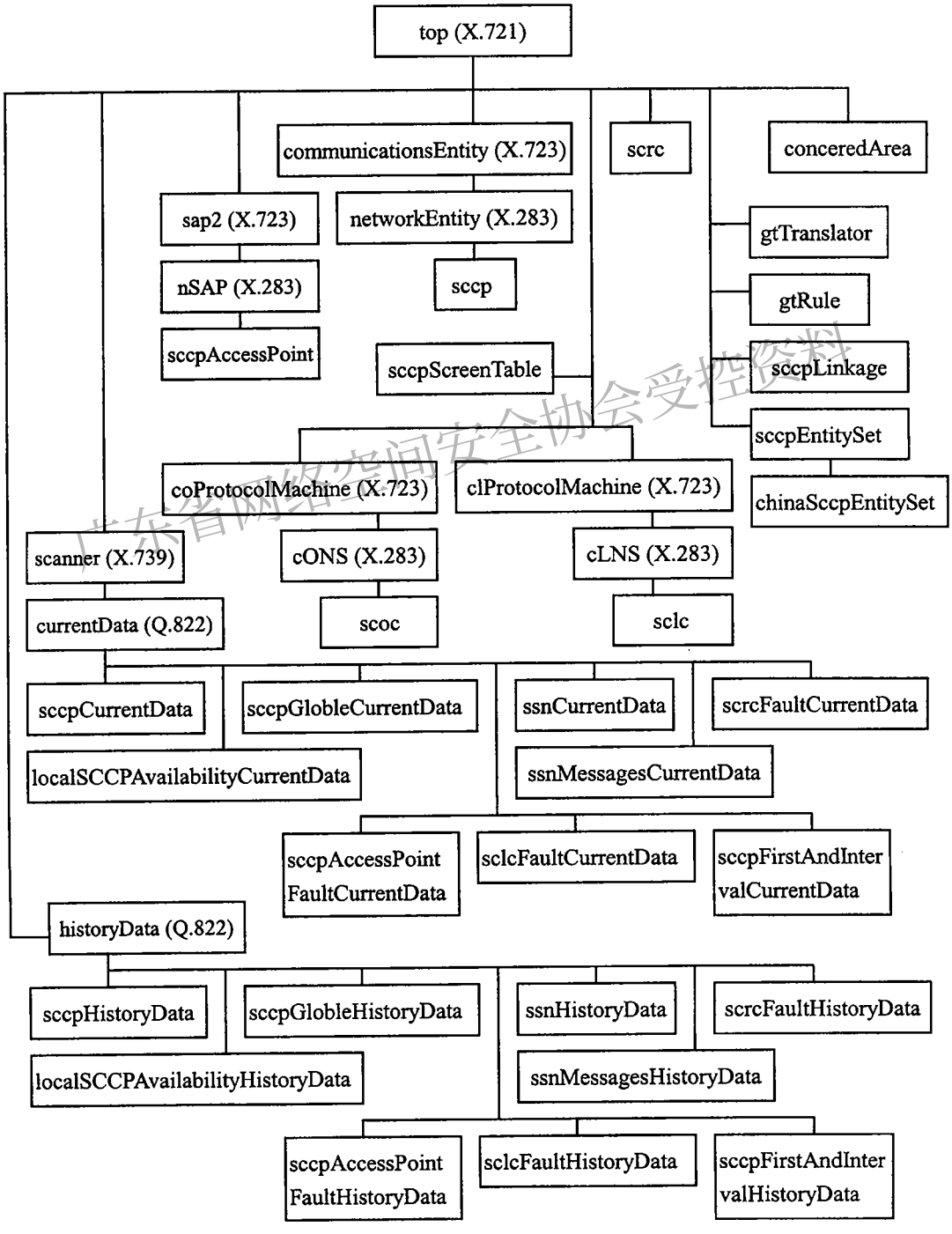

图 C1 SCCP 部分管理对象继承树

C2 SCCP 部分管理对象包含关系图

SCCP 部分管理对象包含关系如图 C2 所示。

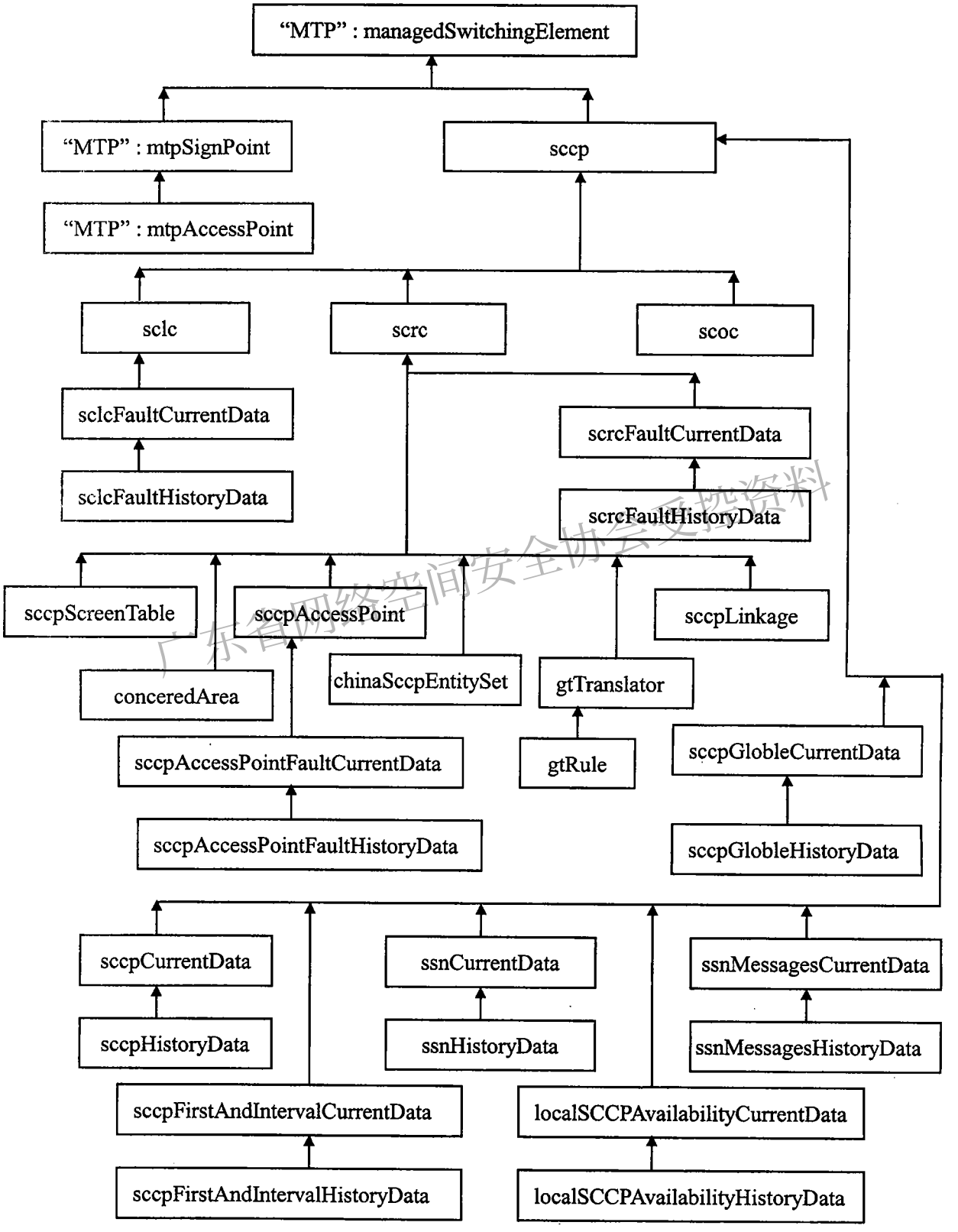

图 C2 SCCP 部分管理对象包含树

C3 SCCP 部分管理对象信息模型

```
--MANAGED OBJECT CLASS DEFINITION
--Definitions of  Object Class
--concernedArea
concernedArea MANAGED OBJECT CLASS
    DERIVED FROM      "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY concernedAreaPackage PACKAGE
        BEHAVIOUR concernedAreaBhv BEHAVIOUR DEFINED AS
            "A concernedArea contains a list of remote SCCP's (mtpAccessPoints) to be informed of
local (primary broadcast) or remote (secondary broadcast) sccp subsystem status changes, or  to be informed
of the SCCP status after completion of SCCP Restart.";;
        ATTRIBUTES
            concernedAreaId          GET ,
            remoteSCCPList           GET-REPLACE ADD-REMOVE;;;
        CONDITIONAL PACKAGES
            "ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the
objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992'
are supported by an instance of this class",
            "ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the
attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported
by an instance of this class",
            concernedAreaNamePackage PRESENT IF "an instance supports it";
REGISTERED AS { sccpObjectClass 1 };

-- Remove the definition of the gtConversionRule Class

--gtRule
gtRule MANAGED OBJECT CLASS
    DERIVED FROM      "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY gtRulePackage PACKAGE
        BEHAVIOUR      gtRuleBhv BEHAVIOUR DEFINED AS
        "A Global Title Rule is selected based on the (matching) Global Title Address Information and
possibly the Encoding Scheme. If there is no matching Translation Rule for a given Global Title, then a Routing
Failure notification with the reason 'no translation for an address of this nature' is emitted by the SCRC. The
Global Title Rule points to the Entity Set resulting from the Global Title Translation. The Global Title
Conversion Rule pointer refers to an optional Global Title Conversion Rule that may modify the Global Title.
The new Routing Indicator is implicitly set according the sccpEntitySet pointed to. The administrativeState
attribute can have the following states: locked and unlocked.";;
        ATTRIBUTES
            gtRuleId                              GET ,
            "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":administrativeState
            GET-REPLACE,
            gtAddressInformation                  GET ,
```

-- Q.713/3.4.2 CDDN(Called directory number)

gtConvRulePointer GET-REPLACE,

-- define the value of gtConvRulePointer as NULL

gtEncodingScheme GET ,

--define gt Encoding Scheme

sccpEntitySetPointer GET-REPLACE;;;

-- DESTIDX (Destination Index)

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

gtRuleNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 5};

--gtTranslator

gtTranslator MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY gtTranslatorPackage PACKAGE

BEHAVIOUR gtTranslatorBhv BEHAVIOUR DEFINED AS

"The Global Title Translator is selected on a combination of the values of the Nature of Address, the Translation Type, and the Numbering Plan (if available). As a consequence, the Global Title Translator is modelled as a class with three characteristic attributes: Nature of Address, Translation Type, and Numbering Plan. If an Global Title address field is not used, it has value NULL. The gtIndicator attribute is read-only and is derived from the combination of Nature of Address, the Translation Type, and Numbering Plan used. If for a given combination no Global Title Translator exists, a Routing Failure notification with the reason' no translation for an address of this nature' is emitted by the SCRC. The administrativeState attribute can have the following states: locked and unlocked.";;

ATTRIBUTES

gtTranslatorId GET ,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":administrativeState

GET-REPLACE,

gtIndicator GET,

gtNatureOfAddress GET ,

-- CDNTRADD, called nature of address

gtNumberingPlan GET ,

-- CDNBRPL, called numbering plan

gtTranslationType GET ;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

gtTranslatorNamePackage PRESENT IF "an instance supports it";
REGISTERED AS { sccpObjectClass 6 };

--sccp
sccp MANAGED OBJECT CLASS
DERIVED FROM "ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":networkEntity;
CHARACTERIZED BY sccpMOCPackage PACKAGE
BEHAVIOUR sccpMOCPackageBhv BEHAVIOUR DEFINED AS
"The sccp managed object class is the placeholder for all SCCP related managed objects. No specific management aspects have been identified. The communicationsEntiyId is used for naming. The localSapNames attribute contains a set of distinguished names of SCCP SAPs at which services are provided to the entity. The systemTypes attribute is a set-valued attribute with possible values: End System (ES) indicates an SCCP destination node, Intermediate System indicates an SCCP relay node. The networkEntityTitles attribute unambiguously identifies the name of the SCCP in an end or intermediate node. The value may be entered by a system management operation or it may be derived by some local means, for example by auto configuration.

The communicationsAlarm can have the following probable causes:

Probable Cause = LocalSccpUnavailable which represents measurements Q.752/8.1 - measurement Q.752/8.3 (SpecificProblems = Failure, Maintenance, Congestion) (PerceivedSeverity = Major/Minor/Warning) and measurement Q.752/8.4(PerceivedSeverity = Cleared),Probable Cause = SubsystemOoSgranted which represents measurement Q.752/8.6, and Probable Cause = SubsystemOoSdenied which represents measurement Q.752/8.7.";;

ATTRIBUTES
sccpVersion GET,
coordChangeTimer GET-REPLACE,
-- 5.3.2.5/Q.714
ingnoreSSTTimer GET-REPLACE,
--5.3.5.2/Q.714
maxStatInfoTimer GET-REPLACE;
-- 5.3.4.2/Q.714
NOTIFICATIONS
"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":communicationsAlarm,
"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":stateChange;;;
CONDITIONAL PACKAGES
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",
"ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage PRESENT IF " an instance supports it",
sccpNamePackage PRESENT IF "an instance supports it";
REGISTERED AS { sccpObjectClass 8};

--sccpAccessPoint
sccpAccessPoint MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":nSAP;
CHARACTERIZED BY sccpAccessPointPkg PACKAGE
BEHAVIOUR sccpAccessPointBhv BEHAVIOUR DEFINED AS

"The sap2Address attribute contains the address of the sccpAccessPoint. The address contains the SubSystem Number (SSN). The sap2Address is of type SET OF OCTETSTRING. For sccpAccessPoints, the set size is 1. The sapId attribute is used in naming instances of the sccpAccessPoint managed object class.

The userEntityNames attribute contains the distinguished names of the managed objects that represent the user entities that are using the sccpAccessPoint, i.e. instances of the SCCP subsystem. The providerEntityNames attribute contains the distinguished names of the managed objects that represent the provider entities that are supporting the sccpAccessPoint, i.e. the instance of the SCCP.

The status of the sccpAccessPoint is represented by the availability status attribute. A subsystem can have the status:

– allowed, the sccpAccessPoint is reachable and is functioning normally (availability status = available)

– prohibited, the sccpAccessPoint not reachable (availability status = unavailable)

– congested (availability status = degraded)

The optional (national network provider option) ssAvailableAfterSpRestart attribute holds the default subsystem status as described in the procedure of 5.2.3/Q.714.

The concernedAreaPointer specifies the concerned area to be used by SCCP Management for primary broadcast in case this access point is local. In case of a remote access point, the pointed concerned area will be used by SCCP Management for the secondary broadcast. The concernedAreaPointer has value 'NULL' if no concerned area is pointed at.

The sccpLinkagePointer specifies the sccpLinkage that is associated with remote sccpAccessPoints only. In case of a local sccpAccessPoint, the sccpLinkagePointer has value NULL. A remote sccpAccessPoint cannot be created without a valid pointer to an sccpLinkage.

The qualityofServiceAlarm can have the following probable cause:
ProbableCause = TooLargeForSegmentation which represents measurement Q.752/7.14 (PerceivedSeverity = Major/Minor/Warning).

ProbableCause = subsystemProhibited which represents measurement Q.752/8.11 and Q.752/8.12 (PerceivedSeverity = Major/Minor/Warning/Cleared).

The communicationsAlarm can have the following probable causes:
ProbableCause = sccpCongested which represents measurement Q.752/8.8 (PerceivedSeverity = Major/Minor/Warning). The congestion level is given as a parameter of the notification.
ProbableCause = localSubsystemProhibited which represents measurements Q.752/8.9 and Q.752/8.10 (PerceivedSeverity = Major/Minor/Warning/Cleared)";;

ATTRIBUTES
"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992": availabilityStatus GET,
concernedAreaPointer GET-REPLACE,
sccpLinkagePointer GET ;
NOTIFICATIONS

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":communicationsAlarm congestion-Level,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":qualityofServiceAlarm,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":stateChange;;;

CONDITIONAL PACKAGES

ssAvailableAfterSpRestartPackage PRESENT IF "The national network provider option as described in 5.2.3/Q.714 is supported",

"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage PRESENT IF " an instance supports it",

sccpAccessPointNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 9 };

--sccpEntitySet

sccpEntitySet MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY sccpEntitySetPackage PACKAGE

BEHAVIOUR sccpEntitySetBhv BEHAVIOUR DEFINED AS

"This managed object class identifies the set of access points that result from a global title translation. This set may contain one or two access points. The distribution of SCCP traffic over the entities in the set depends on the value of the sharingmode attribute:

In case of value 'solitary', there can only be one access point in the set.

In case of value 'dupliDominant', the second entity is a backup for the first entity, according to the procedure described in clause 5/Q.714.

In case of value 'dupliReplacement', the second entity is standby for backup for the first entity, but after change over, the primary and backup roles are swapped according to the procedure described in clause 5/Q.714. In this case, also the value of the entitySetSapPointer changes.

If the sccpEntitySetLoadsharingPackage is present, sharing mode can also take the value 'dupliLoadshared'. In this case, the load is shared over the entities in the set according to the algorithm referred to by the loadSharingAlgPointer attribute.

This managed object class is not instantiable, it is only a superclass for the instantiable subclasses endNodeEntitySetWithoutSSN, endNodeEntitySetWithSSN and relayNodeEntitySet.";;

ATTRIBUTES

sccpEntitySetId	GET ,
entitySetSapPointer	GET-REPLACE ADD-REMOVE,
sharingMode	GET-REPLACE;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the object-Creation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is

supported by an instance of this class",

sccpEntitySetLoadsharingPackage PRESENT IF "an instance supports it",

entitySetNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 10};

--sccpLinkage

sccpLinkage MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY sccpLinkagePackage PACKAGE

BEHAVIOUR sccpLinkageBhv BEHAVIOUR DEFINED AS

"This managed object class stores data about the specific capabilities of the underlying MTP access point. It is analogue to the generic managed object class linkage that is described in Recommendation X.283. For this managed object class subclasses may be specified for vendor-specific additions.

The sN-SAP attribute indicates a relationship to the underlying MTP access point. The operationalProtocols attribute indicates the protocol classes actually supported by this MTP network. The 'versions' field of the attribute is always 'empty'. The concernedAreaPointer specifies the concerned area to be used for broadcasting the SCCP status after completion of SCCP Restart. It has value 'NULL' if no concerned area is pointed at.";;

ATTRIBUTES

sccpLinkageId GET ,

"ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":operationalProtocols GET,

"ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":sN-SAP GET;;;

---Network layer Service，DPC

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

congestionPackage PRESENT IF "an instance supports it and only if the access point is local",

localSccpLinkagePackage PRESENT IF "an instance represents a local sccpLinkage",

sccpLinkageNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 11 };

--sclc

sclc MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":cLNS;

CHARACTERIZED BY sclcPackage PACKAGE

BEHAVIOUR sclcPackageBhv BEHAVIOUR DEFINED AS

"This managed object class contains the management information concerning the SCCP connectionless services. The managed object class is derived from ISO/IEC 10733 cLNS.

The following states of the administrative state are appropriate: locked and unlocked.

The operationalSystemType attribute is an attribute with possible values: End System (ES) indicates an SCCP destination node, Intermediate System indicates an SCCP relay node. If the operationalSystemType equals 'Destination Node' it indicates that the system shall perform no forwarding operations upon non-local SCCP messages. A value of 'Intermediate Node' indicates that the system is permitted to perform forwarding operations, but the decision to forward individual SCCP messages or not to forward them, shall be taken on the basis of the available routing information.

If the managed object is created by management operation, the initial value of the operationalSystemType shall be specified in the CMIP create. Otherwise, the value shall be determined in an implementation specific manner. The value shall be one of those present in the systemTypes attribute of the superior SCCP managed object.

The set of connectionless network protocols supported by this instance of the sclc protocol machine is represented by the supportedProtocols attribute. For the connectionless protocol, it can be either class 0 or 1, or both.

The qualityofServiceAlarm can have the following probable causes:

ProbableCause = ReassemblyTimeOut which represents measurement Q.752/7.10 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = SegmentOutOfOrder which represents measurement Q.752/7.11 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = NoReassemblySpace which represents measurement Q.752/7.12 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = NoSegmentationSupport which represents measurement Q.752/7.19 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = SegmentationFailure which represents measurement Q.752/7.20 (PerceivedSeverity = Major/Minor/Warning), and

ProbableCause = ReassemblyFailure which represents measurement Q.752/7.21 (PerceivedSeverity = Major/Minor/Warning).";;

```
        ATTRIBUTES
            initialValueReassTimer  GET-REPLACE;
        NOTIFICATIONS
            "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":qualityofServiceAlarm;;;
    CONDITIONAL PACKAGES
            "ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the
attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is
supported by an instance of this class",
            "ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage PRESENT IF " an
instance supports it", sclcNamePackage PRESENT IF "an instance supports it";
REGISTERED AS { sccpObjectClass 12 };

--scoc   this object class is used for further studya.
scoc MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":cONS;
    CHARACTERIZED BY scocPackage PACKAGE
        BEHAVIOUR scocPackageBhv BEHAVIOUR DEFINED AS
```

"The following states of the administrative state are appropriate: locked and unlocked.

The operationalSystemType attribute is an attribute with possible values: End System (ES) indicates an SCCP destination node, Intermediate System indicates an SCCP relay node. The operationalSystemType indicates the system role in which this instance is operating. A value of 'Destination Node' indicates that the system shall perform no forwarding operations upon non-local SCCP messages. A value of Intermediate Node indicates that the system is permitted to perform forwarding operations, but the decision to forward individual SCCP messages or not to forward them, shall be taken on the basis of the available routing information. If the MO is created by management operation, the initial value of the operationalSystemType shall be specified in the CMIP create. Otherwise, the value shall be determined in an implementation specific manner. The value shall be one of those present in the systemTypes attribute of the superior SCCP managed object.

The set of connection-oriented network protocols supported by this instance of the scoc protocol machine is represented by the supportedProtocols attribute. For the connection-oriented protocol, it can be either class 2 or 3, or both.";;

ATTRIBUTES

"ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":supportedProtocols GET;;;

CONDITIONAL PACKAGES

scocNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 13 };

--scrc

scrc MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY scrcPackage PACKAGE

BEHAVIOUR scrcPackageBhv BEHAVIOUR DEFINED AS

"The scrc managed object class contains the management information concerning the SCCP routing control.

The qualityofServiceAlarm can have the following probable causes:

ProbableCause = NoTranslatorForAddress which represents measurement Q.752/7.1 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = NoRuleForAddress which represents measurement Q.752/7.2 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = PointCodeNotAvailable which represents measurement Q.752/7.31(PerceivedSeverity = Major/Minor/Warning),

ProbableCause = PointCodeCongested which represents measurement Q.752/7.4 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = SubsystemUnavailable which represents measurement Q.752/7.5 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = SubsystemCongested which represents measurement Q.752/7.6 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = UnequipedSubsystem which represents measurement Q.752/7.7 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = SyntaxErrorDetected which represents measurement Q.752/7.8 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = RoutingFailureNoReasonOrUnqualified which represents measurement Q.752/7.9 (PerceivedSeverity = Major/Minor/Warning), and
ProbableCause = HopCounterViolation which represents measurement Q.752/7.13 (PerceivedSeverity = Major/Minor/Warning).";;
ATTRIBUTES
scrcId GET ;
NOTIFICATIONS
"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":qualityofServiceAlarm;;;
CONDITIONAL PACKAGES
"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",
"ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage PRESENT IF " an instance supports it",
scrcNamePackage PRESENT IF "an instance supports it";
REGISTERED AS { sccpObjectClass 14 };

--chinaSccpEntitySet ,drived from sccpEntitySet
chinaSccpEntitySet MANAGED OBJECT CLASS
DERIVED FROM sccpEntitySet;
CHARACTERIZED BY chinaSccpEntitySetPackage PACKAGE
BEHAVIOUR chinaSccpEntitySetBhv BEHAVIOUR DEFINED AS
"If the type of entitySet is endNodeEntitySetWithoutSSN,then this managed object class is an sccpEnetitySet that identifies SCCP end nodes.Because of this, the entitySetSapPointer attribute is only allowed to refer to instance of sccLinkage class.A subsysten number is not specified by this entity set,but routing is on SSN.else if the type of entitySet is endNodeEntitySetWithSSN,then this managed object class is an sccpEntitySet that identifies SCCP Access Points.Because of this,the SAP pointer attribute is only allowed to refer to instances of sccpAccessPoint class.else This managed object class is an sccpEnetitySet that identifies SCCP relay nodes,i.e.MTP Access Points.Because of this ,the entitySetSapPointer attribute is only allowed to refer to instances of the sccpLinkage class.The ssn attribute allows to optionally set the subsystem number as a result of a Global Title Translation,if routing is done on Global title and DPC to a relay node";;
ATTRIBUTES
entitySetType GET-REPLACE;;;
--TYPE:endNodeWithoutSSN,endNodeWithSSN,relayNode
CONDITIONAL PACKAGES
ssnPackage PRESENT IF "The entitySetType is relayNode and an instance supports it";
REGISTERED AS {sccpObjectClass 60 };

sccpScreenTable MANAGED OBJECT CLASS
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
CHARACTERIZED BY sccpScreenTablePkg PACKAGE
BEHAVIOUR sccpScreenTableBehaviour BEHAVIOUR DEFINED AS

"This managed object define SCCP screen data and is used to inhibit/allow SCCP access by a combination of designated GTs or PCs(Point Code)." ;;

ATTRIBUTES

sccpScreenTableId GET,

sccpScreenInfo GET-REPLACE;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification is supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications are supported by an instance of this class";

REGISTERED AS {sccpObjectClass 50 };

--performance object class definintions

--scrcFaultCurrentData

scrcFaultCurrentData MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. Q.822 (1994)":currentData;

CHARACTERIZED BY scrcFaultCurrentDataPkg PACKAGE

BEHAVIOUR scrcFaultCurrentDataBehaviour BEHAVIOUR DEFINED AS

"This managed object store current fault data of scrc, Q.752/7.1,7.2,7.3,7.4,7.5,7.6,7.7,7.8,7.9 . The prefrered granularityPeriod is 30 minutes .The attributes are read-only .The attributes are related to the qualityofServiceAlarm in the scrc managed object class .An attribute is incremented if a qualityofServiceAlarm happens with the corresponding value for the probableCause.";;

ATTRIBUTES

noTranslForNatureAddress	GET,	--Q.752 /7.1
noTranslForSpecificAddress	GET,	--7.2
noPointCodeAvailable	GET,	--7.3
networkCongestion	GET,	--7.4
subSystemFailure	GET,	--7.5
subSystemCongestion	GET,	--7.6
userUnequipped	GET,	--7.7
sccpSyntaxErrorList	GET,	--7.8
unknownOrUnqualifiedRoutingFailure	GET;;;	--7.9

CONDITIONAL PACKAGES

scrcFaultCurrentData97Package PRESENT IF "stp support Q.752 (1997)";

REGISTERED AS {sccpObjectClass 61};

--sclcFautCurrentData

sclcFaultCurrentData MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. Q.822 (1994)":currentData;

CHARACTERIZED BY sclcFaultCurrentDataPkg PACKAGE

BEHAVIOUR sclcFaultCurrentDataBhv BEHAVIOUR DEFINED AS

"If stp support Q.752(1997),then this managed object store current Fault data of sclc.Q.752 /7.10,7.11,7.12,7.19 ,7.20,7.21.This managed object contains the sclc Fault Data .The prefered granularity-

Period is 30 minutes.The attributes are read-only .the attributes are related to the qualityofServicesAlarm in the sclc managed object class . An attribute is incremented if a qualityofServiceAlarm happens with the corresponding value for the probableCause.

If stp does not support Q.752, we don't need to use this definition in real modelling.";;

ATTRIBUTES

reassemblyTimerExpired	GET,	--Q.752/7.10
segmentReceivedOutOfSequence	GET,	--7.11
noReassemblyResources	GET,	--7.12
reassemblyFailed	GET,	--7.21
segmentationNotSupported	GET,	--7.19
segmentationFailed	GET ;;;	--7.20

REGISTERED AS {sccpObjectClass 61};

--sccpAccessPointFaultCurrentData

sccpAccessPointFaultCurrentData MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. Q.822 (1994)":currentData;

CHARACTERIZED BY sccpAccessPointFaultCurrentDataPkg PACKAGE

BEHAVIOUR sccpAccessPointFaultCurrentDataBhv BEHAVIOUR DEFINED AS

" If stp support Q.752(1997),then this managed object store current Fault data of sccpAccessPoint. This managed object class contains segmentationimpossibledata and subsystemProhibitedData .The preferred granularityPeriod is 30 minutes .The attributes are read-only. The attributes are related to the qualityofServiceAlarm in the sccpAccessPoint managed object class. An attribute is incremented if a qualityofServiceAlarm happens with the coorespond value for the probableCause.";;

ATTRIBUTES

messageTooLarge	GET ;;;	--Q.752 /7.14

REGISTERED AS{ sccpObjectClass 62};

--sccpCurentData

sccpCurrentData MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. Q.822 (1994)":currentData;

CHARACTERIZED BY sccpCurrentDataPkg PACKAGE

BEHAVIOUR sccpCurrentDataBhv BEHAVIOUR DEFINED AS

"This managed object stores current statistic data of sccp entity :
Q.752/9bis.1,9bis.2,9bis.3,9bis.4,9bis.13,9bis.14,9bis.15,9bis.16,9bis.9,
9bis.11,9bis.10,9bis.12,9bis.5,9bis.6,9bis.7,9bis.8.

If stp support Q.752(1997),then conditional package will be supported:
Q.752/9bis.17,9bis.18,9bis.19,9bis.20. ";;

ATTRIBUTES

udtMessagesSent	GET,	--Q.752 / 9bis.1
udtsMessagesSent	GET,	--9bis.2
udtMessagesReceived	GET,	--9bis.3
udtsMessagesReceived	GET,	--9bis.4
xudtMessagesSent	GET,	--9bis.13

```
        xudtsMessagesSent                    GET,     --9bis.14
        xudtMessagesReceived                 GET,     --9bis.15
        xudtsMessagesReceived                GET,     --9bits.16
        rsrMessagesSent                      GET,     --9bis.9
        errMessagesSent                      GET,     --9bis.11
        rsrMessagesReceived                  GET,     --9bis.10
        errMessagesReceived                  GET,     --9bis.12
        crMessagesSent                       GET,     --9bis.5
        crefMessagesSent                     GET,     --9bis.6
        crMessagesReceived                   GET,     --9bis.7
        crefMessagesReceived                 GET;;;   --9bis.8
    CONDITIONAL PACKAGES
        sccpCurrentData97Package   PRESENT IF "stp support Q.752(1997)";
REGISTERED AS {sccpObjectClass 63};

--sccpGlobeCurrentData
sccpGlobeCurrentData      MANAGED OBJECT CLASS
DERIVED FROM "ITU-T Rec. Q.822 (1994)":currentData;
CHARACTERIZED BY sccpMsgGlobeCurrentDataPkg   PACKAGE
    BEHAVIOUR sccpMsgGlobeCurrentDataPkg BEHAVIOUR DEFINED AS
        "This managed object stores recent statistic globe data of sccp entity:Q.752/9.3,9.4,9.5.";;
    ATTRIBUTES
        messagesHandled                  GET,     --9.3
        messagesForLocalSubsystems       GET,     --9.4
        messagesRequiringGTTranslation   GET;;;   --9.5
REGISTERED AS{sccpObjectClass 64};

-- ssnCurrentData
ssnCurrentData      MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":currentData;
    CHARACTERIZED BY ssnCurrentDataPkg PACKAGE
        BEHAVIOUR ssnCurrentDataBhv BEHAVIOUR DEFINED AS
            " This managed objected   store   current statistic data of SSN.
        Q.752/9.9,9.11,9.10,9.12,9.14,9.13,9.8";;
    ATTRIBUTES
            dt1MessagesToSinkSSN             GET,     --Q.752/9.9
            dt2MessagesToSinkSSN             GET,     --9.11
            dt1MessagesFromSourceSSN         GET,     --9.10
            dt2MessagesFromSourceSSN         GET,     --9.12
            edMessagesToSinkSSN              GET,     --9.14
            edMessagesFromSourceSSN          GET,     --9.13
            messagesToBackupSSN              GET;;;   --9.8
REGISTERED AS{sccpObjectClass 64};
```

```
--ssnMessagesCurrentData
ssnMessagesCurrentData    MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":currentData;
    CHARACTERIZED BY ssnMessagesCurrentDataPkg PACKAGE
        BEHAVIOUR ssnMessagesCurrentDataBhv BEHAVIOUR DEFINED AS
    "This managed object is used to store orignatedMessagesPerSSNMeasurement and
receivedMessagesPerSSNMeasurement statistic data:Q.752/9.6,9.7,and must select one from two condition
packages";;
        ATTRIBUTES
            messagesOriginatedPerSSN-SPC                GET,     --9.6
            messagesReceivedOrTerminatedPerSSN-SPC      GET;;;   --9.7
        CONDITIONAL PACKAGES
                ---spcSSN classSSN need further explanation
            spcSsnConditionalPackage    PRESENT IF    "stp support Q.752 /9.6,9.7 by ssn,spc ",
            classSsnConditionalPackage PRESENT IF    "stp support them by ssn , class";
REGISTERED AS{sccpObjectClass 65};

-- sccpFirstAndIntervalCurrentData
sccpFirstAndIntervalCurrentData MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":currentData;
    CHARACTERIZED BY sccpFirstAndIntervalCurrentDataPackage PACKAGE
        BEHAVIOUR sccpFirstAndIntervalCurrentDataBehaviour BEHAVIOUR DEFINED AS
            "This managed object class is used for subtyping of Q.752 first and interval
measurements.The start of a measurement can possibly generate an X.721:qualityOfServiceAlarm with an
indiction of the proble cause in an instance of another class.";;
          ATTRIBUTES
                subsystemProhibited                    GET;;;
                  -- Measurement Q.752/8.11
REGISTERED AS{sccpObjectClass   73};

-- The following several HistoryData MO is used to store the histroy data every 30 minutes.
-- scrcFaultHistoryData
scrcFaultHistoryData    MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
    CHARACTERIZED BY    scrcFaultHistoryDataPkg    PACKAGE
        BEHAVIOUR scrcFaultHistoryDataBehaviour BEHAVIOUR    DEFINED AS
            "This    managed    object    store    history    fault    data    of    scrc,Q.752/7.1,7.2,7.3,7.4,7.5,
7.6,7.7,7.8,7.9.These historydata is distinguished by dataRecordTime. There is a slide window in this
managed object class . There are n historyData entity that are stored ";;
        ATTRIBUTES
            noTranslForNatureAddress            GET, --Q.752 /7.1
            noTranslForSpecificAddress          GET, --7.2
            noPointCodeAvailable                GET, --7.3
            networkCongestion                   GET, --7.4
```

```
                subSystemFailure                        GET, --7.5
                subSystemCongestion                     GET, --7.6
                userUnequipped                          GET, --7.7
                sccpSyntaxErrorList                     GET, --7.8
                unknownOrUnqualifiedRoutingFailure      GET;;; --7.9
    CONDITIONAL PACKAGES
            scrcFaultCurrentData97Package    PRESENT IF "stp support Q.752 (1997)";
REGISTERED AS{sccpObjectClass 66};

--sclcFautHistoryData
sclcFaultHistoryData    MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
    CHARACTERIZED BY sclcFaultHistoryDataPkg     PACKAGE
        BEHAVIOUR   sclcFaultHistoryDataBhv BEHAVIOUR DEFINED AS
    "If stp support Q.752(1997),then this managed object store history Fault data of
sclc.Q.752/7.10,7.11,7.12,7.19 ,7.20,7.21.This managed object contains the sclc Fault history Data . These
historydata is distinguished by dataRecordTime. There is a slide window in this managed object class .
There are n historyData entity that are stored ";;
    ATTRIBUTES
        reassemblyTimerExpired          GET,    --Q.752/7.10
        segmentReceivedOutOfSequence    GET,    --7.11
        noReassemblyResources           GET,    --7.12
        reassemblyFailed                GET,    --7.21
        segmentationNotSupported        GET,    --7.19
         segmentationFailed             GET;    --7.21
;;
REGISTERED AS {sccpObjectClass 67};

--sccpAccessPointFaultHistoryData
sccpAccessPointFaultHistoryData   MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
    CHARACTERIZED BY sccpAccessPointFaultHistoryDataPkg PACKAGE
        BEHAVIOUR sccpAccessPointFaultHistoryDataBhv BEHAVIOUR DEFINED AS
"This managed object class contains the history data of  segmentationimpossibledata.Q.752/7.14.These
historydata is distinguished by dataRecordTime. There is a slide window in this managed object class .
There are n historyData entity that are stored ";;
        ATTRIBUTES
            messageTooLarge             GET;    -Q.752 /7.14
;;
REGISTERED AS{ sccpObjectClass   68};

--sccpHistoryData
sccpHistoryData    MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
```

CHARACTERIZED BY sccpHistoryDataPkg PACKAGE
BEHAVIOUR sccpHistoryDataBhv BEHAVIOUR DEFINED AS
"This managed object stores recent statistic data (history data)of sccp entity : Q.752/9bis.1,9bis.2,9bis.3,9bis.4,9bis.13,9bis.14,9bis.15,9bis.16, 9bis.9, 9bis.11,9bis.10,9bis.12,9bis.5,9bis.6,9bis.7,9bis.8.
If stp support Q.752(1997),then conditional package will be supported: Q.752/9bis.17,9bis.18,9bis.19,9bis.20.These historydata is distinguished by dataRecordTime. There is a slide window in this managed object class. There are n historyData entity that are stored ";;
ATTRIBUTES

udtMessagesSent	GET,	--Q.752 / 9bis.1
udtsMessagesSent	GET,	--9bis.2
udtMessagesReceived	GET,	--9bis.3
udtsMessagesReceived	GET,	--9bis.4
xudtMessagesSent	GET,	--9bis.13
xudtsMessagesSent	GET,	--9bis.14
xudtMessagesReceived	GET,	--9bis.15
xudtsMessagesReceived	GET,	--9bits.16
rsrMessagesSent	GET,	--9bis.9
errMessagesSent	GET,	--9bis.11
rsrMessagesReceived	GET,	--9bis.10
errMessagesReceived	GET,	--9bis.12
crMessagesSent	GET,	--9bis.5
crefMessagesSent	GET,	--9bis.6
crMessagesReceived	GET,	--9bis.7
crefMessagesReceived	GET;;;	--9bis.8

CONDITIONAL PACKAGES
sccpCurrentData97Package PRESENT IF "stp support Q.752(1997)";
REGISTERED AS {sccpObjectClass 70};

--sccpGlobeHistoryData
sccpGlobeHistoryData MANAGED OBJECT CLASS
DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
CHARACTERIZED BY sccpGlobeHistoryDataPkg PACKAGE
BEHAVIOUR sccpGlobeHistoryDataPkg BEHAVIOUR DEFINED AS
"This managed object stores recent history globe data of sccp entity:Q.752/9.3,9.4,9.5. These historydata is distinguished by dataRecordTime. There is a slide window in this managed object class. There are n historyData entity that are stored ";;
ATTRIBUTES

messagesHandled	GET, --9.3
messagesForLocalSubsystems	GET, --9.4
messagesRequiringGTTranslation	GET;;; --9.5

REGISTERED AS{sccpObjectClass };

-- ssnHistoryData

```
ssnHistoryData      MANAGED OBJECT   CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
    CHARACTERIZED BY ssnHistoryDataPkg PACKAGE
        BEHAVIOUR ssnHistoryDataBhv BEHAVIOUR DEFINED AS
        " This managed objected   store history statistic data of SSN.
         Q.752/9.9,9.11,9.10,9.12,9.14,9.13,9.8. These historydata is distinguished by dataRecordTime.
There is a slide window in this managed object class. There are n historyData entity that are stored ";;
        ATTRIBUTES
            dt1MessagesToSinkSSN            GET,     --Q.752/9.9
            dt2MessagesToSinkSSN            GET,     --9.11
            dt1MessagesFromSourceSSN        GET,     --9.10
            dt2MessagesFromSourceSSN        GET,     --9.12
            edMessagesToSinkSSN             GET,     --9.14
            edMessagesFromSourceSSN         GET,     --9.13
            messagesToBackupSSN             GET;;;   --9.8
REGISTERED AS{sccpObjectClass   71};

--ssnMessagesHistoryData
ssnMessagesHistoryData   MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
    CHARACTERIZED BY ssnMessagesHistoryDataPkg PACKAGE
        BEHAVIOUR ssnMessagesHistoryDataBhv BEHAVIOUR DEFINED AS
    "This managed object is used to store past orignatedMessagesPerSSNMeasurement and
receivedMessagesPerSSNMeasurement   statistic data.Q.752/9.6,9.7. These historydata is distinguished by
dataRecordTime. There is a slide window in this managed object class. There are n historyData entity that
are stored. There are two CONDITIONAL PACKAGES,and   must select one from those. ";;
        ATTRIBUTES
            messagesOriginatedPerSSN-SPC        GET,     --9.6
            messagesReceivedOrTerminatedPerSSN-SPC     GET;;;   --9.7
        CONDITIONAL PACKAGES
          spcSsnConditionalPackage PRESENT IF "stp support Q.752 /9.6,9.7 by ssn,spc ",
          classSsnConditionalPackage PRESENT IF "stp support them by ssn , class";
REGISTERED AS{sccpObjectClass 72};

-- sccpFirstAndIntervalHistoryData
sccpFirstAndIntervalHistoryData MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Rec. Q.822 (1994)":historyData;
    CHARACTERIZED BY sccpFirstAndIntervalHistoryDataPackage PACKAGE
        BEHAVIOUR sccpFirstAndIntervalHistoryDataBehaviour BEHAVIOUR DEFINED AS
            "This managed object class is used for storing historydata of Q.752 first and interval
measurements. decide how much history data should be stroed ";;
        ATTRIBUTES
                subsystemProhibited                    GET;
                  --Measurement Q.752/8.11
```

```
REGISTERED AS{sccpObjectClass    73};

-- Packages definitions
concernedAreaNamePackage PACKAGE
    ATTRIBUTES
        concernedAreaName     GET-REPLACE;
REGISTERED AS { sccpPackage 1 };

congestionPackage PACKAGE
    ATTRIBUTES
        attackTimerValue          GET-REPLACE,
        decayTimerValue           GET-REPLACE,
        nrOfRestrictionLevels     DEFAULT VALUE,
        SCCPDefinedTypesModule.nrOfRestrictionLevelsDefault    GET-REPLACE,
        nrOfSubLevels             DEFAULT VALUE,
        SCCPDefinedTypesModule.nrOfSubLevelsDefault    GET-REPLACE,
        cLS                       DEFAULT VALUE SCCPDefinedTypesModule.cLSDefault
                                  GET-REPLACE,
        congestionTimerValue      GET-REPLACE,
        p                         DEFAULT VALUE SCCPDefinedTypesModule.pDefault
                                  GET,
        importanceLevel-CR        GET-REPLACE,
        importanceLevel-CC        GET-REPLACE,
        importanceLevel-CREF      GET-REPLACE,
        importanceLevel-DT1       GET-REPLACE,
        importanceLevel-DT2       GET-REPLACE,
        importanceLevel-AK        GET-REPLACE,
        importanceLevel-IT        GET-REPLACE,
        importanceLevel-ED        GET-REPLACE,
        importanceLevel-EA        GET-REPLACE,
        importanceLevel-RSR       GET-REPLACE,
        importanceLevel-RSC       GET-REPLACE,
        importanceLevel-ERR       GET-REPLACE,
        importanceLevel-RLC       GET-REPLACE,
        importanceLevel-RLSD      GET-REPLACE,
        importanceLevel-UDT       GET-REPLACE,
        importanceLevel-UDTS      GET-REPLACE,
        importanceLevel-XUDT      GET-REPLACE,
        importanceLevel-XUDTS     GET-REPLACE,
        importanceLevel-LUDT      GET-REPLACE,
        importanceLevel-LUDTS     GET-REPLACE,
        rLM                       GET-REPLACE,
        rSLM                      GET-REPLACE;
REGISTERED AS { sccpPackage 2 };
```

```
entitySetNamePackage PACKAGE
    ATTRIBUTES
        entitySetName                   GET-REPLACE;
REGISTERED AS { sccpPackage 3 };

gtRuleNamePackage PACKAGE
    ATTRIBUTES
        gtRuleName                      GET-REPLACE;
REGISTERED AS { sccpPackage 4 };

gtTranslatorNamePackage PACKAGE
    ATTRIBUTES
        gtTranslatorName                GET-REPLACE;
REGISTERED AS { sccpPackage 5 };

localSccpLinkagePackage PACKAGE
    ATTRIBUTES
            concernedAreaPointer        GET-REPLACE,
            lowerLimitForSegmentation   GET-REPLACE,
            upperLimitForSegmentation   GET-REPLACE;
REGISTERED AS { sccpPackage 6 };

sccpAccessPointNamePackage PACKAGE
    ATTRIBUTES
        sccpAccessPointName             GET-REPLACE;
REGISTERED AS { sccpPackage 7 };

sccpEntitySetLoadsharingPackage PACKAGE
    ATTRIBUTES
        loadSharingAlgPointer           GET-REPLACE;
REGISTERED AS { sccpPackage 8 };

sccpLinkageNamePackage PACKAGE
    ATTRIBUTES
        sccpLinkageName                 GET-REPLACE;
REGISTERED AS { sccpPackage 9 };

sccpNamePackage PACKAGE
    ATTRIBUTES
        sccpName                        GET-REPLACE;
REGISTERED AS { sccpPackage 10 };

sclcNamePackage PACKAGE
```

```
    ATTRIBUTES
        sclcName                    GET-REPLACE;
REGISTERED AS { sccpPackage 11 };

scocNamePackage PACKAGE
    ATTRIBUTES
        scocName                    GET-REPLACE;
REGISTERED AS { sccpPackage 12 };

scrcNamePackage PACKAGE
    ATTRIBUTES
        scrcName                GET-REPLACE;
REGISTERED AS { sccpPackage 13 };

ssAvailableAfterSpRestartPackage PACKAGE
    ATTRIBUTES
        ssAvailableAfterSpRestart DEFAULT VALUE,
        SCCPDefinedTypesModule.ssAvailableAfterSpRestartDefault   GET-REPLACE;
REGISTERED AS { sccpPackage 15 };

ssnPackage PACKAGE
    ATTRIBUTES
        ssn                     GET-REPLACE;
REGISTERED AS { sccpPackage 16 };

scrcFaultCurrentData97Package   PACKAGE
        ATTRIBUTES
        violationOfHopCounter       GET; --Q.752/7.13
REGISTERED AS {sccpPackage 30};

sccpCurrentData97Package   PACKAGE
    ATTRIBUTES
        ludtMessagesSent                    GET,    --9bis.17
        ludtsMessagesSent                   GET,    --9bis.18
        ludtMessagesReceived                GET,    --9bis.19
        ludtsMessagesReceived               GET;    --9bis20
REGISTERED AS{sccpPackage   33};

spcSsnConditionalPackage PACKAGE
        ATTRIBUTES
            spcSSN          GET ;
REGISTERED AS{sccpPackage   34};

 classSsnConditionalPackage PACKAGE
```

```
        ATTRIBUTES
            classSSN                    GET ;
REGISTERED AS {sccpPackage 35};

--Parameter definitions

congestionLevel    PARAMETER
    CONTEXT    EVENT-INFO;
    WITH SYNTAX    SCCPDefinedTypesModule.CongestionLevel;
REGISTERED AS { sccpParameter 1 };

--Attribute definitions

--attackTimerValue
attackTimerValue ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AttackTimerValue;
    MATCHES FOR EQUALITY;
    BEHAVIOUR attackTimerValueBhv BEHAVIOUR DEFINED AS
        "This attribute models the congestion control parameter Ta, as described in 5.2.4/Q.714.";;
REGISTERED AS { sccpAttribute 2 };

--cLS
cLS ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.CLS;
    MATCHES FOR EQUALITY;
    BEHAVIOUR cLSBhv BEHAVIOUR DEFINED AS
        "This attribute models the congestion control parameter CLS, as described in 5.2.7/Q.714.";;
REGISTERED AS { sccpAttribute 3 };

--concernedAreaId
concernedAreaId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR concernedAreaIdBhv BEHAVIOUR DEFINED AS
        "This attribute is used for naming instances.";;
REGISTERED AS { sccpAttribute 4 };

--concernedAreaName
concernedAreaName ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 5 };

--concernedAreaPointer
```

```
concernedAreaPointer ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.PointerOrNull;
    MATCHES FOR EQUALITY;
    BEHAVIOUR concernedAreaPointerBhv BEHAVIOUR DEFINED AS
        "This attribute is used for referring to instances of concernedArea. It has value 'NULL' if no
concerned area is pointed at.";;
REGISTERED AS { sccpAttribute 6 };

--congestionTimerValue
congestionTimerValue ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.CongestionTimerValue;
    MATCHES FOR EQUALITY;
    BEHAVIOUR congestionTimerValueBhv BEHAVIOUR DEFINED AS
        "This attribute models the congestion control parameter Tcon, as described in 5.2.7/Q.714.";;
REGISTERED AS { sccpAttribute 7 };

--coordChangeTimer
coordChangeTimer ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule. TcoordChg;
    MATCHES FOR EQUALITY;
    BEHAVIOUR coordChangeTimerBhv BEHAVIOUR DEFINED AS
        "This attribute represents the initial value of timer tCoordChg: waiting for grant for subsystem to
go out of service, as defined in 5.3.5.2/Q.714.";;
REGISTERED AS { sccpAttribute 8 };

--decayTimerValue
decayTimerValue ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.DecayTimerValue;
    MATCHES FOR EQUALITY;
    BEHAVIOUR decayTimerValueBhv BEHAVIOUR DEFINED AS
        "This attribute models the congestion control parameter Td, as described in 5.2.4/Q.714.";;
REGISTERED AS { sccpAttribute 9 };


--entitySetName
entitySetName ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 11 };

--entitySetType
entitySetType ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.EntitySetType;
    MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;
```

```
REGISTERED AS{sccpAttribute 132};


--entitySetSapPointer
entitySetSapPointer ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.EntitySetSapPointer;
    MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;
    BEHAVIOUR entitySetSapPointerBhv BEHAVIOUR DEFINED AS
        "The entitySetSapPointer attribute refers to the access point(s) contained in the SCCP entity set. For the mtp access points, this is to be done by refering to sccpLinkage's.";;
REGISTERED AS { sccpAttribute 12 };

--gtAddressInformation
gtAddressInformation ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtAddressInformation;
    MATCHES FOR EQUALITY;
    BEHAVIOUR gtAddressInformationBhv BEHAVIOUR DEFINED AS
        "The globalTitleAddressInformation attribute contains the value of the Global Title address information, as indicated in 3.4.2/Q.713.";;
REGISTERED AS { sccpAttribute 13 };

--gtConvRulePointer
gtConvRulePointer ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule. PointerOrNull;
    MATCHES FOR EQUALITY;
    BEHAVIOUR gtConvRulePointerBhv BEHAVIOUR DEFINED AS
        "This attribute refers to a Global Title conversion rule.";;
REGISTERED AS { sccpAttribute 16 };

--gtEncodingScheme
gtEncodingScheme ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtEncodingScheme;
    MATCHES FOR EQUALITY;
    BEHAVIOUR gtEncodingSchemeBhv BEHAVIOUR DEFINED AS
        "The encoding scheme is a part of the Global Title that identifies the encoding scheme of the Global Title Address Information. For example, BCD with an odd number of digits or BCD with an even number of digits.";;
REGISTERED AS { sccpAttribute 17 };

--gtIndicator
gtIndicator ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtIndicator;
    MATCHES FOR EQUALITY;
    BEHAVIOUR gtIndicatorBhv BEHAVIOUR DEFINED AS
```

"The global title indicator indicates what type of global title is used (3.4/Q.713).";;
REGISTERED AS { sccpAttribute 18 };

--gtNatureOfAddress
gtNatureOfAddress ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtNatureOfAddress;
MATCHES FOR EQUALITY;
BEHAVIOUR gtNatureOfAddressBhv BEHAVIOUR DEFINED AS
"The nature of address attribute is single valued. The nature of address includes values for 'international number', 'subscriber number', etcetera (3.4.2.3/Q.713).";;
REGISTERED AS { sccpAttribute 19 };

--gtNumberingPlan
gtNumberingPlan ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtNumberingPlan;
MATCHES FOR EQUALITY;
BEHAVIOUR gtNumberingPlanBhv BEHAVIOUR DEFINED AS
"The numbering plan attribute is single valued. The numbering plan indicates how the global title address information is constructed from different parts (e.g. country codes, subscriber number or national significant number) according to the syntax and semantic defined for that particular numbering plan (see 2.4.2.1/Q.714).";;
REGISTERED AS { sccpAttribute 20 };

--gtRuleId
gtRuleId ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR gtRuleIdBhv BEHAVIOUR DEFINED AS
"This attribute is used for naming instances.";;
REGISTERED AS { sccpAttribute 21 };

--gtRuleName
gtRuleName ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 22 };

--gtTranslationType
gtTranslationType ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtTranslationType;
MATCHES FOR EQUALITY;
BEHAVIOUR gtTranslationTypeBhv BEHAVIOUR DEFINED AS
"The translation type attribute is single valued. ";;
REGISTERED AS { sccpAttribute 23 };

```
--gtTranslatorId
gtTranslatorId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR gtTranslatorIdBhv BEHAVIOUR DEFINED AS
        "This attribute is used for naming instances.";;
REGISTERED AS { sccpAttribute 24};

--gtTranslatorName
gtTranslatorName ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 25 };

--importanceLevel-AK
importanceLevel-AK ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 26 };

--importanceLevel-CC
importanceLevel-CC ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 27 };

--importanceLevel-CR
importanceLevel-CR ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 28 };

--importanceLevel-CREF
importanceLevel-CREF ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 29 };

--importanceLevel-DT1
importanceLevel-DT1 ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 30 };
```

```
--importanceLevel-DT2
importanceLevel-DT2 ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 31 };

--importanceLevel-EA
importanceLevel-EA ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 32 };

--importanceLevel-ED
importanceLevel-ED ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 33 };

--importanceLevel-ERR
importanceLevel-ERR ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 34 };

--importanceLevel-IT
importanceLevel-IT ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 35 };

--importanceLevel-LUDT
importanceLevel-LUDT ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 36 };

--importanceLevel-LUDTS
importanceLevel-LUDTS ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 37 };

--importanceLevel-RLC
```

```
importanceLevel-RLC ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 38 };

--importanceLevel-RLSD
importanceLevel-RLSD ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 39 };

--importanceLevel-RSC
importanceLevel-RSC ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 40 };

--importanceLevel-RSR
importanceLevel-RSR ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 41 };

--importanceLevel-UDT
importanceLevel-UDT ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 42 };

--importanceLevel-UDTS
importanceLevel-UDTS ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 43 };

--importanceLevel-XUDT
importanceLevel-XUDT ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 44 };

--importanceLevel-XUDTS
importanceLevel-XUDTS ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
```

MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 45 };

--ingnoreSSTTimer
ingnoreSSTTimer ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule. TignoreSST;
MATCHES FOR EQUALITY;
BEHAVIOUR ingnoreSSTTimerBhv BEHAVIOUR DEFINED AS
"This attribute represents the initial value of timer TignoreSST: delay for sub-system between receiving grant to go out of service and actually going out of service, as defined in 5.3.5.2/Q.714.";;
REGISTERED AS { sccpAttribute 46 };

--initialValueReassTimer
initialValueReassTimer ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.InitialValueReassTimer;
MATCHES FOR EQUALITY;
BEHAVIOUR initialValueReassTimerBhv BEHAVIOUR DEFINED AS
"This attribute represents the initial value of Reassembly Timers, when they are created.";;
REGISTERED AS { sccpAttribute 47 };

--loadSharingAlgPointer
loadSharingAlgPointer ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.Pointer;
MATCHES FOR EQUALITY;
BEHAVIOUR loadSharingAlgPointerBhv BEHAVIOUR DEFINED AS
"The loadSharingAlgPointer attribute refers to the load sharing algorithm that must be applied if the sharing mode of an entity set is duplicated-loadshared. ";;
REGISTERED AS { sccpAttribute 48 };

--lowerLimitForSegmentation
lowerLimitForSegmentation ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule. LowerLimitForSegmentation;
MATCHES FOR EQUALITY;
BEHAVIOUR lowerLimitForSegmentationBhv BEHAVIOUR DEFINED AS
"This attribute represents a number of octets. If the length of the user data exceeds this length then it depends on the status of the network whether the message is segmented or not. The attribute corresponds to the parameter Z as described in 4.1.1.1.1/Q.714. The value of this attribute shall obey the relation 150 £ lowerLimitForSegmentation £ upperLimitForSegmentation, as described in 4.1.1.1.1/Q.714.";;
REGISTERED AS { sccpAttribute 49 };

--lUDTandLUDTSSupported
lUDTandLUDTSSupported ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.LUDTandLUDTSSupported ;

```
    MATCHES FOR EQUALITY;
    BEHAVIOUR lUDTandLUDTSSupportedBhv BEHAVIOUR DEFINED AS
        "This attribute indicates whether the implementation supports LUDT(S) messages.";;
REGISTERED AS { sccpAttribute 50 };

--maxStatInfoTimer
maxStatInfoTimer ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule. MaxStatInfoTimer;
    MATCHES FOR EQUALITY;
    BEHAVIOUR maxStatInfoTimerBhv BEHAVIOUR DEFINED AS
        "This attribute represents the maximum value of timer TstatInfo: delay between requests for sub-
system status information, as defined in 5.3.4.2/Q.714.";;
REGISTERED AS { sccpAttribute 51 };

--nrOfRestrictionLevels
nrOfRestrictionLevels ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NrOfRestrictionLevels;
    MATCHES FOR EQUALITY;
    BEHAVIOUR nrOfRestrictionLevelsBhv BEHAVIOUR DEFINED AS
        "This attribute models the congestion control parameter N, as described in 5.2.7/Q.714.";;
REGISTERED AS { sccpAttribute 56 };

--nrOfSubLevels
nrOfSubLevels ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NrOfSubLevels;
    MATCHES FOR EQUALITY;
    BEHAVIOUR nrOfSubLevelsBhv BEHAVIOUR DEFINED AS
        "This attribute models the congestion control parameter M, as described in 5.2.7/Q.714.";;
REGISTERED AS { sccpAttribute 57 };

--p
p ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.Pa;
    MATCHES FOR EQUALITY;
    BEHAVIOUR pBhv BEHAVIOUR DEFINED AS
        "This attribute models the congestion control parameter P, as described in 5.2.7/Q.714.";;
REGISTERED AS { sccpAttribute 59 };

--remoteSCCPList
remoteSCCPList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.RemoteSCCPList;
    MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;
    BEHAVIOUR remoteSCCPListBhv BEHAVIOUR DEFINED AS
        "This attribute models a list of remote MTP Access Points all belonging to the same MTP
```

```
network.";;
REGISTERED AS { sccpAttribute 60};

--rLM
rLM ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.RLM;
    MATCHES FOR EQUALITY;
    BEHAVIOUR rLMBhv BEHAVIOUR DEFINED AS
        "This attribute models the restriction level parameter RLm as defined in 5.2.4/Q.714.";;
REGISTERED AS { sccpAttribute 61 };

--rSLM
rSLM ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.RSLM;
    MATCHES FOR EQUALITY;
    BEHAVIOUR rSLMBhv BEHAVIOUR DEFINED AS
        "This attribute models the restriction sub-level parameter RSLm as defined in 5.2.4/Q.714.";;
REGISTERED AS { sccpAttribute 62 };

--sccpAccessPointName
sccpAccessPointName ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 63 };

--sccpEntitySetId
sccpEntitySetId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR sccpEntitySetIdBhv BEHAVIOUR DEFINED AS
        "This attribute is used for naming instances.";;
REGISTERED AS { sccpAttribute 64 };

--sccpEntitySetPointer
sccpEntitySetPointer ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.Pointer;
    MATCHES FOR EQUALITY;
    BEHAVIOUR sccpEntitySetPointerBhv BEHAVIOUR DEFINED AS
        "The sccpEntitySetPointer attribute refers to the SCCP entity set resulting from the global title
translation.";;
REGISTERED AS { sccpAttribute 65 };

--sccpLinkageId
sccpLinkageId ATTRIBUTE
```

```
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR sccpLinkageIdBhv BEHAVIOUR DEFINED AS
        "This attribute is used for naming instances.";;
REGISTERED AS { sccpAttribute 66 };

--sccpLinkageName
sccpLinkageName ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 67 };

--sccpLinkagePointer
sccpLinkagePointer ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.Pointer;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 68 };

--sccpName
sccpName ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 69 };

--sccpVersion
sccpVersion ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SccpVersion;
    MATCHES FOR EQUALITY, SUBSTRINGS;
    BEHAVIOUR sccpVersionBhv BEHAVIOUR DEFINED AS
        "This attribute is single-valued. It refers to the recommendation on which the SCCP
implementation is based.";;
REGISTERED AS { sccpAttribute 71 };

--sclcName
sclcName ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 72 };

--scocName
scocName ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
    MATCHES FOR EQUALITY;
```

```
REGISTERED AS { sccpAttribute 73 };

--scrcId
scrcId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR scrcIdBhv BEHAVIOUR DEFINED AS
        "This attribute is used for naming instances.";;
REGISTERED AS { sccpAttribute 74 };

--scrcName
scrcName ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 75 };

--sharingMode
sharingMode ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SharingMode;
    MATCHES FOR EQUALITY;
    BEHAVIOUR sharingModeBhv BEHAVIOUR DEFINED AS
        "This attribute models the sharing mode of the SCCP Entity Set. Possible values are: solitary,
duplicated-replacement, duplicated-dominant, and duplicated-loadshared.";;
REGISTERED AS { sccpAttribute 76 };

--ssAvailableAfterSpRestart
ssAvailableAfterSpRestart ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SsAvailableAfterSpRestart;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 78 };

--ssn
ssn ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SSN;
    MATCHES FOR EQUALITY;
    BEHAVIOUR ssnBhv BEHAVIOUR DEFINED AS
        "The ssn attribute represents the subsystem number.";;
REGISTERED AS { sccpAttribute 79 };

--upperLimitForSegmentation
upperLimitForSegmentation ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.UpperLimitForSegmentation;
    MATCHES FOR EQUALITY;
    BEHAVIOUR upperLimitForSegmentationBhv BEHAVIOUR DEFINED AS
```

"This attribute represents a number of octets. If the length of the user data exceeds this length then the message is always segmented. The attribute corresponds to the parameter Y as described in 4.1.1.1.1/ Q.714. The value of this attribute shall obey the relation lowerLimitForSegmentation £ upperLimitFor-Segmentation £ 3952, as described in 4.1.1.1.1/Q.714.";;
REGISTERED AS { sccpAttribute 80 };

--Performance Attribiutes
--crefMessagesReceived
crefMessagesReceived ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR crefMessagesReceivedBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.8: the total number of CREF messages received. See also 3.2/Q.714.";;
REGISTERED AS { sccpAttribute 81 };

--crefMessagesSent
crefMessagesSent ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR crefMessagesSentBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.6: the total number of CREF messages sent. See also 3.2/Q.714.";;
REGISTERED AS { sccpAttribute 82 };

--crMessagesReceived
crMessagesReceived ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR crMessagesReceivedBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.7: the total number of CR messages received. See also 3.1/Q.714.";;
REGISTERED AS { sccpAttribute 83 };

--crMessagesSent
crMessagesSent ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR crMessagesSentBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.5: the total number of CR messages sent. See also 3.1/Q.714.";;
REGISTERED AS { sccpAttribute 84 };

--dt1MessagesFromSourceSSN
dt1MessagesFromSourceSSN ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR dt1MessagesFromSourceSSNBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.10: the total number of DT1 messages sent to

per source SSN. See also 3.5/Q.714.";;
REGISTERED AS { sccpAttribute 85 };

--dt1MessagesToSinkSSN
dt1MessagesToSinkSSN ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR dt1MessagesToSinkSSNBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.9: the total number of DT1 received from MTP per sink SSN. See also 3.5/Q.714.";;
REGISTERED AS { sccpAttribute 86 };

--dt2MessagesFromSourceSSN
dt2MessagesFromSourceSSN ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR dt2MessagesFromSourceSSNBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.12: the total number DT2 sent to per source SSN. See also 3.5/Q.714.";;
REGISTERED AS { sccpAttribute 87};

--dt2MessagesToSinkSSN
dt2MessagesToSinkSSN ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR dt2MessagesToSinkSSNBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.11: the total number DT2 messages received from MTP per sink SSN. See also 3.5/Q.714.";;
REGISTERED AS { sccpAttribute 88 };

--edMessagesFromSourceSSN
edMessagesFromSourceSSN ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR edMessagesFromSourceSSNBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.13: the total number of ED messages sent to per source SSN. See also 3.6/Q.714.";;
REGISTERED AS { sccpAttribute 89 };

--edMessagesToSinkSSN
edMessagesToSinkSSN ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR edMessagesToSinkSSNBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.14: the total number of ED messages received from MTP per sink SSN. See also 3.6/Q.714.";;
REGISTERED AS { sccpAttribute 90 };

--errMessagesReceived

errMessagesReceived ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR errMessagesReceivedBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.12: the total number of ERR messages received. See also 3.10/Q.714.";;
REGISTERED AS { sccpAttribute 91 };

--errMessagesSent
errMessagesSent ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR errMessagesSentBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.11: the total number of ERR messages sent. See also 3.10/Q.714.";;
REGISTERED AS { sccpAttribute 92 };

--ludtMessagesReceived
ludtMessagesReceived ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR ludtMessagesReceivedBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.19: the total number of LUDT messages received. See also 4.1/Q.714.";;
REGISTERED AS { sccpAttribute 94 };

--ludtMessagesSent
ludtMessagesSent ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR ludtMessagesSentBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.17: the total number of LUDT messages sent. See also 4.1/Q.714.";;
REGISTERED AS { sccpAttribute 95 };

--ludtsMessagesReceived
ludtsMessagesReceived ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR ludtsMessagesReceivedBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.20: the total number of LUDTS messages sent. See also 4.2/Q.714.";;
REGISTERED AS { sccpAttribute 96 };

--ludtsMessagesSent
ludtsMessagesSent ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR ludtsMessagesSentBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis18: the total number of LUDTS messages sent.

See also 4.2/Q.714.";;
REGISTERED AS { sccpAttribute 97 };

--messagesForLocalSubsystems
messagesForLocalSubsystems ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR messagesForLocalSubsystemsBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.4: the total number of messages intended for local subsystems. See also 2.3/Q.714.";;
REGISTERED AS { sccpAttribute 98 };

--messagesHandled
messagesHandled ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR messagesHandledBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.3: the total number of messages handled from local or remote systems. It is assumed that a message transiting an SCCP relay point is counted only once. See also 2.3/Q.714.";;
REGISTERED AS { sccpAttribute 99 };

--messagesOriginatedPerSSN-SPC
messagesOriginatedPerSSN-SPC ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR messagesOriginatedPerSSN-SPCBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.6. See also 1.1.2/Q.714.";;
REGISTERED AS { sccpAttribute 100 };

--messagesReceivedOrTerminatedPerSSN-SPC
messagesReceivedOrTerminatedPerSSN-SPC ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR messagesReceivedOrTerminatedPerSSN-SPCBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.7. See also 1.1.2/Q.714.";;
REGISTERED AS { sccpAttribute 101 };

--messagesRequiringGTTranslation
messagesRequiringGTTranslation ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR messagesRequiringGTTranslationBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.5: the total number of messages that require global title translation. The total number of messages is independent from the fact whether the global title in the message could be translated or not. This measurement is only required at SCCP nodes with global title translation capabilities. See also 2.3/Q.714.";;
REGISTERED AS { sccpAttribute 102 };

--messagesToBackupSSN
messagesToBackupSSN ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR messagesToBackupSSNBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.8: the total number of messages that have been sent to a back-up subsystem. See also 5.3.2/Q.714.";;
REGISTERED AS { sccpAttribute 103 };

--messageTooLarge
messageTooLarge ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR messageTooLargeBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/7.14. It counts the segmentation errors caused by user data that is too large to be segmented. See also 4.1.1.1.1/Q.714.";;
REGISTERED AS { sccpAttribute 104 };

--networkCongestion
networkCongestion ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR networkCongestionBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/7.4. See also 2.4/Q.714.";;
REGISTERED AS { sccpAttribute 105 };

--noPointCodeAvailable
noPointCodeAvailable ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR noPointCodeAvailableBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/7.3. See also 2.4/Q.714.";;
REGISTERED AS { sccpAttribute 106 };

--noReassemblyResources
noReassemblyResources ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR noReassemblyResourcesBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/7.12. It counts the failed reassembly processes that result from a lack of resources. See also 4.1.1.2.3.4/Q.714.";;
REGISTERED AS { sccpAttribute 107 };

--noTranslForNatureAddress
noTranslForNatureAddress ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR noTranslForNatureAddressBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/7.1. It counts the failed Global Title translations that result from the fact that the type of address is unknown to the translation function. This measurement

is only required at SCCP nodes with global title translation capabilities. See also 2.4/Q.714.";;
REGISTERED AS { sccpAttribute 108 };

--noTranslForSpecificAddress
noTranslForSpecificAddress ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR noTranslForSpecificAddressBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/7.2. It counts the failed Global Title translations that result from the fact that although the type of address is known to the translation function, this specific address is not. This measurement is only required at SCCP nodes with global title translation capabilities. See also 2.4/Q.714.";;
REGISTERED AS { sccpAttribute 109 };

--reassemblyFailed
reassemblyFailed ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR reassemblyFailedBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/7.21. See also 4.1.1.1/Q.714.";;
REGISTERED AS { sccpAttribute 110 };

--reassemblyTimerExpired
reassemblyTimerExpired ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR reassemblyTimerExpiredBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/7.10. It counts the failed reassembly processes caused by the expiration of the reassembly timer. See also 4.1.1.2.3.2/Q.714.";;
REGISTERED AS { sccpAttribute 111 };

--rsrMessagesReceived
rsrMessagesReceived ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR rsrMessagesReceivedBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.10: the total number of RSR messages received. See also 3.7/Q.714.";;
REGISTERED AS { sccpAttribute 112 };

--rsrMessagesSent
rsrMessagesSent ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR rsrMessagesSentBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.9: the total number of RSR messages sent. See also 3.7/Q.714.";;
REGISTERED AS { sccpAttribute 113 };

```
--sccpSyntaxErrorList
sccpSyntaxErrorList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SccpSyntaxErrorList;
    MATCHES FOR EQUALITY;
    BEHAVIOUR sccpSyntaxErrorListBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/7.8: the syntax errors as identified in section 3.10/X.714. See also 4.3/Q.714.";;
REGISTERED AS { sccpAttribute 114 };

--segmentationFailed
segmentationFailed ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR segmentationFailedBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/7.20. See also 4.1.1.1/Q.714.";;
REGISTERED AS { sccpAttribute 115 };

--segmentationNotSupported
segmentationNotSupported ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR segmentationNotSupportedBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/7.19. See also 4.1.1.1/Q.714.";;
REGISTERED AS { sccpAttribute 116 };

--segmentReceivedOutOfSequence
segmentReceivedOutOfSequence ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR segmentReceivedOutOfSequenceBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/7.11. It counts the data segments that are not received in sequence. See also 4.1.1.2.3.2/Q.714.";;
REGISTERED AS { sccpAttribute 117 };

--subSystemCongestion
subSystemCongestion ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR subSystemCongestionBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/7.6 (this measurement is for further study). See also 2.4/Q.714.";;
REGISTERED AS { sccpAttribute 118 };

--subSystemFailure
subSystemFailure ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR subSystemFailureBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/7.5. See also 2.4/Q.714.";;
```

```
REGISTERED AS { sccpAttribute 119 };

--subsystemProhibited
subsystemProhibited ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR subsystemProhibitedBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/8.11.";;
REGISTERED AS { sccpAttribute 120 };

--udtMessagesReceived
udtMessagesReceived ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR udtMessagesReceivedBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.3: the total number of UDT messages
received.  See also 4.1/Q.714.";;
REGISTERED AS { sccpAttribute 121 };

--udtMessagesSent
udtMessagesSent ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR udtMessagesSentBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.1: the total number of UDT messages sent.
See  also 4.1/Q.714.";;
REGISTERED AS { sccpAttribute 122 };

--udtsMessagesReceived
udtsMessagesReceived ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR udtsMessagesReceivedBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.4: the total number of UDTS messages sent.
See also 4.2/Q.714.";;
REGISTERED AS { sccpAttribute 123 };

--udtsMessagesSent
udtsMessagesSent ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR udtsMessagesSentBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.2: the total number of UDTS messages sent.
See also 4.2/Q.714.";;
REGISTERED AS { sccpAttribute 124 };

--unknownOrUnqualifiedRoutingFailure
unknownOrUnqualifiedRoutingFailure ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
```

```
    BEHAVIOUR unknownOrUnqualifiedRoutingFailureBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/7.9. See also 2.4/Q.714.";;
REGISTERED AS { sccpAttribute 125 };

--userUnequipped
userUnequipped ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR userUnequippedBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/7.7. See also 2.4/Q.714.";;
REGISTERED AS { sccpAttribute 126 };

--violationOfHopCounter
violationOfHopCounter ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR violationOfHopCounterBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/7.13. It counts the routing failures caused by the
expiration of the Hop Counter. See also 2.3.1.3/Q.714.";;
REGISTERED AS { sccpAttribute 127 };

--xudtMessagesReceived
xudtMessagesReceived ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR xudtMessagesReceivedBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.15: the total number of XUDT messages
received. See also 4.1/Q.714.";;
REGISTERED AS { sccpAttribute 128 };

--xudtMessagesSent
xudtMessagesSent ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR xudtMessagesSentBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.13: the total number of XUDT messages sent.
See also 4.1/Q.714.";;
REGISTERED AS { sccpAttribute 129 };

--xudtsMessagesReceived
xudtsMessagesReceived ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR xudtsMessagesReceivedBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.16: the total number of XUDTS messages
received. See also 4.2/Q.714.";;
REGISTERED AS { sccpAttribute 130 };

--xudtsMessagesSent
```

```
xudtsMessagesSent ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR xudtsMessagesSentBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.14: the total number of XUDTS messages
sent.  See also 4.2/Q.714.";;
REGISTERED AS { sccpAttribute 131 };

--Following is the attributes I add
--nbrOfDataShouldStored
nbrOfDataShouldStored ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NbrOfDataShouldStored;
    MATCHES FOR   EQUALITY;
REGISTERED AS{sccpAttribute 136};


--dataRecordTime
dataRecordTime ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.DataRecordTime;
    MATCHES   FOR EQUALITY, ORDERING;
REGISTERED AS{sccpAttribute 138};

--spcSSN
spcSSN ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SSN;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 155 };

--classSSN
classSSN ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SSN;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 156 };

sccpScreenTableId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR sccpScreenTableIdBhv BEHAVIOUR DEFINED AS
        "This attribute is used for naming instances.";;
REGISTERED AS { sccpAttribute 159 };

sccpScreenInfo ATTRIBUTE
    WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SccpScreenInfo;
    MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 160 };
```

```
--7.7  Naming binding definitions
--gtTranslator-gtRule
gtTranslator-gtRule NAME BINDING
    SUBORDINATE OBJECT CLASS   gtRule AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS      gtTranslator AND SUBCLASSES;
    WITH ATTRIBUTE gtRuleId;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 1 };

--managedElement-managedSwitchingElement
managedElement-managedSwitchingElement NAME BINDING
    SUBORDINATE OBJECT CLASS   "MTP":managedSwitchingElement AND SUBCLASSES;
        NAMED BY
    SUPERIOR OBJECT CLASS "ITU-T Rec. M.3100 (1995)":managedElement AND SUBCLASSES;
        WITH ATTRIBUTE "ITU-T Rec. M.3100 (1995)":managedElementId;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 2 };

--managedSwitchingElement-sccp
managedSwitchingElement-sccp NAME BINDING
    SUBORDINATE OBJECT CLASS   sccp AND SUBCLASSES;
        NAMED BY
    SUPERIOR OBJECT CLASS   "MTP":managedSwitchingElement AND SUBCLASSES;
        WITH ATTRIBUTE "ITU-T Rec. X.723 (1993)":communicationsEntityId;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 3 };

--sccp-sclc
sccp-sclc NAME BINDING
    SUBORDINATE OBJECT CLASS   sclc AND SUBCLASSES;
        NAMED BY
    SUPERIOR OBJECT CLASS   sccp AND SUBCLASSES;
        WITH ATTRIBUTE "ITU-T Rec. X.723 (1993)":clProtocolMachineId;
    BEHAVIOUR sccp-sclc-B BEHAVIOUR
    DEFINED AS
        "This name binding shall be used when the sclc MO is created automatically by the operation of
the system and when the sclc MO is created by management operations.";;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 4 };
```

```
--sccp-scoc
sccp-scoc NAME BINDING
    SUBORDINATE OBJECT CLASS    scoc AND SUBCLASSES;
    NAMED BY
        SUPERIOR OBJECT CLASS    sccp AND SUBCLASSES;
        WITH ATTRIBUTE "ITU-T Rec. X.723 (1993)":coProtocolMachineId;
    BEHAVIOUR sccp-scoc-B BEHAVIOUR
    DEFINED AS
        "This name binding shall be used when the scoc MO is created automatically by the operation of
the system and when the scoc MO is created by management operations.";;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 5 };

--sccp-scrc
sccp-scrc NAME BINDING
    SUBORDINATE OBJECT CLASS    scrc AND SUBCLASSES;
    NAMED BY
        SUPERIOR OBJECT CLASS    sccp AND SUBCLASSES;
        WITH ATTRIBUTE scrcId;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 6 };

--scrc-sccpScreenTable
scrc-sccpScreenTable NAME BINDING
    SUBORDINATE OBJECT CLASS      sccpScreenTable AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS scrc AND SUBCLASSES;
    WITH ATTRIBUTE sccpScreenTableId;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 7 };

--scrc-concernedArea
scrc-concernedArea NAME BINDING
    SUBORDINATE OBJECT CLASS concernedArea AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    scrc AND SUBCLASSES;
    WITH ATTRIBUTE concernedAreaId;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 8 };
```

```
--scrc-gtTranslator
scrc-gtTranslator NAME BINDING
    SUBORDINATE OBJECT CLASS    gtTranslator AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    scrc AND SUBCLASSES;
    WITH ATTRIBUTE gtTranslatorId;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 9 };

--scrc-sccpAccessPoint
scrc-sccpAccessPoint NAME BINDING
    SUBORDINATE OBJECT CLASS sccpAccessPoint AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    scrc AND SUBCLASSES;
    WITH ATTRIBUTE "ITU-T Rec. X.723 (1993)":sapId;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 10 };

--scrc-sccpEntitySet
scrc-sccpEntitySet NAME BINDING
    SUBORDINATE OBJECT CLASS sccpEntitySet AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    scrc AND SUBCLASSES;
    WITH ATTRIBUTE sccpEntitySetId;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 11 };

--scrc-sccpLinkage
scrc-sccpLinkage NAME BINDING
    SUBORDINATE OBJECT CLASS sccpLinkage AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    scrc AND SUBCLASSES;
    WITH ATTRIBUTE sccpLinkageId;
    CREATE;
    DELETE;
REGISTERED AS { sccpNameBinding 12 };

--sccpAccessPoint-sccpAccessPointFaultCurrentData
sccpAccessPoint-sccpAccessPointFaultCurrentData    NAME BINDING
    SUBORDINATE OBJECT CLASS      sccpAccessPointFaultCurrentData;
```

```
        NAMED BY
        SUPERIOR OBJECT CLASS    sccpAccessPoint;
        WITH ATTRIBUTE    "ITU X.739":scannerId;
        CREATE;
        DELETE;
REGISTERED AS{sccpNameBinding    60};

--sclc-sclcFaultCurrentData
sclc-sclcFaultCurrentData      NAME BINDING
        SUBORDINATE OBJECT CLASS      sclcFaultCurrentData;
        NAMED BY
        SUPERIOR OBJECT CLASS    sclc;
        WITH ATTRIBUTE    "ITU X.739":scannerId;
        CREATE;
        DELETE;
REGISTERED AS {sccpNameBinding    61 };

--scrc-scrcFaultCurrentData
scrc-scrcFaultCurrentData NAME BINDING
        SUBORDINATE OBJECT CLASS scrcFaultCurrentData;
        NAMED BY
        SUPERIOR OBJECT CLASS    scrc;
        WITH ATTRIBUTE    "ITU X.739":scannerId;
        CREATE;
        DELETE;
REGISTERED AS{sccpNameBinding      62};

--sccp-sccpCurrentData
sccp-sccpCurrentData    NAME BINDING
        SUBORDINATE OBJECT CLASS sccpCurrentData;
        NAMED BY
        SUPERIOR OBJECT CLASS    sccp;
        WITH ATTRIBUTE    "ITU X.739":scannerId;
        CREATE;
        DELETE;
REGISTERED AS{sccpNameBinding    64 };

--sccp-sccpGlobeCurrentData
sccp-sccpGlobeCurrentData    NAME BINDING
    SUBORDINATE OBJECT CLASS    sccpGlobeCurrentData;
    NAMED BY
    SUPERIOR OBJECT CLASS    sccp;
    WITH ATTRIBUTE "ITU X.739":scannerId;
    CREATE;
```

```
    DELETE;
  REGISTERED AS{sccpNameBinding 65};

  --sccp-ssnCurrentData
  sccp-ssnCurentData  NAME BINDING
      SUBORDINATE OBJECT CLASS     ssnCurrentData;
      NAMED BY
      SUPERIOR OBJECT CLASS  sccp;
      WITH ATTRIBUTE  "ITU X.739":scannerId;
      CREATE;
      DELETE;
  REGISTERED AS {sccpNameBinding  66 };

  --sccp-ssnMessagesCurrentData
  sccp-ssnMessagesCurrentData  NAME BINDING
      SUBORDINATE OBJECT CLASS     ssnMessagesCurrentData;
      NAMED BY
      SUPERIOR OBJECT CLASS  sccp;
      WITH ATTRIBUTE  "ITU X.739":scannerId;
      CREATE;
      DELETE;
  REGISTERED AS{sccpNameBinding  67};

  --sccp- sccpFirstAndIntervalCurrentData
  sccp-sccpFisrtAndIntervalCurrentData  NAME BINDING
      SUBORDINATE OBJECT CLASS  sccpFirstAndIntervalCurrentData;
      NAMED  BY
      SUPERIOR OBJECT CLASS  sccp;
      WITH ATTRIBUTE  "ITU X.739":scannerId;
      CREATE;
      DELETE;
  REGISTERED AS {sccpNameBinding 75};

  --ASN.1 definition for the SCCP objects attribute
  SCCPDefinedTypesModule
  --{itu-t(0) recommendation q(17) omap(751) sccp(2) informationModel(0) asn1Modules(2) sccpDefined-
TypesModule(0)} wzl commented
  {0 recommendation q(17) omap(751) sccp(2) informationModel(0) asn1Modules(2) sccpDefined-
TypesModule(0)}

  DEFINITIONS IMPLICIT TAGS ::= BEGIN

  IMPORTS
  ProbableCause FROM Attribute-ASN1Module { joint-iso-itu-t ms(9) smi(3) part2(2) asn1Module(2) 1}
```

```
NameType, Pointer, PointerOrNull FROM ASN1DefinedTypesModule { itu-t recommendation m gnm(3100) informationModel asn1Modules asn1DefinedTypesModule(0)}
--RLL AdditionalName FROM MTPDefinedTypesModule {itu-t (0) recommendation q(17) omap(751) mtp(1) informationModel(0) asn1Modules(2) mtpDefinedTypesModule(0)}
PointCode, NI, AdditionalName FROM MTPDefinedTypesModule {itu-t  recommendation q omap mtp(1) informationModel asn1Modules mtpDefinedTypesModule(0)};
--ConfirmedAction, EventReport FROM MP {itu-t (0) recommendation q(17) (753) mp (0) version1 (1) };

--sccpInformationModel OBJECT IDENTIFIER ::= {itu-t recommendation q(17) omap(751) sccp(2) informationModel(0)} wzl commented
sccpInformationModel OBJECT IDENTIFIER ::= {0 recommendation q(17) omap(751) sccp(2) informationModel(0)}
sccpObjectClass OBJECT IDENTIFIER ::= {sccpInformationModel managedObjectClass(3)}
sccpPackage OBJECT IDENTIFIER ::= {sccpInformationModel package(4)}
sccpParameter OBJECT IDENTIFIER ::= {sccpInformationModel parameter(5)}
sccpAttribute OBJECT IDENTIFIER ::= {sccpInformationModel attribute(7)}
sccpNameBinding OBJECT IDENTIFIER ::= {sccpInformationModel nameBinding(6)}
sccpAction OBJECT IDENTIFIER ::= {sccpInformationModel action(9)}
sccpNotification OBJECT IDENTIFIER ::= {sccpInformationModel notification(10)}
sccpSpecificExtensions OBJECT IDENTIFIER ::= { sccpInformationModel specificExtensions(0) }

AttackTimerValue ::= INTEGER

CLS ::= INTEGER

cLSDefault CLS ::= 8

CongestionTimerValue ::= INTEGER

hopCounterViolation ProbableCause::= globalValue: { sccpSpecificExtensions 1 }
localSubsystemProhibited ProbableCause::= globalValue: { sccpSpecificExtensions 2 }
localSccpUnAvailable ProbableCause::= globalValue: { sccpSpecificExtensions 3 }
noReassemblySpace ProbableCause::= globalValue: { sccpSpecificExtensions 4 }
noRuleForAddress ProbableCause::= globalValue: { sccpSpecificExtensions 5 }
noSegmentationSupport ProbableCause::= globalValue: { sccpSpecificExtensions 6 }
noTranslatorForAddress ProbableCause::= globalValue: { sccpSpecificExtensions 7 }
Period::=INTEGER
pointCodeCongested ProbableCause::= globalValue: { sccpSpecificExtensions 8 }
pointCodeNotAvailable ProbableCause::= globalValue: { sccpSpecificExtensions 9 }
reassemblyFailure ProbableCause::= globalValue: { sccpSpecificExtensions 10 }
reassemblyTimeOut ProbableCause::= globalValue: { sccpSpecificExtensions 11 }
routingFailureNoReasonOrUnqualified ProbableCause::= globalValue: { sccpSpecificExtensions 12 }
sccpCongested ProbableCause::= globalValue: { sccpSpecificExtensions 13 }
segmentationFailure ProbableCause::= globalValue: { sccpSpecificExtensions 14 }
```

```
segmentOutOfOrder ProbableCause::= globalValue: { sccpSpecificExtensions 15 }
subsystemCongested ProbableCause::= globalValue: { sccpSpecificExtensions 16 }
subsystemOoSdenied ProbableCause::= globalValue: { sccpSpecificExtensions 17 }
subsystemOoSgranted ProbableCause::= globalValue: { sccpSpecificExtensions 18 }
subsystemProhibited ProbableCause::= globalValue: { sccpSpecificExtensions 19 }
subsystemUnavailable ProbableCause::= globalValue: { sccpSpecificExtensions 20 }
syntaxErrorDetected ProbableCause::= globalValue: { sccpSpecificExtensions 21 }
tooLargeForSegmentation ProbableCause::= globalValue: { sccpSpecificExtensions 22 }
unequippedSubsystem ProbableCause::= globalValue: { sccpSpecificExtensions 23 }

sccpProtocolClass0 OBJECT IDENTIFIER ::= { sccpSpecificExtensions 24}
sccpProtocolClass1 OBJECT IDENTIFIER ::= { sccpSpecificExtensions 25}
sccpProtocolClass2 OBJECT IDENTIFIER ::= { sccpSpecificExtensions 26}
sccpProtocolClass3 OBJECT IDENTIFIER ::= { sccpSpecificExtensions 27}

CongestionLevel ::= INTEGER

DataRecordTime::=GeneralizedTime

DecayTimerValue ::= INTEGER

EntitySetSapPointer ::= SET SIZE (2) OF SAPPointer

EntitySetType::=ENUMERATED
{
    endNodeWithoutSSN    (0),
    endNodeWithSSN       (1),
    relayNode            (2)
}

GtAddressInformation ::= SEQUENCE OF BIT STRING

GtEncodingScheme ::= CHOICE{
    notUsedOrNoOverwrite NULL,
    gtES                 ENUMERATED
    {   unknown          (0),
        bCDODD           (1),
        bCDEVEN          (2),
        nationalSpecific (3)
    }}

GtIndicator ::= ENUMERATED
    {   noGlobalTitle    (0),
        nOAonly          (1),
```

```
        tTonly          (2),
        tT-NP-ES        (3),
        tT-NP-ES-NOA    (4)
    }

GtNatureOfAddress ::= CHOICE{
    notUsedOrNoOverwrite NULL,
    gtNoA                ENUMERATED
        {   unknown          (0),
            subscriber       (1),
            national         (3),
            international    (4)
    }}

GtNumberingPlan ::= CHOICE{
    notUsedOrNoOverwrite NULL,
    gtNP                 ENUMERATED
        {   unknown          (0),
        iSDNTNP              (1),
        genericNumberingPlan (2),
        dNP                  (3),
        tNP                  (4),
        mMNP                 (5),
        lMNP                 (6),
        iSDNMNP              (7),
        privateNumberingPlan (14)
    }}

GtTranslationType ::= CHOICE{
    notUsedOrNoOverwrite NULL,
    gtTT     ENUMERATED
        {   unknown          (0),
            iTCC             (1),
            genericNumberingPlan (14),
            iEESS            (17)
    }}

ImportanceLevel ::= SEQUENCE {
    defaultImportance  INTEGER,
    maxImportance      INTEGER }

InitialValueReassTimer ::= INTEGER

LowerLimitForSegmentation ::= INTEGER
```

```
LUDTandLUDTSSupported ::= BOOLEAN

MaxStatInfoTimer::= INTEGER

NbrOfDataShouldStored::=INTEGER

NrOfAddressElements ::= INTEGER

NrOfRestrictionLevels ::= INTEGER

nrOfRestrictionLevelsDefault NrOfRestrictionLevels ::= 8

NrOfSubLevels ::= INTEGER

nrOfSubLevelsDefault NrOfSubLevels ::= 4

--AddressInfoConversionRule ::= SEQUENCE OF Operation

Operation ::= CHOICE {
    insert              [0]  NrOfAddressElements,
    replace             [1]  NrOfAddressElements,
    passTransparently   [2]  NrOfAddressElements,
    delete              [3]  NrOfAddressElements,
    stop                [4]  NULL,
    copyRemain          [5]  NULL }

P ::= INTEGER
Pa ::= INTEGER    --RLL ADD

pDefault    P ::= 8

PrimaryOrBackup ::= ENUMERATED {
    equal       (0),
    primary     (1),
    backup      (2) }

RemoteSCCPList ::= SET OF Pointer

RLM ::= INTEGER

RSLM ::= INTEGER
SAPPointer ::= SEQUENCE {
    primaryOrBackup     PrimaryOrBackup,
```

```
    sap                 Pointer }

SCCPFirstAndIntervalEventNameAndValue::=SET OF SEQUENCE{
                                eventName       IA5String,
                                eventValue      INTEGER ,
                                eventOccurTime  GeneralizedTime}
SccpSyntaxErrorList ::= INTEGER {
    unknownMessageType                  (0),
    invalidValueOfProtocolClass         (1),
    invalidValueOfGTI                   (2),
    invalidValueForEncodingScheme       (3),
    invalidParameterLength              (4),
    invalidPointerToOptionalParameter   (5),
    optionalParameterToLong             (6),
    pointerInconsistentWithLengths      (7),
    incompatibleAddressLength           (8),
    expectedSSNnotFound                 (9) }
SccpVersion ::= PrintableString

Seconds ::= INTEGER

SharingMode ::= ENUMERATED
    {   solitary            (0),
        dupliDominant       (1),
        dupliReplacement    (2),
        dupliLoadShared     (3)   }

SsAvailableAfterSpRestart ::= BOOLEAN

ssAvailableAfterSpRestartDefault SsAvailableAfterSpRestart ::= TRUE

SSN ::= INTEGER(0..255)

TcoordChg::= INTEGER
TignoreSST::= INTEGER

UpperLimitForSegmentation ::= INTEGER

PcSsnRange ::= SET OF SEQUENCE {
    nI      [0] NI,
    minPc   [1] PointCode,
    maxPc   [2] PointCode,
    minSsn  [3] SSN,
    maxSsn  [4] SSN
```

```
}
GtRange ::= SET OF SEQUENCE {
    nI          [0] NI,
    minGt       [1] BIT STRING,
    maxGt       [2] BIT STRING
}
TransType ::= INTEGER (0..254)
TransTypeRange ::= SET OF SEQUENCE {
    nI              [0] NI,
    minTransType [1] TransType,
    maxTransType[2] TransType
}
SccpScreenInfo ::= SEQUENCE {
    inhibitCallingPcSsn      [0] PcSsnRange      OPTIONAL,
    inhibitCallingGt         [1] GtRange         OPTIONAL,
    inhibitCallingTransType [2] TransTypeRange   OPTIONAL,
    inhibitCalledPcSsn       [3] PcSsnRange      OPTIONAL,
    inhibitCalledGt          [4] GtRange         OPTIONAL,
    inhibitCalledTransType  [5] TransTypeRange   OPTIONAL
}
END
```

中华人民共和国
通信行业标准

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——MTP和SCCP部分

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