

Transport Area Working Group
Internet-Draft
Intended status: Informational

S. Combes
P. Amundsen
M. Lambert
H-P. Lexow
SatLabs Group
October 22, 2009

Expires: April 2010

The SatLabs Group DVB-RCS MIB
draft-combes-ipdvb-mib-rcs-08.txt

Status of this Memo

This Internet-Draft is submitted to IETF in full conformance with the provisions of [BCP 78](#) and [BCP 79](#).

This document may not be modified, and derivative works of it may not be created, except to format it for publication as an RFC or to translate it into languages other than English.

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/lid-abstracts.txt>

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>

This Internet-Draft will expire on April 22,2010.

Abstract

This document describes the MIB module for the Digital Video Broadcasting Return Channel via Satellite system (DVB-RCS), as defined by the SatLabs Group. It defines a set of MIB entities to characterize the behavior and performance of network layer entities deploying DVB-RCS.

Internet-Draft

DVB-RCS MIB

October 2009

Table of Contents

1.	Introduction.....	3
2.	Conventions used in this document.....	4
2.1.	Abbreviations.....	5
2.2.	Glossary.....	7
2.2.1.	Star DVB-RCS network.....	7
2.2.2.	Mesh DVB-RCS network.....	7
2.2.3.	Transparent DVB-RCS network.....	7
2.2.4.	Regenerative DVB-RCS network.....	8
2.2.5.	DVB-RCS MAC layer.....	8
2.2.6.	DVB-RCS TDM.....	8
2.2.7.	DVB-RCS TDMA.....	8
2.2.8.	IDU.....	8
2.2.9.	ODU.....	8
2.2.10.	RCST.....	9
2.2.11.	NCC.....	9
2.2.12.	Configuration file.....	9
2.2.13.	Log file.....	9
2.2.14.	Installation log file.....	9
2.2.15.	Antenna alignment.....	9
2.2.16.	CW frequency.....	9
2.2.17.	Request Class.....	9
2.2.18.	Channel ID.....	10
2.2.19.	ATM profile.....	10
2.2.20.	MPEG profile.....	10
2.2.21.	PID pool.....	10
2.2.22.	Capacity Categories.....	10
2.2.23.	Start transponder.....	11
2.2.24.	DVB-S.....	11
2.2.25.	DVB-S2 and CCM/VCM/ACM.....	12
2.2.26.	Interactive Network.....	12
3.	MIB Module overview.....	12
3.1.	Textual Conventions.....	13
3.2.	Structure of the MIB.....	13
3.3.	Relationship to the Interfaces MIB Module.....	14
3.4.	MIB groups description.....	18
3.4.1.	dvbRcsRcstSystem.....	18
3.4.2.	dvbRcsRcstNetwork.....	19
3.4.3.	dvbRcsRcstInstall.....	19
3.4.4.	dvbRcsRcstQos.....	19

3.4.5. dvbRcsRcstControl.....	20
3.4.6. dvbRcsRcstState.....	20
3.4.7. dvbRcsFwdLink (dvbRcsFwdConfig and dvbRcsFwdStatus groups).....	20

3.4.8. dvbRcsRtnLink (dvbRcsRtnConfig and dvbRcsRtnStatus groups).....	20
4. Definitions.....	21
5. Security Considerations.....	102
6. IANA Considerations.....	104
7. Acknowledgments.....	105
8. References.....	105
8.1. Normative References.....	105
8.2. Informative References.....	106
9. Authors' Addresses.....	108
10. Disclaimer.....	109
11. Copyright Notice.....	109

[1. Introduction](#)

The SatLabs Group [[SATLABS](#)] is an international non-profit EEIG (European Economic Interest Grouping) committed to large-scale adoption and deployment of the Digital Video Broadcasting Return Channel via Satellite (DVB-RCS) standard [[ETSI-RCS](#)]. SatLabs members are service providers, satellite operators, system integrators, terminal manufacturers and technology providers with an interest in DVB-RCS.

Since its creation in 2001, the main goal of the SatLabs Group has been to achieve interoperability between DVB-RCS terminals and systems. Therefore, the Group has defined the SatLabs Qualification Program that provides an independent certification process for DVB-RCS Terminals based on System Recommendations defined by SatLabs. To enhance products interoperability, beyond the physical and MAC layer mechanisms defined in the DVB-RCS standard, SatLabs has expanded its Recommendations in the field of DVB-RCS terminal management [[SATLABS](#)]. As a part of this effort, SatLabs has specified a common SNMP Management Information Base (MIB) for DVB-RCS terminals, which is defined in this document.

A DVB-RCS terminal is denoted as a Return Channel Satellite

Terminal (RCST) in the remainder of this document. This consists of an Indoor Unit (IDU) and an Outdoor Unit (ODU) connected through an Inter Facility Link (IFL), usually a coaxial L-band interface. On the user side, the IDU is connected to the user network through a Local Area Network (LAN) interface (usually Ethernet). On the network side, the ODU is connected via a satellite link (the Air Interface).

The SatLabs Group DVB-RCS MIB is implemented in the IDU of an RCST. RCST management can be performed either through the LAN interface (Local management) or through the Air Interface (Remote management from the Network Control Center, NCC). RCST and NCC elements are shown on Figure 1.

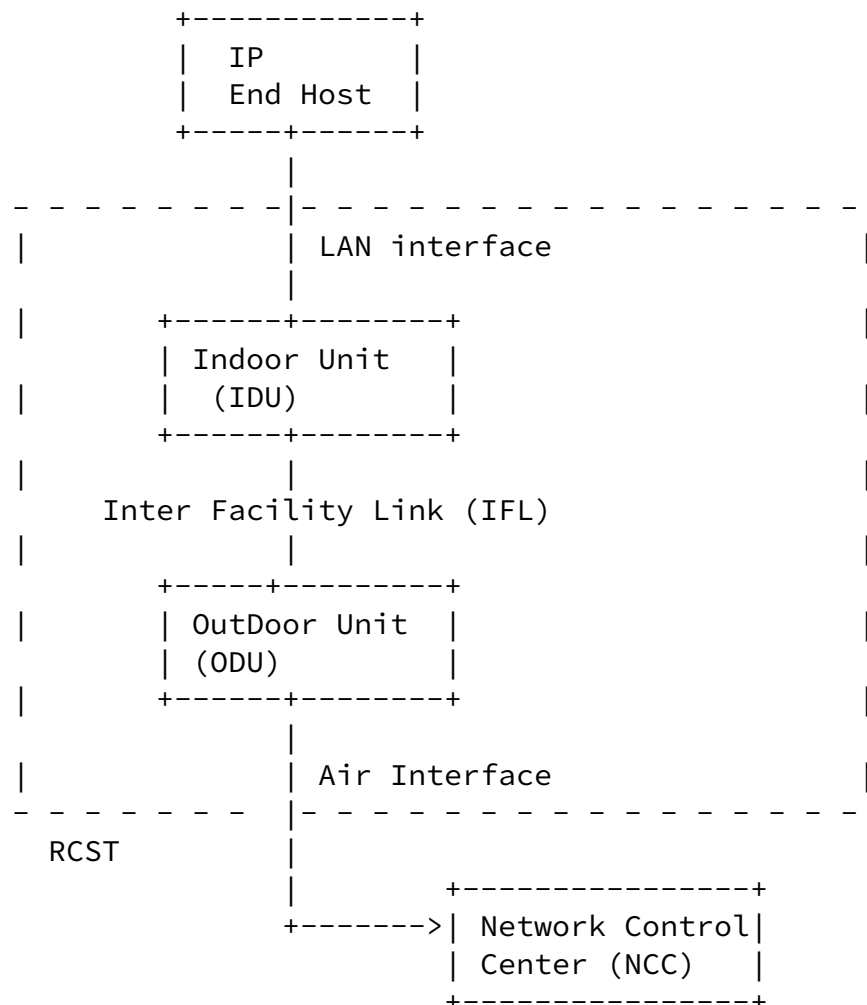


FIGURE 1: RCST architecture

[2.](#) Conventions used in this document

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community.

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to [section 7 of RFC 3410](#) [[RFC3410](#)].

Combes

Expires April 22, 2010

[Page 4]

Internet-Draft

DVB-RCS MIB

October 2009

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIV2, which is described in STD 58, [RFC 2578](#) [[RFC2578](#)], STD 58, [RFC 2579](#) [[RFC2579](#)] and STD 58, [RFC 2580](#) [[RFC2580](#)].

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [BCP 14](#), [RFC 2119](#) [[RFC2119](#)].

[2.1.](#) Abbreviations

AAL5 ATM Adaptation Layer Type 5

ACM Adaptive Coding and Modulation (defined in [[ETSI-DVBS2](#)])

ATM Asynchronous Transfer Mode

AVBDC Absolute Volume-Based Dynamic Capacity

BER Bit Error Ratio

BUC Block Up-Converter

CCM	Constant Coding and Modulation
CNR	Carrier to Noise Ratio
CRA	Continuous Rate Assignment
CSC	Common Signalling Channel
CW	Continuous Wave (carrier frequency)
dBi	decibel (isotropic)
dBm	decibel (with respect to 1 mW)
DSCP	DiffServ Code Point
ETSI	European Telecommunications Standards Institute

FEC	Forward Error Correction
GS	Generic Stream
GSE	Generic Stream Encapsulation
IDU	InDoor Unit
IFL	Inter-Facility Link
LNB	Low Noise Block
LO	Local Oscillator
MAC	Medium Access Control
MIB	Management Information Base
MPEG	Motion Pictures Expert Group
MPE	Multi-Protocol Encapsulation
NCC	Network Control Centre

OAM	Operations and Management
ODU	OutDoor Unit
PHB	Per-Hop Behavior
PEP	Performance Enhancing Proxy
PID DVB)	Packet IDentifier (MPEG, used as Program Identifier in
QoS	Quality of Service
RBDC	Rate-Based Dynamic Capacity
RC	Request Class
RCST	Return Channel via Satellite Terminal (DVB-RCS Terminal)
Rx	Receive
SDU	Service Data Unit

SSPA	Solid State Power Amplifier
TDM	Time Division Multiplex
TDMA	Time Division Multiple Access
TS	Transport Stream (as defined by MPEG)
Tx	Transmit
VBDC	Volume-Based Dynamic Capacity
VCI	Virtual Channel Identifier (ATM)
VPI	Virtual Path Identifier (ATM)
Vpp	Volts peak-to-peak

[2.2.](#) Glossary

The terms in this document are derived either from DVB-RCS standard specifications [[ETSI-RCS](#)] or from SatLabs System Recommendations [[SATLABS](#)].

[2.2.1.](#) Star DVB-RCS network

This denotes a hub-and-spoke configuration where all communications pass through a central hub, that usually also includes the NCC. Peer-to-peer communication between RCSTs is possible, but through a double satellite hop (this traffic has to pass through the hub).

[2.2.2.](#) Mesh DVB-RCS network

This denotes a mesh configuration that supports peer-to-peer communications in a single satellite hop directly between RCSTs.

[2.2.3.](#) Transparent DVB-RCS network

This denotes a network using transparent satellite transponders. Star or mesh network configurations can be supported. In the case of a mesh configuration, RCSTs need to incorporate a TDMA receiver in addition to the TDM receiver.

[2.2.4.](#) Regenerative DVB-RCS network

This denotes a network using regenerative satellite transponders, i.e. including some On-Board Processing functionality allowing demodulation and decoding of the uplink TDMA signals and re-multiplex the traffic on the downlink. Star or mesh network configurations can be supported.

[2.2.5.](#) DVB-RCS MAC layer

The DVB-RCS MAC Layer represents the air interface of an RCST, as specified in [[ETSI-RCS](#)]. The interface is bi-directional and supports IP traffic over hub-spoke (star) and mesh satellite network topologies.

[2.2.6.](#) DVB-RCS TDM

The DVB-RCS TDM corresponds to the forward link of a DVB-RCS transparent system or the downlink of a DVB-RCS regenerative system. It is based on either the DVB-S or DVB-S2 standard specified in [[ETSI-DVBS](#)] and [[ETSI-DVBS2](#)], respectively. In the DVB-RCS context, this interface is uni or bi-directional, as it may also be used for a return channel dedicated to a single terminal.

[2.2.7.](#) DVB-RCS TDMA

The DVB-RCS TDMA corresponds to the return or mesh link of a RCS transparent system or the uplink of a RCS regenerative system. It is specified in [[ETSI-RCS](#)].

In the context of star transparent and mesh regenerative DVB-RCS systems, this interface is uni-directional.

In the context of mesh transparent DVB-RCS systems, this interface is bi-directional.

[2.2.8.](#) IDU

This is the indoor part of the RCST (including at least the power supply, and usually also the modem and networking functions).

[2.2.9.](#) ODU

This is the outdoor part of the RCST (including at least the aerial, and usually also the LNB and BUC).

[2.2.10.](#) RCST

This is the Satellite Terminal, installed on the customer premises. It is composed of the IDU and ODU.

[2.2.11.](#) NCC

The NCC provides Control and Monitoring Functions. It generates control and timing signals for the operation of the DVB-RCS

Network.

[2.2.12. Configuration file](#)

The configuration file is XML formatted file, storing configuration parameters for the RCST and their values.

[2.2.13. Log file](#)

The log file is stored at the RCST. This is used to log particular events that occur on RCST side.

[2.2.14. Installation log file](#)

The installation log file is stored at the RCST. This logs particular events that occur on RCST side, related to RCST installation phase.

[2.2.15. Antenna alignment](#)

This is the process to align the RCST antenna, part of the ODU, in order to enable bi-directional communication (uplink, downlink) with the satellite network.

[2.2.16. CW frequency](#)

The CW frequency is the frequency of a Continuous Wave signal. It is a narrowband carrier transmitted for the duration of measurements during the installation of a RCST.

[2.2.17. Request Class](#)

A Request Class (RC) is a representation of a Per Hop Behavior (PHB) at the MAC layer. It defines a behavior of the MAC layer for a given aggregation of traffic. This behavior includes a combination of Capacity Categories associated to the RC and a Priority with respect to the other RCs supported by a RCST.

[2.2.18. Channel ID](#)

Each Request Class is identified by a unique Channel_ID in the communication between the RCST and the NCC.

[2.2.19](#). ATM profile

The ATM profile is one of the two profiles for traffic burst format on a DVB-RCS uplink. It is based on one or more concatenated ATM cells, each of length 53 bytes, plus an optional prefix.

[2.2.20](#). MPEG profile

The MPEG profile is one of the two profiles for traffic burst format on the DVB-RCS uplink. It is based on a number of concatenated MPEG2-TS packets, each of length 188 bytes.

[2.2.21](#). PID pool

For the MPEG profile several RCs may be mapped within a pool of several PIDs to allow cross-RC Section Packing [[RFC4259](#)]. Section packing can be used on all PIDs and higher priority traffic can always pre-empt lower priority streams. This reduces the need for padding.

[2.2.22](#). Capacity Categories

The TDMA timeslot allocation process for the DVB-RCS uplink supports several capacity categories.

The Capacity Categories CRA, RBDC and A/VBDC, when authorized for a RC, have to be configured from the NCC. These configuration parameters are used to inform the RCST of the configuration of each Category at the NCC side and thus help in Capacity Requests computation.

The configuration of these parameters is performed for each RC. A SatLabs optional feature is defined that allows their configuration at the RCST level in addition to configuration per RC. This feature is denoted RCST_PARA.

[2.2.22.1](#). Continuous Rate Assignment (CRA)

CRA is a rate capacity that is provided in full in a continuous manner to the RCST while required.

[2.2.22.2.](#) Rate-Based Dynamic Capacity (RBDC)

RBDC is rate capacity that is requested dynamically by an RCST. RBDC capacity is provided in response to explicit requests from the RCST to the NCC, such requests being absolute (i.e. corresponding to the full rate currently being requested). Each request overrides all previous RBDC requests from the same RCST, and is subject to a maximum rate limit.

[2.2.22.3.](#) Volume-Based Dynamic Capacity (VBDC)

VBDC is volume capacity that is requested dynamically by an RCST. VBDC capacity is provided in response to explicit requests from the RCST to the NCC, such requests being cumulative (i.e. each request adds to all previous requests from the same RCST).

[2.2.22.4.](#) Absolute Volume-Based Dynamic Capacity (AVBDC)

AVBDC is volume capacity that is requested dynamically by an RCST. This capacity is provided in response to explicit requests from the RCST to the NCC, such requests being absolute (i.e. this request replaces the previous ones from the same RCST).

The combination of AVBDC and VBDC is seen as a single Capacity Category, denoted A/VBDC.

[2.2.22.5.](#) Population ID

This defines a group of RCSTs within a Network.

[2.2.23.](#) Start transponder

This is the satellite transponder on which the communication is initiated from a RCST point-of-view when in the installation mode. The parameters corresponding to this transponder (satellite orbital position, frequency, etc.) are stored at the RCST as power-up configuration data.

[2.2.24.](#) DVB-S

DVB-S is the Digital Video Broadcast over Satellite [[ETSI-DVBS](#)]. It is a framework and set of associated standards published by ETSI for the transmission of video, audio, and data, using the ISO MPEG-2 Standard [[ISO-MPEG](#)], over satellite links.

[2.2.25](#). DVB-S2 and CCM/VCM/ACM

DVB-S2 is the Second Generation of the Digital Video Broadcast for Satellite applications standard [[ETSI-DVBS2](#)]. It is a framework and set of associated standards published by ETSI for the transmission of video, audio and data.

BBFRAME: The main framing unit of the DVB-S2 protocol stack.

CCM: In CCM transmission mode, the forward link uses a constant set of transmission parameters (FEC coding rate and modulation scheme) for all receivers.

VCM: In VCM transmission mode, the forward link uses transmission parameters which are variable on a BBFRAME-by-BBFRAME, but fixed on a Receiver basis, according to fixed link and propagation conditions for each Receiver.

ACM: In ACM transmission mode, the forward link uses transmission parameters which are dynamically adjusted on a BBFRAME-by-BBFRAME and Receiver-per-Receiver basis, according to actual link and propagation conditions. In order to implement ACM, feedback from each Receiver has to be provided by DVB-RCS return channel.

[2.2.26](#). Interactive Network

This is another name for a DVB-RCS based satellite network.

[3](#). MIB Module overview

This MIB module provides a set of objects required for the management of SatLabs-compliant RCST. The specification is derived from the parameters and protocols described in [[SATLABS](#)].

The MIB module in this document uses the following OBJECT IDENTIFIER values as already assigned by IANA under the smi-numbers registry [[IANA](#)]:

Internet-Draft

DVB-RCS MIB

October 2009

Descriptor	OBJECT IDENTIFIER value
dvbRcsMib	{ mib-2 transmission 239 }

TABLE 1: Object Identifiers for the MIB

These values have been assigned for this MIB under the 'mib-2.transmission' subtree.

3.1. Textual Conventions

This MIB module defines new textual conventions for RCST indications of SatLabs defined capabilities, including profiles, options and optional features.

DvbRcsSystemSatLabsProfileMap represents the SatLabs profiles supported as defined in [[SATLABS](#)].

DvbRcsSystemSatLabsOptionMap represents the SatLabs options supported as defined in [[SATLABS](#)]. These are options that are used for the certification of SatLabs terminals. They represent important functionality, with impact on interoperability, and their support is advertised with the RCST certification level.

DvbRcsSystemSatLabsFeatureMap represents the SatLabs optional features supported as defined in [[SATLABS](#)]. These represent minor features, not necessary for interoperability. They are not used for the certification of SatLabs terminals.

3.2. Structure of the MIB

This MIB module is structured into two top level groups:

- o The dvbRcsMibObjects group includes all the managed objects of the DVB-RCS MIB.
- o The dvbRcsConformance group includes the compliance statements for DVB-RCS terminals that are compliant with [[SATLABS](#)]. The managed objects are grouped into formal object

groups (i.e. units of conformance) according to the relation to specific SatLabs options or features. The conformance statements (MODULE-COMPLIANCE specification) are described within the dvbRcsRcstCompliances group while the units of conformance are described within the dvbRcsRcstGroups group.

The dvbRcsMibObjects group is further structured into three groups: dvbRcsRcst, dvbRcsFwdLink and dvbRcsRtnLink.

The dvbRcsRcst group covers management related to the RCST equipment. It is structured into six groups:

- o dvbRcsRcstSystem
- o dvbRcsRcstNetwork
- o dvbRcsRcstInstall
- o dvbRcsRcstQos
- o dvbRcsRcstControl
- o dvbRcsRcstState

The dvbRcsFwdLink group covers management information related to the RCST forward link. It is structured into two groups:

- o dvbRcsFwdConfig
- o dvbRcsFwdStatus

The dvbRcsRtnLink group covers management information related to the RCST return link. It is structured into two groups:

- o dvbRcsRtnConfig
- o dvbRcsRtnStatus

Tables within each of these groups cover different functions like return link traffic management (packet classes, Request Classes, PID pools) and forward links configuration and status.

Rows created automatically (e.g., by the device according to the hardware configuration) may and generally will have a mixture of configuration and status objects within them. Rows that are meant to be created by the management station are generally restricted to configuration (read-create) objects.

[3.3](#). Relationship to the Interfaces MIB Module

This section clarifies the relationship of this MIB module to the Interfaces MIB [[RFC2863](#)]. Several areas of correlation are addressed in the following. The implementer is referred to the

Combes

Expires April 22, 2010

[Page 14]

Internet-Draft

DVB-RCS MIB

October 2009

Interfaces MIB document in order to understand the general intent of these areas.

IANA has assigned three ifType labels for DVB-RCS. Each RCST MUST support at least the three following interfaces:

- o dvbRcsMacLayer (239), -- DVB-RCS MAC Layer

DVB-RCS MAC Layer represents the complete air interface of an RCST, as specified in [[ETSI-RCS](#)]. This interface supports star and mesh networks and is bi-directional. Only star networks are considered by the present MIB module.

- o dvbTdm (240), -- DVB Satellite TDM

DVB-RCS Physical link based on Time Division Multiplexing. It corresponds to the forward link of a RCS transparent system or the downlink of a RCS regenerative system. It is based on either DVB-S or DVB-S2 standard specified in [[ETSI-DVBS](#)] and [[ETSI-DVBS2](#)]. Only transparent systems are considered by the present MIB module.

In the DVB-RCS context, this interface is uni or bi-directional.

In the present MIB module, only a uni-directional (i.e. forward link, or downstream) dvbTdm interface is considered.

- o dvbRcsTdma (241), -- DVB-RCS TDMA

DVB-RCS Physical link based on Time Division Multiple Access.

It corresponds to the return or mesh link of a RCS transparent system or the uplink of a RCS regenerative system. It is based on the DVB-RCS standard specified in [[ETSI-RCS](#)].

In the context of star transparent and mesh regenerative DVB-RCS systems, this interface is uni-directional.

In the context of mesh transparent DVB-RCS systems, this interface is bi-directional.

Only star transparent systems are considered by the present MIB module (i.e. return link, or upstream).

The protocol stack (as reflected in ifStackTable) will be as follows:

Combes

Expires April 22, 2010

[Page 15]

Internet-Draft

DVB-RCS MIB

October 2009

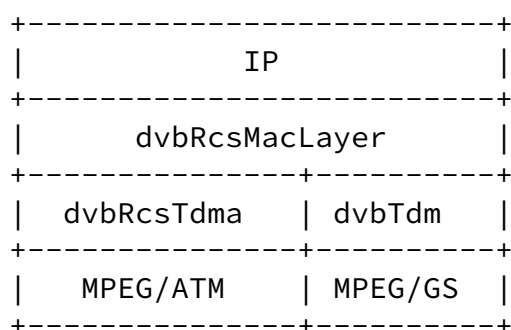


FIGURE 2: RCST protocol stack

An additional Ethernet interface is used on the LAN side of the RCST (see Figure 1).

An instance of ifEntry exists for each dvbTdm interface, for each dvbRcsTdma (normally only one), and for each dvbRcsMac layer (normally only one).

The interface counters relate to:

- o dvbRcsMacLayer: DVB-RCS two-way MAC interface that counts aggregate Multi-Protocol Encapsulation (MPE) frames, Generic Stream Encapsulation (GSE) encapsulated PDUs (equals IP

packets), and ATM Adaptation Layer 5 (AAL5) frames.

MPE is specified in [[ETSI-DAT](#)] and is transported over MPEG, which is specified in [[ISO-MPEG](#)]. MPEG is transported over GS or TS (Transport Stream) carriers. The TS carrier is specified in [[ETSI-DVBS](#)] for DVB-S and [[ETSI-DVBS2](#)] for DVB-S2.

GSE is specified in [[ETSI-GSE](#)] and is transported over the GS (Generic Stream) carrier, which is specified in [[ETSI-DVBS2](#)].

ATM is specified in [[ITU-ATM](#)].

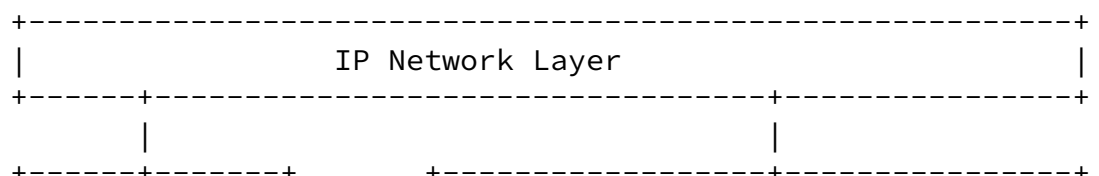
AAL5 is specified in [[ITU-AAL5](#)].

- o dvbTdm: The DVB-RCS TDM interface that counts MPEG TS packets at stream level, if the TS format is used. If the Generic Stream (GS) format is used, it counts GSE packets.
- o dvbRcsTdma: The DVB-RCS TDMA interface that counts aggregate ATM and MPEG TS packets.

The ifStackTable [[RFC2863](#)] MUST be implemented to identify the relationships among sub-interfaces.

The following example is a DVB-RCS star network with DVB-S and DVB-RCS. As illustrated on Figure 3, it shows a DVB-RCS MAC interface with one downstream and one upstream interface. In this network, ATM encapsulation is used in the DVB-RCS uplink. Two ATM Logical Ports are shown. DVB-S2 or DVB-S can be used in the downlink.

ifType 214 'mpegTransport' can also be used for counting TS packets and bytes for subinterfaces of dvbRcsTdma or dvbTdm, e.g. per PID oriented or per TS oriented as desired and applicable.



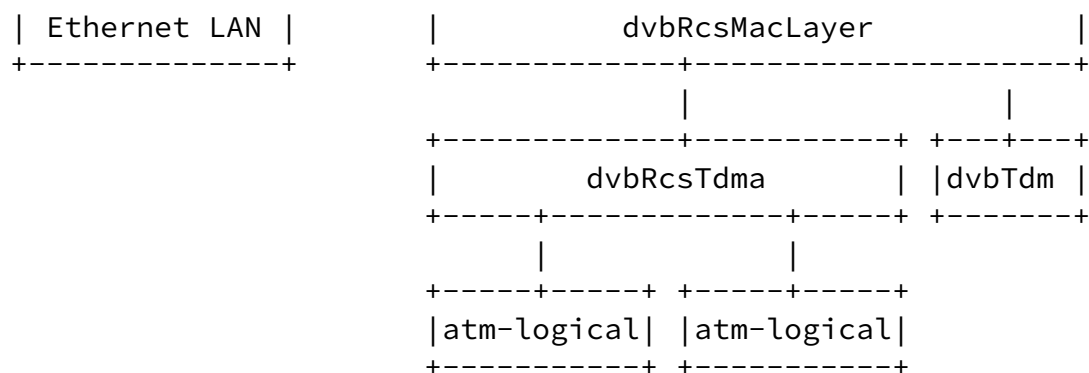


FIGURE 3: Example stacking

As can be seen from this example, the dvbRcsMacLayer interface is layered on top of the downstream and upstream interfaces, and the upstream interface is layered on top of upstream ATM logical links.

In this example, the assignment of index values could be as follows:

ifIndex	ifType	Description
2	dvbRcsMacLayer (239)	DVB-RCS MAC Layer
3	dvbRcsTdma (241)	DVB-RCS TDMA Upstream
4	dvbTdm(240)	DVB-RCS TDM Downstream
5	atm-logical(80)	ATM Logical Port

6 atm-logical(80) ATM Logical Port

The corresponding ifStack entries would then be:

IfStackHigherLayer	ifStackLowerLayer
0	1
0	2
1	0
2	3
2	4
3	5
3	6
4	0

	5		0	
	6		0	
+-----+-----+				

TABLE 2: Example ifStack entries

[3.4.](#) MIB groups description

[3.4.1.](#) dvbRcsRcstSystem

The MIB objects in this group gather some basic information that would allow anyone to trace the history - the life - of the RCST as well as to get a complete description of its constitution on the component point of view, including the SatLabs options/features support statement. Many of the parameters will be defined at installation.

This group contains description parameters related to the RCST type (ODU type) and location. These parameters are believed to stay unchanged once it has been defined during installation. Modification of hardware equipment, maintenance operations and geographical re-location may require an update of those MIB objects. Note that dvbRcsRcstSystem. dvbRcsSystemLocation object gives the location of the ODU antenna, which is needed for network operation, while the system.sysLocation (MIB-II SNMP OID) provides the location of the IDU unit, which can not be used for the same purpose.

The RCST must provide either Read-Write access to dvbRcsSystemOdu parameters or, alternatively, provide the list

of supported devices through the rcstOduListGroup (see conformance section). This group of parameters, defined in dvbRcsRcstSystem group, allows the selection by the RCST installer of the actual ODU type. In such a case, the installer must set dvbRcsOduTxType, dvbRcsOduRxType and dvbRcsOduAntennaType according to the selected BUC, LNB and antenna respectively.

[3.4.2.](#) dvbRcsRcstNetwork

This group contains all the MIB objects related to network parameters.

In this subgroup, two objects have been defined in order to differentiate between control and user traffic and associate them with a physical interface. Both dvbRcsRcstNetwork.dvbRcsNetworkLanIpAddress (Traffic) and dvbRcsRcstNetwork.dvbRcsNetworkOamIpAddress (OAM) provide the value of the IP address of, respectively, the user traffic and the control and management traffic.

[3.4.3. dvbRcsRcstInstall](#)

This group contains all the information related to the RCST installation and commissioning. Many parameters are believed to stay unchanged once it has been defined during installation. Modification of hardware equipment, maintenance operations and geographical re-location may require an update of those MIB objects.

[3.4.4. dvbRcsRcstQos](#)

This group contains objects to configure the Quality of Service (QoS) of the RCST by the NCC.

The dvbRcsPktClass table defines the packet classification for IP layer 3 classifications. Each dvbRcsPktClass entry is mapped to a dvbRcsPhbEntry in the dvbRcsPhbMappingTable.

The dvbRcsPhbMappingTable makes the relation between a packet classification entry, a Per-Hop Behavior (PHB) identifier and a Request class entry.

The dvbRcsRequestClassTable defines all the layer 2 DVB-RCS QoS parameters.

[3.4.5. dvbRcsRcstControl](#)

This MIB group contains objects a network manager can use to invoke actions and tests supported by the RCST agent and to retrieve the action/test results.

[3.4.6.](#) dvbRcsRcstState

This MIB group describes the fault state, software versions and configuration file versions of the RCST.

[3.4.7.](#) dvbRcsFwdLink (dvbRcsFwdConfig and dvbRcsFwdStatus groups)

This MIB group contains parameters that enable the NCC to have access to data about the forward link.

Configuration information is kept into the dvbRcsFwdLink.dvbRcsFwdConfig subgroup. Status information is kept into the dvbRcsFwdLink.dvbRcsFwdStatus subgroup.

The information in dvbRcsFwdLink.dvbRcsFwdConfig.dvbRcsFwdStartTable is used for the first time the RCST tries to acquire the forward link. All these objects values are aligned with the Satellite Delivery System Descriptor in the Network Information Table (NIT) table [[ETSI-SI](#)].

The objects in the dvbRcsFwdLink.dvbRcsFwdConfig.dvbRcsFwdStatusTable are aligned with the satellite forward path descriptor form the RCS Map Table (RMT) [[ETSI-RCS](#)] and with the Physical Layer (PL) Header [[ETSI-DVBS2](#)], which specified the MODCOD (modulation and FEC rate) and the Type (frame length short of long and the presence/absence of pilots).

[3.4.8.](#) dvbRcsRtnLink (dvbRcsRtnConfig and dvbRcsRtnStatus groups)

This MIB group contains parameters that enable the NCC to have access to data about the return link.

Configuration information is kept into the dvbRcsRtnLink.dvbRcsRtnConfig subgroup. Status information is kept into the dvbRcsRtnLink.dvbRcsRtnStatus subgroup.

The RCST is only able to deal with one return link at a time. Hence, there is no need to define a table to collect the different SNMP objects, as it is done for the forward.

4. Definitions

DVBRCS-MIB DEFINITIONS ::= BEGIN

IMPORTS

```
    MODULE-IDENTITY,
    OBJECT-TYPE,
    Integer32,
    Unsigned32,
    transmission
        FROM SNMPv2-SMI          -- [RFC2578]
    TEXTUAL-CONVENTION,
    RowStatus
        FROM SNMPv2-TC          -- [RFC2579]
    OBJECT-GROUP,
    MODULE-COMPLIANCE
        FROM SNMPv2-CONF        -- [RFC2580]
    SnmpAdminString
        FROM SNMP-FRAMEWORK-MIB -- [RFC3411]
    InetAddressType,
    InetAddress,
    InetAddressPrefixLength,
    InetPortNumber
        FROM INET-ADDRESS-MIB   -- [RFC4001]
    Uri
        FROM URI-TC-MIB         -- [RFC5017]
    Dscp,
    DscpOrAny
        FROM DIFFSERV-DSCP-TC   -- [RFC3289]
    ;
```

dvbRcsMib MODULE-IDENTITY

LAST-UPDATED "200907201200Z"

ORGANIZATION "The SatLabs Group"

CONTACT-INFO

"The SatLabs Group

Web: www.satlabs.org

E-mail: info@satlabs.org"

DESCRIPTION

"DVB-RCS MIB subtree.

This MIB module applies to equipment that is a Return Channel Satellite Terminal (RCST) defined in the Digital Video Broadcasting Return Channel via Satellite system (DVB-RCS) standard (ETSI EN 301 791 Digital Video Broadcasting (DVB); Interaction Channel for Satellite Distribution Systems, European Telecommunications Standards Institute (ETSI)).

It defines a set of MIB entities to characterise the behaviour and performance of network layer entities implementing DVB-RCS.

This MIB module is intended to be used by DVB-RCS equipment following the SatLabs System Recommendations, defined by the SatLabs Group and available at www.satlabs.org.

Note that, if not stated otherwise in the object DESCRIPTION clause, all writable objects are persistent."

REVISION "200907201200Z"

DESCRIPTION

"Revision of this MIB module, following MIB doctor review and adjustments based on the MIB authoring guidelines from the IETF."

::= { transmission 239 }

-- Textual Conventions

DvbRcsSatLabsProfileMap ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"This textual convention enumerates the declaration of the SatLabs defined terminal profiles. The mapping to the profiles is to be understood as described here. (0) refers to the most significant bit.

dvbs(0) -> DVBS profile (DVB-S support)

dvbs2ccm(1) -> DVB-S2 CCM profile (CCM support)

dvbs2acm(2) -> DVB-S2 ACM profile (CCM, VCM and ACM support)"

REFERENCE


```
www.satlabs.org"
SYNTAX BITS {
    dvbs(0),
    dvbs2ccm(1),
    dvbs2acm(2),
    spare1(3),
    spare2(4),
    spare3(5),
    spare4(6),
    spare5(7),
    spare6(8),
    spare7(9),
    spare8(10),
    spare9(11),
    spare10(12),
    spare11(13),
    spare12(14),
    spare13(15),
    spare14(16),
    spare15(17),
    spare16(18),
    spare17(19),
    spare18(20),
    spare19(21),
    spare20(22),
    spare21(23),
    spare22(24),
    spare23(25),
    spare24(26),
    spare25(27),
    spare26(28),
    spare27(29),
    spare28(30),
    spare29(31)
}
```

DvbRcsSatLabsOptionMap ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION

"This textual convention enumerates the declaration of the SatLabs defined options. A value of 1 indicates

that the respective option is supported. The mapping to the options is to be understood as described here. (0) refers to the most significant bit.

```
mpegTrf(0) -> MPEG_TRF
coarseSync(1) -> COARSE_SYNC
wideHop(2) -> WIDE_HOPP
fastHop(3) -> FAST_HOPP
dynamicMfTdma(4) -> Dynamic_MF_TDMA
contentionSync(5) -> CONTENTION_SYNC
qpskLow(6) -> QPSKLOW
mod16Apsk(7) -> 16APSK
mod32Apsk(8) -> 32APSK
normalFec(9) -> NORMALFEC
multiTs(10) -> MULTITS
gsTs(11) -> GSTS
enhQoS(12) -> ENHQOS
pep(13) -> PEP
http(14) -> HTTP
ftp(15) -> FTP
dns(16) -> DNS
chIdStrict(17) -> CHID_STRICT
nlid(18) -> NLID
snmpMisc(19) -> SNMPMISC
```

The support of specific options mandates the support of specific objects and access levels."

REFERENCE

"SatLabs System Recommendations available at
www.satlabs.org"

```
SYNTAX BITS      {
    mpegTrf(0),
    coarseSync(1),
    wideHop(2),
    fastHop(3),
    dynamicMfTdma(4),
    contentionSync(5),
    qpskLow(6),
    mod16Apsk(7),
```

```
mod32Apsk(8),
normalFec(9),
multiTs(10),
```

```

gsTs(11),
enhQoS(12),
pep(13),
http(14),
ftp(15),
dns(16),
chIdStrict(17),
nlid(18),
snmpMisc(19),
spare1(20),
spare2(21),
spare3(22),
spare4(23),
spare5(24),
spare6(25),
spare7(26),
spare8(27),
spare9(28),
spare10(29),
spare11(30),
spare12(31)
}

```

DvbRcsSatLabsFeatureMap ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"This textual convention enumerates the declaration of the SatLabs specified compatibility and configuration features. A value of 1 indicates that the respective feature is supported. The mapping to the features is to be understood as described here. (0) refers to the most significant bit.

```

rcstPara(0) -> RCST_PARA feature
installLog(1) -> INSTALL_LOG feature
enhClassifier(2) -> ENHCLASSIFIER feature
routeId(3) -> ROUTE_ID feature
oduList(4) -> ODULIST feature

```

```

extNetwork(5) -> EXTNETWORK feature
extControl(6) -> EXTCONTROL feature
extConfig(7) -> EXTCONFIG feature
extStatus(8) -> EXTSTATUS feature

```

The support of specific features mandates the support of specific objects and access levels."

REFERENCE

"SatLabs System Recommendations available at
www.satlabs.org"

```
SYNTAX BITS      {
    rcstPara(0),
    installLog(1),
    enhClassifier(2),
    routeId(3),
    oduList(4),
    extNetwork(5),
    extControl(6),
    extConfig(7),
    extStatus(8),
    spare6(9),
    spare7(10),
    spare8(11),
    spare9(12),
    spare10(13),
    spare11(14),
    spare12(15),
    spare13(16),
    spare14(17),
    spare15(18),
    spare16(19),
    spare17(20),
    spare18(21),
    spare19(22),
    spare20(23),
    spare21(24),
    spare22(25),
    spare23(26),
    spare24(27),
    spare25(28),
    spare26(29),
```

```
    spare27(30),
    spare28(31)
}
```

```

-- object type definitions
=====
dvbRcsMibObjects      OBJECT IDENTIFIER ::= {dvbRcsMib 1}
dvbRcsConformance    OBJECT IDENTIFIER ::= {dvbRcsMib 2}

dvbRcsRcst           OBJECT IDENTIFIER ::= {dvbRcsMibObjects 1}
dvbRcsFwdLink        OBJECT IDENTIFIER ::= {dvbRcsMibObjects 2}
dvbRcsRtnLink        OBJECT IDENTIFIER ::= {dvbRcsMibObjects 3}

dvbRcsRcstSystem      OBJECT IDENTIFIER ::= {dvbRcsRcst 1}
dvbRcsRcstNetwork     OBJECT IDENTIFIER ::= {dvbRcsRcst 2}
dvbRcsRcstInstall     OBJECT IDENTIFIER ::= {dvbRcsRcst 3}
dvbRcsRcstQos         OBJECT IDENTIFIER ::= {dvbRcsRcst 4}
dvbRcsRcstControl     OBJECT IDENTIFIER ::= {dvbRcsRcst 5}
dvbRcsRcstState       OBJECT IDENTIFIER ::= {dvbRcsRcst 6}

dvbRcsFwdConfig       OBJECT IDENTIFIER ::= {dvbRcsFwdLink 1}
dvbRcsFwdStatus       OBJECT IDENTIFIER ::= {dvbRcsFwdLink 2}

dvbRcsRtnConfig       OBJECT IDENTIFIER ::= {dvbRcsRtnLink 1}
dvbRcsRtnStatus       OBJECT IDENTIFIER ::= {dvbRcsRtnLink 2}

=====
--      dvbRcsRcstSystem sub-tree object types
=====
dvbRcsSystemMibRevision  OBJECT-TYPE
    SYNTAX                SnmpAdminString
    MAX-ACCESS             read-only
    STATUS                 current
    DESCRIPTION
        "This object allows the SNMP agent to report the
        implemented MIB module revision.
        The supported REVISION of this module is reported."
    ::= {dvbRcsRcstSystem 1}

=====

```

```

-- Options declared according to the textual conventions
=====
dvbRcsSystemSatLabsProfilesDeclaration OBJECT-TYPE
    SYNTAX                DvbRcsSatLabsProfileMap
    MAX-ACCESS             read-only
    STATUS                 current

```

DESCRIPTION

"Indicates the SatLabs profiles supported as defined in the SatLabs System Recommendations."

::= {dvbRcsRcstSystem 2}

dvbRcsSystemSatLabsOptionsDeclaration OBJECT-TYPE

SYNTAX DvbRcsSatLabsOptionMap

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the SatLabs options supported as defined in the SatLabs System Recommendations."

::= {dvbRcsRcstSystem 3}

dvbRcsSystemSatLabsFeaturesDeclaration OBJECT-TYPE

SYNTAX DvbRcsSatLabsFeatureMap

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the optional compatibility features and minor options supported as defined in the SatLabs System Recommendations."

::= {dvbRcsRcstSystem 4}

dvbRcsSystemLocation OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Physical location of the ODU antenna expressed as Longitude, Latitude and Altitude. The string shall have 31 characters in the following format: <xxxx.xxx>,<a>,<yyyyy.yyy>,,<zzzz.z>,M where x, y and z represents digits, a=N or S,

b=E or W,

Reading the digits from left to right:

'x' 7 latitude digits; x digits 1-2 contain the degrees, x digits 3-7 contain the minutes in decimal;

'y' 8 longitude digits; y digits 1-3 contain the degrees, y digits 4-8 contain the minutes in decimal;

'z' 5 altitude digits; meters above sea level in

decimal;
'.' is the decimal point;
' ,' is the field separator;
'M' is the indicator for altitude meters.

This format is a modified subset of the NMEA 0183 (National Marine Electronics Association, Interface Standard) format for Global Positioning System Fix Data.

This location and the satellite position are used to calculate the RCST-satellite path delay.

Note: The system.sysLocation object of MIB-II provides physical location of the IDU unit."

::= {dvbRcsRcstSystem 5}

dvbRcsSystem0duAntennaSize OBJECT-TYPE

SYNTAX Unsigned32
UNITS "cm"
MAX-ACCESS read-write
STATUS current
DESCRIPTION

"Diameter of the antenna."

::= {dvbRcsRcstSystem 6}

dvbRcsSystem0duAntennaGain OBJECT-TYPE

SYNTAX Unsigned32
UNITS "x0.1 dBi"
MAX-ACCESS read-write
STATUS current
DESCRIPTION

"Antenna peak gain of the ODU."

::= {dvbRcsRcstSystem 7}

dvbRcsSystem0duSspa OBJECT-TYPE

SYNTAX Unsigned32
UNITS "x0.1 W"
MAX-ACCESS read-write
STATUS current
DESCRIPTION

"Power level of the Solid State Power Amplifier

```
        installed in the ODU."
 ::= {dvbRcsRcstSystem 8}
```

```
dvbRcsSystem0duTxType OBJECT-TYPE
    SYNTAX                SnmpAdminString
    MAX-ACCESS             read-write
    STATUS                 current
    DESCRIPTION
        "Type of transmitter installed in the ODU."
 ::= {dvbRcsRcstSystem 9}
```

```
dvbRcsSystem0duRxType OBJECT-TYPE
    SYNTAX                SnmpAdminString
    MAX-ACCESS             read-write
    STATUS                 current
    DESCRIPTION
        "Type of LNB installed in the ODU, with
        information such as vendor type, output type (single,
        twin, quad,...), etc."
 ::= {dvbRcsRcstSystem 10}
```

```
dvbRcsSystem0duRxBand OBJECT-TYPE
    SYNTAX                INTEGER {
                            oduHighRxBand (0),
                            oduLowRxBand  (1)
                            }
    MAX-ACCESS             read-write
    STATUS                 current
    DESCRIPTION
        "LNB High-Band/Low-Band selector. High Band corresponds
        to the emission of a 18-26 kHz tone with 0.4-0.8 Vpp in
        the Rx IFL cable:
        (0)    - High Band
```

```
        (1)    - Low Band"
 ::= {dvbRcsRcstSystem 11}
```

```
dvbRcsSystem0duRxLO OBJECT-TYPE
    SYNTAX                Unsigned32
    UNITS                  "x100 Hz"
    MAX-ACCESS             read-write
    STATUS                 current
    DESCRIPTION
```


"Frequency of LNB Local Oscillator (in 100 Hz)"
 ::= {dvbRcsRcstSystem 12}

dvbRcsSystemOduTxLO OBJECT-TYPE

 SYNTAX Unsigned32

 UNITS "x100 Hz"

 MAX-ACCESS read-write

 STATUS current

 DESCRIPTION

 "Frequency of Block Up-Converter Local Oscillator
 (in 100 Hz)."

::= {dvbRcsRcstSystem 13}

dvbRcsSystemIduPep OBJECT IDENTIFIER ::= {dvbRcsRcstSystem 14}

dvbRcsTcpPep OBJECT-TYPE

 SYNTAX INTEGER{
 disabled (0),
 enabled (1)
 }

 MAX-ACCESS read-write

 STATUS current

 DESCRIPTION

 "Status and control of embedded TCP PEP.
 0 - disabled or not implemented
 1 - enabled"

::= {dvbRcsSystemIduPep 1}

dvbRcsHttpPep OBJECT-TYPE

 SYNTAX INTEGER{
 disabled (0),
 enabled (1)

 }

 MAX-ACCESS read-write

 STATUS current

 DESCRIPTION

 "Status and control of embedded HTTP PEP.
 0 - disabled or not implemented
 1 - enabled"

::= {dvbRcsSystemIduPep 2}

```

-- ODU structural entities
=====

dvbRcsOduTx          OBJECT IDENTIFIER ::= {dvbRcsRcstSystem 15}
dvbRcsOduRx          OBJECT IDENTIFIER ::= {dvbRcsRcstSystem 16}
dvbRcsOduAntenna     OBJECT IDENTIFIER ::= {dvbRcsRcstSystem 17}

=====

-- ODU BUC
=====

dvbRcsOduTxTypeTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF DvbRcsOduTxTypeEntry
    MAX-ACCESS not-accessible
    STATUS  current
    DESCRIPTION
        "This table contains the identification of each well-
        known BUC type supported by the IDU, and provides its
        associated index."
    ::= {dvbRcsOduTx 1}

dvbRcsOduTxTypeEntry OBJECT-TYPE
    SYNTAX  DvbRcsOduTxTypeEntry
    MAX-ACCESS not-accessible
    STATUS  current
    DESCRIPTION
        "An entry in the BUC type table."
    INDEX   { dvbRcsOduTxTypeIndex }
    ::= {dvbRcsOduTxTypeTable 1}

DvbRcsOduTxTypeEntry ::= SEQUENCE {

```

```

        dvbRcsOduTxTypeIndex      Unsigned32,
        dvbRcsOduTxTypeDescription SnmpAdminString
    }

```

```

dvbRcsOduTxTypeIndex OBJECT-TYPE
    SYNTAX  Unsigned32 (1..32)
    MAX-ACCESS not-accessible
    STATUS  current
    DESCRIPTION
        "Index for the BUC type."
    ::= {dvbRcsOduTxTypeEntry 1}

```

```

dvbRcsOduTxTypeDescription OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Text based identification of a BUC type."
    ::= {dvbRcsOduTxTypeEntry 2}

```

```

dvbRcsOduTxType OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "Index of the selected BUC type."
    ::= {dvbRcsOduTx 2}

```

```

=====
-- ODU LNB
=====

```

```

dvbRcsOduRxTypeTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF DvbRcsOduRxTypeEntry
    MAX-ACCESS not-accessible
    STATUS  current
    DESCRIPTION
        "This table contains the identification of each well-
        known LNB type supported by the IDU, and provides its
        associated index."
    ::= {dvbRcsOduRx 1}

```

```

dvbRcsOduRxTypeEntry OBJECT-TYPE
    SYNTAX      DvbRcsOduRxTypeEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the LNB type table."
    INDEX      { dvbRcsOduRxTypeIndex }
    ::= {dvbRcsOduRxTypeTable 1}

```

```

DvbRcsOduRxTypeEntry ::= SEQUENCE {
    dvbRcsOduRxTypeIndex      Unsigned32,

```

dvbRcsOduRxTypeDescription SnmpAdminString
}

dvbRcsOduRxTypeIndex OBJECT-TYPE
SYNTAX Unsigned32 (1..32)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Index for the LNB type."
::={dvbRcsOduRxTypeEntry 1}

dvbRcsOduRxTypeDescription OBJECT-TYPE
SYNTAX SnmpAdminString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Text based identification of an LNB type."
::={dvbRcsOduRxTypeEntry 2}

dvbRcsOduRxType OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"Index of the selected LNB type."
::={dvbRcsOduRx 2}

-- ODU Antenna

dvbRcsOduAntennaTypeTable OBJECT-TYPE
SYNTAX SEQUENCE OF DvbRcsOduAntennaTypeEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"This table contains the identification of each well-
known antenna type supported by the IDU, and provides
its associated index."
::={dvbRcsOduAntenna 1}

dvbRcsOduAntennaTypeEntry OBJECT-TYPE

```

SYNTAX          DvbRcsOduAntennaTypeEntry
MAX-ACCESS      not-accessible
STATUS          current
DESCRIPTION
    "An entry in the antenna type table."
INDEX    { dvbRcsOduAntennaTypeIndex }
::={dvbRcsOduAntennaTypeTable 1}

DvbRcsOduAntennaTypeEntry ::= SEQUENCE {
    dvbRcsOduAntennaTypeIndex      Unsigned32,
    dvbRcsOduAntennaTypeDescription SnmpAdminString
}

dvbRcsOduAntennaTypeIndex OBJECT-TYPE
    SYNTAX          Unsigned32 (1..32)
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "Index for the antenna type."
    ::= {dvbRcsOduAntennaTypeEntry 1}

dvbRcsOduAntennaTypeDescription OBJECT-TYPE
    SYNTAX          SnmpAdminString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Text based identification of an antenna type."
    ::= {dvbRcsOduAntennaTypeEntry 2}

```

```

dvbRcsOduAntennaType OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "Index of the selected antenna type."
    ::= {dvbRcsOduAntenna 2}

```

```

=====
-- dvbRcsRcstNetwork sub-tree object types
=====

```

```

dvbRcsNetworkOamInetAddressType OBJECT-TYPE

```

SYNTAX InetAddressType
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"The type of internet address of
dvbRcsNetworkOamInetAddress.

If the terminal OAM Internet address is unassigned or
unknown, then the value of this object is unknown(0)."

::= {dvbRcsRcstNetwork 1}

dvbRcsNetworkOamInetAddress OBJECT-TYPE

SYNTAX InetAddress
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"OAM IP Address of the RCST. This object is used with
both IP and interfaces MIB-II subgroups. It uniquely
determines the interface through which OAM traffic
passes.

The OAM IP address may be statically or dynamically
assigned. It is system dependent whether the OAM IP
address and the Traffic IP address are the same address.
If the terminal has no OAM Internet address assigned, or
this Internet address is unknown, the value of this
object is the zero-length OCTET STRING.

The InetAddressType is given by the
dvbRcsNetworkOamInetAddressType object. "

::= {dvbRcsRcstNetwork 2}

dvbRcsNetworkOamInetAddressPrefixLength OBJECT-TYPE

SYNTAX InetAddressPrefixLength
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"Prefix length for the OAM IP Address. If this address
prefix is unknown or does not apply, the value is zero."

::= {dvbRcsRcstNetwork 3}

dvbRcsNetworkOamInetAddressAssign OBJECT-TYPE

SYNTAX INTEGER {
 oamInetAddressStatic (1),
 oamInetAddressDynamic (2)}

```

    }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "Identifies whether the OAM IP address is statically
        (1) or dynamically (2) assigned."
 ::= {dvbRcsRcstNetwork 4}

dvbRcsNetworkLanInetAddressType OBJECT-TYPE
    SYNTAX          InetAddressType
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "The type of internet address of
        dvbRcsNetworkLanInetAddress.
        If the terminal Internet address on the LAN interface is
        unassigned or unknown, then the value of this object is
        unknown(0)."
```

::= {dvbRcsRcstNetwork 5}

```

dvbRcsNetworkLanInetAddress OBJECT-TYPE
    SYNTAX          InetAddress
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "IP address of the LAN interface of the terminal. If the
```

```

        terminal has no Internet address assigned on the LAN
        interface, or this Internet address is unknown, the
        value of this object is the zero-length OCTET STRING.
        The InetAddressType is given by the
        dvbRcsNetworkLanInetAddressType object."
 ::= {dvbRcsRcstNetwork 6}

dvbRcsNetworkLanInetAddressPrefixLength OBJECT-TYPE
    SYNTAX          InetAddressPrefixLength
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "Prefix length for the LAN IP Address of the terminal.
        If this address prefix is unknown or does not apply, the
        value is zero."
 ::= {dvbRcsRcstNetwork 7}
```

dvbRcsNetworkAirInterfaceDefaultGatewayInetAddressType

OBJECT-TYPE

SYNTAX InetAddressType

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The type of internet address of

dvbRcsNetworkAirInterfaceDefaultGatewayInetAddress.

If the default gateway Internet address is unassigned or unknown, then the value of this object is unknown(0)."

::= {dvbRcsRcstNetwork 8}

dvbRcsNetworkAirInterfaceDefaultGatewayInetAddress OBJECT-TYPE

SYNTAX InetAddress

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"IP address of the default gateway for the air

interface. If the terminal has no default gateway

assigned on the air interface, or this Internet address

is unknown, the value of this object is the zero-length

OCTET STRING.

The InetAddressType is given by the

dvbRcsNetworkAirInterfaceDefaultGatewayInetAddressType

object."

::= {dvbRcsRcstNetwork 9}

dvbRcsNetworkAirInterfaceDefaultGatewayInetAddressPrefixLength

OBJECT-TYPE

SYNTAX InetAddressPrefixLength

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Prefix length for the IP address of the default gateway for the air interface.

If this address prefix is unknown or does not apply, the value is zero."

::= {dvbRcsRcstNetwork 10}

dvbRcsNetworkDnsServers OBJECT IDENTIFIER ::= {dvbRcsRcstNetwork 11}

dvbRcsPrimaryDnsServerInetAddressType OBJECT-TYPE

SYNTAX InetAddressType

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The type of internet address of
dvbRcsPrimaryDnsServerInetAddress. If the primary DNS
server Internet address is unassigned or unknown, then
the value of this object is unknown(0)."

::= { dvbRcsNetworkDnsServers 1}

dvbRcsPrimaryDnsServerInetAddress OBJECT-TYPE

SYNTAX InetAddress

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"IP address of the primary DNS server in the NCC. If
the terminal has no primary DNS server assigned, or this
Internet address is unknown, the value of this object is
the zero-length OCTET STRING.

The InetAddressType is given by the
dvbRcsPrimaryDnsServerInetAddressType object."

::= {dvbRcsNetworkDnsServers 2}

dvbRcsPrimaryDnsServerInetAddressPrefixLength OBJECT-TYPE

SYNTAX InetAddressPrefixLength

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Prefix length for the IP address of the primary DNS
server in the NCC.

If this address prefix is unknown or does not apply, the
value is zero."

::= { dvbRcsNetworkDnsServers 3}

dvbRcsSecondaryDnsServerInetAddressType OBJECT-TYPE

SYNTAX InetAddressType

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The type of internet address of

dvbRcsSecondaryDnsServerInetAddress. If the secondary DNS server Internet address is unassigned or unknown, then the value of this object is unknown(0)."

```
::= { dvbRcsNetworkDnsServers 4}
```

dvbRcsSecondaryDnsServerInetAddress OBJECT-TYPE

SYNTAX InetAddress

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"IP address of the secondary DNS server in the NCC. If the terminal has no secondary DNS server assigned, or this Internet address is unknown, the value of this object is the zero-length OCTET STRING.

The InetAddressType is given by the dvbRcsSecondaryDnsServerInetAddressType object."

```
::= {dvbRcsNetworkDnsServers 5}
```

dvbRcsSecondaryDnsServerInetAddressPrefixLength OBJECT-TYPE

SYNTAX InetAddressPrefixLength

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Prefix length for the IP address of the secondary DNS server in the NCC.
If this address prefix is unknown or does not apply, the value is zero."

```
::= { dvbRcsNetworkDnsServers 6}
```

dvbRcsNetworkNccMgtInetAddressType OBJECT-TYPE

SYNTAX InetAddressType

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The type of internet address of dvbRcsNetworkNccMgtInetAddress. If the management server Internet address is unassigned or unknown, then the value of this object is unknown(0)."

```
::= {dvbRcsRcstNetwork 12}
```

dvbRcsNetworkNccMgtInetAddress OBJECT-TYPE

SYNTAX InetAddress

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"IP address of the management server in the NCC. If the terminal has no management server assigned, or this Internet address is unknown, the value of this object is the zero-length OCTET STRING.

The InetAddressType is given by the dvbRcsNetworkNccMgtInetAddressType object."

::= {dvbRcsRcstNetwork 13}

dvbRcsNetworkNccMgtInetAddressPrefixLength OBJECT-TYPE

SYNTAX InetAddressPrefixLength

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Prefix length for the IP address of the management server in the NCC.

If this address prefix is unknown or does not apply, the value is zero."

::= { dvbRcsRcstNetwork 14}

dvbRcsNetworkConfigFileDownloadUrl OBJECT-TYPE

SYNTAX Uri (SIZE(0..65535))

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Full pathname for the configuration file download. It includes the protocol type (tftp or ftp) and the associated server IP address or hostname. Hostname can only be used if DNS is supported by the RCST.

The format of this parameter follows [RFC 3986](#)."

::= {dvbRcsRcstNetwork 15}

dvbRcsNetworkInstallLogFileDownloadUrl OBJECT-TYPE

SYNTAX Uri (SIZE(0..65535))

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Full path of the installation log file to download. It includes the protocol type (tftp or ftp) and the associated server IP address or hostname. Hostname can

only be used if DNS is supported by the RCST. The installation log file can be created on the installer's computer and downloaded to the RCST.

The format of this parameter follows [RFC 3986](#)."

::= {dvbRcsRcstNetwork 16}

dvbRcsNetworkConfigFileUploadUrl OBJECT-TYPE

SYNTAX Uri(SIZE(0..65535))

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Full path name for the configuration file upload.

It includes the protocol type (tftp or ftp) and the associated server IP address or hostname. Hostname can only be used if DNS is supported by the RCST.

The format of this parameter follows [RFC 3986](#)."

::= {dvbRcsRcstNetwork 17}

dvbRcsNetworkLogFileUploadUrl OBJECT-TYPE

SYNTAX Uri(SIZE(0..65535))

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Full path of the event log file. It includes the protocol type (tftp or ftp) and the associated server IP address or hostname. Hostname can only be used if DNS is supported by the RCST.

The format of this parameter follows [RFC 3986](#)."

::= {dvbRcsRcstNetwork 18}

dvbRcsNetworkInstallLogFileUploadUrl OBJECT-TYPE

SYNTAX Uri(SIZE(0..65535))

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Full path of the installation log file. It includes the protocol type (tftp or ftp) and the associated server IP address or hostname. Hostname can only be used if DNS is supported by the RCST. The installation log file can be retrieved from the RCST by the NCC or by the installer via the LAN.

The format of this parameter follows [RFC 3986](#)."

```
::= {dvbRcsRcstNetwork 19}
```

```
-----  
--      dvbRcsRcstInstall sub-tree object types  
-----
```

```
dvbRcsInstallAntennaAlignmentState OBJECT-TYPE
```

```
    SYNTAX          INTEGER {  
        antennaAlignmentStart    (1),  
        antennaAlignmentDeny     (2),  
        antennaAlignmentContinue (3),  
        antennaAlignmentStop     (4),  
        antennaAlignmentSuccess  (5),  
        antennaAlignmentFail     (6)
```

```
    }
```

```
    MAX-ACCESS      read-write
```

```
    STATUS          current
```

```
    DESCRIPTION
```

```
        "Indicates the alignment state of the antenna:
```

```
        (1)-Start;
```

```
        (2)-Deny;
```

Combes

Expires April 22, 2010

[Page 43]

Internet-Draft

DVB-RCS MIB

October 2009

```
        (3)-Continue;
```

```
        (4)-Stop;
```

```
        (5)-Success;
```

```
        (6)-Fail"
```

```
::= {dvbRcsRcstInstall 1}
```

```
dvbRcsInstallCwFrequency OBJECT-TYPE
```

```
    SYNTAX          Unsigned32
```

```
    UNITS           "x100 Hz"
```

```
    MAX-ACCESS      read-write
```

```
    STATUS          current
```

```
    DESCRIPTION
```

```
        "Frequency at which the transmitted Continuous Wave  
        carrier (in 100 Hz).
```

```
        Minimum required precision is 1 kHz."
```

```
::= {dvbRcsRcstInstall 2}
```

```
dvbRcsInstallCwMaxDuration OBJECT-TYPE
```

```
    SYNTAX          Unsigned32
```

```
    UNITS           "seconds"
```

```
    MAX-ACCESS      read-write
```

```
    STATUS          current
```

DESCRIPTION

"Time after which the Continuous Wave carrier must be put down (in seconds)"
 ::= {dvbRcsRcstInstall 3}

dvbRcsInstallCwPower OBJECT-TYPE

SYNTAX Integer32
UNITS "x0.1 dBm"
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"IDU TX output level when the IDU is configured to send CW. The resolution is 0.1 dBm and the accuracy is +/- 1 dBm. Reconfiguration is applied immediately to a CW."
 ::= {dvbRcsRcstInstall 4}

dvbRcsInstallCoPolReading OBJECT-TYPE

SYNTAX Unsigned32
UNITS "x0.1 dB"

Combes

Expires April 22, 2010

[Page 44]

Internet-Draft

DVB-RCS MIB

October 2009

MAX-ACCESS read-write
STATUS current

DESCRIPTION

"Co-Polarisation measured value during installation procedure (in 0.1 dB)"
 ::= {dvbRcsRcstInstall 5}

dvbRcsInstallXPolReading OBJECT-TYPE

SYNTAX Unsigned32
UNITS "x0.1 dB"
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"Cross-Polarisation measured value during installation procedure (in 0.1 dB)"
 ::= {dvbRcsRcstInstall 6}

dvbRcsInstallCoPolTarget OBJECT-TYPE

SYNTAX Unsigned32
UNITS "x0.1 dB"
MAX-ACCESS read-write
STATUS current

DESCRIPTION

```

        "Co-Polarisation target value during installation
        procedure (in 0.1 dB)."
 ::= {dvbRcsRcstInstall 7}

dvbRcsInstallXPolTarget OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "x0.1 dB"
    MAX-ACCESS   read-write
    STATUS      current
    DESCRIPTION
        "Cross-Polarisation target value during installation
        procedure (in 0.1 dB)"
 ::= {dvbRcsRcstInstall 8}

```

```

dvbRcsInstallStandByDuration OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "seconds"
    MAX-ACCESS   read-write

```

Combes

Expires April 22, 2010

[Page 45]

Internet-Draft

DVB-RCS MIB

October 2009

```

    STATUS      current
    DESCRIPTION
        "Time to wait in stand-by mode (in seconds)"
 ::= {dvbRcsRcstInstall 9}

dvbRcsInstallTargetEsN0 OBJECT-TYPE
    SYNTAX      Unsigned32(0..315)
    UNITS       "x0.1 dB"
    MAX-ACCESS   read-write
    STATUS      current
    DESCRIPTION
        "This value describes the wanted Es/N0 value that
        enables operation of the return link with the required
        error performance. The values shall be given in tenth of
        dB and the initial value shall be equal to 7 dB. The
        range shall be from 0 dBm to 31.5 dBm with a precision
        of 0.1 dB."
    DEFVAL      { 70 }
 ::= {dvbRcsRcstInstall 10}

```

```

=====
-- dvbRcsRcstQos sub-tree object types
=====
dvbRcsPktClassTable OBJECT-TYPE

```

SYNTAX	SEQUENCE OF DvbRcsPktClassEntry
MAX-ACCESS	not-accessible
STATUS	current

DESCRIPTION

"This table describes the packet classification used in the DVB-RCS terminal. The number of entries is specified by dvbRcsPktClassIndex. "

::={dvbRcsRcstQos 1}

dvbRcsPktClassEntry OBJECT-TYPE

SYNTAX	DvbRcsPktClassEntry
MAX-ACCESS	not-accessible
STATUS	current

DESCRIPTION

"An entry in the packet classification table. One object type of each entry may have a value in the active range (a non-default value).The other object types are then

assumed set to 'inactive'. The entry with the lowest index value takes precedence when classifying a packet."

INDEX { dvbRcsPktClassIndex }

::= {dvbRcsPktClassTable 1}

DvbRcsPktClassEntry ::= SEQUENCE {

dvbRcsPktClassIndex	Unsigned32,
dvbRcsPktClassDscpLow	Dscp,
dvbRcsPktClassDscpHigh	Dscp,
dvbRcsPktClassDscpMarkValue	DscpOrAny,
dvbRcsPktClassIpProtocol	Unsigned32,
dvbRcsPktClassSrcInetAddressType	InetAddressType,
dvbRcsPktClassSrcInetAddress	InetAddress,
dvbRcsPktClassSrcInetAddressPrefixLength	InetAddressPrefixLength,
dvbRcsPktClassDstInetAddressType	InetAddressType,
dvbRcsPktClassDstInetAddress	InetAddress,
dvbRcsPktClassDstInetAddressPrefixLength	InetAddressPrefixLength,
dvbRcsPktClassSrcPortLow	InetPortNumber,
dvbRcsPktClassSrcPortHigh	InetPortNumber,
dvbRcsPktClassDstPortLow	InetPortNumber,
dvbRcsPktClassDstPortHigh	InetPortNumber,
dvbRcsPktClassVlanUserPri	Integer32,
dvbRcsPktClassPhbAssociation	Unsigned32,

dvbRcsPktClassRowStatus RowStatus

}

dvbRcsPktClassIndex OBJECT-TYPE
SYNTAX Unsigned32 (1..64)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "Index automatically incremented by one at row
 creation."
::={dvbRcsPktClassEntry 1}

dvbRcsPktClassDscpLow OBJECT-TYPE
SYNTAX Dscp
MAX-ACCESS read-create
STATUS current

Combes Expires April 22, 2010 [Page 47]

Internet-Draft DVB-RCS MIB October 2009

DESCRIPTION
 "This object specifies the low value of a range of
 DiffServ Code Point (DSCP) values to which a packet is
 compared."
DEFVAL { 0 }
::={dvbRcsPktClassEntry 2}

dvbRcsPktClassDscpHigh OBJECT-TYPE
SYNTAX Dscp
MAX-ACCESS read-create
STATUS current
DESCRIPTION
 "This object specifies the high value of a range of
 DiffServ Code Point (DSCP) values to which a packet is
 compared."
DEFVAL { 63 }
::={dvbRcsPktClassEntry 3}

dvbRcsPktClassDscpMarkValue OBJECT-TYPE
SYNTAX DscpOrAny
MAX-ACCESS read-create
STATUS current
DESCRIPTION
 "This object is the DiffServ Code Point (DSCP) value
 used to mark the packet, -1 indicates no DSCP marking.
 Possible DSCP marks values are (0..63)"

```

        DEFVAL { -1 }
 ::= {dvbRcsPktClassEntry 4}

dvbRcsPktClassIpProtocol OBJECT-TYPE
    SYNTAX          Unsigned32 (0..255)
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "This object specifies the IP protocol to which a
        packet is compared. A value of 255 means match all."
    DEFVAL { 255 }
 ::= {dvbRcsPktClassEntry 5}

dvbRcsPktClassSrcInetAddressType OBJECT-TYPE
    SYNTAX          InetAddressType

```

```

    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "The type of internet address of
        dvbRcsPktClassSrcInetAddress. If the packet class source
        Internet address is unassigned or unknown, then the
        value of this object is unknown(0)."
 ::= { dvbRcsPktClassEntry 6}

dvbRcsPktClassSrcInetAddress OBJECT-TYPE
    SYNTAX          InetAddress
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "This object specifies the IP source address to which a
        packet is compared. If the packet class has no source
        Internet address assigned, or this Internet address is
        unknown, the value of this object is the zero-length
        OCTET STRING.
        The InetAddressType is given by the
        dvbRcsPktClassSrcInetAddressType object."
 ::= {dvbRcsPktClassEntry 7}

dvbRcsPktClassSrcInetAddressPrefixLength OBJECT-TYPE
    SYNTAX          InetAddressPrefixLength
    MAX-ACCESS      read-create

```

```

        STATUS          current
        DESCRIPTION
            "Prefix length of the IP source address that will be
            matched for this packet class. A value of zero indicates
            that the selectivity is inactive."
        DEFVAL { 0 }
 ::= {dvbRcsPktClassEntry 8}

```

```

dvbRcsPktClassDstInetAddressType OBJECT-TYPE

```

```

    SYNTAX          InetAddressType
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "The type of internet address of

```

```

        dvbRcsPktClassDstInetAddress. If the packet class
        destination Internet address is unassigned or unknown,
        then the value of this object is unknown(0)."
 ::= { dvbRcsPktClassEntry 9}

```

```

dvbRcsPktClassDstInetAddress OBJECT-TYPE

```

```

    SYNTAX          InetAddress
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "This object specifies the IP destination address to
        which a packet is compared. If the packet class has no
        destination Internet address assigned, or this Internet
        address is unknown, the value of this object is the
        zero-length OCTET STRING.
        The InetAddressType is given by the
        dvbRcsPktClassDstInetAddressType object."
 ::= {dvbRcsPktClassEntry 10}

```

```

dvbRcsPktClassDstInetAddressPrefixLength OBJECT-TYPE

```

```

    SYNTAX          InetAddressPrefixLength
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "Prefix length of the IP source address that will be
        matched for this packet class. A value of zero indicates
        that the selectivity is inactive."
    DEFVAL { 0 }

```

::={dvbRcsPktClassEntry 11}

dvbRcsPktClassSrcPortLow OBJECT-TYPE

SYNTAX InetPortNumber

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object specifies the low range of the source port to which a packet is compared. A value of 0 indicates that the selectivity is inactive."

DEFVAL { 0 }

::={dvbRcsPktClassEntry 12}

dvbRcsPktClassSrcPortHigh OBJECT-TYPE

SYNTAX InetPortNumber

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object specifies the high range of the source port to which a packet is compared. A value of 0 indicates that the selectivity is inactive."

DEFVAL { 65535 }

::={dvbRcsPktClassEntry 13}

dvbRcsPktClassDstPortLow OBJECT-TYPE

SYNTAX InetPortNumber

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object specifies the low range of the destination port to which a packet is compared. A value of 0 indicates that the selectivity is inactive."

DEFVAL { 0 }

::={dvbRcsPktClassEntry 14}

dvbRcsPktClassDstPortHigh OBJECT-TYPE

SYNTAX InetPortNumber

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object specifies the high range of the destination port to which a packet is compared. A value of 0

```

        indicates that the selectivity is inactive."
    DEFVAL { 65535 }
    ::= {dvbRcsPktClassEntry 15}

dvbRcsPktClassVlanUserPri OBJECT-TYPE
    SYNTAX          Integer32 (-1..7)
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "This object specifies the VLAN User Priority to which a
        packet is compared. A value of -1 indicates that the
        selectivity is inactive."

```

Combes

Expires April 22, 2010

[Page 51]

Internet-Draft

DVB-RCS MIB

October 2009

```

    DEFVAL { -1 }
    ::= {dvbRcsPktClassEntry 16}

dvbRcsPktClassPhbAssociation OBJECT-TYPE
    SYNTAX          Unsigned32 (0..65535)
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "Associate the filter entry to a specific PHB (refer to
        dvbRcsPhbIdentifier)."
    ::= {dvbRcsPktClassEntry 17}

dvbRcsPktClassRowStatus OBJECT-TYPE
    SYNTAX          RowStatus
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "The status of this conceptual row. All writable objects
        in this row may be modified at any time."
    ::= {dvbRcsPktClassEntry 18}

-----
-- dvbRcsPhbMappingTable
-----

dvbRcsPhbMappingTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF DvbRcsPhbMappingEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This table is a list of Per-Hop Behaviour (PHB) MIB

```

entries.
It describes the PHB mapping to the Request Class."
::={dvbRcsRcstQos 2}

dvbRcsPhbMappingEntry OBJECT-TYPE
SYNTAX DvbRcsPhbMappingEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"An entry in the PHB mapping table."
INDEX {dvbRcsPhbIdentifier}

Combes

Expires April 22, 2010

[Page 52]

Internet-Draft

DVB-RCS MIB

October 2009

::= {dvbRcsPhbMappingTable 1}

DvbRcsPhbMappingEntry ::= SEQUENCE {
dvbRcsPhbIdentifier Unsigned32,
dvbRcsPhbName
SnmpAdminString,
dvbRcsPhbRequestClassAssociation Unsigned32,
dvbRcsPhbMappingRowStatus RowStatus
}

dvbRcsPhbIdentifier OBJECT-TYPE
SYNTAX Unsigned32 (0..65535)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Identification of the Per-Hop Behaviour (PHB). It follows the unsigned 16 bit binary encoding as specified in [RFC 3140](#). The value 0 designates the Default PHB."
::={dvbRcsPhbMappingEntry 1}

dvbRcsPhbName OBJECT-TYPE
SYNTAX SnmpAdminString
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The name of the Per-Hop Behaviour (PHB)."
::={dvbRcsPhbMappingEntry 2}

dvbRcsPhbRequestClassAssociation OBJECT-TYPE
SYNTAX Unsigned32 (1..16)
MAX-ACCESS read-create

```

STATUS          current
DESCRIPTION
    "This object is an association of this Per-Hop Behaviour
    (PHB) to a Request class (by reference to a Request
    Class index)."
::={dvbRcsPhbMappingEntry 3}

dvbRcsPhbMappingRowStatus OBJECT-TYPE
    SYNTAX          RowStatus
    MAX-ACCESS      read-create

```

Combes

Expires April 22, 2010

[Page 53]

Internet-Draft

DVB-RCS MIB

October 2009

```

STATUS          current
DESCRIPTION
    "The status of this conceptual row. All writable
    objects in this row may be modified at any time."
    DEFVAL { active }
::={dvbRcsPhbMappingEntry 4}

=====
--   dvbRcsRequestClassTable
=====
dvbRcsRequestClassTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF DvbRcsRequestClassEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This table is a list of Request class entries. This
        class describes the layer 2 QoS objects."
    ::= {dvbRcsRcstQos 3}

```

```

dvbRcsRequestClassEntry OBJECT-TYPE
    SYNTAX          DvbRcsRequestClassEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "An entry in the Request Class table."
    INDEX {dvbRcsRequestClassIndex}
    ::= {dvbRcsRequestClassTable 1}

```

```

DvbRcsRequestClassEntry ::= SEQUENCE {
    dvbRcsRequestClassIndex

```

Unsigned32,

dvbRcsRequestClassName	SnmpAdminString,
dvbRcsRequestClassChanId	Unsigned32,
dvbRcsRequestClassVccVpi	Unsigned32,
dvbRcsRequestClassVccVci	Unsigned32,
dvbRcsRequestClassPidPoolReference	Unsigned32,
dvbRcsRequestClassCra	Unsigned32,
dvbRcsRequestClassRbdcMax	Unsigned32,
dvbRcsRequestClassRbdcTimeout	Unsigned32,

Combes

Expires April 22, 2010

[Page 54]

Internet-Draft

DVB-RCS MIB

October 2009

dvbRcsRequestClassVbdcMax	Unsigned32,
dvbRcsRequestClassVbdcTimeout	Unsigned32,
dvbRcsRequestClassVbdcMaxBackLog	Unsigned32,
dvbRcsRequestClassRowStatus	RowStatus
}	

dvbRcsRequestClassIndex OBJECT-TYPE
 SYNTAX Unsigned32 (1..16)
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "Index of the Request Class table. A total of 16 entries
 are supported."
 ::= { dvbRcsRequestClassEntry 1 }

dvbRcsRequestClassName OBJECT-TYPE
 SYNTAX SnmpAdminString
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "Name of the Request Class."
 ::= { dvbRcsRequestClassEntry 2 }

dvbRcsRequestClassChanId OBJECT-TYPE
 SYNTAX Unsigned32 (0..15)
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "Channel id of the Request Class."
 ::= { dvbRcsRequestClassEntry 3 }

dvbRcsRequestClassVccVpi OBJECT-TYPE
 SYNTAX Unsigned32 (0..255)

MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "Defines VPI used for the Request Class (ATM profile)."
 ::= {dvbRcsRequestClassEntry 4}

dvbRcsRequestClassVccVci OBJECT-TYPE
 SYNTAX Unsigned32 (0..65535)

Combes

Expires April 22, 2010

[Page 55]

Internet-Draft

DVB-RCS MIB

October 2009

MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "Defines VCI used for the Request Class (ATM profile)."
 ::= {dvbRcsRequestClassEntry 5}

dvbRcsRequestClassPidPoolReference OBJECT-TYPE
 SYNTAX Unsigned32 (1..16)
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "Reference to the Packet IDentifier (PID) pool
 applicable for the Request Class."
 ::= {dvbRcsRequestClassEntry 6}

dvbRcsRequestClassCra OBJECT-TYPE
 SYNTAX Unsigned32
 UNITS "bits/s"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "Define Continuous Rate Assignment (CRA) level for the
 Request Class in bit per second (bits/s)."
 ::= {dvbRcsRequestClassEntry 7}

dvbRcsRequestClassRbdcMax OBJECT-TYPE
 SYNTAX Unsigned32
 UNITS "x2 kbits/s"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "Maximum Rate-Based Dynamic Capacity (RBDC) that can be
 requested for the Request Class, in number of 2 kbits/s"
 ::= {dvbRcsRequestClassEntry 8}

dvbRcsRequestClassRbdcTimeout OBJECT-TYPE
 SYNTAX Unsigned32
 UNITS "superframes"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

Combes

Expires April 22, 2010

[Page 56]

Internet-Draft

DVB-RCS MIB

October 2009

"Persistence of the Rate-Based Dynamic Capacity (RBDC)
 request, expressed in superframes"
 ::= {dvbRcsRequestClassEntry 9}

dvbRcsRequestClassVbdcMax OBJECT-TYPE
 SYNTAX Unsigned32
 UNITS "ATM cells/MPEG packets"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "Maximum Volume-Based Dynamic Capacity (VBDC) that can
 be allocated to the Request Class, in payload units (one
 ATM cell or one MPEG packet) per superframe"
 ::= {dvbRcsRequestClassEntry 10}

dvbRcsRequestClassVbdcTimeout OBJECT-TYPE
 SYNTAX Unsigned32
 UNITS "superframes"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "Time after which the RCST considers that the pending
 requests are lost. The RCST may issue new requests for
 that traffic. Volume-Based Dynamic Capacity (VBDC)
 Timeout is expressed in superframes."
 ::= {dvbRcsRequestClassEntry 11}

dvbRcsRequestClassVbdcMaxBackLog OBJECT-TYPE
 SYNTAX Unsigned32
 UNITS "bytes"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "Volume-Based Dynamic Capacity (VBDC) back log per
 Request Class (expressed in bytes)"

```
::={dvbRcsRequestClassEntry 12}
```

```
dvbRcsRequestClassRowStatus OBJECT-TYPE
```

SYNTAX	RowStatus
MAX-ACCESS	read-create
STATUS	current

Combes

Expires April 22, 2010

[Page 57]

Internet-Draft

DVB-RCS MIB

October 2009

DESCRIPTION

"The status of this conceptual row. It is not possible to change values in a row of this table while the row is active."

```
::={dvbRcsRequestClassEntry 13}
```

```
-----  
-- The table of PID pools  
-----
```

```
dvbRcsPidPoolTable OBJECT-TYPE
```

SYNTAX	SEQUENCE OF DvbRcsPidPoolEntry
MAX-ACCESS	not-accessible
STATUS	current

DESCRIPTION

"This table contains the Packet Identifier (PID) pools. For MPEG profile several Request Classes may be mapped within a pool of several PIDs to allow Section Packing across Several Request Classes. A PID value may occur in more than one PID pool. Each PID value can effectively occur only once in each pool."

```
::={dvbRcsRcstQos 4}
```

```
dvbRcsPidPoolEntry OBJECT-TYPE
```

SYNTAX	DvbRcsPidPoolEntry
MAX-ACCESS	not-accessible
STATUS	current

DESCRIPTION

"An entry in the PID pool table."

INDEX { dvbRcsPidPoolIndex, dvbRcsPidIndex }

```
::= {dvbRcsPidPoolTable 1}
```

```
DvbRcsPidPoolEntry ::= SEQUENCE {
```

dvbRcsPidPoolIndex	Unsigned32,
dvbRcsPidIndex	Unsigned32,
dvbRcsPidValue	Unsigned32,

dvbRcsPidPoolRowStatus RowStatus
}

dvbRcsPidPoolIndex OBJECT-TYPE
 SYNTAX Unsigned32 (1..16)

Combes

Expires April 22, 2010

[Page 58]

Internet-Draft

DVB-RCS MIB

October 2009

 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

 "Index of the PID pool in the PID pool table."
::={dvbRcsPidPoolEntry 1}

dvbRcsPidIndex OBJECT-TYPE
 SYNTAX Unsigned32 (1..16)
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

 "Index of the PID entry within the PID pool."
::={dvbRcsPidPoolEntry 2}

dvbRcsPidValue OBJECT-TYPE
 SYNTAX Unsigned32 (0..8191)
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

 "Defines one of the PIDs to be used in a PID pool of
 dvbRcsPidPoolIndex.
 A PID value may occur in more than one PID pool. Each
 PID value can effectively occur only once in each pool."
::={dvbRcsPidPoolEntry 3}

dvbRcsPidPoolRowStatus OBJECT-TYPE
 SYNTAX RowStatus
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

 "The status of this conceptual row. All writable
 objects in this row may be modified at any time."
 DEFVAL { active }
::={dvbRcsPidPoolEntry 4}

dvbRcsQosGlobalRbdcMax OBJECT-TYPE
 SYNTAX Unsigned32

UNITS	"x2 kbits/s"
MAX-ACCESS	read-write
STATUS	current
DESCRIPTION	

Combes

Expires April 22, 2010

[Page 59]

Internet-Draft

DVB-RCS MIB

October 2009

"Global maximum RBDC that can be requested for the RCST,
in number of 2 kbits/s."
::={dvbRcsRcstQos 5}

dvbRcsQosGlobalVbdcMax OBJECT-TYPE

SYNTAX	Unsigned32
UNITS	"ATM cells/MPEG packets"
MAX-ACCESS	read-write
STATUS	current
DESCRIPTION	

"Global maximum VBDC that can be allocated to the RCST,
in payload units (one ATM cell or one MPEG packet) per
superframe."
::={dvbRcsRcstQos 6}

dvbRcsQosGlobalVbdcMaxBackLog OBJECT-TYPE

SYNTAX	Unsigned32
UNITS	"bytes"
MAX-ACCESS	read-write
STATUS	current
DESCRIPTION	

"Global VBDC back log at RCST level (expressed in
bytes). It is used only if the VBDC back log is not
configured in the Request class (expressed in bytes)."
::={dvbRcsRcstQos 7}

dvbRcsQosChannelIdStrictDispatching OBJECT-TYPE

SYNTAX	INTEGER { notStrict (0), strict (1) }
MAX-ACCESS	read-write
STATUS	current
DESCRIPTION	

"Indicates whether the RCST will strictly follow RC
association when signaled through Channel_ID in the
TBTP:
(0)- no strict association

(1)- strict association"
::={dvbRcsRcstQos 8}

```
=====
-- dvbRcsRcstControl sub-tree object types
=====
dvbRcsCtrlRebootCommand OBJECT-TYPE
    SYNTAX          INTEGER {
                                idle          (1),
                                normal       (2),
                                alternate    (3)
                            }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "This variable shall force the RCST to reboot
        (1)- idle
        (2)- normal reboot (from current software load)
        (3)- reboot from alternate load (swap to alternate
            load before reboot)"
    DEFVAL {idle}
::={dvbRcsRcstControl 1}

dvbRcsCtrlRcstTxDisable OBJECT-TYPE
    SYNTAX          INTEGER {
                                idle          (1),
                                disable      (2)
                            }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "This variable shall force the RCST to stop transmission
        (transmit disabled as defined in SatLabs System
        Recommendations):
        (1)- idle
        (2)- initiate Tx Disabled"
    DEFVAL {idle}
::={dvbRcsRcstControl 2}

dvbRcsCtrlUserTrafficDisable OBJECT-TYPE
    SYNTAX          INTEGER {
                                idle          (1),
```

disable (2)

}

Combes

Expires April 22, 2010

[Page 61]

Internet-Draft

DVB-RCS MIB

October 2009

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This variable shall disable user traffic (only RCST management traffic can be transmitted)

(1)- idle

(2)- disable user traffic"

DEFVAL {idle}

::={dvbRcsRcstControl 3}

dvbRcsCtrlCwEnable OBJECT-TYPE

SYNTAX INTEGER {
off (1),
on (2)

}

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This variable will force the RCST to start transmission of CW, if the RCST is first set to the installation state, and is properly configured for CW transmission:

(1)- off

(2)- on"

DEFVAL {off}

::={dvbRcsRcstControl 4}

dvbRcsCtrlOduTxReferenceEnable OBJECT-TYPE

SYNTAX INTEGER {
off (1),
on (2)

}

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Enables activation and deactivation of 10 MHz reference clock in the Tx IFL cable:

(1) off

(2) on"

DEFVAL {on}

::={dvbRcsRcstControl 5}

Internet-Draft

DVB-RCS MIB

October 2009

```
dvbRcsCtrlOduTxDCEnable OBJECT-TYPE
    SYNTAX          INTEGER {
                        off      (1),
                        on       (2)
                    }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "Enables activation and deactivation of DC in the Tx IFL
        cable:
        (1) off
        (2) on"
    DEFVAL {on}
    ::= {dvbRcsRcstControl 6}

dvbRcsCtrlOduRxDCEnable OBJECT-TYPE
    SYNTAX          INTEGER {
                        off      (1),
                        on       (2)
                    }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "Enables activation and deactivation of DC in the Rx IFL
        cable:
        (1) off
        (2) on"
    DEFVAL {on}
    ::= {dvbRcsRcstControl 7}

dvbRcsCtrlDownloadFileCommand OBJECT-TYPE
    SYNTAX          INTEGER {
                        idle      (1),
                        config    (2),
                        installationLog (3)
                    }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "This variable will initiate a RCST configuration file
        download process"
```


Internet-Draft

DVB-RCS MIB

October 2009

```

        (1) idle
        (2) download RCST configuration file from TFTP/FTP
            server
        (3) download RCST installation log file from TFTP/FTP
            server (INSTALL_LOG Option)"
    DEFVAL {idle}
    ::= {dvbRcsRcstControl 8}

dvbRcsCtrlUploadFileCommand OBJECT-TYPE
    SYNTAX          INTEGER {
                                idle          (1),
                                config        (2),
                                eventAlarm    (3),
                                installationLog (4)
                            }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "This variable will initiate a RCST upload process
        (1) idle
        (2) upload RCST configuration file to TFTP/FTP server
        (3) upload RCST event/alarm log file to TFTP/FTP server
        (4) upload RCST installation log file to TFTP/FTP server
            (INSTALL_LOG Option)"
    DEFVAL {idle}
    ::= {dvbRcsRcstControl 9}

dvbRcsCtrlActivateConfigFileCommand OBJECT-TYPE
    SYNTAX          INTEGER {
                                idle          (1),
                                activate      (2)
                            }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "Triggers the RCST to use the configuration file and
        update its parameters accordingly. Some RCST
        implementations may require a reboot for the parameters
        to take effect (vendor specific).
        (1) Idle
        (2) activate"
```



```
    DEFVAL {idle}
 ::= {dvbRcsRcstControl 10}

dvbRcsCtrlRcstLogonCommand OBJECT-TYPE
    SYNTAX          INTEGER {
                                idle          (1),
                                logon        (2)
                            }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "This variable will initiate a RCST logon
        (1) idle
        (2) initiate RCST logon"
    DEFVAL {idle}
 ::= {dvbRcsRcstControl 11}

dvbRcsCtrlRcstLogoffCommand OBJECT-TYPE
    SYNTAX          INTEGER {
                                idle          (1),
                                logoff       (2)
                            }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "This variable will initiate a RCST logoff
        (1) idle
        (2) initiate RCST logoff"
    DEFVAL {idle}
 ::= {dvbRcsRcstControl 12}

dvbRcsCtrlRcstRxReacquire OBJECT-TYPE
    SYNTAX          INTEGER {
                                idle          (1),
                                reacquireForwardLink (2)
                            }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "This variable will force the RCST to acquire the
        forward link and start receiving."
```

```
    DEFVAL {idle}
 ::= {dvbRcsRcstControl 13}

=====
-- dvbRcsRcstState sub-tree object types
=====

dvbRcsRcstMode OBJECT-TYPE
    SYNTAX          INTEGER {
                        installation (0),
                        operational  (1)
                    }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION
        "Identifies the current mode of the RCST is and allows it
         to return to the installation mode when needed. Values for
         the RCST mode are:
             Installation (0)
             Operational (1)"
 ::= {dvbRcsRcstState 1}

dvbRcsRcstFaultStatus OBJECT-TYPE
    SYNTAX          INTEGER {
                        nofault (0),
                        fault   (1)
                    }
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Provide the fault status of the terminal. The fault
         status management is vendor specific. Values for the
         Fault Status are:
             no fault (0)
             fault (1)"
 ::= {dvbRcsRcstState 2}

dvbRcsRcstFwdLinkStatus OBJECT-TYPE
    SYNTAX          INTEGER {
                        notAcquired (0),
                        acquired    (1)
                    }
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Provide the forward link status of the terminal. The forward
         link status management is vendor specific. Values for the
         Forward Link Status are:
             notAcquired (0)
             acquired    (1)"
 ::= {dvbRcsRcstState 3}
```

```
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION
    "Provides the status of the RCST Forward Link. Values
    for the Forward Link Status are:
        Not acquired (0)
        Acquired (1)"
::={dvbRcsRcstState 3}

dvbRcsRcstRtnLinkStatus OBJECT-TYPE
    SYNTAX          INTEGER {
                        loggedOff (0),
                        loggedOn  (1)
                    }
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Provides the status of the RCST Return Link. Values for
        the Return Link Status are:
            Logged-off (0)
            Logged-on (1)"
        ::={dvbRcsRcstState 4}

dvbRcsRcstLogUpdated OBJECT-TYPE
    SYNTAX          INTEGER {
                        noUpdate      (0),
                        logfileUpdated (1)
                    }
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Indicates the existence of an updated event log file:
            No update (0)
            Event Log file updated (1)
            The RCST should remove the Event Log file updated
            indication as the log file is fetched by the NCC."
        ::={dvbRcsRcstState 5}

dvbRcsRcstCurrentSoftwareVersion OBJECT-TYPE
    SYNTAX          SnmpAdminString
    MAX-ACCESS      read-only
```

```

        STATUS                current
        DESCRIPTION
            "Current RCST software version."
 ::= {dvbRcsRcstState 6}

dvbRcsRcstAlternateSoftwareVersion OBJECT-TYPE
    SYNTAX                    SnmpAdminString
    MAX-ACCESS                read-only
    STATUS                    current
    DESCRIPTION
        "Alternate (backup/new) RCST software version."
 ::= {dvbRcsRcstState 7}

dvbRcsRcstActivatedConfigFileVersion OBJECT-TYPE
    SYNTAX                    SnmpAdminString
    MAX-ACCESS                read-only
    STATUS                    current
    DESCRIPTION
        "Version of the most recently activated configuration
         file.
         The version is vendor specific."
 ::= {dvbRcsRcstState 8}

dvbRcsRcstDownloadedConfigFileVersion OBJECT-TYPE
    SYNTAX                    SnmpAdminString
    MAX-ACCESS                read-only
    STATUS                    current
    DESCRIPTION
        "Version of the most recently downloaded configuration
         file.
         Version is vendor specific. If the value is different
         from dvbRcsRcstActivatedConfigFileVersion, it is pending
         for activation."
 ::= {dvbRcsRcstState 9}

-----
-- dvbRcsFwdConfig sub-tree object types
-----

dvbRcsFwdStartTable OBJECT-TYPE
    SYNTAX                    SEQUENCE OF DvbRcsFwdStartEntry
    MAX-ACCESS                not-accessible
```

STATUS current
DESCRIPTION
"Lists Forward Links attachment points (e.g. different
for installation and operation).
The table describes the forward link parameters used for
the start-up stream with the NCC."
::={dvbRcsFwdConfig 1}

dvbRcsFwdStartEntry OBJECT-TYPE
SYNTAX DvbRcsFwdStartEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"An entry in the Forward Link StartConfig table."
INDEX {dvbRcsFwdStartIndex}
::= {dvbRcsFwdStartTable 1}

DvbRcsFwdStartEntry ::= SEQUENCE {
dvbRcsFwdStartIndex Unsigned32,
dvbRcsFwdStartPopId Integer32,
dvbRcsFwdStartFrequency Unsigned32,
dvbRcsFwdStartPolar INTEGER,
dvbRcsFwdStartFormat INTEGER,
dvbRcsFwdStartRolloff INTEGER,
dvbRcsFwdStartSymbolRate Unsigned32,
dvbRcsFwdStartInnerFec INTEGER,
dvbRcsFwdStartRowStatus RowStatus
}

dvbRcsFwdStartIndex OBJECT-TYPE
SYNTAX Unsigned32 (1..8)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Index of the Forward Link StartConfig table."
::={dvbRcsFwdStartEntry 1}

dvbRcsFwdStartPopId OBJECT-TYPE
SYNTAX Integer32 (-1..65535)
MAX-ACCESS read-create
STATUS current

DESCRIPTION

"Population identifier associated with the start-up forward link:

-1: any (auto)

0-65535: specific StartPopId

If 'any' is set, the RCST will assume membership of any announced population ID and will commence with logon in accordance with this assumption."

::={dvbRcsFwdStartEntry 2}

dvbRcsFwdStartFrequency OBJECT-TYPE

SYNTAX Unsigned32

UNITS "x100 kHz"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Frequency of the start transponder carrying a Network Information Table to which any RCST shall trigger to acquire forward link. Its value shall be given in multiple of 100 kHz."

::={dvbRcsFwdStartEntry 3}

dvbRcsFwdStartPolar OBJECT-TYPE

SYNTAX INTEGER {
linearHorizontal (0),
linearVertical (1),
circularLeft (2),
circularRight (3)
}

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"2-bit field giving the polarization of the start transponder carrying an Network Information Table to which any RCST shall trigger to acquire forward link:

00: linear and horizontal

01: linear and vertical

10: circular left

11: circular right"

::={dvbRcsFwdStartEntry 4}

dvbRcsFwdStartFormat OBJECT-TYPE

```
SYNTAX          INTEGER {
                                auto      (-1),
                                dvbs      (0),
                                dvbs2ccm  (1),
                                dvbs2acm  (2)
                            }
```

```
MAX-ACCESS      read-create
```

```
STATUS          current
```

DESCRIPTION

"Specifies the transmission format standard applied for the startup stream. The start transport stream carries a Network Information Table that the RCST uses for acquiring the forward link signaling. Supported values are:

- 1: unspecified (automatic format acquisition is assumed)
- 0: DVB-S (support of this value is mandatory if DVB-S support is claimed)
- 1: DVB-S2 with CCM (support of this value is mandatory if DVB-S2 CCM support is claimed)
- 2: DVB-S2 with VCM or ACM (support of this value is mandatory if DVB-S2 ACM support is claimed)

This allows the RCST to discriminate between CCM and VCM/ACM when selecting the forward link.

The support of automatic format selection is optional. One or several of the other format selections must be supported, according to the claimed SatLabs profile support."

```
::={dvbRcsFwdStartEntry 5}
```

dvbRcsFwdStartRolloff OBJECT-TYPE

```
SYNTAX          INTEGER {
                                autoRolloff  (0),
                                rolloff020   (1),
                                rolloff025   (2),
                                rolloff035   (3)
                            }
```

```
MAX-ACCESS      read-create
```

```
STATUS          current
```

DESCRIPTION

"Specifies the receive filter roll-off applied on the start transponder. The start transponder carries a Network Information Table that the RCST uses for acquiring the forward link signaling.

Supported values are:

0: any (auto)

1: 0.20

2: 0.25

3: 0.35"

::={dvbRcsFwdStartEntry 6}

dvbRcsFwdStartSymbolRate OBJECT-TYPE

SYNTAX Unsigned32

UNITS "x100 symbols/s"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Specifies the symbol rate on the start transponder carrying a Network Information Table to which any RCST shall trigger to acquire forward link. Its value shall be given in multiple of 100 symbols/s."

::={dvbRcsFwdStartEntry 7}

dvbRcsFwdStartInnerFec OBJECT-TYPE

SYNTAX	INTEGER	{
	autoFec	(-1),
	fecRate12	(0),
	fecRate23	(1),
	fecRate34	(2),
	fecRate56	(3),
	fecRate78	(4),
	fecRate89	(5),
	fecRate35	(6),
	fecRate45	(7),
	fecRate910	(8),
	fecRate25	(9),
	fecRate13	(10),
	fecRate14	(11),
	noInnerCode	(12)
	}	

}

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Specifies the inner Forward Error Correction used on the start transponder carrying a Network Information Table to which any RCST shall trigger to acquire forward link.

Supported values are:

autoFec	(-1),
fecRate1/2	(0),
fecRate2/3	(1),
fecRate3/4	(2),
fecRate5/6	(3),
fecRate7/8	(4),
fecRate8/9	(5),
fecRate3/5	(6),
fecRate4/5	(7),
fecRate9/10	(8),
fecRate2/5	(9),
fecRate1/3	(10),
fecRate1/4	(11),
noInnerCode	(12)

The support of autoFec is optional."

::={dvbRcsFwdStartEntry 8}

dvbRcsFwdStartRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The status of this conceptual row. It is not possible to change values in a row of this table while the row is active."

::={dvbRcsFwdStartEntry 9}

```

=====
--  dvbRcsFwdStatus sub-tree object types
=====

```

dvbRcsFwdStatusPopId OBJECT-TYPE

SYNTAX Unsigned32 (0..65535)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Population identifier applied at log-on:

0-65535: specific StartPopId

If the RCST was allowed to logon with any population, the RCST will report the base number of the announced population ID indicated by the RCS Map Table linkage descriptor used at logon."

::={dvbRcsFwdStatus 1}

dvbRcsFwdStatusTable OBJECT-TYPE

SYNTAX SEQUENCE OF DvbRcsFwdStatusEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table describes the current status of Forward Link interfaces."

::={dvbRcsFwdStatus 2}

dvbRcsFwdStatusEntry OBJECT-TYPE

SYNTAX DvbRcsFwdStatusEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the Forward Link Status table. Each entry is associated with a physical interface.

A RCST shall support at least one entry."

INDEX { dvbRcsFwdStatusIndex }

::= {dvbRcsFwdStatusTable 1}

DvbRcsFwdStatusEntry ::= SEQUENCE {

dvbRcsFwdStatusIndex Unsigned32,

dvbRcsFwdStatusIfReference Unsigned32,

dvbRcsFwdStatusNetId Unsigned32,

dvbRcsFwdStatusNetName

SnmpAdminString,

dvbRcsFwdStatusFormat INTEGER,

dvbRcsFwdStatusFrequency Unsigned32,

dvbRcsFwdStatusPolar INTEGER,

dvbRcsFwdStatusInnerFec INTEGER,

dvbRcsFwdStatusSymbolRate Unsigned32,

dvbRcsFwdStatusRolloff INTEGER,

```
        dvbRcsFwdStatusModulation      INTEGER,
        dvbRcsFwdStatusFecFrame        INTEGER,
        dvbRcsFwdStatusPilot           INTEGER,
        dvbRcsFwdStatusBer              Integer32,
        dvbRcsFwdStatusCnr              Integer32,
        dvbRcsFwdStatusRxPower          Integer32
    }
```

```
dvbRcsFwdStatusIndex OBJECT-TYPE
    SYNTAX      Unsigned32 (1..8)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Index of the Forward Link Status table."
    ::= {dvbRcsFwdStatusEntry 1}
```

```
dvbRcsFwdStatusIfReference OBJECT-TYPE
    SYNTAX      Unsigned32 (1..8)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Cross reference to the interface table"
    ::= {dvbRcsFwdStatusEntry 2}
```

```
dvbRcsFwdStatusNetId OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Interactive network identifier of the forward
        link (from RCS Map Table)"
    ::= {dvbRcsFwdStatusEntry 3}
```

```
dvbRcsFwdStatusNetName OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The name of the interactive network of the forward
        link (from RCS Map Table)"
    ::= {dvbRcsFwdStatusEntry 4}
```

dvbRcsFwdStatusFormat OBJECT-TYPE

```
SYNTAX          INTEGER {
                                dvbs          (0),
                                dvbs2ccm      (1),
                                dvbs2acm      (2),
                                reservedFormat (3)
                            }
```

```
MAX-ACCESS      read-only
```

```
STATUS          current
```

DESCRIPTION

"Specifies the transmission format applied on the forward link. Supported values are (from RMT):

0: DVB-S

1: DVB-S2 using CCM

2: DVB-S2 using VCM or ACM

3: reserved"

```
::={dvbRcsFwdStatusEntry 5}
```

dvbRcsFwdStatusFrequency OBJECT-TYPE

```
SYNTAX          Unsigned32
```

```
UNITS           "x100 kHz"
```

```
MAX-ACCESS      read-only
```

```
STATUS          current
```

DESCRIPTION

"An estimate of the frequency of the forward link. Its value shall be given in multiple of 100 kHz."

```
::={dvbRcsFwdStatusEntry 6}
```

dvbRcsFwdStatusPolar OBJECT-TYPE

```
SYNTAX          INTEGER {
                                linearHorizontal (0),
                                linearVertical   (1),
                                circularLeft     (2),
                                circularRight    (3)
                            }
```

```
MAX-ACCESS      read-only
```

```
STATUS          current
```

DESCRIPTION

"2-bit field giving the polarization of the forward link (from RMT):

```

    00: linear and horizontal
    01: linear and vertical
    10: circular left
    11: circular right"
 ::= {dvbRcsFwdStatusEntry 7}

```

dvbRcsFwdStatusInnerFec OBJECT-TYPE

```

SYNTAX          INTEGER          {
    unknown      (-1),
    fecRate12    (0),
    fecRate23    (1),
    fecRate34    (2),
    fecRate56    (3),
    fecRate78    (4),
    fecRate89    (5),
    fecRate35    (6),
    fecRate45    (7),
    fecRate910   (8),
    fecRate25    (9),
    fecRate13    (10),
    fecRate14    (11),
    noInnerCode  (12)

```

```

}

```

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Specifies the inner Forward Error Correction used on the forward link for transmission to the RCST.

Supported values are:

```

    unknown      (-1),
    fecRate1/2    (0),
    fecRate2/3    (1),
    fecRate3/4    (2),
    fecRate5/6    (3),
    fecRate7/8    (4),
    fecRate8/9    (5),
    fecRate3/5    (6),
    fecRate4/5    (7),
    fecRate9/10   (8),
    fecRate2/5    (9),
    fecRate1/3    (10),

```

```

        fecRate1/4      (11),
        noInnerCode     (12)

```

The RCST will report a value that has been used for transmission to the RCST within the most recent 60 seconds. If this is not relevant, the RCST will report 'unknown'."

```
::={dvbRcsFwdStatusEntry 8}
```

dvbRcsFwdStatusSymbolRate OBJECT-TYPE

```

SYNTAX      Unsigned32
UNITS       "x100 symbols/s"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION

```

"An estimate of the symbol rate of the forward link.
Its value shall be given in multiple of 100 symbol/s."

```
::={dvbRcsFwdStatusEntry 9}
```

dvbRcsFwdStatusRolloff OBJECT-TYPE

```

SYNTAX      INTEGER {
                                undefRolloff      (0),
                                rolloff020        (1),
                                rolloff025        (2),
                                rolloff035        (3)
                        }

```

```

MAX-ACCESS  read-only
STATUS      current

```

DESCRIPTION

"An estimate of the roll-off applied on the forward link.

Supported values are:

```

    0: undefined
    1: 0.20
    2: 0.25
    3: 0.35"

```

```
::={dvbRcsFwdStatusEntry 10}
```

dvbRcsFwdStatusModulation OBJECT-TYPE

```

SYNTAX      INTEGER {
                                unknown          (0),
                                mBPSK           (1),

```



```

        mQPSK          (2),
        m8PSK          (3),
        m16APSK        (4),
        m32APSK        (5)
    }
    MAX-ACCESS          read-only
    STATUS              current
    DESCRIPTION
        "Indicates the modulation on the forward link used for
        transmission to the RCST.
        0: unknown
        1: BPSK
        2: QPSK
        3: 8PSK
        4: 16APSK
        5: 32APSK
        The RCST will report a value that has been used for
        transmission to the RCST within the most recent 60
        seconds.
        If this is not relevant, the RCST will report
        'unknown'."
 ::= {dvbRcsFwdStatusEntry 11}

dvbRcsFwdStatusFecFrame OBJECT-TYPE
    SYNTAX              INTEGER {
                            unknown      (0),
                            shortframe   (1),
                            longframe    (2)
                        }
    MAX-ACCESS          read-only
    STATUS              current
    DESCRIPTION
        "Indicates the frame length used on the forward link for
        transmission to the RCST.
        Supported values are:
        0: Unknown
        1: Short frame
        2: Normal frame
        The RCST will report a value that has been used for
        transmission to the RCST within the most recent 60
        seconds."

```

If this is not relevant, the RCST will report
'unknown'."

::={dvbRcsFwdStatusEntry 12}

dvbRcsFwdStatusPilot OBJECT-TYPE

SYNTAX INTEGER {

unknown (0),

pilotNotused (1),

pilotUsed (2)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates whether pilots are used on the forward link
for transmission to the RCST.
Supported values are:

0: Unknown

1: Pilots are not used

2: Pilots are used

The RCST will report a value that has been used for
transmission to the RCST within the most recent 60
seconds.
If this is not relevant, the RCST will report
'unknown'."

::={dvbRcsFwdStatusEntry 13}

dvbRcsFwdStatusBer OBJECT-TYPE

SYNTAX Integer32

UNITS "exponent of 10"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Provides the RCST BER on the Forward Link in log10
units."

::={dvbRcsFwdStatusEntry 14}

dvbRcsFwdStatusCnr OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dB"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Provides the RCST CNR on the Forward Link in 0.1 dB units."

::={dvbRcsFwdStatusEntry 15}

dvbRcsFwdStatusRxPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dBm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Provides the power level of the Forward Link as received at the IDU, in 0.1 dBm units."

DEFVAL { -500 }

::={dvbRcsFwdStatusEntry 16}

-- dvbRcsRtnConfig sub-tree object types

dvbRcsRtnConfigMaxEirp OBJECT-TYPE

SYNTAX Integer32

UNITS "x0.1 dBm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Max EIRP of the RCST given in resolution of 0.1 dBm, applied when the IDU can itself set the necessary IDU TX output level e.g. when using a BUC that has a power level detector and provides sufficient feedback to the IDU."

::= {dvbRcsRtnConfig 1}

dvbRcsRtnConfigDefIfLevel OBJECT-TYPE

SYNTAX Integer32

UNITS "x0.1 dBm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"IDU TX output level applied in case the dvbRcsRtnConfigMaxEirp cannot be used. The resolution is 0.1 dBm and the accuracy is +/- 1 dBm."

```
::= {dvbRcsRtnConfig 2}
```

```
-----  
-- dvbRcsRtnStatus sub-tree object types  
-----
```

```
dvbRcsRtnStatusEbN0 OBJECT-TYPE
```

```
    SYNTAX          Integer32
```

```
    UNITS            "x0.1 dB"
```

```
    MAX-ACCESS       read-only
```

```
    STATUS           current
```

```
    DESCRIPTION
```

```
        "The EbN0 value reported for the return link, referenced  
        to the regular SYNC burst transmission, in 0.1 dB  
        units."
```

```
::= {dvbRcsRtnStatus 1}
```

```
dvbRcsRtnStatusSFDuration OBJECT-TYPE
```

```
    SYNTAX          Unsigned32 (250..7500)
```

```
    UNITS            "0.1 ms"
```

```
    MAX-ACCESS       read-only
```

```
    STATUS           current
```

```
    DESCRIPTION
```

```
        "The duration of the currently applied return link  
        super-frame structure, in tenths of milliseconds."
```

```
::= {dvbRcsRtnStatus 2}
```

```
dvbRcsRtnStatusPayloadUnit OBJECT-TYPE
```

```
    SYNTAX          INTEGER {  
                                unitATM      (0),  
                                unitMPEG     (1)  
                            }
```

```
    MAX-ACCESS       read-only
```

```
    STATUS           current
```

```
    DESCRIPTION
```

```
        "Indicates if the payload unit used for the return link  
        is ATM or MPEG."
```

```
::= {dvbRcsRtnStatus 3}
```

```
-----  
-- conformance information  
-----
```

```
dvbRcsRcstGroups          OBJECT IDENTIFIER ::=
{dvbRcsConformance 1}
dvbRcsRcstCompliances     OBJECT IDENTIFIER ::=
{dvbRcsConformance 2}
```

```
=====
--      conformance statements
=====
```

```
dvbRcsRcstCompliance1 MODULE-COMPLIANCE
    STATUS          current
    DESCRIPTION
        "The compliance statement for DVB-RCS terminals that
        are compliant with SatLabs System Recommendations.
        Compliance is linked to the support by the terminal of
        the options or features defined in the SatLabs System
        Recommendations.
        The supported options and features of a terminal are
        declared in objects
        dvbRcsSystemSatLabsOptionsDeclaration
        and dvbRcsSystemSatLabsFeaturesDeclaration
        respectively."
```

```
MODULE  -- this module
```

```
        MANDATORY-GROUPS    {dvbRcsRcstSystemGroup,
dvbRcsRcstNetworkGroup, dvbRcsRcstInstallGroup,
dvbRcsRcstQosGroup, dvbRcsRcstControlGroup,
dvbRcsRcstStateGroup, dvbRcsFwdConfigGroup,
dvbRcsFwdStatusGroup, dvbRcsRtnConfigGroup,
dvbRcsRtnStatusGroup}
```

```
GROUP dvbRcsRcstExtNetworkGroup
DESCRIPTION
```

```
    "This group is mandatory for an RCST that supports extended
    networking management functionality. Such RCST is qualified
    as supporting the EXTNETWORK feature, as defined in the
    SatLabs System Recommendations."
```

```
GROUP dvbRcsRcstDnsGroup
DESCRIPTION
```

```
    "This group is mandatory for an RCST that supports the DNS
```

protocol. Such RCST is qualified as supporting the DNS option, as defined in the SatLabs System Recommendations."

GROUP dvbRcsRcstExtInstallGroup

DESCRIPTION

"This group is mandatory for an RCST that supports the installation log file. Such RCST is qualified as supporting the INSTALL_LOG feature, as defined in the SatLabs System Recommendations."

GROUP dvbRcsRcstEnhancedClassifierGroup

DESCRIPTION

"This group is mandatory for an RCST that supports the enhanced classifier feature. Such RCST is qualified as supporting the ENHCLASSIFIER feature, as defined in the SatLabs System Recommendations."

GROUP dvbRcsRcstMpegQosGroup

DESCRIPTION

"This group is mandatory for an RCST that supports MPEG traffic bursts. Such RCST is qualified as supporting the MPEG_TRF option, as defined in the SatLabs System Recommendations."

GROUP dvbRcsRcstGlobalQosGroup

DESCRIPTION

"This group is mandatory for an RCST that supports global RCST QOS configuration data. Such RCST is qualified as supporting the RCST_PARA feature, as defined in the SatLabs System Recommendations."

GROUP dvbRcsRcstStrictQosGroup

DESCRIPTION

"This group is mandatory for an RCST that supports strict channel ID dispatching. Such RCST is qualified as supporting the CHID_STRICT option, as defined in the SatLabs System Recommendations."

GROUP dvbRcsRcstExtControlGroup

DESCRIPTION

"This group is mandatory for an RCST that supports extended control management functionality. Such RCST is qualified as supporting the EXTCONTROL feature, as defined in the SatLabs System Recommendations."

GROUP dvbRcsRtnExtConfigGroup

DESCRIPTION

"This group is mandatory for an RCST that supports extended return link configuration management functionality. Such RCST is qualified as supporting the EXTCONFIG feature, as defined in the SatLabs System Recommendations."

GROUP dvbRcsRtnExtStatusGroup

DESCRIPTION

"This group is mandatory for an RCST that supports extended return link status report functionality. Such RCST is qualified as supporting the EXTSTATUS feature, as defined in the SatLabs System Recommendations."

GROUP dvbRcsRcstOduListGroup

DESCRIPTION

"This group is mandatory for an RCST that supports the ODU structural entities defined under dvbRcsOduTx, dvbRcsOduRx and dvbRcsOduAntenna. Such RCST is qualified as supporting the ODULIST feature, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsSystemOduAntennaSize

MIN-ACCESS read-only

DESCRIPTION

"Write access must be supported if dvbRcsRcstOduListGroup is not supported."

OBJECT dvbRcsSystemOduAntennaGain

MIN-ACCESS read-only

DESCRIPTION

"Write access must be supported if dvbRcsRcstOduListGroup is not supported."

OBJECT dvbRcsSystemOduSspa

MIN-ACCESS read-only

DESCRIPTION

"Write access must be supported if dvbRcsRcstOduListGroup is not supported."

OBJECT dvbRcsSystemOduTxType

MIN-ACCESS read-only

DESCRIPTION

"Write access must be supported if dvbRcsRcstOduListGroup is not supported."

OBJECT dvbRcsSystemOduRxType

MIN-ACCESS read-only

DESCRIPTION

"Write access must be supported if dvbRcsRcstOduListGroup is not supported."

OBJECT dvbRcsSystemOduRxBand

MIN-ACCESS read-only

DESCRIPTION

"Write access must be supported if dvbRcsRcstOduListGroup is not supported."

OBJECT dvbRcsSystemOduRxLO

MIN-ACCESS read-only

DESCRIPTION

"Write access must be supported if dvbRcsRcstOduListGroup is not supported."

OBJECT dvbRcsSystemOduTxLO

MIN-ACCESS read-only

DESCRIPTION

"Write access must be supported if dvbRcsRcstOduListGroup is not supported."

OBJECT dvbRcsNetworkOamInetAddressType

SYNTAX InetAddressType { ipv4(1) }

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsNetworkOamInetAddress

SYNTAX InetAddress (SIZE(4))

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsNetworkLanInetAddressType

SYNTAX InetAddressType { ipv4(1) }

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsNetworkLanInetAddress

SYNTAX InetAddress (SIZE(4))

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsNetworkAirInterfaceDefaultGatewayInetAddressType

SYNTAX InetAddressType { ipv4(1) }

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsNetworkAirInterfaceDefaultGatewayInetAddress

SYNTAX InetAddress (SIZE(4))

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsPrimaryDnsServerInetAddressType

SYNTAX InetAddressType { ipv4(1) }

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsPrimaryDnsServerInetAddress

SYNTAX InetAddress (SIZE(4))

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsSecondaryDnsServerInetAddressType

SYNTAX InetAddressType { ipv4(1) }

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsSecondaryDnsServerInetAddress

SYNTAX InetAddress (SIZE(4))

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsNetworkNccMgtInetAddressType

SYNTAX InetAddressType { ipv4(1) }

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsNetworkNccMgtInetAddress

SYNTAX InetAddress (SIZE(4))

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsPktClassDscpLow

MIN-ACCESS read-only

DESCRIPTION

"Create access only required if the RCST supports the enhanced classifier feature. Such RCST is qualified as supporting the ENHCLASSIFIER feature, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsPktClassDscpHigh

MIN-ACCESS read-only

DESCRIPTION

"Create access only required if the RCST supports the enhanced classifier feature. Such RCST is qualified as supporting the ENHCLASSIFIER feature, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsPktClassDscpMarkValue

MIN-ACCESS read-only

DESCRIPTION

"Create access only required if the RCST supports the enhanced classifier feature. Such RCST is qualified as supporting the ENHCLASSIFIER feature, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsPktClassSrcInetAddressType

SYNTAX InetAddressType { ipv4(1) }

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsPktClassSrcInetAddress

SYNTAX InetAddress (SIZE(4))

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsPktClassDstInetAddressType

SYNTAX InetAddressType { ipv4(1) }

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsPktClassDstInetAddress

SYNTAX InetAddress (SIZE(4))

DESCRIPTION

"An implementation is only required to support IPv4 addresses."

OBJECT dvbRcsPhbName

MIN-ACCESS read-only

DESCRIPTION

"Create access only required if the RCST supports extended management support. Such RCST is qualified as supporting the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsPhbRequestClassAssociation

MIN-ACCESS read-only

DESCRIPTION

"Create access only required if the RCST supports extended management support. Such RCST is qualified as supporting the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsPhbMappingRowStatus

MIN-ACCESS read-only

DESCRIPTION

"Create access only required if the RCST supports extended management support. Such RCST is qualified as supporting the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassName

MIN-ACCESS read-only

DESCRIPTION

"Write access only required if the RCST supports extended management support. Such RCST is qualified as supporting the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassChanId

MIN-ACCESS read-only

DESCRIPTION

"Write access only required if the RCST supports extended management support. Such RCST is qualified as supporting the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassVccVpi

MIN-ACCESS read-only

DESCRIPTION

"Write access only required if the RCST supports extended management support. Such RCST is qualified as supporting the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassVccVci

MIN-ACCESS read-only

DESCRIPTION

"Write access only required if the RCST supports extended management support. Such RCST is qualified as supporting the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassPidPoolReference

MIN-ACCESS not-accessible

DESCRIPTION

"Read-only access required if the RCST supports MPEG traffic Bursts, according to the MPEG_TRF option, as defined in the SatLabs System Recommendations. Write access only required if the RCST also supports extended management support, according to the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassCra

MIN-ACCESS read-only

DESCRIPTION

"Write access only required if the RCST supports extended management support, according to the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassRbdcMax

MIN-ACCESS read-only

DESCRIPTION

"Write access only required if the RCST supports extended management support, according to the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassRbdcTimeout

MIN-ACCESS read-only

DESCRIPTION

"Write access only required if the RCST supports extended management support, according to the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassVbdcMax

MIN-ACCESS read-only

DESCRIPTION

"Write access only required if the RCST supports extended

management support, according to the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassVbdcTimeout

MIN-ACCESS read-only

DESCRIPTION

"Write access only required if the RCST supports extended management support, according to the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassVbdcMaxBackLog

MIN-ACCESS read-only

DESCRIPTION

"Write access only required if the RCST supports extended management support, according to the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsRequestClassRowStatus

MIN-ACCESS read-only

DESCRIPTION

"Write access only required if the RCST supports extended management support, according to the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsPidValue

MIN-ACCESS not-accessible

DESCRIPTION

"Read-only access required if the RCST supports MPEG traffic Bursts, according to the MPEG_TRF option, as defined in the SatLabs System Recommendations. Write access only required if the RCST also supports extended management support, according to the SNMPMISC option, as defined in the SatLabs System Recommendations."

OBJECT dvbRcsPidPoolRowStatus

MIN-ACCESS not-accessible

DESCRIPTION

"Read-only access required the RCST supports MPEG traffic Bursts, according to the MPEG_TRF option, as defined in the SatLabs System Recommendations. Write access only required if the RCST also supports extended management support,

according to the SNMPMISC option, as defined in the SatLabs System Recommendations."

::= {dvbRcsRcstCompliances 1}

-- units of conformance

-- object groups for RCST system

dvbRcsRcstSystemGroup OBJECT-GROUP

OBJECTS {

dvbRcsSystemMibRevision,
dvbRcsSystemSatLabsProfilesDeclaration,
dvbRcsSystemSatLabsOptionsDeclaration,
dvbRcsSystemSatLabsFeaturesDeclaration,
dvbRcsSystemLocation,
dvbRcsSystemOduAntennaSize,
dvbRcsSystemOduAntennaGain,
dvbRcsSystemOduSspa,
dvbRcsSystemOduTxType,
dvbRcsSystemOduRxType,
dvbRcsSystemOduRxBand,
dvbRcsSystemOduRxLO,
dvbRcsSystemOduTxLO,
dvbRcsTcpPep,
dvbRcsHttpPep
}

STATUS current

DESCRIPTION

"A collection of objects providing information
applicable for basic device management support."

::= {dvbRcsRcstGroups 1}

-- object groups for RCST networking

dvbRcsRcstNetworkGroup OBJECT-GROUP

OBJECTS {

dvbRcsNetworkOamInetAddressType,
dvbRcsNetworkOamInetAddress,
dvbRcsNetworkOamInetAddressPrefixLength,
dvbRcsNetworkLanInetAddressType,
dvbRcsNetworkLanInetAddress,
dvbRcsNetworkLanInetAddressPrefixLength,
dvbRcsNetworkConfigFileDownloadUrl,
dvbRcsNetworkConfigFileUploadUrl,
dvbRcsNetworkLogFileUploadUrl

}

STATUS current

DESCRIPTION

"A collection of objects providing basic networking
management support."

::= {dvbRcsRcstGroups 2}

dvbRcsRcstExtNetworkGroup OBJECT-GROUP

OBJECTS {

dvbRcsNetworkOamInetAddressAssign,
dvbRcsNetworkAirInterfaceDefaultGatewayInetAddressType,
dvbRcsNetworkAirInterfaceDefaultGatewayInetAddress,
dvbRcsNetworkAirInterfaceDefaultGatewayInetAddressPrefixLength,
dvbRcsNetworkNccMgtInetAddressType,
dvbRcsNetworkNccMgtInetAddress,
dvbRcsNetworkNccMgtInetAddressPrefixLength

}

STATUS current

DESCRIPTION

"A collection of objects providing extended networking
management support."

::= {dvbRcsRcstGroups 3}

dvbRcsRcstDnsGroup OBJECT-GROUP

OBJECTS {

dvbRcsPrimaryDnsServerInetAddressType,
dvbRcsPrimaryDnsServerInetAddress,
dvbRcsPrimaryDnsServerInetAddressPrefixLength,
dvbRcsSecondaryDnsServerInetAddressType,
dvbRcsSecondaryDnsServerInetAddress,


```
        dvbRcsSecondaryDnsServerInetAddressPrefixLength
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing DNS management
        support."
    ::= {dvbRcsRcstGroups 4}

=====
--      object groups for RCST installation
=====

dvbRcsRcstInstallGroup OBJECT-GROUP
    OBJECTS {
        dvbRcsInstallAntennaAlignmentState,
        dvbRcsInstallCwFrequency,
        dvbRcsInstallCwMaxDuration,
        dvbRcsInstallCwPower,
        dvbRcsInstallCoPolReading,
        dvbRcsInstallXPolReading,
        dvbRcsInstallCoPolTarget,
        dvbRcsInstallXPolTarget,
        dvbRcsInstallStandByDuration,
        dvbRcsInstallTargetEsN0
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing information
        applicable for basic installation support."
    ::= {dvbRcsRcstGroups 5}

dvbRcsRcstExtInstallGroup OBJECT-GROUP
    OBJECTS {
        dvbRcsNetworkInstallLogFileDownloadUrl,
        dvbRcsNetworkInstallLogFileUploadUrl
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing extended device
        installation support."
    ::= {dvbRcsRcstGroups 6}
```

```
=====
--      object groups for QOS
=====

dvbRcsRcstQosGroup OBJECT-GROUP
  OBJECTS {
    dvbRcsPktClassDscpLow,
    dvbRcsPktClassDscpHigh,
    dvbRcsPktClassDscpMarkValue,
    dvbRcsPktClassPhbAssociation,
    dvbRcsPktClassRowStatus,
    dvbRcsPhbName,
    dvbRcsPhbRequestClassAssociation,
    dvbRcsPhbMappingRowStatus,
    dvbRcsRequestClassName,
    dvbRcsRequestClassChanId,
    dvbRcsRequestClassVccVpi,
    dvbRcsRequestClassVccVci,
    dvbRcsRequestClassCra,
    dvbRcsRequestClassRbdcMax,
    dvbRcsRequestClassRbdcTimeout,
    dvbRcsRequestClassVbdcMax,
    dvbRcsRequestClassVbdcTimeout,
    dvbRcsRequestClassVbdcMaxBackLog,
    dvbRcsRequestClassRowStatus
  }
  STATUS      current
  DESCRIPTION
    "A collection of objects providing basic access to QOS
    configuration data."
  ::= {dvbRcsRcstGroups 7}

dvbRcsRcstEnhancedClassifierGroup OBJECT-GROUP
  OBJECTS {
    dvbRcsPktClassIpProtocol,
    dvbRcsPktClassSrcInetAddressType,
    dvbRcsPktClassSrcInetAddress,
    dvbRcsPktClassSrcInetAddressPrefixLength,
    dvbRcsPktClassDstInetAddressType,
    dvbRcsPktClassDstInetAddress,
```

```
        dvbRcsPktClassDstInetAddressPrefixLength,
        dvbRcsPktClassSrcPortLow,
        dvbRcsPktClassSrcPortHigh,
        dvbRcsPktClassDstPortLow,
        dvbRcsPktClassDstPortHigh,
        dvbRcsPktClassVlanUserPri
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing support for
        management of the enhanced classifier."
 ::= {dvbRcsRcstGroups 8}

dvbRcsRcstMpegQosGroup OBJECT-GROUP
    OBJECTS {
        dvbRcsRequestClassPidPoolReference,
        dvbRcsPidValue,
        dvbRcsPidPoolRowStatus
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing access to MPEG
        related link QOS configuration data."
 ::= {dvbRcsRcstGroups 9}

dvbRcsRcstGlobalQosGroup OBJECT-GROUP
    OBJECTS {
        dvbRcsQosGlobalRbdcMax,
        dvbRcsQosGlobalVbdcMax,
        dvbRcsQosGlobalVbdcMaxBackLog
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing access to global RCST
        QOS configuration data."
 ::= {dvbRcsRcstGroups 10}

dvbRcsRcstStrictQosGroup OBJECT-GROUP
    OBJECTS {
        dvbRcsQosChannelIdStrictDispatching
    }
```

```

    STATUS      current
    DESCRIPTION
        "A collection of objects allowing management of strict
        channel ID dispatching."
    ::= {dvbRcsRcstGroups 11}

=====
--      object groups for RCST control
=====

dvbRcsRcstControlGroup OBJECT-GROUP
    OBJECTS {
        dvbRcsCtrlRebootCommand,
        dvbRcsCtrlUserTrafficDisable,
        dvbRcsCtrlCwEnable,
        dvbRcsCtrlDownloadFileCommand,
        dvbRcsCtrlUploadFileCommand,
        dvbRcsCtrlActivateConfigFileCommand,
        dvbRcsCtrlRcstRxReacquire
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects allowing basic RCST control."
    ::= {dvbRcsRcstGroups 12}

dvbRcsRcstExtControlGroup OBJECT-GROUP
    OBJECTS {
        dvbRcsCtrlRcstTxDisable,
        dvbRcsCtrlOduTxReferenceEnable,
        dvbRcsCtrlOduTxDCEnable,
        dvbRcsCtrlOduRxDCEnable,
        dvbRcsCtrlRcstLogonCommand,
        dvbRcsCtrlRcstLogoffCommand
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects allowing extended RCST
        control."
    ::= {dvbRcsRcstGroups 13}

=====
--      object groups for RCST state
=====
```

```
-----

dvbRcsRcstStateGroup OBJECT-GROUP
    OBJECTS {
        dvbRcsRcstMode,
        dvbRcsRcstFaultStatus,
        dvbRcsRcstFwdLinkStatus,
        dvbRcsRcstLogUpdated,
        dvbRcsRcstCurrentSoftwareVersion,
        dvbRcsRcstAlternateSoftwareVersion,
        dvbRcsRcstActivatedConfigFileVersion,
        dvbRcsRcstDownloadedConfigFileVersion
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects allowing access to RCST state."
 ::= {dvbRcsRcstGroups 14}

-----
--      object groups for forward link
-----

dvbRcsFwdConfigGroup OBJECT-GROUP
    OBJECTS {
        dvbRcsFwdStartPopId,
        dvbRcsFwdStartFrequency,
        dvbRcsFwdStartPolar,
        dvbRcsFwdStartFormat,
        dvbRcsFwdStartRolloff,
        dvbRcsFwdStartSymbolRate,
        dvbRcsFwdStartInnerFec,
        dvbRcsFwdStartRowStatus
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing basic start forward
        link configuration support."
 ::= {dvbRcsRcstGroups 15}

dvbRcsFwdStatusGroup OBJECT-GROUP
    OBJECTS {
```

```
        dvbRcsFwdStatusPopId,
        dvbRcsFwdStatusIfReference,
        dvbRcsFwdStatusNetId,
        dvbRcsFwdStatusNetName,
        dvbRcsFwdStatusFormat,
        dvbRcsFwdStatusFrequency,
        dvbRcsFwdStatusPolar,
        dvbRcsFwdStatusInnerFec,
        dvbRcsFwdStatusSymbolRate,
        dvbRcsFwdStatusRolloff,
        dvbRcsFwdStatusModulation,
        dvbRcsFwdStatusFecFrame,
        dvbRcsFwdStatusPilot,
        dvbRcsFwdStatusBer,
        dvbRcsFwdStatusCnr,
        dvbRcsFwdStatusRxPower
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing forward link status."
    ::= {dvbRcsRcstGroups 16}

=====
--      object groups for return link
=====

dvbRcsRtnConfigGroup OBJECT-GROUP
    OBJECTS {
        dvbRcsRtnConfigDefIfLevel
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing basic return link
        configuration support."
    ::= {dvbRcsRcstGroups 17}

dvbRcsRtnExtConfigGroup OBJECT-GROUP
    OBJECTS {
        dvbRcsRtnConfigMaxEirp
    }
    STATUS      current
```

DESCRIPTION

"A collection of objects providing extended return link configuration support."

::= {dvbRcsRcstGroups 18}

dvbRcsRtnStatusGroup OBJECT-GROUP

OBJECTS {
 dvbRcsRtnStatusPayloadUnit
}

STATUS current

DESCRIPTION

"A collection of objects allowing access to return link status."

::= {dvbRcsRcstGroups 19}

dvbRcsRtnExtStatusGroup OBJECT-GROUP

OBJECTS {
 dvbRcsRcstRtnLinkStatus,
 dvbRcsRtnStatusEbN0,
 dvbRcsRtnStatusSFDuration
}

STATUS current

DESCRIPTION

"A collection of objects allowing access to extended return link status."

::= {dvbRcsRcstGroups 20}

dvbRcsRcstOduListGroup OBJECT-GROUP

OBJECTS {
 dvbRcsOduTxTypeDescription,
 dvbRcsOduTxType,
 dvbRcsOduRxTypeDescription,
 dvbRcsOduRxType,
 dvbRcsOduAntennaTypeDescription,
 dvbRcsOduAntennaType
}

STATUS current

DESCRIPTION

"A collection of objects supporting flexible selection of ODU devices."

::= {dvbRcsRcstGroups 21}

END

XXX NOTE: RFC Editor please amend the lines below to reflect copyright policy for publication of MIBs.

Copyright (c) 2009 IETF Trust and the persons identified as authors of the code. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- * Neither the name of Internet Society, IETF or IETF Trust, nor the names of specific contributors, may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

5. Security Considerations

This MIB module relates to a system that allows end-users to access a private network or public internet access. As such, improper manipulation of the MIB objects represented by this MIB

Internet-Draft

DVB-RCS MIB

October 2009

module may result in denial of service to a large number of end-users.

There are a number of management objects defined in this MIB module with a MAX-ACCESS clause of read-write and/or read-create. Such objects may be considered sensitive or vulnerable in some network environments. The support for SET operations in a non-secure environment without proper protection can have a negative effect on network operations. These are the tables and objects and their sensitivity/vulnerability:

- o The use of the `dvbRcsNetworkNccMgtInetAddress` object to specify management stations is considered only limited protection and does not protect against attacks that spoof the management station's IP address. The use of stronger mechanisms, such as SNMPv3 security, should be considered, where possible.
- o The `dvbRcsSystemOdu` objects, `dvbRcsCtrlCwEnable`, `dvbRcsRtnConfigMaxEirp`, `dvbRcsRtnConfigDefIfLevel` objects and `dvbRcsRcstInstall` sub-tree can, if improperly or maliciously used, lead to unwanted emissions or emission levels on the satellite uplink, thereby resulting in potential degradation of the RCS service or other services using the frequency band being used.
- o The RCST may have its configuration file changed by the actions of the management system using a combination of the following objects: `dvbRcsNetworkInstallLogFileDownloadUrl`, `dvbRcsCtrlDownloadFileCommand`, `dvbRcsCtrlActivateConfigFileCommand` or `dvbRcsCtrlRebootCommand`. An improper configuration file download may result in substantial vulnerabilities and the loss of the ability of the management system to control the satellite terminal.
- o Setting `dvbRcsNetworkLogFileUploadUrl` to a wrong address may potentially impact debugging/troubleshooting efforts.
- o Setting objects in `dvbRcsPktClassTable` could cause significant changes to default traffic filtering on a RCST.

Some of the readable objects in this MIB module (i.e., objects

with a MAX-ACCESS other than not-accessible) may be considered sensitive or vulnerable in some network environments. It is thus important to control even GET access to these objects and possibly to even encrypt the values of these objects when

sending them over the network via SNMP. These are the tables and objects and their sensitivity/vulnerability:

- o The `dvbRcsNetworkNccMgtInetAddress` object may provide sufficient information for attackers to spoof management stations that have management access to the device.
- o The `dvbRcsRcstCurrentSoftwareVersion` object may provide hints as to the software vulnerabilities of the cable device.
- o The object `dvbRcsNetworkOamInetAddress` and the table `dvbRcsPktClassTable` may provide clues for attacking the cable device and other subscriber devices.

SNMP versions prior to SNMPv3 did not include adequate security. Even if the network itself is secure (for example by using IPsec), even then, there is no control as to who on the secure network is allowed to access and GET/SET (read/change/create/delete) the objects in this MIB module.

It is RECOMMENDED that implementers consider the security features provided by the SNMPv3 framework (see [\[RFC3410\]](#), [section 8](#)), including full support for the SNMPv3 cryptographic mechanisms (for authentication and privacy).

Further, deployment of SNMP versions prior to SNMPv3 is NOT RECOMMENDED. Instead, it is RECOMMENDED to deploy SNMPv3 and to enable cryptographic security. It is then a customer/operator responsibility to ensure that the SNMP entity giving access to an instance of this MIB module, is properly configured to give access to the objects only to those principals (users) that have legitimate rights to indeed GET or SET (change/create/delete) them.

[6.](#) IANA Considerations

This document includes no request to IANA. The transmission and ifType numbers described in [Section 3](#) have already been assigned under the smi-numbers registry.

[7](#). Acknowledgments

The authors thank Gorry Fairhurst for advice in the preparation of this document.

The authors recognize this document is a collective effort of the SatLabs Group (www.satlabs.org), in particular the many corrections and suggestions brought by Juan Luis Manas.

[8](#). References

[8.1](#). Normative References

- [IANA] Internet Assigned Numbers Authority, "Internet Assigned Numbers Authority", June 2008, <http://www.iana.org/assignments/smi-numbers>.
- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997 (BEST CURRENT PRACTICE).
- [RFC2578] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Structure of Management Information, Version 2 (SMIv2)", STD 58, [RFC 2578](#), April 1999.
- [RFC2579] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Textual Conventions for SMIv2", STD 58, [RFC 2579](#), April 1999.
- [RFC2580] McCloghrie, K., Perkins, D., and J. Schoenwaelder,

"Conformance Statements for SMIV2", STD 58, [RFC 2580](#), April 1999.

[RFC2863] K. McCloghrie, F. Kastenholz, "The Interfaces Group MIB", [RFC 2863](#), June 2000.

[RFC3289] F. Baker, K. Chan, A. Smith, "Management Information Base for the Differentiated Services Architecture", [RFC 3289](#), May 2002.

[RFC3411] D. Harrington, R. Presuhn, B. Wijnen, "An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks ", [RFC 3411](#), December 2002.

Combes

Expires April 22, 2010

[Page 105]

Internet-Draft

DVB-RCS MIB

October 2009

[RFC4001] M. Daniele, B. Haberman, S. Routhier, J. Schoenwaelder, "Textual Conventions for Internet Network Addresses", [RFC 4001](#), February 2005.

[RFC5017] D. McWalter, Ed., "MIB Textual Conventions for Uniform Resource Identifiers (URIs)", [RFC 5017](#), September 2007.

[8.2](#). Informative References

[ISO-MPEG] ISO/IEC DIS 13818-1:2000, "Information Technology; Generic Coding of Moving Pictures and Associated Audio Information Systems", International Standardisation Organisation (ISO).

[ITU-ATM] ITU-T Recommendation I.432 (all parts): "B-ISDN user-network interface - Physical layer specification".

[ITU-AAL5] ITU-T Recommendation I.363-5 (1996): "B-ISDN ATM Adaptation Layer specification: Type 5 AAL".

[ETSI-DAT] EN 301 192, "Digital Video Broadcasting (DVB); DVB Specifications for Data Broadcasting", European Telecommunications Standards Institute (ETSI).

[ETSI-DVBS] EN 301 421 "Digital Video Broadcasting (DVB);

Modulation and Coding for DBS satellite systems at 11/12 GHz", European Telecommunications Standards Institute (ETSI).

[ETSI-DVBS2] ETSI EN 302 307 "Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications", European Telecommunications Standards Institute (ETSI).

[ETSI-GSE] ETSI TS 102 606 "Digital Video Broadcasting (DVB); Generic Stream Encapsulation (GSE) Protocol", European Telecommunications Standards Institute (ETSI).

[ETSI-RCS] ETSI 301 791 "Digital Video Broadcasting (DVB); Interaction Channel for Satellite Distribution Systems", European Telecommunications Standards Institute (ETSI).

Combes

Expires April 22, 2010

[Page 106]

Internet-Draft

DVB-RCS MIB

October 2009

[ETSI-SI] ETSI EN 300 468 "Digital Video Broadcasting (DVB); Specification for Service Information (SI) in DVB Systems", European Telecommunications Standards Institute (ETSI).

[RFC3410] Case, J., Mundy, R., Partain, D., and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Management Framework", [RFC 3410](#), December 2002.

[RFC4259] Montpetit, M.-J., Fairhurst, G., Clausen, H., Collini-Nocker, B., and H. Linder, "A Framework for Transmission of IP Datagrams over MPEG-2 Networks", [RFC 4259](#), November 2005.

[SATLABS] SatLabs System Recommendations. Available at www.satlabs.org.

[9.](#) Authors' Addresses

Stephane Combes
ESTEC
European Space Agency
Keplerlaan 1
P.O. Box 299
2200 AG Noordwijk ZH
The Netherlands

Email: stephane.combes@esa.int
URL: telecom.esa.int

Petter Chr. Amundsen
VeriSat AS
P.O Box 1
1330 Fornebu

Norway

Email: pca@verisat.no

URL: www.verisat.no

Micheline Lambert
Advantech Satellite Networks
2341 boul. Alfred-Nobel
Saint-Laurent (Montreal)
H4S 2A9
Quebec, Canada

Email: micheline.lambert@advantechamt.com

URL: www.advantechsathet.com

Hans-Peter Lexow
STM Norway
Vollsveien 21
1366 Lysaker
Norway

Email: hlexow@stmi.com

URL: www.stmi.com

10. Disclaimer

This document may contain material from IETF Documents or IETF Contributions published or made publicly available before November 10, 2008. The person(s) controlling the copyright in some of this material may not have granted the IETF Trust the right to allow modifications of such material outside the IETF Standards Process.

Without obtaining an adequate license from the person(s) controlling the copyright in such materials, this document may not be modified outside the IETF Standards Process, and derivative works of it may not be created outside the IETF Standards Process, except to format it for publication as an RFC

or to translate it into languages other than English.

11. Copyright Notice

Copyright (c) 2009 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents in effect on the date of publication of this document (<http://trustee.ietf.org/license-info>). Please review these documents carefully, as they describe your rights and restrictions with respect to this document.

11.1. License for Code Components

XXX NOTE: RFC Editor please amend the lines below to reflect copyright policy for publication of MIBs.

A copyright note for the Code Components is provided at the end of [Section 4](#). In addition to the licenses granted above, Code Components are also licensed to each person who wishes to receive such a license on the terms of the "BSD License", as described below. The Legal Provisions are specified in the IETF Trust's Legal Provisions Relating to IETF Documents in effect on the date of publication of this document (<http://trustee.ietf.org/license-info>).

<<< RFC Ed Note: please remove the text below, prior to publications >>>

Change Log.

Rev -00

* First draft, for comment by the community.

Rev -01

* Second draft, for comment by the community.

The MIB module is renamed DVBRCS-MIB to reflect that it covers more than solely interface issues.

The MIB has been updated with

- * a conformance section that captures the options
- * structural changes and corrections to achieve this
- * SYNTAX refinements where applicable
- * UNITS declarations where applicable

Document reformatted to conform to I-D format conventions.

Rev -02

* Third draft, for comment by the community.

Update following comments received from the ipdvb list (Gorry Fairhurst).

Rev -03

* Fourth draft, for comment by the community.

Update following comments received from Martin Stiernerling and complement/corrections from the SatLabs Group.

Rev -04

* Fifth draft

Corrected read-write into read-create MAXACCESS for objects in requestClassTable and pidPoolTable.

Minor updates to correct format of tables and some MIB comments.

Rev -05

* Sixth draft

Addition of dvbRcs prefix to all descriptors, following request from MIB doctor (according to [Appendix C of RFC 4181](#)).

Clarification and complements brought to ODU configuration objects (see [section 3.4.1](#)), ODU structural entities definition in dvbRcsRcstSystem group and conformance section.

Modification of the interface types usage ([section 3.3](#)) in order to have alignment with Ethernet interface (dvbRcsMacLayer should count link layer packets and bytes, like Ethernet does, and not IP).

Updated copyright to reflect current IETF Trust guidelines and advice from Dan Romascanu.

Rev -06

* Seventh draft

Updated following MIB doctor review. Adjustments based on the MIB authoring guidelines from the IETF:

- o I-D renamed
- o Used name instead of number for DEFVAL where appropriate
- o Clarification added in the MIB module description regarding persistency behavior of objects
- o Integer32 replaced with Unsigned32 where appropriate
- o Obsoleted OBJECT-TYPES (DisplayString, IpAddress) replaced with SnmpAdminString, [RFC 4001](#) and [RFC 5017](#) TCs. Added conformance statements mandating IPv4 support only.
- o Clarification of the conformance clauses added in the MODULE-COMPLIANCE description and the following GROUPs and OBJECTs descriptions.

- o Re-organization of some conformance groups. Each group now refers to precise options or features. 5 new features (specified through dvbRcsSystemSatLabsFeaturesDeclaration object) are therefore defined: ODULIST, EXTNETWORK, EXTCONTROL, EXTCONFIG, EXTSTATUS.
- o Clarification in the RowStatus OBJECTs description whether writable objects in the dynamically created rows can change value while the RowStatus object is active.
- o Security section expanded.

Rev -07

* Eighth draft

Updated following MIB doctor review.

- o Objects dvbRcsNetworkAirInterfaceDefaultGatewayInetAddressPrefixLength, dvbRcsPrimaryDnsServerInetAddressPrefixLength, dvbRcsSecondaryDnsServerInetAddressPrefixLength, dvbRcsNetworkNccMgtInetAddressPrefixLength were missing.
- o Size limit added to Uri objects
- o It is now described in InetAddressObjects that they are to be interpreted as defined by the corresponding InetAddressObjectType.
- o Dscp and DscpOrAny TC from Diffserv MIB are now used.
- o dvbRcsPktClassSrcInetAddressType and dvbRcsPktClassDstInetAddressType corrected to read-create
- o Syntax for dvbRcsSystemOduAntennaSize corrected to Unsigned32
- o Details of interpretation of dvbRcsSystemSatLabsXxDeclaration objects now reside in the associated TC descriptions.
- o Addition of [RFC3289](#), [RFC3411](#), [RFC4001](#), [RFC5017](#) as normative references.

Rev -08

* Ninth draft

Updated following MIB doctor review.

- o A clarification is added to the description of dvbRcsPhbIdentifier object, which is an INDEX object. It explains that value 0 designates the Default PHB. Therefore an INDEX of 0 can be used here. The Syntax of this object is also restricted to 16-bit, as explained in the description. The Syntax of dvbRcsPktClassPhbAssociation object also restricted accordingly.

<<<End of RFC Ed Note >>

