

**WHOLESALE REFERENCE OFFER  
OF SMP OPERATOR**

**TV SERVICES OVER CABLE**

**ANNEX 3 – PLANNING & OPERATIONS**

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## 1 GLOSSARY

ADI	Asset Distribution Interface, an Interface Format commonly used for distributing VoD assets between content archives
BAL	Beneficiary Access Line, one or more physical network links between SMP operator and Beneficiary over which all network traffic required to operate the wholesale services will be organised
Bouquet	A group of digital TV services that are together sold as a Product
BSS	Business Support Systems are the components that a telecommunications network provider uses to run its business operations towards customers. BSS and OSS platforms are linked in the need to support various end to end services
CA	Conditional Access, the protection of content by requiring certain criteria to be met before granting access to this content. The term is commonly used in relation to digital television systems
CAL	CAS Access Line, a network link between SMP operator and the externally hosted CAS for Beneficiaries
CAS	Conditional Access System, the System that enforces the CA
CASV	Beneficiary's (externally hosted) CAS Vendor
CATV	Cable Analog TV
CDR	Customer Detailed Records
CM	Cable Modem
CMTS	Cable Modem Termination System, the general term for the central headend controller in a cable modem network based on the EuroDOCSIS family of standards
CPE	Customer Premises Equipment
DHCP	Dynamic Host Configuration Protocol, the standard Internet protocol to allow a networked device to obtain an IP address for one of its network interfaces from a DHCP server in the network.
DTV	Digital TV
DVB	Digital Video Broadcast standard
DVB-C	Digital Video Broadcast standards specific to cable networks
EAE	Early Authentication and Encryption, term in the EuroDOCSIS standard whereby a cable modem is authenticated and establishes secured communication even before the exchange of data on the IP network level starts
EIT	Event Information Table, part of DVB SI metadata that is typically used to carry the EPG data
EPG	Electronic Program Guide, an application showing on screen which content is being broadcast now and in the immediate or further future on each channel
EU_ID	End User Identified, the unique ID used to identify a service account between SMP operator and Beneficiary. The EU_ID is created upon initial activation of CATV service after which all communication (orders, billing, status) between SMP operator and Beneficiary is based on this EU_ID.
EuroDOCSIS	Family of industry standards used for IP data services over cable networks in Europe
HFC	Hybrid Fiber/Coax, a telecommunications industry term for broadband network which combines optical fibre and coaxial cable. It has been commonly employed globally by cable operators since the early 1990s
IHN	In Home Network
MPEG	A family of video compression standards

MPTS	Multi Program Transport Stream, a digital audio/video transport stream that groups multiple channels and typically is broadcast to fill up one frequency on the cable network.
NIU	Network Interface Unit, a device installed in consumer's homes to provide proper termination of the cable network and connectivity for the various services offered by cable operator
NTP	Network Termination Point (as defined in section 4.1 of the Main Body)
PSI	Program Specific Information the metadata for transport streams as defined by the MPEG standards
OSS	Operational Support Systems, computer systems used by telecommunications service providers dealing with the "network functions" including the telecom network itself and the supporting processes such as maintaining network inventory, provisioning services, configuring network components and managing faults. BSS and OSS platforms are linked in the need to support various end to end services
PVR	Personal Video Recorder
QAM	Quadrature/Amplitude Modulation, the modulation technique used on DVB-C networks
RTSP	Real-Time Streaming Protocol, commonly used to control the streaming behavior of video servers (start/stop/pause/slow/fast/forward/reverse)
SI	Service Information, additional metadata for transport streams as defined by the DVB standards, complements the PSI from MPEG
SMS	Subscriber Management System, the business IT system of SMP operator, Beneficiary or CASV responsible for management of subscribers
SOAP	Simple Object Access Protocol, an industry standard for allowing systems to communicate by exchanging XML messages
SOR	Statement of Requirements
SPOC	Single Point of Contact
STB	Settop Box (the digital TV Decoder)
VHE	Video Head-End, the main facility in the SMP operator network where the DTV signals are prepared for broadcast over the HFC network
VoD	Video on Demand
WRO	Wholesale Reference Offer
WSDL	Web Service Description Language, an XML based language for describing the interface of a web service
XML	Extensible Markup Language, an Internet standard for representing structured data under form of simple text files

## **2 SCOPE OF THIS DOCUMENT**

1. This annex describes the Planning and Operations principles, related to the provisioning and repair of the Wholesale TV Services over Cable.
2. Both parties will use at any time their best efforts to ensure an adequate level of service provisioning both between the Parties and towards the Users concerned.
3. In the event that difficulties or problems arise in respect of Planning and Operations, the Parties will perform all necessary co-operation and consultation with a view to developing appropriate and workable solutions.
4. All relevant technical documentation and order forms if any can be retrieved at the secured part of the website for this offer.

### **3 EXCHANGE OF INFORMATION**

5. This chapter includes some communication guidelines in order to ensure a good interchange of information and to define an effective communication channel that focuses on both improving the comprehension and execution of the processes.

#### **3.1 SINGLE POINT OF CONTACT**

6. Both Parties will appoint a member of its staff as Single Point Of Contact for Wholesale TV Services over Cable. This person, referred to as "SPOC", will be in charge of all matters regarding the day-to-day management of this offer. In particular, all provider operations will be handled between the SPOC of SMP operator and Beneficiary, unless noticed otherwise.

#### **3.2 WAYS OF COMMUNICATING**

7. Official communications between the Parties can happen via one of the following channels:
  - 7.1. Certified mail to SPOC of a Party: a certified mail can be either a registered paper mailing or an electronic e-mail for non sensitive communications. All certified mail to a Party must be addressed to the SPOC for that Party;
  - 7.2. SFTP in case of heavy files to be exchanged

#### **3.3 PRELIMINARY EXCHANGE OF INFORMATION FOR THE INITIAL SETTING UP**

8. Without prejudice to what is stated above, it is recommended that the Beneficiary provides a Statement Of Requirements (SOR) to SMP operator as early as possible in any discussions between The Beneficiary and SMP operator. The SOR is sent by certified mail to the SPOC of SMP operator. After the receipt of the SOR, SMP operator shall notify to the Beneficiary its observations, if any, concerning the SOR. In particular, when appropriate, SMP operator may request additional information to complete the information contained in the SOR.

#### **3.4 IMPLEMENTATION COMMITTEE**

9. The Implementation Committee is a meeting between both parties to supervise, discuss and examine at a general level technical and operational application of this offer, in particular, the implementation of the respective obligations of the Parties, as described in this offer.

10. The Implementation Committee will meet at least on a quarterly basis. Each Party will be entitled to call additional meetings within reasonable notice, as may be necessary. Each Party will be represented at the Implementation Committee by its SPOC accompanied by any staff as deemed necessary by the relevant Party.
11. In addition to the Implementation Committee, the Parties will be allowed to request for the set-up of any other bilateral working group in charge of discussing and agreeing on any technical or operational issues, including more specialized members on the specific topic.



## 4 PROVIDER OPERATIONS

### 4.1 GENERAL

#### 4.1.1 Provider Operations

12. Provider Operations are the operations between SMP operator and Beneficiary required to activate and configure the wholesale services that Beneficiary is deploying on the SMP operator network.

#### 4.1.2 Process Steps

13. Provider Operations are mainly dealt with by the SPOCs of both Parties and include 4 consecutive steps:
  - 13.1. Completion of a Request Form containing the relevant information regarding the Provider Operation. This is done by the SPOCs of both Parties together.
  - 13.2. Formal Request: once the Request form has been completed, the SPOC of Beneficiary makes a formal request by sending Request Form to the SPOC of SMP operator via certified mail.
  - 13.3. Request Acknowledge: SMP operator will send an Acknowledge Message to signal receipt of the Formal Request by certified mail. The Request Acknowledge will indicate what is the tentative Order Complete Date, i.e. the date at which the request fulfillment will be completed.
  - 13.4. Order Complete: when the Request is fulfilled, SMP operator will send an Order Complete message to Beneficiary via certified mail. This Order Complete message will contain the Request Form of the Formal Request to confirm that the Order was completed with the correct parameters.

### 4.2 OPEN ACCOUNT

#### 4.2.1 Description

14. As a first step before Beneficiary can start doing any further Operations with SMP operator, Beneficiary must formally open an account.

#### 4.2.2 Prerequisites

15. Before Beneficiary can start an Open Account operation, the following conditions must be met:
  - 15.1. Beneficiary has signed a Wholesale Service Contract with SMP operator.

#### 4.2.3 Request Form: Beneficiary ID Card

16. The Open Account operation is triggered by Beneficiary submitting the Provider ID Card.
17. This ID card contains the following info:
  - 17.1. The relevant contact details of SMP operator, including those of the SMP operator SPOC;
  - 17.2. The relevant contact details of Beneficiary, including those of the Beneficiary SPOC;
  - 17.3. The Provider ID of Beneficiary, this ID is to be specified in all further formal communications, such as Provider Operations and End User Orders;
  - 17.4. The services that Beneficiary is deploying. In the context of this WRO, the following services are distinguished: CATV, DTV, VoD and Broadband;
18. A blanco template of Beneficiary ID Card is given in **Annex 3.4**.

#### 4.2.4 Completion

19. This Operation is completed and the Beneficiary is notified thereof by SMP operator when the following conditions are met:
  - 19.1. An account is created in the SMP operator systems for the provider ID specified;
  - 19.2. Remark that this does not necessarily mean that all services specified on the ID Card are active; service activations will be notified separately.

### 4.3 BAL NETWORK CONNECTIONS

#### 4.3.1 Description

20. The BAL connections provide network connectivity for a number of functions exchanging data between the systems of Beneficiary and those of SMP operator. SMP operator will define a number of transit points on its backbone network. At these transit points, the network connectivity with Beneficiary will be established and IP traffic will be handed over to/from a fiber link of SMP operator from/to a fiber link of Beneficiary.
21. For reasons of economy, the number of transit points needs to be limited. At initial launch, one or two transit points will be deployed. As traffic requirements increase, additional transit points may be introduced.
22. All information relevant to BAL connections is given in **Annex 2.3.1**.

#### 4.3.2 Prerequisites

23. Before Beneficiary can issue an Network Connection order, the following conditions must be met:

23.1. Beneficiary has performed Open Account with SMP operator.

23.2. Beneficiary meets the minimum security requirements defined by the SMP.

#### 4.3.3 Request Form

24. A BAL Connection is ordered by submitting the BAL Configuration Form (a template of which is presented in **Annex 2.3.2**). For each connection point, a separate Form will be submitted and the delivery of each of the connections will be confirmed separately.

#### 4.3.4 Completion

25. This Operation is completed and the Beneficiary is notified thereof by SMP operator when the following conditions are met:

25.1. The physical network connection is realized by SMP operator and terminated on a patch panel at the transit point location, ready for patching to the network link of Beneficiary entering there;

25.2. All necessary configurations have been applied on the networking systems of SMP operator to allow proper routing of traffic for the various networking functions and as specified in the BAL Configuration Form.

26. Once the BAL Connection has been completed, Beneficiary can patch it to his own network links entering at the transit points and then application integration and testing for the various network functions can start.

### 4.4 CATV SERVICE ACTIVATION

#### 4.4.1 Description

27. The CATV Service Activation Operation performs all actions required by SMP operator and Beneficiary to make the CATV Service ready for deployment.

28. Once the Service Activation Operation is notified Completed by SMP operator, the Beneficiary can start activating end users for this service.

#### 4.4.2 Prerequisites

29. Before Beneficiary can issue a CATV Service Activation order, the following conditions must be met:

29.1. Beneficiary has signed a Wholesale Service Contract with SMP operator.

#### 4.4.3 Request Form

30. There is no separate request form for the Activation of the CATV Service. The request is implicit by requesting the Open Account Operation with CATV specified as deployed service on the Provider ID Card (since every wholesale Beneficiary under this WRO must at least deploy the CATV Service, this will always be the case except in the case of CATV doesn't exist anymore).

#### 4.4.4 Completion

31. This Operation is completed and the Beneficiary is notified thereof by SMP operator when the following conditions are met:
  - 31.1. Required BAL Connections are delivered and tested;
  - 31.2. Integration with web application is performed and tested;
  - 31.3. CATV specific Certification program (as defined in the relevant sections of **Annex 3.2**) for staff, equipment and procedures of Beneficiary has been passed.

### 4.5 DTV SERVICE ACTIVATION

#### 4.5.1 Description

32. The DTV Service Activation Operation performs all actions required by SMP operator and Beneficiary to make the DTV Service ready for deployment.
33. Once the Service Activation Operation is notified Completed by SMP operator, the Beneficiary can start activating end users for this service.

#### 4.5.2 Prerequisites

34. Before Beneficiary can issue a DTV Service Activation order, the following conditions must be met:
  - 34.1. Beneficiary has signed a Wholesale Service Contract with SMP operator.

#### 4.5.3 Request Form

35. There is no separate request form for the Activation of the DTV Service. The request is implicit by requesting the Open Account Operation with DTV specified as deployed service on the Provider ID Card.

#### 4.5.4 Completion

36. This Operation is completed and the Beneficiary is notified thereof by SMP operator when the following conditions are met:

- 36.1. The CATV Service (if exist) is Active for the Beneficiary;
- 36.2. Required BAL Connections are delivered and tested;
- 36.3. Integration with web application is performed and tested;
- 36.4. The CASV system is operational, including the delivery of CAL connection and the integration of the CASV CA Host system in the VHE of SMP operator;
- 36.5. Integration with web application is performed and tested;
- 36.6. DTV specific Certification program (as defined in the relevant sections of **Annex 3.2**) for staff, equipment and procedures of Beneficiary has been passed.

## 4.6 VOD SERVICE ACTIVATION

### 4.6.1 Description

- 37. The VOD Service Activation Operation performs all actions required by SMP operator and Beneficiary to make the VOD Service ready for deployment.
- 38. Once the Service Activation Operation is notified Completed by SMP operator, the Beneficiary can start activating end users for this service.

### 4.6.2 Prerequisites

- 39. Before Beneficiary can issue a VOD Service Activation order, the following conditions must be met:
  - 39.1. Beneficiary has signed a Wholesale Service Contract with SMP operator.
  - 39.2. Beneficiary has signed a Wholesale Service Contract with the Coditel's VOD third party supplier if the Beneficiary requires this service.

### 4.6.3 Request Form

- 40. There is no separate request form for the Activation of the VOD Service. The request is implicit by requesting the Open Account Operation with VOD specified as deployed service on the Provider ID Card.

### 4.6.4 Completion

- 41. This Operation is completed and the Beneficiary is notified thereof by SMP operator when the following conditions are met:
  - 41.1. The CATV and DTV Services are Active for the Beneficiary;

- 41.2. Required BAL Connections are delivered and tested;
- 41.3. Integration with web application is performed and tested;
- 41.4. Capacity for VoD Content is reserved with the “Reservice Content Archive Space” (see section 7.2);
- 41.5. The VoD Asset Ingest Operation has been integrated and tested between SMP operator and Beneficiary;
- 41.6. The Interface for interactions between the SMP operator Resource Manager and the systems of Beneficiary has been integrated and tested;
- 41.7. The Interface for interactions between the SMP operator Video Servers and the systems of Beneficiary has been integrated and tested;
- 41.8. If the VoD return channel is realized via the SMP operator HFC Network: the Broadband service is Activated for Beneficiary and a Broadband profile for the VoD return channel is defined;
- 41.9. VOD specific Certification program (as defined in the relevant sections of **Annex 3.2**) for staff, equipment and procedures of Beneficiary has been passed.

## **4.7 BROADBAND SERVICE ACTIVATION**

### **4.7.1 Description**

- 42. The Broadband Service Activation Operation performs all actions required by SMP operator and Beneficiary to make the Broadband Service ready for deployment.
- 43. Once the Service Activation Operation is notified Completed by SMP operator, the Beneficiary can start activating end users for this service.

### **4.7.2 Prerequisites**

- 44. Before Beneficiary can issue a Broadband Service Activation order, the following conditions must be met:
  - 44.1. Beneficiary has signed a Wholesale Service Contract with SMP operator.

### **4.7.3 Request Form**

- 45. There is no separate request form for the Activation of the Broadband Service. The request is implicit by requesting the Open Account Operation with Broadband specified as deployed service on the Provider ID Card.

#### 4.7.4 Completion

46. This Operation is completed and the Beneficiary is notified thereof by SMP operator when the following conditions are met:
  - 46.1. The CATV and DTV Services are Active for the Beneficiary;
  - 46.2. Required BAL Connections are delivered and tested;
  - 46.3. Integration with web application is performed and tested;
  - 46.4. The Interface for interactions between the SMP operator Modem Provisioning systems and the DHCP servers of Beneficiary has been integrated and tested;
  - 46.5. Broadband specific Certification program (as defined in the relevant sections of **Annex 3.2**) for staff, equipment and procedures of Beneficiary has been passed .

### 4.8 DEFINE BROADBAND PROFILE

#### 4.8.1 Description

47. This Operation creates a new Broadband Profile to be applied to the Broadband Service for end users.
48. Once this Operation is notified Completed by SMP operator, the Beneficiary can start activating end users for the Broadband service with this profile.

#### 4.8.2 Prerequisites

49. Before Beneficiary can issue this order, the following conditions must be met:
  - 49.1. The Broadband Service Activation Operation was completed.

#### 4.8.3 Request Form

50. This operation is triggered by Beneficiary submitting the Broadband profile definition form. A template for this form is provided in **Annex 2.7.1** and contains the following info:
  - 50.1. Downstream/upstream service speeds;
  - 50.2. Downstream/Upstream data volumes.

#### 4.8.4 Completion

51. This Operation is completed and the Beneficiary is notified thereof by SMP operator when the following conditions are met:

- 51.1. The provisioning systems of SMP operator are configured such that the Broadband service profile can be activated for a particular end user via the web application;
- 51.2. The SMP operator provisioning systems are updated such that, when the modem of this end user goes on line, it will be provisioned with the correct attributes (via the config files downloaded in the CM) for the service profile.

## **4.9 REGISTER BATCH OF MODEMS**

### **4.9.1 Description**

- 52. This Operation declares a batch of cable modems – with their relevant attributes, such as network MAC addresses and security certificate information – to belong to the realm of Beneficiary. Only cable modems which have been registered using this Operation will be allowed to go live on the SMP operator network.

### **4.9.2 Prerequisites**

- 53. Before Beneficiary can issue a this order, the following conditions must be met:

- 53.1. The Broadband Service Activation Operation was completed first.

### **4.9.3 Request Form**

- 54. The way to do this operation will be defined during Specification phase (see Coditel Reference Offer – 5.1 Macro planning)

### **4.9.4 Completion**

- 55. This Operation is completed and the Beneficiary is notified thereof by SMP operator when the following conditions are met:

- 55.1. The modems of the Beneficiary are now known to the SMP operator provisioning systems, such that they can be installed successfully for end users of Beneficiary.

## **4.10 STB SOFTWARE UPDATE**

### **4.10.1 Description**

- 56. This Operation replaces the firmware in a particular model of Beneficiary STB with a newer version that enhances functionality and/or fixes bugs.

- 57. This Operation can be performed in two steps:

- 57.1. Trial: Download of the new software in a limited set of STB denoted by Beneficiary, to assess if everything works correctly;



- 57.2. Production: Download in all STBs of a particular type if Beneficiary indicates that the trial was successful.

#### 4.10.2 Prerequisites

58. Before Beneficiary can issue a this order, the following conditions must be met:

- 58.1. The DTV Service Activation Operation was completed first.

#### 4.10.3 Request Form

59. A SW Update is ordered by submitting the SW Update Request Form (a template of which is presented in **Annex 2.5.2**) together with a copy of the SW image to be downloaded in the STB by certified mail.

#### 4.10.4 Completion

60. This Operation is completed and the Beneficiary is notified thereof by SMP operator when the following conditions are met:
  - 60.1. The new SW is streamed and signaled on the SMP operator network for the trial phase. This needs to be defined during Specification phase as Coditel does not currently own streamers (this function is held by a third party supplier (see Coditel Reference Offer – 5.1 Macro planning));
  - 60.2. The new SW is streamed and signaled on the SMP operator network for the production phase. This needs to be defined during Specification phase as Coditel does not currently own streamers (this function is held by a third party supplier (see Coditel Reference Offer – 5.1 Macro planning))

## **5 CA INTEGRATION**

61. See Coditel Reference Offer.

## 6 NOTIFICATIONS

62. Through Notification messages, SMP operator will inform Beneficiary of issues with the various wholesale services for the various service areas on its network.

63. Two types of known issues are distinguished:

63.1. Planned maintenance;

63.2. Network Outage.

### 6.1 PLANNED MAINTENANCE

#### 6.1.1 Description

64. This Operation notifies Beneficiary that maintenance is planned on the SMP operator network that will effect service availability of end users of Beneficiary. This is to allow Beneficiary to notify its end users of this service unavailability in the (near) future.

#### 6.1.2 Format

65. The notification is performed by SMP operator sending an XML message to Beneficiary via the web application. The relevant XML message is defined in **Annex 3.3**.

66. This message will contain:

66.1. The time window of the planned maintenance;

66.2. The impact on the service availability for end users;

66.3. The service area(s) affected by the planned maintenance activity.

### 6.2 NETWORK OUTAGE

#### 6.2.1 Description

67. This Operation notifies Beneficiary that a network problem was detected by SMP operator which effects service availability of end users of Beneficiary. This is to allow Beneficiary to notify its end users of this service unavailability or to be informed to respond to problem reports coming from end users.

68. If SMP operator becomes aware of a problem on the network or with service related equipment, SMP operator automatically coordinates the necessary actions to resolve the problem according to the applicable arrangements.

### 6.2.2 Format

69. The notification is performed by SMP operator sending an XML message to Beneficiary via the web application. The relevant XML message is defined in **Annex 3.3**.

70. This message will contain:

70.1. The impact on the service availability for end users;

70.2. The service area(s) affected by the planned maintenance activity;

70.3. A tentative schedule when the network disturbance will be solved.

## 7 CONTENT OPERATIONS

### 7.1 CREATE DTV BOUQUET

#### 7.1.1 Description

71. This Operation creates a DTV content Bouquet, i.e. a logical grouping of DTV video or music channels into a Product that can be sold to End Users and can be activated for these end users once they subscribed to the product.

#### 7.1.2 Format

72. The creation of Bouquets takes place on the SMS chosen by Coditel for the OA. The way to define a bouquet create request will be defined during Specification phase as described in 5.1 Macro planning of our reference offer.

### 7.2 RESERVE CONTENT ARCHIVE SPACE

#### 7.2.1 Description

73. This Operation reserves a certain amount of storage on the SMP operator VoD content archives for storing the VoD content assets of Beneficiary. This storage will be invoiced to the OA.

#### 7.2.2 Prerequisites

74. Before Beneficiary can issue a this order, the following conditions must be met:

74.1. The VoD Service Activation Operation was completed first.

#### 7.2.3 Request Form

75. There is no dedicated request forms for this. Beneficiary SPOC just informs SMP operator SPOC of the desired capacity by certified mail.

#### 7.2.4 Completion

76. This Operation is completed and the Beneficiary is notified thereof by SMP operator when the following conditions are met:

76.1. The desired capacity for VoD content storage is allocated on the SMP operator content archive systems.

## 7.3 VoD ASSET INGEST

### 7.3.1 Description

77. This Operation copies content (with its metadata) from the content archive of Beneficiary into the content archives of SMP operator. The SMP operator VoD content systems will from there manage the content lifecycle (by taking into account the metadata supplied with the content) to make sure that in due time the content is available to be streamed from the SMP operator video servers and is automatically deleted when it is no longer needed.

### 7.3.2 Prerequisites

78. Before Beneficiary can issue a this order, the following conditions must be met:
  - 78.1. The VoD Service Activation Operation was completed first;
  - 78.2. The necessary storage space is reserved on the SMP operator systems with the “Reserve Content Archive Space” Operation.

### 7.3.3 Format

79. The process for VoD Asset Ingest is described in detail in **Annex 2.6.1**.

## 8 CERTIFICATION

### 8.1 GENERAL

80. The Coax (copper) part of the cable HFC network is a shared access medium. Signals to and from all houses connected to the same coax segment are added together. This implies that if one connection generates excessive noise – e.g. because the IHN was not properly installed – this network connection can function as an antenna radiating noise (“ingress”) on the network, thereby negatively affecting the signal quality for all connected users on the same coax segment – with ultimately loss of signal and service as a consequence.
81. The cable industry has adopted a number of good practices to deal with the risks of ingress, in terms of equipment and processes used.
82. To ensure the integrity of the SMP operator network when wholesale services will be deployed over it by Beneficiary, Beneficiary will have to make use of these same good practices.
83. For that purpose Beneficiary will adhere to the standards for equipment, processes and staff utilized as defined by SMP operator in **Annex 3.2: Certification Procedures on Staff, Procedures and Equipment**.

### 8.2 CERTIFICATION OF EQUIPMENT

84. Following requirements apply on equipment used by Beneficiary:
  - 84.1. Cable modems: cable modems are EuroDOCSIS certified by Excentis for the EuroDOCSIS version as specified in **Annex 2.7.2: EuroDOCSIS Cable Modem Specifications**;
  - 84.2. Coax cabling: only coax cables can be used that carry the SMP operatorCoditel approval mark;
  - 84.3. Wall Outlet.

### 8.3 CERTIFICATION OF PROCEDURES

85. Following procedures need to be adopted and understood by the staff of Beneficiary:
  - 85.1. Installation of non-interactive services (CATV, DTV) on the IHN to distributive ports of the NIU (if an NIU is present);
  - 85.2. Installation of non-interactive services (CATV, DTV) on the IHN in case no NIU is present;

- 85.3. Installation of broadband service on the IHN to the interactive port of the NIU if an separate cable modem is used (recommended scenario);
- 85.4. Installation of broadband service to the interactive port of the NIU if a STB with internal cable modem is used (scenario not recommended);
- 85.5. Fault resolution process to determine whether a problem is situated on the IHN or SMP operator network.

#### **8.4 CERTIFICATION OF STAFF**

- 86. Staff engaged by Beneficiary need to be competent for the following two functions:
  - 86.1. properly installing a IHN connected to the SMP operator network for the various services (CATV, DTV, VOD, broadband);
  - 86.2. first line support intervention at end user premises to either fix the problem or detect that a problem is (most likely) caused by the SMP operator network, before dispatching it to SMP operator second line support as described in section 10.
- 87. All relevant knowledge that staff engaged by Beneficiary need to possess to complete these functions is described in **Annex 3.1: Specifications for Installation and Repair of Wholesale Services**.
- 88. SMP operator can impose an examination on staff before they are employed on the network, but the scope of that examination will be limited to what is described in this **Annex 3.1**.



## 9 CUSTOMER ACTIVATION

### 9.1 GENERAL

89. Once the Provider Operations for Activation of CATV, DTV, VOD or Broadband service are completed, Beneficiary can start activating these Services for individual End Users.
90. The following relevant Operations can be distinguished to this purpose:
  - 90.1. Service Availability Check;
  - 90.2. Network Installation Order/Accept/Cancel;
  - 90.3. Provider Change Order;
  - 90.4. Service Activation/Deactivation;
  - 90.5. Network Modification Request/Accept/Cancel;
91. The service availability check is performed via the secured web site, the other operations are performed via XML messages through the Web application.

### 9.2 ORDERING VIA XML

92. The way for all exchange of orders and related information between SMP operator and the Beneficiary will be defined during phase 1 and will probably be done by passing XML messages through an electronic web application but could also be flat files exchanges.
93. Three concepts are important in identifying orders:
  - 93.1. Every Order needs to contain the Provider ID of Beneficiary (as defined on the Provider ID card, see section 4.2).
  - 93.2. Every Order needs to contain a unique Order Number. This Order Number is generated by Beneficiary, who is responsible for ensuring that each order is labeled with a unique order number.
  - 93.3. The End User Identification (EU\_ID) of the End User for which the order is made. This EU\_ID can be obtained from the Service Availability Check tool for a particular house address (it actually identifies a network NTP rather than an end user).
94. Reference is here also made to the SMP operator Wholesale secured website for more detailed information on the ordering process via XML and to **Annex 3.1** and **Annex 3.3**.

95. The messages that are exchanged between the Beneficiary and SMP operator via the web application are encrypted and signed by the sender or transferred in clear via private links. Each message contains one order form.
96. The Beneficiary prepares the file in the predefined XML format, signs it, and submits it to SMP operator via the Web application.

### 9.3 ORDER MESSAGES

97. Order Messages are initiated by Beneficiary. The following orders can be distinguished:
  - 97.1. Network Installation Order/Cancel;
  - 97.2. Provider Change Order;
  - 97.3. Service Activation/Deactivation;
  - 97.4. Network Modification Request/ Accept/Cancel.

### 9.4 ANSWER MESSAGES

98. Answer Messages are issued by SMP operator, but only in response to Orders issued by Beneficiary.
99. The following answers can be distinguished:
  - 99.1. **ACKNOWLEDGE**: receipt of an order of Beneficiary is acknowledged, but since the order fulfillment is not immediate, the corresponding operation is not yet completed. Order completion will be signaled within the timings in specified in the SLA defined in Annex 4.
  - 99.2. **REJECT**: An Order by Beneficiary is rejected. A rejection code is passed as defined in **Annex 3.3** to explain the reason for the rejection.
  - 99.3. **OFFER**: after SMP operator acknowledged a Network Installation Order or Network Modification Order, it will investigate the situation and come back to Beneficiary with a commercial offer for the Network Modification. This is Done with an Offer message. In response, Beneficiary can accept the offer or cancel the original Order.
  - 99.4. **COMPLETED**: to signal that the fulfillment of an order is completed by SMP operator
100. An answer message always carries the Order Number of the order to which it answers as well as the Provider ID of Beneficiary and the EU\_ID of the End User whom the Order concerns.

## 9.5 NOTIFICATION MESSAGES

101. Notification Messages are issued by SMP operator, and are triggered by the action of SMP operator or another Beneficiary.
102. The following notifications can be distinguished:
  - 102.1. Change Provider Cease: the wholesale service with Beneficiary for a particular end user is ceased because that end user has chosen to change service provider (the new provider being either SMP operator or another Beneficiary).
  - 102.2. VoD usage reporting: SMP operator will report on VoD usage by End Users of Beneficiary by sending CDR files to Beneficiary with the detailed usage of each individual end user (as defined by his EU\_ID). These CDR files will be sent on regular time intervals as defined in the SLA to this WRO and can be used by Beneficiary to check the Wholesale Billing process.

## 9.6 TIMINGS

103. For all Order, Answer and Notification messages defined in this document, timings for execution will apply as defined in Annex 4 – SLA.

## 9.7 SERVICE AVAILABILITY CHECK

104. The Service Availability Check is performed via a secured web site, to be confirmed during phase 1.
105. The tool on the secure site allows to check for a particular Home (as identified by its street address):
  - 105.1. Whether the Home is connected to the SMP operator Network with an individual network connection;
  - 105.2. if the Home has an individual network connection, the web site will in its response indicate the EU\_ID (End User ID), the unique identifier that can be used in all subsequent communications to refer to this Home;
  - 105.3. Whether the Network Connection is active (i.e. the drop cable into the Home is connected at the Tap);
  - 105.4. Which wholesale services (CATV, DTV, VoD, Broadband) are possible on that EU\_ID;
  - 105.5. What is the type of NTP present in that Home (NIU, network device, Wall Outlet, unknown) if this information is known (not always the case today)

106. SMP operator guarantees the correctness of the information returned by the Service Availability check for a certain percentages of the queries (the exact percentage is defined in the SLA to this WRO). However, if network interventions cannot be fulfilled because they are dispatched based on erroneous information returned by the Service Availability Check, then SMP operator will bear the costs of these interventions and will not charge the corresponding costs to Beneficiary.

## 9.8 NETWORK INSTALLATION ORDER

### 9.8.1 Description

107. A Network Installation Order is needed in the following situations:
- 107.1. An End User wants to start using Services, but the End user's Home is not yet equipped with an individual connection to the SMP operator network (via an individual drop cable into the Home): SMP operator will have to install such a connection to bring the cable signal into the End User's Home. An NIU will be installed to terminate the network.
  - 107.2. an individual connection is already present, but the drop cable is currently not connected at the tap: a site intervention by SMP operator is required to make the connection at the tap.
  - 107.3. The End User wants to subscribe to the Broadband service via Beneficiary, but his Home is not yet equipped with an NIU: a site intervention by SMP operator is required to install a NIU.

### 9.8.2 Prerequisites

108. Before Beneficiary can issue this order, the following conditions must be met:
- 108.1. Beneficiary must be Activated as a provider for at least the CATV Service;
  - 108.2. Beneficiary must have obtained a valid EU\_ID for the Home through the Service Availability Check.

### 9.8.3 Procedure

109. SMP operator will first acknowledge or reject the Order. If the Order is acknowledged, then SMP operator will answer with an Offer:
- 109.1. If an individual network connection needs to be installed, then SMP operator will investigate the situation and come back with an individual offer based on the assessed complexity of the installation. Beneficiary can then Accept the Offer to proceed with the Installation or Cancel the Order if the cost for Installation is deemed too high.

- 109.2. If the Home already has an individual network connection, but the drop cable just needs to be connected at the tap, then the standard rate x (as defined in Annex 5 – Pricing and Billing) will apply.
- 109.3. For installation of an NIU a standard commercial rate will apply (as defined in Annex 5 – Pricing and Billing).
110. When SMP operator sends the Completed Message to signal that the Installation has finished, the Home will automatically be Activated for CATV.

## **9.9 CHANGE PROVIDER ORDER**

### **9.9.1 Description**

111. In situations where the End is currently using a Service (CATV, DTV, VOD, Broadband) from another Provider (either SMP operator or another Beneficiary), Beneficiary will issue a Change Provider Order.
112. For CATV, DTV and VOD, this will Activate the End User as a Customer from Beneficiary for the indicated Service.
113. For Broadband, service activation still requires a separate Activation Order.
114. The indicated Service is immediately ceased with the existing provider (who will be notified through a Change Provider Cease Message).

### **9.9.2 Prerequisites**

115. Before Beneficiary can issue this order, the following conditions must be met:
- 115.1. Beneficiary must be Activated as a provider for the indicated Service;
- 115.2. Beneficiary must have obtained a valid EU\_ID through the Service Availability Check;
- 115.3. the Service Availability Check must indicate that the Service is currently Active for that EU\_ID.

### **9.9.3 Procedure**

116. SMP operator will acknowledge or reject the Order.
117. If the Order is acknowledged, then the fulfillment is immediate and does not need to be confirmed with a Complete message.

## 9.10 SERVICE ACTIVATION ORDER

### 9.10.1 Description

- 118. To Activate an additional Service (CATV, DTV, VOD, Broadband) for an existing End User, Beneficiary will issue a Service Activation Order.
- 119. This will Activate the End User as a Customer from Beneficiary for the indicated Service.
- 120. For Broadband, the desired service profile and the relevant details of the cable modem installed will have to be passed along with the Activation Order.
- 121. For CATV, completion of a Network Installation Order will automatically activate the CATV Service and no separate Activation Order is required.

### 9.10.2 Prerequisites

- 122. Before Beneficiary can issue this order, the following conditions must be met:
  - 122.1. Beneficiary must be Activated as a provider for the indicated Service;
  - 122.2. Beneficiary must have obtained a valid EU\_ID through the Service Availability Check;
  - 122.3. the Service Availability Check must indicate that the Service is available to the indicated EU\_ID but is not currently Active for that EU\_ID;
  - 122.4. the rules on service dependencies must be respected (i.e. Activation of DTV automatically also activates CATV (if not already Activated); Activation of VoD and Broadband automatically activates if CATV and DTV (if not already Activated).

### 9.10.3 Procedure

- 123. SMP operator will acknowledge or reject the Order.
- 124. If the Order is acknowledged, then it will later be confirmed with a Complete message.

## 9.11 SERVICE DEACTIVATION ORDER

### 9.11.1 Description

- 124.1. To Deactivate a Service (CATV, DTV, VOD, Broadband) for an existing End User, Beneficiary will issue a Service Deactivation Order.
- 124.2. This will Deactivate the End User as a Customer from Beneficiary for the indicated Service.

- 124.3. For CATV, it is up to SMP operator to decide what action to perform upon Deactivation of the CATV Service and whether it will send a field technician to disconnect the drop cable into the Home at the network tap.

#### 9.11.2 Prerequisites

125. Before Beneficiary can issue this order, the following conditions must be met:

- 125.1. the EU\_ID must be Activated for the indicated Service (with Beneficiary as the Service Provider);
- 125.2. the rules on service dependencies must be respected (i.e. Deactivation of CATV automatically also deactivates DTV (including VoD) and Broadband; Deactivation of DTV automatically deactivates if VoD and Broadband.

#### 9.11.3 Procedure

126. SMP operator will acknowledge or reject the Order.
127. If the Order is acknowledged, then the fulfillment is quasi immediately confirmed with a Complete message.

### 9.12 NETWORK MODIFICATION ORDER

#### 9.12.1 Description

128. In some cases it may be desirable that modifications are made to the network connection of an end user.

129. Possible examples of such cases are:

- 129.1. The End User wishes to have an NIU in his Home to be able to connect additional receiving equipment (TV sets, STBs, etc...);
- 129.2. The Home is undergoing rebuilding activities whereby a different trajectory for the drop cable into the Home and/or the location of the NIU is desired.
- 129.3. Modifications take place upon request from beneficiary (on behalf of an End User). SMP operator may conduct a study to investigate the case and come back with a commercial offer to Beneficiary to make the network modification. The Modification will only take place after approval by Beneficiary of the Offer for Network Modification issued by SMP operator).

#### 9.12.2 Prerequisites

130. Before Beneficiary can issue this order, the following conditions must be met:

- 130.1. At least the CATV service for the EU\_ID concerned must be activated with Beneficiary as the Provider.

#### 9.12.3 Procedure

- 130.2. SMP operator will first acknowledge or reject the Order. If the Order is acknowledged, then SMP operator will investigate the situation and come back with an individual offer based on the assessed complexity of the modification. Beneficiary can then Accept the Offer to proceed with the Modification or Cancel the Order if the cost for Modification is deemed too high.
- 130.3. Upon completion of the works, SMP operator sends the Completed Message to signal that the Modification has finished.



## **10 FAULT REPORTING AND REPAIR**

- 131. This section describes the responsibilities of SMP operator and Beneficiary in fault reporting and repair and the process flow for dealing with fault reporting and repair.
- 132. Any Fault related to the Wholesale Services must follow this Fault reporting and repair process.

### **10.1 GENERAL RESPONSIBILITIES**

- 133. Repairs are carried out on the Network and Wholesale Service related equipment after the Beneficiary has informed SMP operator of a problem, provided the Beneficiary has made the preliminary investigations and is confident that the problem is in the SMP operator Network. The Beneficiary is responsible for the repair of the parts of the service delivery systems over which he has the control and is responsible to filter all non-SMP operator related problems. The Beneficiary, when reporting that there is a problem, has to give precise information about the nature of the problem. SMP operator will, when appropriate, confirm the existence of the problem.
- 134. If SMP operator becomes aware of a problem on the network or Wholesale Service related equipment, SMP operator automatically coordinates the necessary actions to resolve the problem according to the applicable arrangements.
- 135. The maintenance and the development of the Network and Wholesale Service related equipment may require SMP operator to limit the Wholesale services or to suspend it temporarily. SMP operator undertakes to limit the duration of this period to the time that is required for the execution of the work and that duration will, in no way, be longer than the period that SMP operator would require if her own services needed to be suspended. In such cases, SMP operator will inform the Beneficiary in due time at least 48 hours in advance, and communicate the estimated suspension time and the reason of suspension.

### **10.2 FAULT REPORTING**

- 136. It is always the Beneficiary that reports faults in the Wholesale Services.
- 137. Therefore, Beneficiary first receives own Users' fault reports and analyses them before reporting faults to SMP operator. SMP operator will not take calls or fault reports directly coming from End Users of the Beneficiary.
- 138. Beneficiary filters and handles Users' fault reports caused by components not under the control of SMP operator and only reports faults to SMP operator which Beneficiary believes – after proper analysis – are caused by systems under the control of SMP operator. It is the Beneficiary's responsibility to check that there is sufficient ground to assume that the fault is with SMP operator.

### **10.3 BENEFICIARY'S LIABILITIES IN CONNECTION WITH FAULT REPORTING**

139. For fault reporting, the Beneficiary will report faults to SMP operator via the Web application.
140. Before contacting SMP operator, the Beneficiary will test the concerned faulty equipment to ensure that the fault is attributable to SMP operator. The Beneficiary is responsible for transmitting all necessary information requested by SMP operator. If the information supplied is incomplete, the trouble ticket created will be rejected.
141. Beneficiary will communicate to SMP operator the following info – if available:
  - 141.1. Measurements from equipment on the Beneficiary's side that can help in solving the fault (if available).
142. It is always the Beneficiary that should receive own Users' fault reports regarding the Wholesale services before reporting faults to SMP operator. In case SMP operator receives fault reports regarding the Wholesale services directly from end users, SMP operator will refer the end user to the Beneficiary with whom he has signed a Service Agreement.
143. When the Beneficiary receives a fault from one of his Users for Wholesale Services, the Beneficiary performs a first diagnostic.
144. In case the issue does not require a SMP operator intervention, the Beneficiary manages the issue and contacts the User once the issue is solved and closed.
145. On the opposite, if the issue requires a SMP operator intervention (typically for network or Wholesale Service related equipment issues), the Beneficiary continues the issue resolution process with SMP operator.

### **10.4 SMP OPERATOR'S LIABILITY IN CONNECTION WITH FAULT REPORTING**

146. SMP operator starts the fault localization and performs repair activities during working hours.
147. The Beneficiary recognizes that:
  - 147.1. if necessary, the Beneficiary is required to disconnect the terminal equipment at the User site upon SMP operator's request to carry out its proper measurements;
  - 147.2. The Beneficiary's repair request must relate to the type of service for which the Wholesale service has been ordered;

- 147.3. During the repair process the Beneficiary may submit additional information in respect of a specific repair request, cancel a repair request or change a repair request.
148. SMP operator reports the result of the repair activities to the Beneficiary immediately upon repair.
149. Any follow-up feedback requested by the Beneficiary, either during the repair period, after additional tests and rejection or acceptance of the repair action, or once the fault is fixed, will be taken care of through the repair team for Wholesale Services:
- 149.1. In any case of planned maintenance and repair that can affect the Wholesale services, SMP operator shall inform the Beneficiary beforehand.
- 149.2. In case the Beneficiary contacts SMP operator by phone about an ongoing repair action, SMP operator will inform the Beneficiary of the current repair status.

#### **10.5 SPECIAL CONDITIONS IN CONNECTION WITH REPAIR**

150. In fault situations where the responsibility for the fault cannot immediately be placed, and where SMP operator makes coordinated efforts with one or more Beneficiaries, settlement is made or arranged after conclusion of the Repair.

#### **10.6 REPAIR REQUEST AND FEEDBACK**

151. Repair request can be issued by Beneficiary via XML messages through the Web Application.
152. The XML message formats for repair are described in **Annex 3.3**.

#### **10.7 WRONGFUL REPAIR REQUEST**

153. In case of a repair request where the fault was not caused by SMP operator and SMP operator has performed work for that repair request, useless costs are made by SMP operator. To encourage the Beneficiary to perform a proper check first on its own system's part of its service delivery towards its End Users, SMP operator will bill an incentive fee to the Beneficiary. There will be an indication of the trouble ticket reference and the cause of the wrongful repair.

## 11 DEVICE MONITORING & MANAGEMENT

### 11.1 CONCEPT AND PURPOSE

154. Since Beneficiary is responsible for End User devices (in particular TV decoders and cable modems, but also in home devices connected behind the cable modem), Beneficiary will also be responsible for monitoring and managing these devices.
155. Overall management access by Beneficiary to these devices is provided by a separate management network. The setup of this network and how to provision devices such that they can be addressed via the management network will be discussed in detail in **Annex 3.5: Device Monitoring & Management**.
156. However, to ensure the integrity of the SMP operator network, all device management related to the “modem” or “Docsis” component of the Beneficiary CPE device (i.e. the part that provides the connectivity and transport service on the Docsis layer towards the TLN CMTS over the TLN HFC network), could be provided by an API based management proxy server provided by SMP operator. The possibilities and restrictions of this API management proxy server are also described in **Annex 3.5**. The concept of proxy management is provided here as direct access by Beneficiary on the Beneficiary CPE device could impose unmanageable security risks on the SMP operator network as the devices are accessing a shared MAC layer. All this topic will be detailed during Specification phase as described in 5.1 Macro planning.
157. Further, in order to provide effective support to Beneficiary during problem diagnosis and ensure the integrity, TLN requires a minimum non-intrusive management access to Beneficiary CPE devices connected to its HFC network. This can be realized by implementing a “minimum” SNMP MIB and related set of actions on it that can be executed by SMP operator as described further in this section.

### 11.2 DEVICE MANAGEMENT FUNCTIONS

#### 11.2.1 Device management executed by TLN

158. SMP operator requires following minimum device management capabilities to be available on Beneficiary CPE for execution by SMP operator (Execution of SMP operator of below described management actions will only occur in cases where a particular Beneficiary CPE device behaves in a way that SMP operator network integrity or security is compromised, a practical example could be, a given modem that launches DOS attacks by generating excessive packet burst, or is identified as being the source of excessive noise injection):
  - 158.1. Remote modem reset via SNMP;
  - 158.2. Remote modem disabling (modem deny) via SNMP;

158.3. Remote US en DS FTP upload/download test;

158.4. Remote SNMP query on DOCSIS related MIB as specified in the section 11.3 below.

#### 11.2.2 Device management available to Beneficiary

159. SMP operator offers via above described API based management proxy server a tool set and environment allowing Beneficiary 's to implement its own customer OAM and care system. This will allow Beneficiary 's to build on-line view of their customers and allows some functionalities like view status of Beneficiary customer, do a link speed test, suspend/not suspend network access for Beneficiary CPE, do connectivity loopback tests, and providing of read/write SNMP access for certain CPE parameters etc.
160. Beneficiary must use this proxy server for the management of the Docsis part of its cable modems, but can freely decide whether he wants to use the functionality of this proxy servers for other monitoring/management tasks.

### 11.3 SNMP MIB SPECIFICATIONS

161. Management Information Bases (MIBs) are a collection of objects or definitions that define the properties of managed objects. TLN needs to know the names and types of a subset of objects on Beneficiary Docsis CPE (CM) to enable the TLN SNMP manager or management application to perform a minimum subset of operations on Beneficiary CPE equipment that are required for successful operation of the network.
162. Minimum DOCSIS MIB implementations on Beneficiary DOCSIS CPE for access by TLN should be as follows :
- 162.1. iso.org.dod.internet.mgmt.mib-2.docsDev (1.3.6.1.2.1.69);
  - 162.2. [RFC 2669] DOCSIS Cable Device MIB Cable Device Management Information Base for DOCSIS compliant Cable Modems and Cable Modem Termination Systems;
  - 162.3. [RFC 2670] Radio Frequency (RF) Interface Management Information Base for;
  - 162.4. MCNS/DOCSIS compliant RF interfaces ;
  - 162.5. RFC 3083] Baseline Privacy Interface Management Information Base for DOCSIS;
  - 162.6. Compliant Cable Modems and Cable Modem Termination Systems;
  - 162.7. SMP operator private MIB for US/DS FTP test.
163. The formal definition of this subset of objects, parameters and the operations on them are provided in the format of an SNMP MIB definition in the **Annex 3.5**.

164. Beneficiary is not obliged to implement all MIB definitions (particularly if this would prevent him from using certain COTS devices), but SMP operator points out that its operational support in troubleshooting problems cannot be fully ensured if certain elements are missing.

#### **11.4 RESET AND FACTORY RESET SPECIFICATIONS**

165. The Beneficiary Docsis CPE (CM) must have basic reset functions. It is important to have these functions to provide assistance on troubleshooting. The Beneficiary device may have a reset button on it, and should provide a factory reset option as well. Reset options may provide a reboot and connection loss for 5 to 30 minutes.

## **12 PHASES IN THE DEPLOYMENT OF THE WHOLESALE SERVICES**

We refer to our section “5 Etablissement d’un service de revente” for details regarding the initial launch/deployment of the wholesale services;

166. The way of deploying the Wholesale Services to the Beneficiary will evolve according to the following 2 successive Phases: Friendly User Testing Phase and Full Commercial Phase.

### **12.1 FRIENDLY USER TESTING PHASE**

167. During the Friendly User Testing phase, later referred to as FUT, SMP operator will introduce and support the Beneficiary to get acquainted with the processes and systems in scope of the Wholesale Services.
168. Each of the Parties will have to agree on the date of successful completion of the Friendly User Testing Phase. The FUT phase should cover a period of at least 3 months.
169. The FUT Phase is executed in a limited service area of the SMP operator network, to be agreed between SMP operator and Beneficiary. The number of ‘friendly user’ Users (to be provided by the Beneficiary) is set at maximum 24 per Beneficiary.

### **12.2 FULL COMMERCIAL PHASE**

170. The Full Commercial Phase will entirely be based on Beneficiary’s firm orders transmitted by the Beneficiary. The number of orders must be reasonable and progressive to avoid that the order intake services of SMP operator are overloaded by large amounts of initial orders.

### **13 WHOLESALE BILLING**

171. SMP operator will provide Beneficiary with the wholesale invoices for the Services re-sold by Beneficiary on a regular basis as defined in Annex 5 – Pricing and Billing.
172. Each invoice will be sent via certified mail to the SPOC of Beneficiary.
173. For each invoice, also a corresponding XML file will be supplied through the Web application that refers to the corresponding invoice and that contains all necessary detail to justify to Beneficiary how the amount invoiced was calculated, such that Beneficiary can implement his own tools to check the correctness of the invoice.



## 14 REFERENCED DOCUMENTS

174. The following documents may be referenced in this document and together with it form the complete WRO:

**Documents of which an example is provided by BIPT:**

SMP operator Wholesale Reference Offer - TV Services over Cable – Main Body

Annex 1: General Terms and Conditions

Annex 2: Technical Specifications

Annex 3: Planning and Operations

Annex 4: SLA

**Documents to be written by SMP operator to complete the WRO:**

Annex 2.3.1: Network Connections and Configuration

Annex 2.3.2: Network Connections – Configuration Form

Annex 2.4.1: CATV Content Offer

Annex 2.5.1: DTV Content Offer

Annex 2.5.2: DTV Network Description – AV Formats, Services, SI/PSI Scheme

Annex 2.5.3: DTV Specification for CA Host Integration in SMP operator VHE

Annex 2.6.1: VoD Asset Ingest – Content Formats, Metadata and Ingest Protocol

Annex 2.6.2: VoD Session Setup

Annex 2.6.3: VoD Control Protocol for Video Streaming

Annex 2.7.1: Broadband Internet: Service Profiles and Modem Configuration Files

Annex 2.7.2: EuroDOCSIS Cable Modem Specifications

Annex 2.7.3: Specifications for Cable Modem Provisioning

Annex 3.1: Specifications for Installation and Repair of Wholesale Services

Annex 3.2: Certification Procedures on Staff, Procedures and Equipment

Annex 3.3: Web Application – Description of XML Content Formats

Annex 3.4: Beneficiary ID Card - Template

Annex 3.5: Device Monitoring & Management

175. All these documents and templates will be available on the SMP operator Wholesale Secured website.

These annexes will be prepared in cooperation with the OA during the “specification phase” as described in the “5.1 Macro planning” of our “Offre de référence”μ

Refer also to our comments on the “main body”