INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.798

Amendment 1
(07/2011)

SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

Digital terminal equipments – Other terminal equipment

Characteristics of optical transport network hierarchy equipment functional blocks

Amendment 1

CAUTION !

PREPUBLISHED RECOMMENDATION

This prepublication is an unedited version of a recently approved Recommendation. It will be replaced by the published version after editing. Therefore, there will be differences between this prepublication and the published version.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU [had/had not] received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

Recommendation ITU-T G.798 (2010) Amendment 1

Characteristics of optical transport network hierarchy equipment functional blocks

Amendment1

Summary

Amendment 1 to Recommendation ITU-T G.798 (2010) contains text additions to complete the correct specification of the mapping of Ethernet Rates (40GBE and 100GBE into ODU3 and ODU4 respectively) as well as additional management information needed for ODU PT21 multiplexing. Also missing functions and text for support of multilane interfaces is added to the Scope and the OPS layer functions. An AIS generator for pre-emption of extra traffic is added to the ODU connection functions.

Recommendation ITU-T G.798 (2010) Amendment 1

Characteristics of optical transport network hierarchy equipment functional blocks

Amendment1

1 Scope

This amendment contains modified text to be added Recommendation ITU-T G.798 Characteristics of optical transport network hierarchy equipment functional blocks.

2 References

[ITU-T G.709/Y.1331] Recommendation ITU-T G.709/Y.1331 (2009), *Interfaces for the Optical Transport Network (OTN)*

[IEEE 802.3ba] *IEEE Std. 802.3ba-2010, Information Technology – Local and Metropolitan Area Networks –Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications– Amendment: Media Access Control Parameters, Physical Layers and Management Parameters for 40 Gb/s and 100 Gb/s Operation.*

3 Text modification for ITU-T G.798

Text modifications are to be added to ITU-T G.798

3.1 Modifications in clause 1 Scope

Modify Figure 1-1 in clause 1/G.798 as follows:

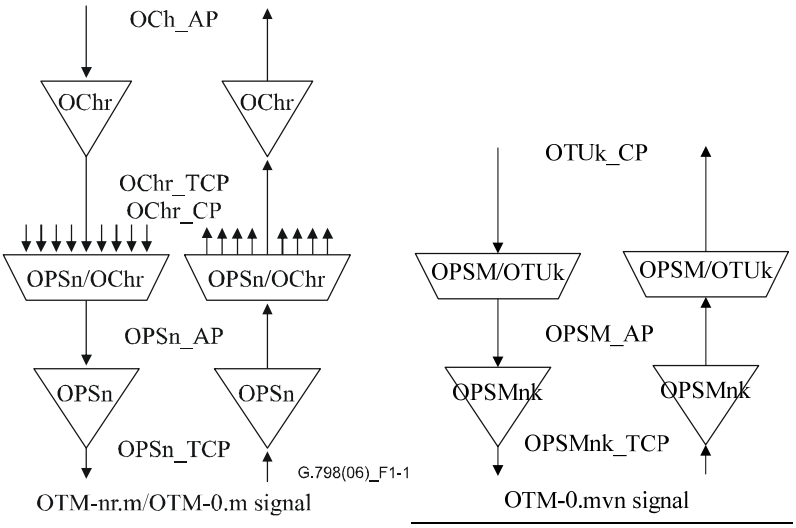

Figure 1-1 – OTN atomic functions specific for the reduced functionality OTM-nr.m/OTM-0.m and OTM-0.mvn interface

3.2 Modifications in clause 11

Modify the text and a figure in clause 11/G.798 as below:

11 Optical physical section (OPS) layer functions

Figure 11-1 illustrates the OPS layer network and client layer adaptation functions. The information crossing the OPSn termination connection point (OPSn_TCP) is referred to as the OPSn characteristic information (OPSn_CI). The information crossing the OPSMnk termination connection point (OPSMnk_TCP) is referred to as the OPSMnk characteristic information (OPSMnk_CI). The information crossing the OPSn access point (OPSn_AP) is referred to as the OPSn adapted information (OPSn_AI). The information crossing the OPSMnk access point (OPSM_AP) is referred to as the OPSM adapted information (OPSM_AI).

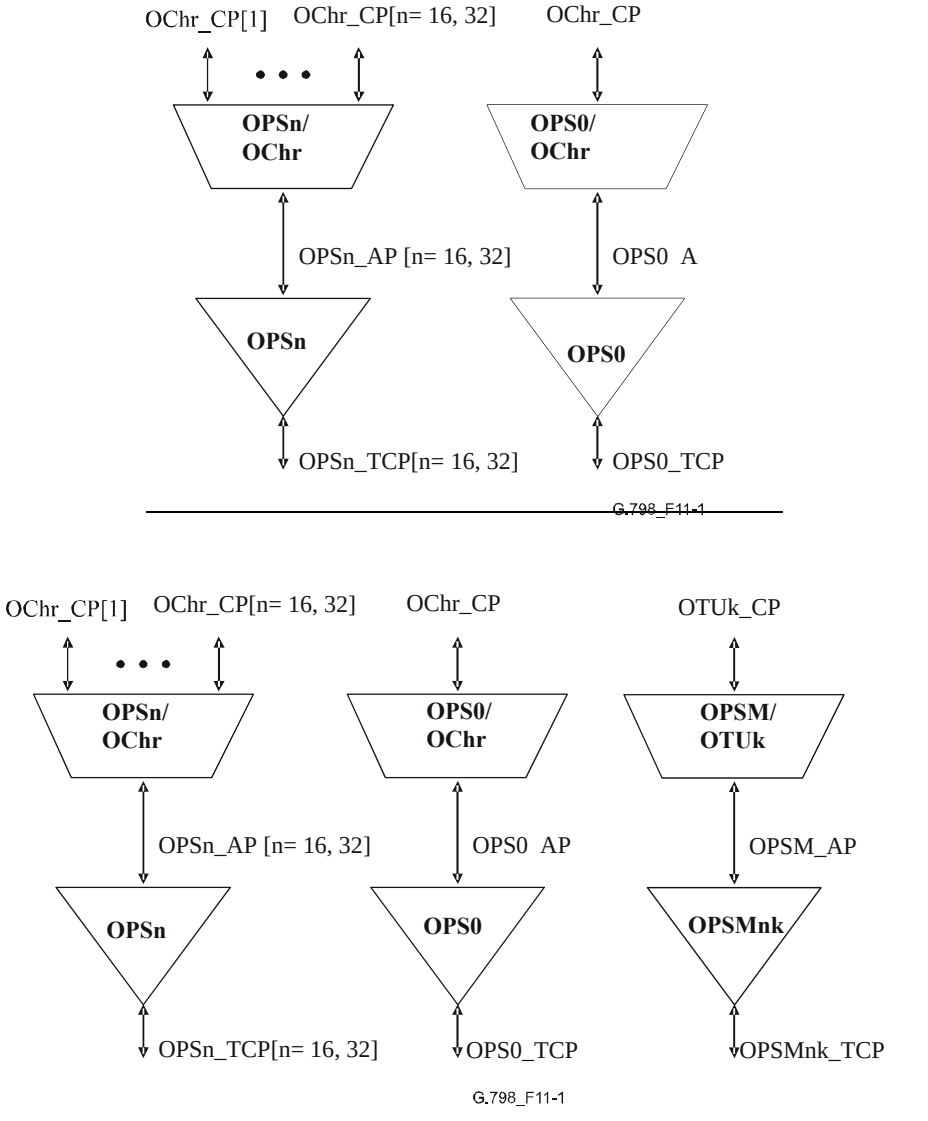

Figure 11-1 – OPSn/OPSMnk layer network and client layer adaptation functions

The OPSn characteristic information (OPSn_CI) is a physical optical signal consisting of the n multiplexed traffic wavelengths for $n \geq 1$ and a single optical signal for $n = 0$.

The OPSn adapted information (OPSn_AI) consists of the OPSn adapted information payload (OTSn_AI_PLD), which are the n multiplexed traffic wavelengths for n ≥ 1 and a single optical signal for n = 0.

The OPSMnk characteristic information (OPSMnk_CI) is a physical optical signal consisting of the n multi-lanes using wavelength division multiplexing for n=4 and containing one OTUk (k=3,4) signal.

The OPSM adapted information (OPSM_AI) consists of the single OPSM data signal (OPSM_AI_D), which is an OTUk (k=3,4) signal as defined in [ITU-T G.709].

Replace Figure 11-10A in clause 11/G.798 with the following:

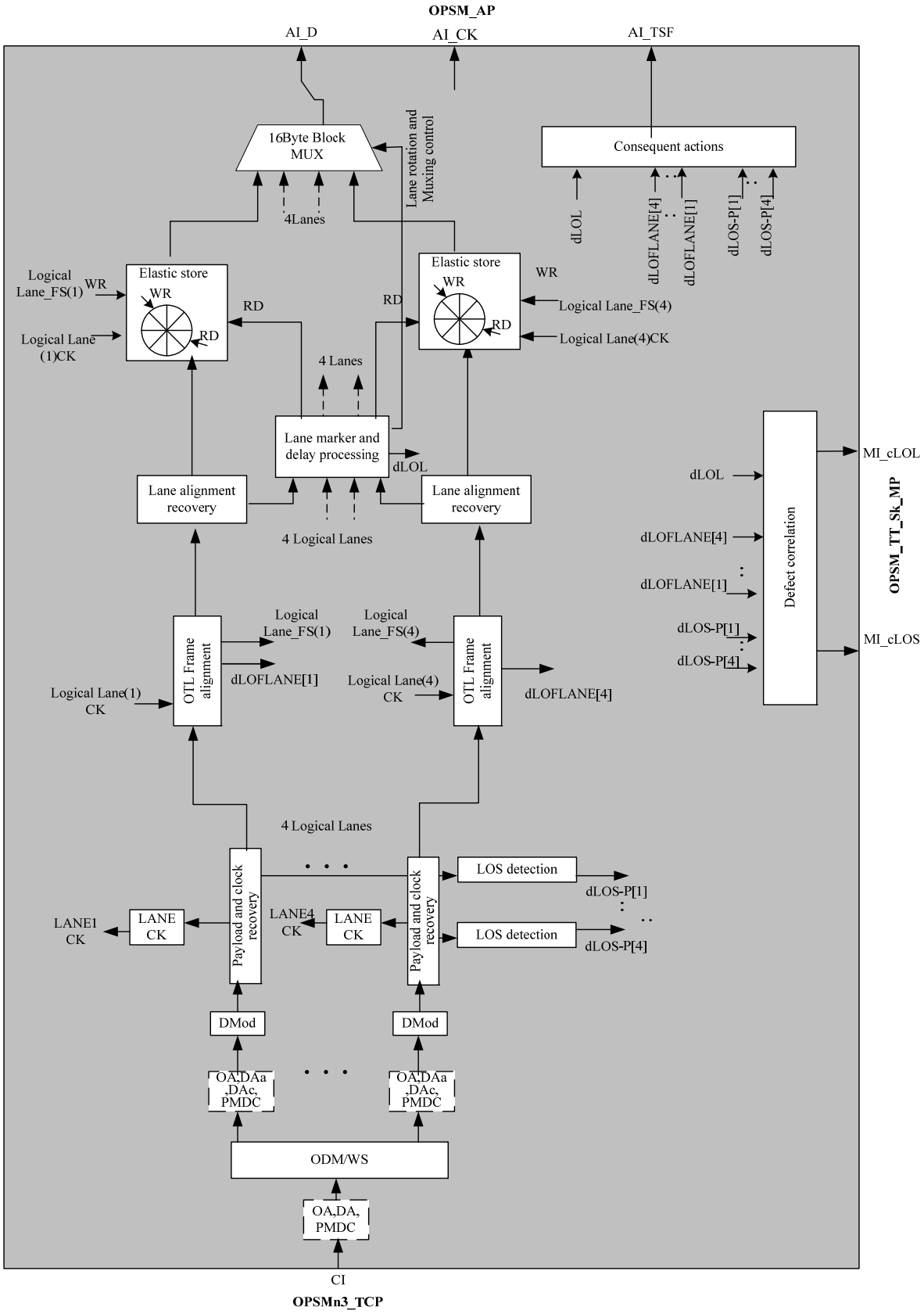

Figure 11-10A – OPSMn3_TT_Sk processes; n=4

Replace Figure 11-10B in clause 11/G.798 with the following:

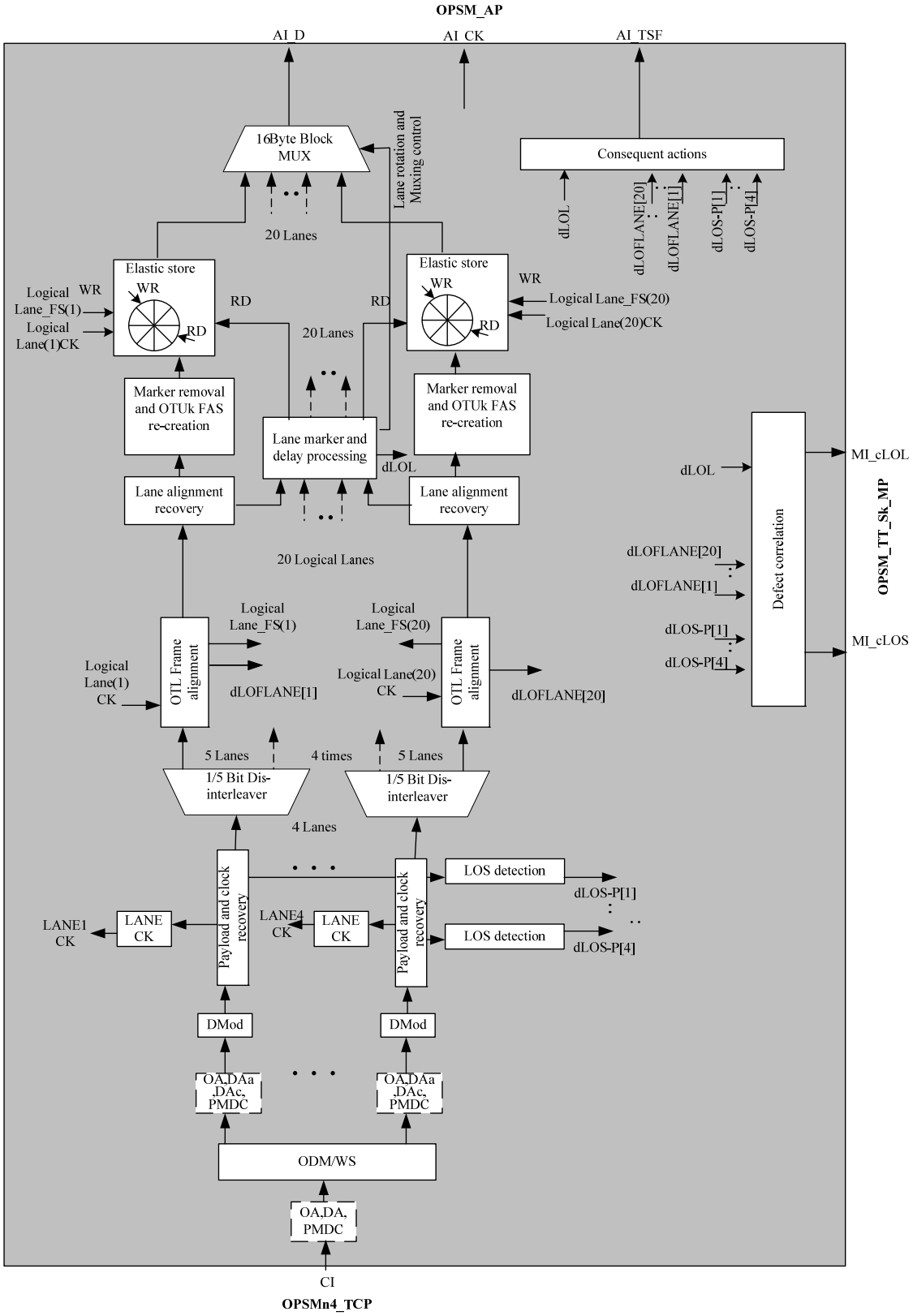

Figure 11-10B – OPSMn4_TT_Sk processes; n=4

3.2 Modifications to clause 14.1.1 ODUk connection function (ODU_C)

Replace Figure 14.5 with the figure below, adding AIS generator:

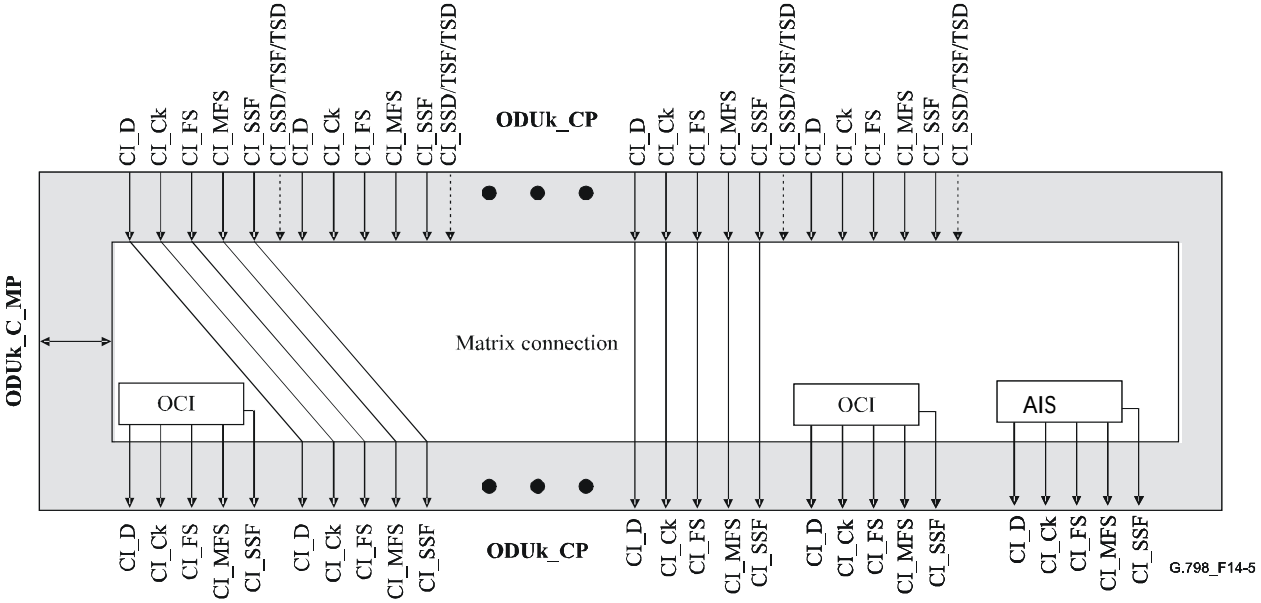

Figure 14-5 – ODU_C function processes

3.2 Modifications to clause 14.1.1.1 Sub-network connection protection process

Replace Figures 14-9 to 14-13 with the figures below:

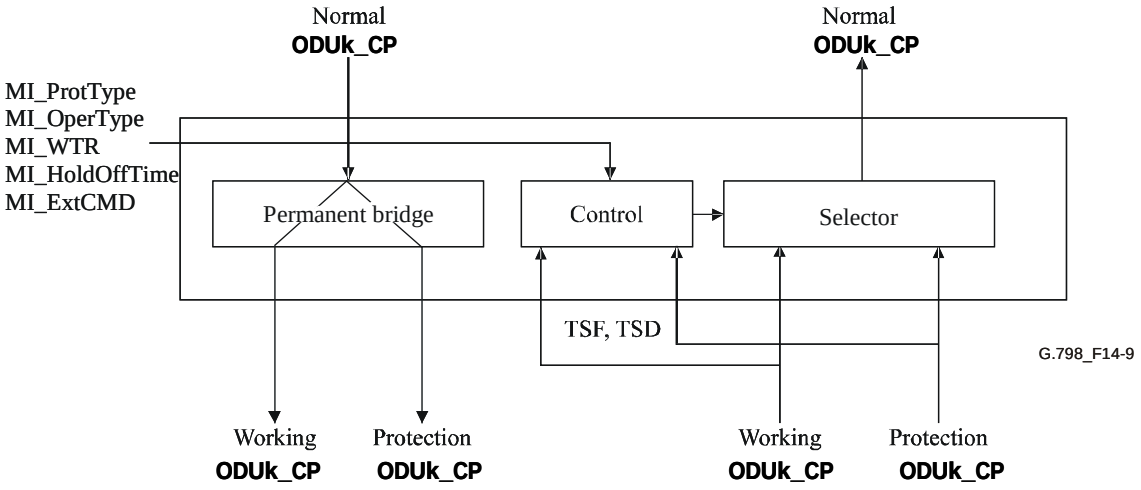

Figure 14-9 – 1+1 unidirectional SNC/N protection process without APS protocol

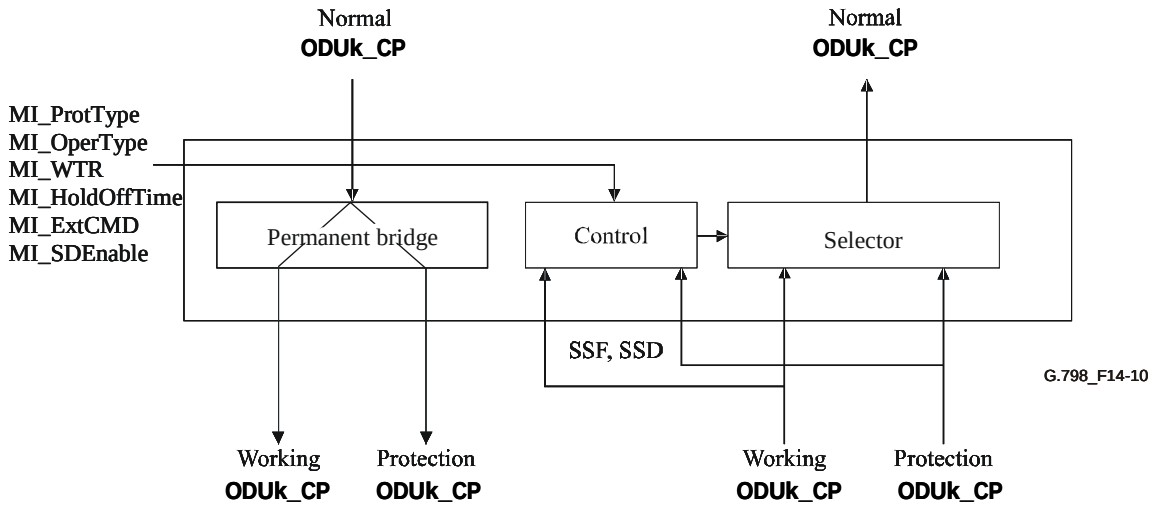

Figure 14-10 – 1+1 unidirectional SNC/S and SNC/I protection process without APS protocol

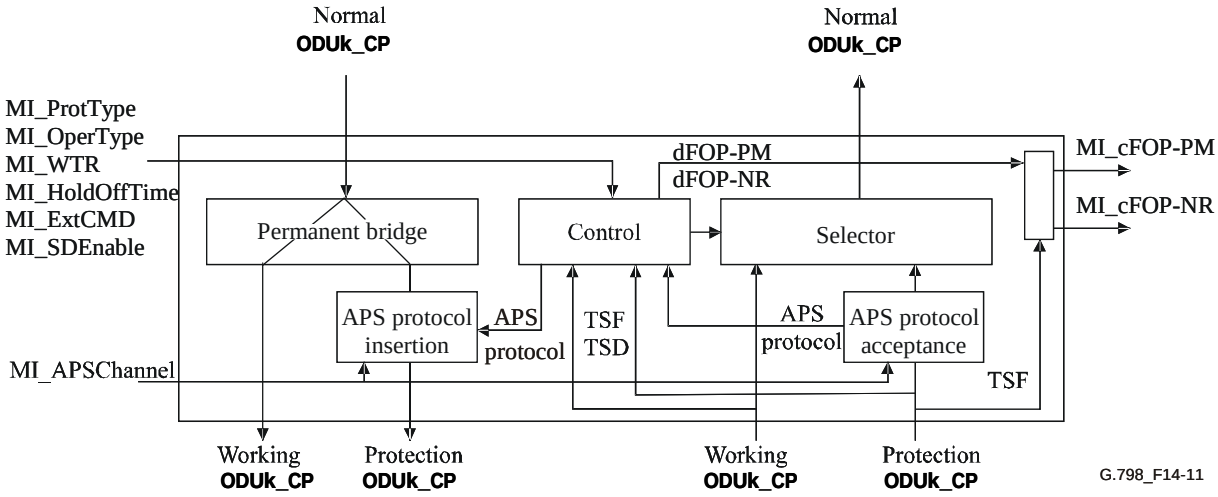

Figure 14-11 – 1+1 SNC/N protection process with APS protocol

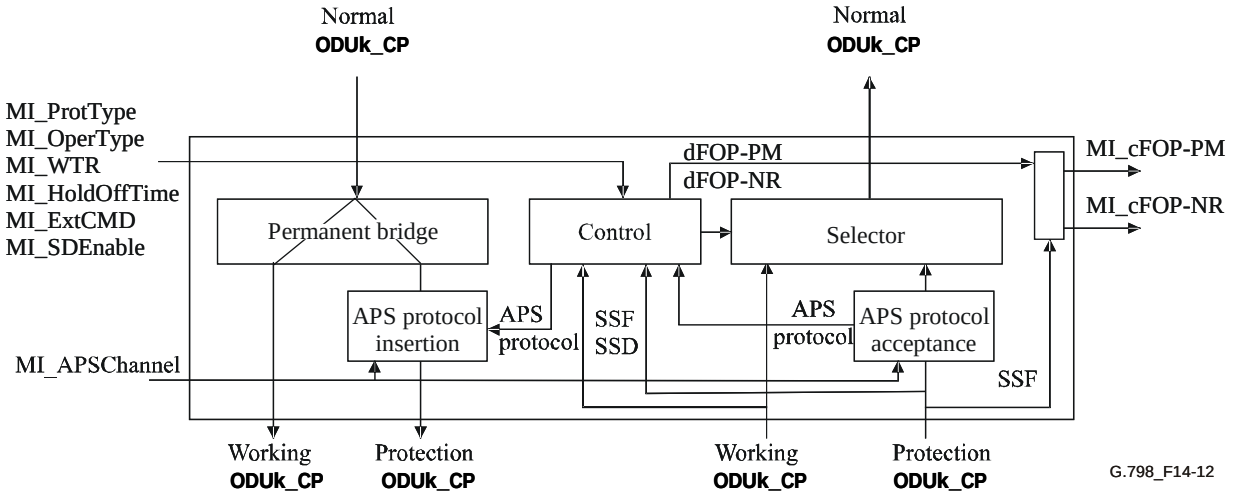

Figure 14-12 – 1+1 SNC/S and SNC/I protection process with APS protocol

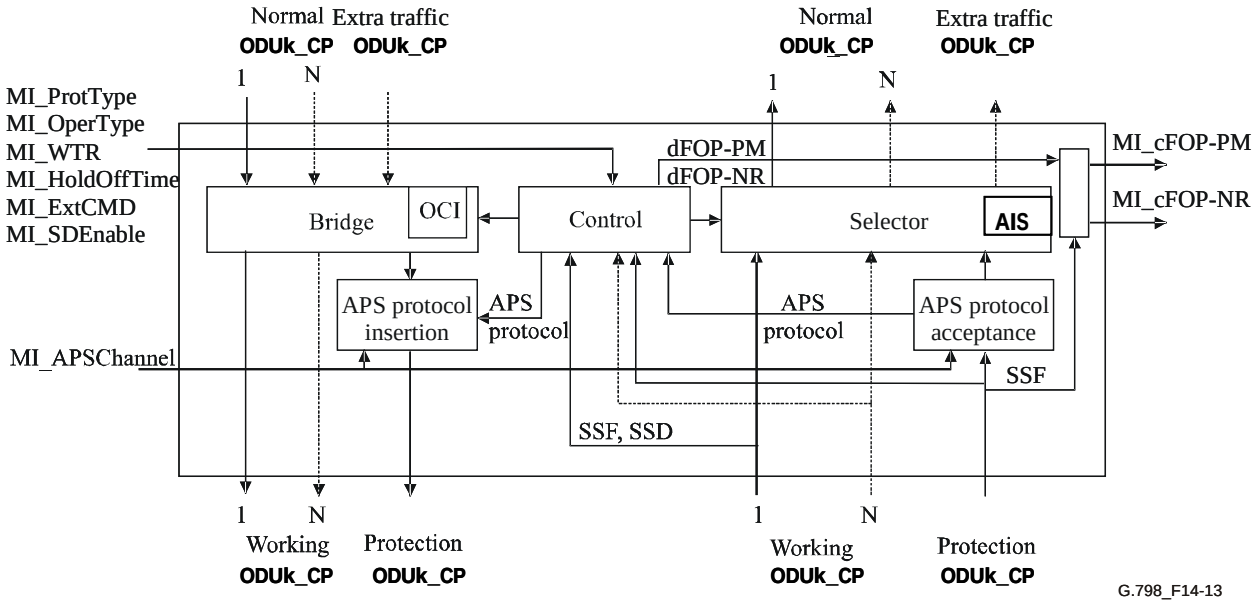

Figure 14-13 – 1:N SNC/S and SNC/I protection process with APS protocol

Modify text in clause 14.1.11 to paragraph underneath the drawings as follows:

A permanent bridge, as defined in [ITU-T G.808.1], shall be used for the 1+1 protection. A broadcast bridge, as defined in [ITU-T G.808.1], shall be used for the 1:N protection. It permanently connects the normal traffic signal to the working transport entity. In case no normal or extra traffic signal is connected to the protection transport entity, an ODUk-OCI signal, as defined in clause 16.5 of [ITU-T G.709], is generated for the protection transport entity. The clock of the OCI signal has to be within the minimum and maximum frequencies of the specified ODU signal in Table 14-2. The jitter and wander requirements, as defined in Annex A of [ITU-T G.8251] (ODCa clock), apply. CI_SSF is false. In the case that the extra traffic signal of a 1:N protection configuration carried by the protection entity is pre-empted by a protection switch, an ODU-AIS.

signal is to be connected to the Extra traffic ODU_CP output. The clock of the ODU-AIS signal has to be within the minimum and maximum frequencies of the specified ODU signal in Table 14-2. The jitter and wander requirements, as defined in Annex A of [ITU-T G.8251] (ODCa clock), apply.

A selective selector, as defined in [ITU-T G.808.1], shall be used.

3.3 Modifications in clause 14.3.7

Modify clause 14.3.7 as follows:

14.3.7 ODU0P to Client adaptation function (ODU0P/CBRx_A) (0≤x≤1.25G)

The ODU0P to CBRx adaptation functions perform the adaptation between the ODU0P layer adapted information and the characteristic information of a CBRx signal.

The parameter x defines the bit rate or bit rate range of the CBR signal. The value of x can range between 0 kbit/s and the OPU0 payload rate of 1 238 954 kbit/s (-20ppm). In the case of the 1.25 Gbit/s 1000BASE-X Ethernet signal, as described in sub-clause 17.7.1 of G.709, a timing transparent adaptation into GFP-T is used to produce a CBR signal with a rate of approximately 1 171 875 kbit/s that is mapped into the OPU0. In this case the CBRx signal is an ETC3 signal. The values for which x is defined are listed in Table 14-19.

Table 14-19/G.798 – Defined values for x for ODU0 clients

x	PTI	Maximum buffer hysteresis	Bit rate	Clock range
155M	Hex code 0A	1 byte	155 520 kbits ± 20 ppm	155 520 kHz ± 20 ppm
622M	Hex code 0B	1 byte	622 080 kbits ± 20 ppm	622 080 kHz ± 20 ppm
1G25 [note] ETC3	Hex code 07	1 byte	1 171 875 kbits ± 100 ppm	1 171 875 kHz ± 100 ppm
FC100	Hex code 0C	1 byte	1 062 500 kbits ± 100 ppm	1 062 500 kHz ± 100 ppm
Note: The original bit rate and clock range of the associated 1000BASE-X Ethernet client signal is 1 250 000 kbits ± 100 ppm. The bit rate and clock range in this table are for the CBR stream that is produced after mapping the client signal into a GFP-T.				

The ODU0P/CBRx_A source function always provides asynchronous mapping.

3.4 Modifications in clause 14.3.7.1

Modify table 14-20 as follows:

Table 14-20/G.798 – ODU0P/Client_A_So inputs and outputs

Input(s)	Output(s)
CBRx_CP: CBRx_CI_CK CBRx_CI_D CBRx_CI_SF **ODU0P/CBRx_A_So_MP**: ODU0P/CBRx_A_So_MI_Active	**ODU0P_AP**: ODU0P_AI_CK ODU0P_AI_D ODU0P_AI_FS ODU0P_AI_MFS
Note: in the case of 1000BASE-X client, the CBRx_CI_D signal is ETC3_CI_Data_Control and ETC3_CI_Control_Ind, the CBRx_CI_CK signal is ETC3_CI_Clock, and the CBRx_CI_SF signal is ETC3_CI_SSF.	

Modify processes as shown below.

Replace Figure 14-50 with the following figure:

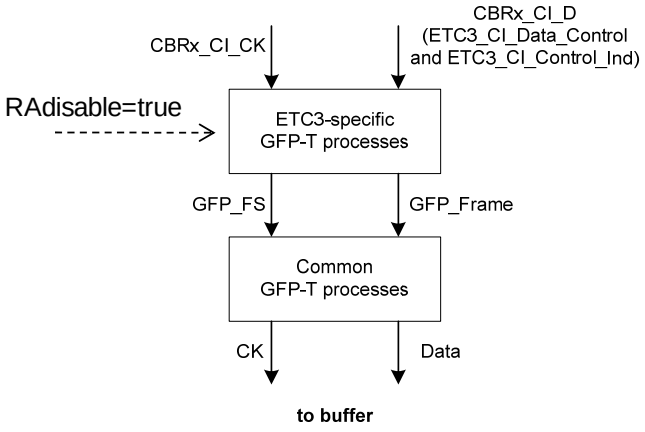

Figure 14-50 – Timing transparent transcoding process for 1000BASE-X clients

Add the following text to the processes part:

ETC3-specific GFP-T source processes

See clause 8.5.4.2.1 of [ITU-T G.806]. 65B_PAD insertion is disabled (RAdisable=true). GFP pFCS generation is disabled (FCSenable=false). The UPI value for transparent gigabit Ethernet shall be inserted (Table 6-3/G.7041). The Ethernet codeword information is inserted into the client payload information field of the GFP-T frames according to clause 8 of [G.7041].

Common GFP-T source processes

See clause 8.5.3.1 of [ITU-T G.806]. GFP channel multiplexing is not supported (CMuxActive=false).

3.5 Modifications in clause 14.3.7.2 ODU0P to CBRx adaptation sink function (ODU0P/CBRx_A_Sk) (0≤x≤1.25G)

Modify table 14-22 as follows:

Table 14-22/G.798 – ODU0P/Client_A_Sk inputs and outputs

Input(s)	Output(s)
ODU0P_AP: ODU0P_AI_CK ODU0P_AI_D ODU0P_AI_FS ODU0P_AI_MFS ODU0P_AI_TSF **ODU0P/CBRx_A_Sk_MP**: ODU0P/CBRx_A_Sk_MI_Active	**CBRx_CP**: CBRx_CI_CK CBRx_CI_D CBRx_CI_SSF **ODU0P/CBRx_A_Sk_MP**: ODU0P/CBRx_A_Sk_MI_cPLM ODU0P/CBRx_A_Sk_MI_AcPT
Note: in the case of 1000BASE-X client, the CBRx_CI_D signal is ETC3_CI_Data_Control and ETC3_CI_Control_Ind, the CBRx_CI_CK signal is ETC3_CI_Clock, and the CBRx_CI_SF signal is ETC3_CI_SSF.	

Modify processes part as shown below.

Replace Figure 14-53 with the following figure:

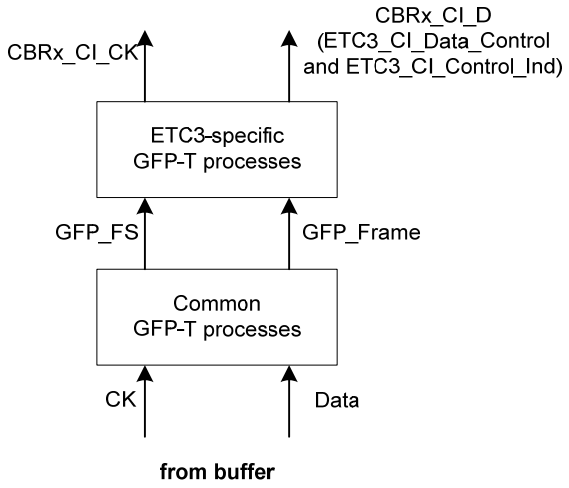

Figure 14-53 – Timing transparent transcoding process for 1000BASE-X clients

Ad the following text to the processes part:

ETC3-specific GFP-T source processes

See clause 8.5.4.2.2 of [ITU-T G.806]. GFP pFCS checking and GFP p_FCSError are not supported (FCSdiscard=false). The UPI value for transparent gigabit Ethernet shall be expected (Table 6-3/G.7041). GFP performance monitoring (p_FDis, p_CRC16Error) is not supported. The Ethernet codeword information is extracted from the client payload information field of the GFP-T frames according to clause 8 of [G.7041].

Common GFP-T source processes

See clause 8.5.3.2 of [ITU-T G.806]. GFP channel multiplexing is not supported (CMuxActive=false). GFP performance monitoring (p_FDis) is not supported.

3.6 Text modifications in clause 14.3.8.1 to CBRx adaptation source function using GMP (ODUkP/CBRx-g_A_So)

Modify Interfaces table as shown below:

Table 14-24/G.798 – ODUkP/CBRx-g_A_So inputs and outputs

Input(s)	Output(s)
CBRx_CP: CBRx_CI_CK CBRx_CI_D CBRx_CI_SSF CBRx_CI_Blockstart CBRx_CI_Lanestart **ODUkP/CBRx_A_So_MP**: ODUkP/CBRx_A_So_MI_Active	**ODUkP_AP**: ODUkP_AI_CK ODUkP_AI_D ODUkP_AI_FS ODUkP_AI_MFS **ODUkP/CBRx_A_So_MP**: ODUkP/CBRx_A_So_MI_ pN_PCS_BIP

*Modify in the processes list in the **Incoming PCS BIP Monitoring and Mask insertion and OTN Section BIP generation item** the bullet list text for 40Gigabit and 100 Gigabit Ethernet as follows*:

- For 40Gigabit Ethernet multilane interfaces an error mask is to be calculated over the PCSL BIP of the incoming signal. For the OTN section a BIP has to be calculated on the descrambled datastream and after error control block insertion. The "OTN BIP" and the error mask will be transmitted together in the transcoded lane marker. See Annex E/G.709 and figure 14-56.
- For 100Gigabit Ethernet multilane interfaces the incoming PCSL BIP will be: ~~-~~transparently transmitted, , errored 66B blocks will not be replaced with error control blocks and the scrambled PCS data will be passed through transparently See Annex E/G.709 and figure 14-56. ~~See Annex E/G.709 and figure 14-56.~~.

Add text for PCS BIP monitoring to the Processes part:

PCS BIP monitoring: The BIP violations of the PCS lanes shall be counted and presented to the management interface

Process: Figure 14-55 is to be replaced by the following figure:

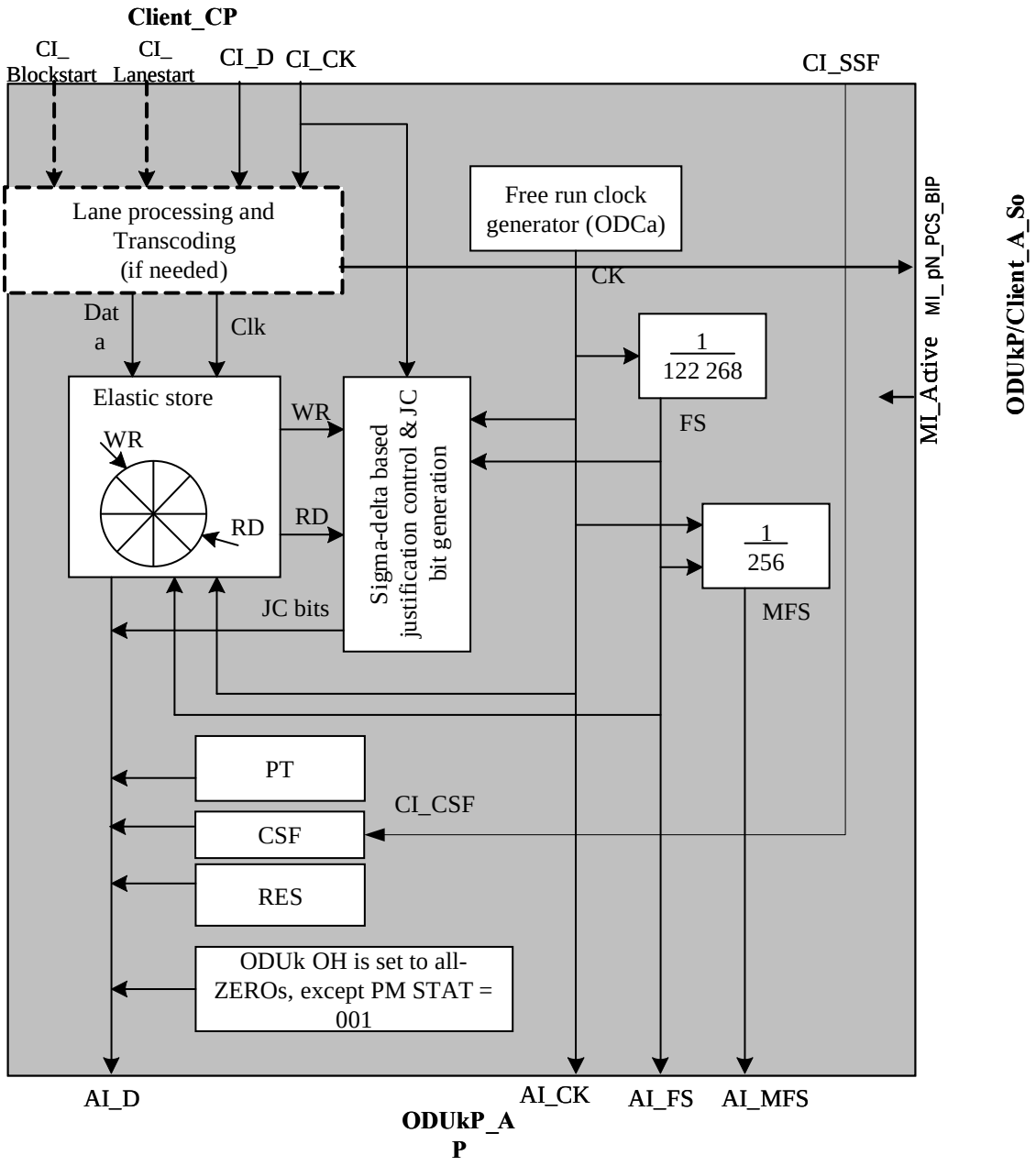

Figure 14-55 – ODUkP/CBRx-g_A_So function

PCS Subprocess: Figure 14-56 is to be replaced by the following figure:

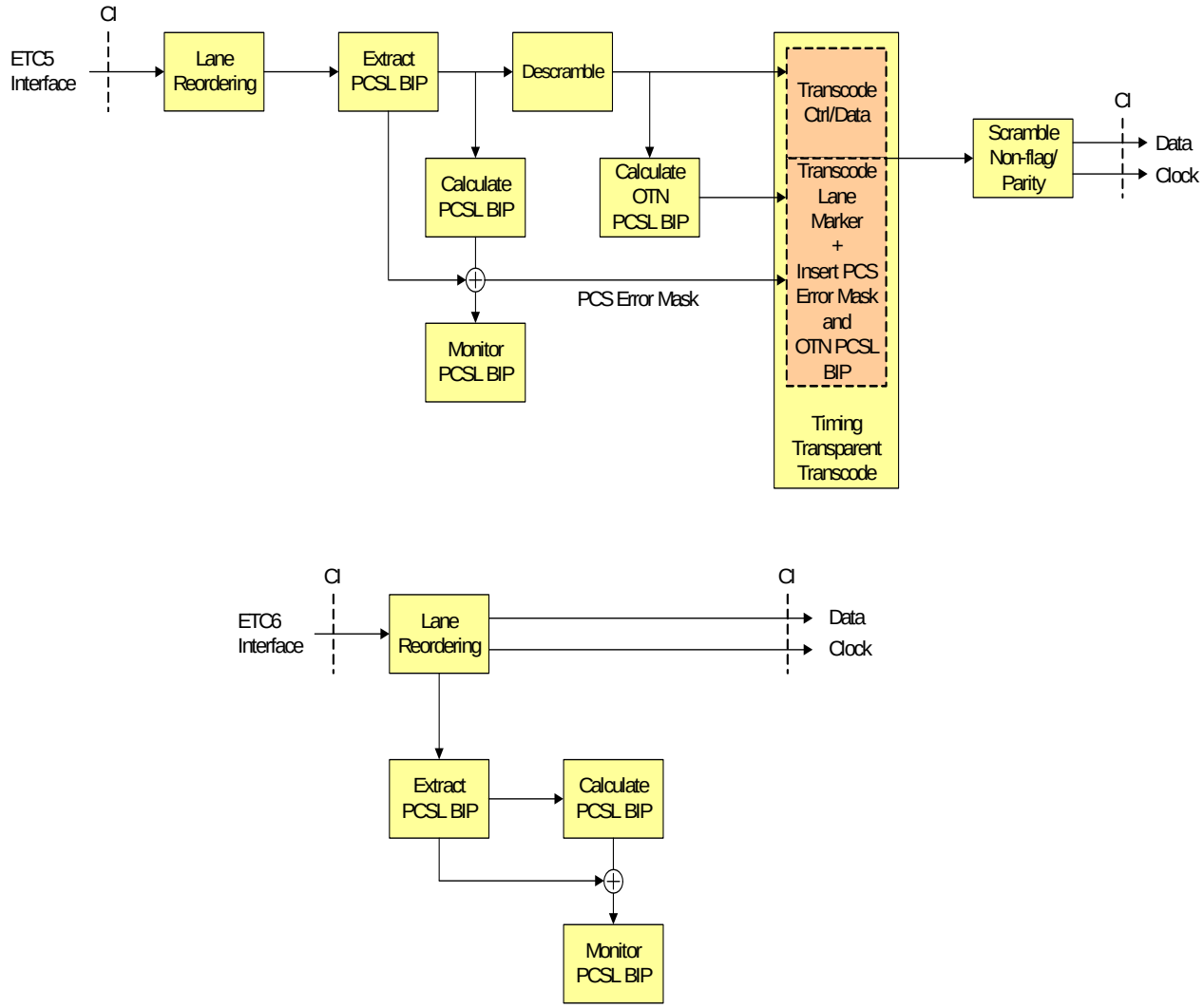

Figure 14-56 – Lane processing and Timing transparent process of the ODUkP/ CBRx-g _A_So function for ETC5 and ETC6 clients

The text below for Performance monitoring has to be added below Defect correlations:

Performance monitoring

The function shall perform the following performance monitoring primitives processing (see clause 6.5 of [ITU-T G.806]). The performance monitoring primitives shall be reported to the EMF.

pN_PCS_BIP BIP ← $\sum$ nPCSL_BIP

3.7 Text Text modifications in clause 14.3.8.2 to CBRx adaptation sink function using GMP (ODUkP/CBRx-g_A_So)

Modify Interfaces table as shown below:

Table 14-26/G.798 – ODUkP/ CBRx-g_A_Sk inputs and outputs

Input(s)	Output(s)
ODUkP_AP: ODUkP_AI_CK ODUkP_AI_D ODUkP_AI_FS ODUkP_AI_MFS ODUkP_AI_TSF **ODUkP/CBRx_A_Sk_MP**: ODUkP/CBRx_A_Sk_MI_Active ~~ODUkP/CBRx_A_Sk_MI_Enable_PCSL_Section_Mon~~	**CBRx_CP**: CBRx_CI_CK CBRx_CI_D CBRx_CI_SSF **ODUkP/CBRx_A_Sk_MP**: ODUkP/CBRx_A_Sk_MI_cPLM ODUkP/CBRx_A_Sk_MI_AcPT ODUkP/CBRx_A_Sk_MI_cCSF ODUkP/CBRx_A_~~ODUkP/CBRx_A~~Sk_MI_pN_PCS_BIP

Replace the text in the BIP correction with the following text:

BIP correction:

- For 40Gigabit Ethernet multilane interfaces the PCSL BIP error mask is to be extracted and a OTN BIP error mask is calculated before scrambling. Both error masks are used for calculating an adjusted PCSL BIP which will be inserted. See Annex E/G.709 and figure 14-59.
- For 100Gigabit Ethernet multilane interfaces the incoming PCSL BIP will be transparently transmitted. See Annex E/G.709 and figure 14-59.

Process: Figure 14-58 is to be replaced by the following figure:

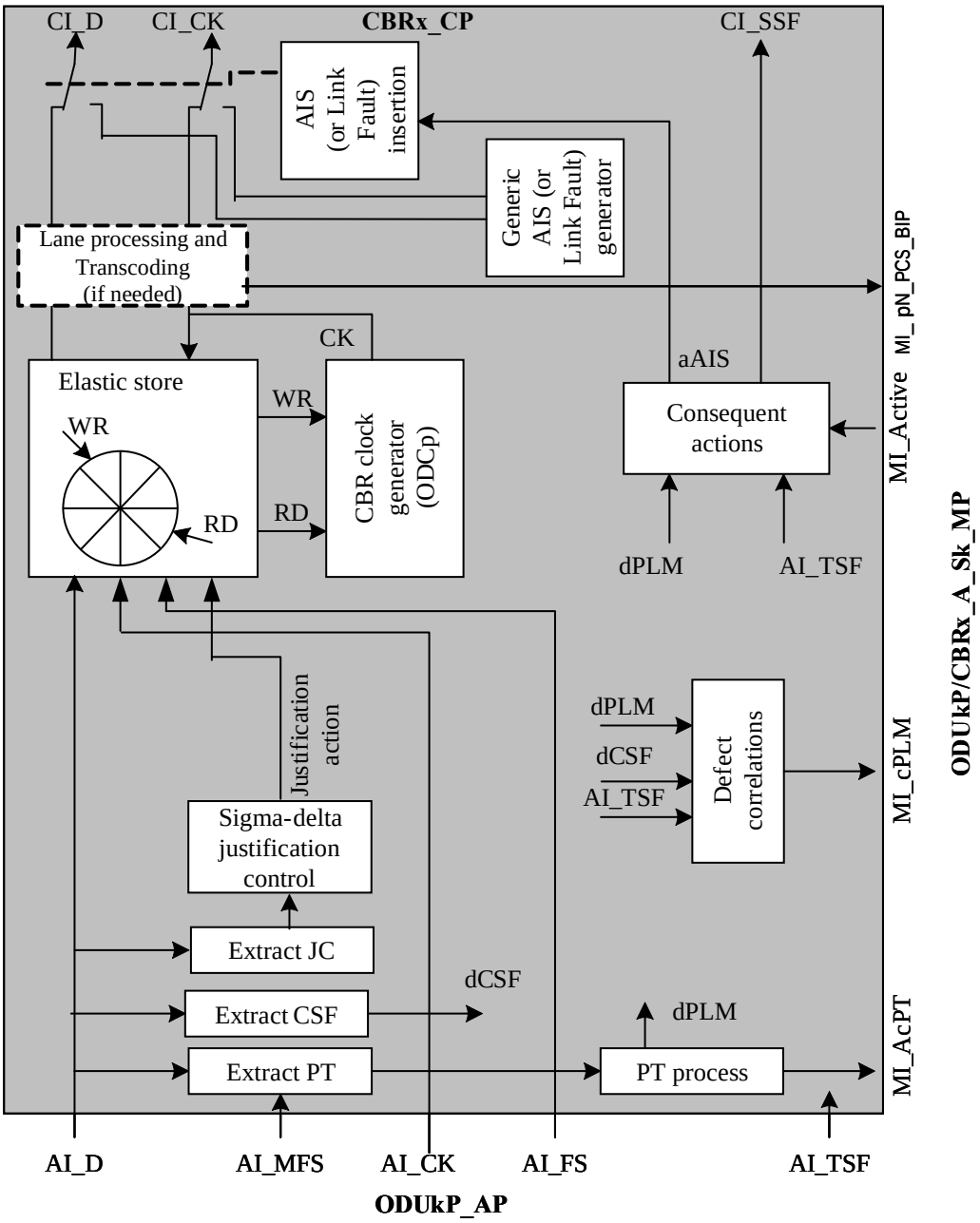

Figure 14-58 – ODUkP/ CBRx-g _A_Sk processes

PCS Subprocess: Replace Figure 14-59 by the following:

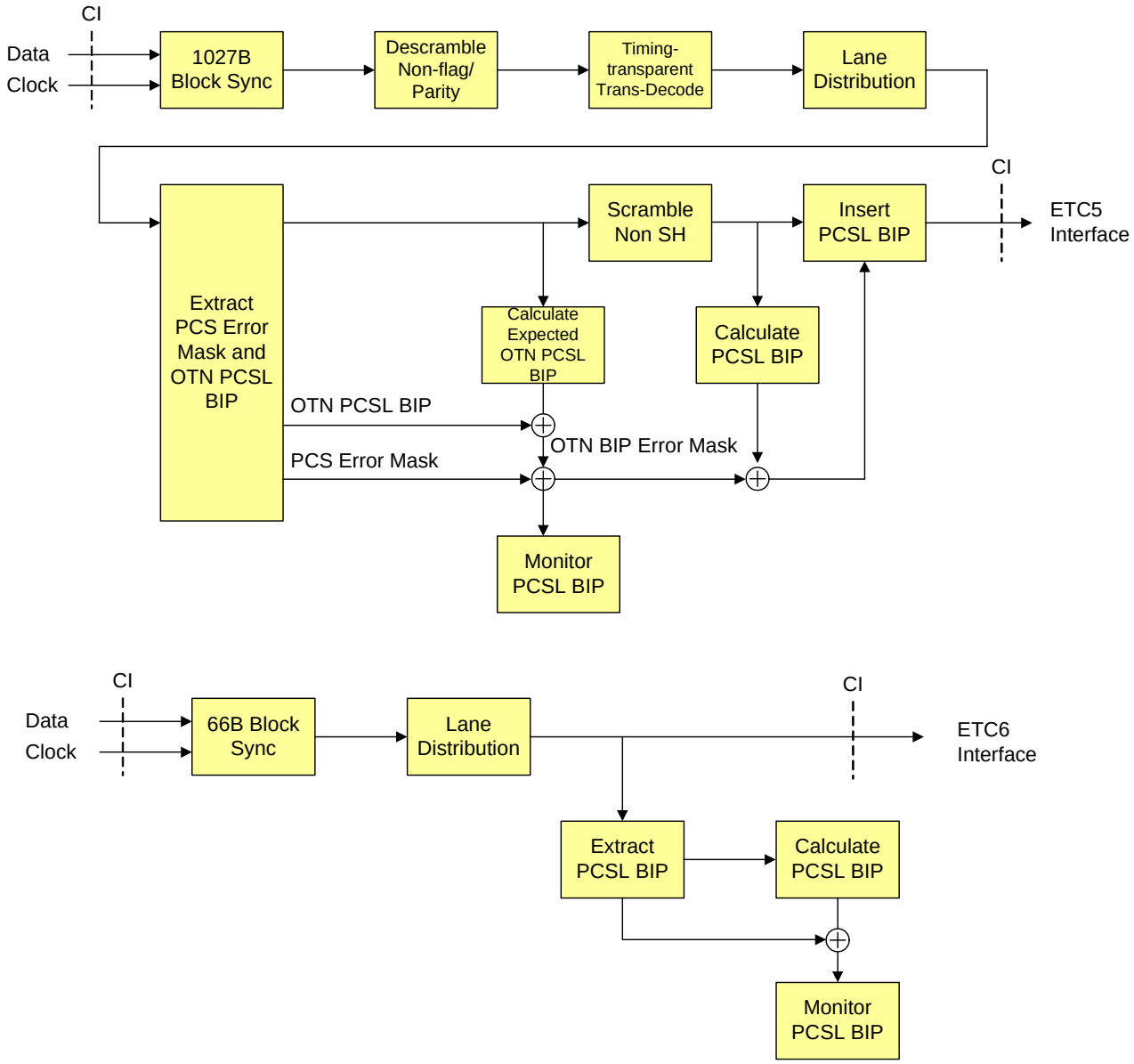

Figure 14-59 – Lane processing and Timing transparent process of the ODUkP/ CBRx-g _A_Sk function for ETC5 and ETC6 clients

The text below for Performance monitoring has to be added below Defect correlations

Performance monitoring

The function shall perform the following performance monitoring primitives processing (see clause 6.5 of [ITU-T G.806]). The performance monitoring primitives shall be reported to the EMF.

pN_PCS_BIP ← ∑ nPCSL_BIP

3.8 Text modifications in clause 14.3.10.

3.8.1 Text modifications in clause 14.3.10.1 ODUkP to ODUj payload type 21 adaptation source function (ODUkP/ODUj-21_A_So)

In clause 14.3.10.1 ODUkP to ODUj Payload Type 21 adaptation source function (ODUkP/ODUj-21_A_So) add in table 14-33 the Management interface ODUkP/ODUj-21_A_So_MI_ODUType_Rate[i]:

Table 14-33/G.798 – ODUkP/ODUj-21_A_So inputs and outputs

Input(s)	Output(s)
n x ODUj_CP: ODUj_CI_CK ODUj_CI_D ODUj_CI_FS ODUj_CI_MFS **ODUk_PP**: ODUk_PI_APS **ODUkP/ODUj-21_A_So_MP**: ODUkP/ODUj-21_A_So_MI_Active ODUkP/ODUj-21_A_So_MI_TxMSI ODUkP/ODUj-21_A_So_MI_AUTOpayloadtype ODUkP/ODUj-21_A_So_MI_ODUType_Rate[i] ODUkP/ODUj_A_So_MI_AdminState[n] **ODUkP/ODUj-21_A_So_RP**: ODUkP/ODUj-21_A_So_RI_AcPT	**ODUkP_AP**: ODUkP_AI_CK ODUkP_AI_D ODUkP_AI_FS ODUkP_AI_MFS **ODUkP/ODUj-21_A_So_RP:** ODUkP/ODUj-21_A_So_RI_TrPT **ODUkP/ODUj-21_A_So_MP**: ODUkP/ODUj-21_A_So_MI_TrPT

In this clause add in the specific processes list add text in respect to the additional MI as shown below:

Mapping, frequency justification and bit rate adaptation:: The function shall provide an elastic store (buffer) process for the ODUj client signal. The data signal ODUj_CI shall be written into the buffer under control of the associated input clock.
Two justification methods as described below are provided, AMP (ODTUjk) and GMP (ODTUk.M). The ODU type and rate, as configured via the ODUkP/ODUj-21_A-So_MI_ODUType_Rate[i] input for the related trib port, determine the mapping method and, in the case of GMP mapping, the base value and ranges for the parameters Cn and Cm

In Figure 14-67/G.798 – ODUkP/ODUj-21_A_So processes add the additional MI.

Replace the Figure 14-67 with the following figure:

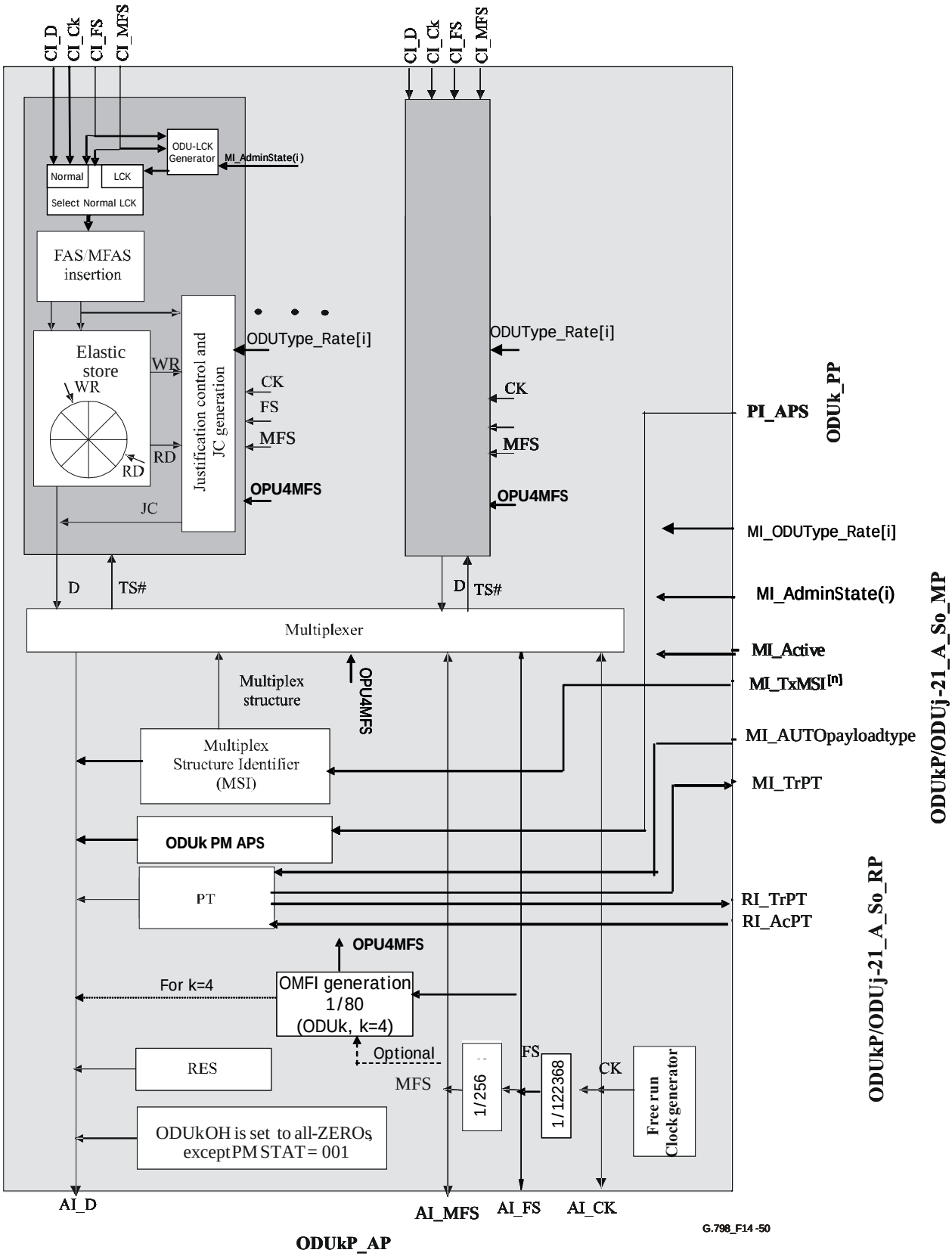

Figure 14-67/G.798 – ODUkP/ODUj-21_A_So processes

3.8.2 Text modifications in clause 14.3.10.2 ODUkP to ODUj payload type 21 adaptation sink function (ODUkP/ODUj-21_A_Sk)

In clause 14.3.10.2 ODUkP to ODUj Payload Type 21 adaptation sink function (ODUkP/ODUj-21_A_Sk) add in table 14-35 the Management interface ODUkP/ODUj-21_A_Sk_MI_ODUType [i]:

Table 14-35/G.798 – ODUkP/ODUj-21_A_Sk inputs and outputs

Input(s)	Output(s)
ODUkP_AP: ODUkP_AI_CK ODUkP_AI_D ODUkP_AI_FS ODUkP_AI_MFS ODUkP_AI_TSF ODUkP_AI_TSD **ODUkP/ODUj21_A_Sk_MP**: ODUkP/ODUj21_A_Sk_MI_Active ODU3P/ODUj21_A_Sk_MI_ExMSI ODUkP/ODUj-21_A_Sk_MI_AdminState[n] ODUkP/ODUj-21_A_Sk_MI_Nominal_Bitrate_and_Tolerance[i] ODUkP/ODUj-21_A_Sk_MI_ODUType [i] **ODUkP/ODUj-21_A_Sk_RP**: ODUkP/ODUj-21_A_Sk_RI_TrPT	**n × ODUj_CP**: ODUj_CI_CK ODUj_CI_D ODUj_CI_FS ODUj_CI_MFS ODUj_CI_SSF ODUj_CI_SSD **ODUk_PP**: ODUk_PI_APS ODUk_PI_TSF ODUk_PI_TSD **ODUkP/ODU[i]j_A_Sk_MP**: ODUkP/ODUj-21_A_Sk_MI_cPLM ODUkP/ODUj-21_A_Sk_MI_cLOOMFI ODUkP/ODUj-21_A_Sk_MI_cMSIM[i] ODUkP/ODUj-21_A_Sk_MI_AcPT ODUkP/ODUj-21_A_Sk_MI_AcMSI[i] ODUkP/ODUj-21_A_Sk_MI_cLOFLOM[i] **ODUkP/ODUj-21_A_Sk_RP**: ODUkP/ODUj-21_A_Sk_RI_AcPT

In this clause add in the specific processes list add text in respect to the additional MI as shown below:

Specific processes

The specific processes are performed independently for each ODUj client signal that is multiplexed into the OPUk. The specific processes recover the ODUj from the ODTUjk or ODTUk.M.

Two justification methods as described below are provided, AMP (*ODTUjk*) and GMP (*ODTUk.M)*._Two justification methods as described below are provided, AMP (*ODTUjk*) and GMP (*ODTUk.M)*. The ODU type and rate, as configured via the ODUkP/ODUj-21_A-So_MI_ODUType_Rate[i] input for the related trib port, determine the mapping method and, in the case of GMP mapping, the base value and ranges for the parameters C_n and C_m.

Modify the current description text for AIS in consequent actions:

~~On declaration of aAIS, the function shall output a replacement signal as defined in 17.2/G.709 and 17.9/G709 within 2 frames. On clearing of aAIS the replacement pattern/signal shall be removed within 2 frames and normal data being output. The replacement signal clock shall be independent~~

~~from the incoming clock. The replacement signal clock has to be within the range specified by Table 14-68 . Jitter and wander requirements as defined in Annex A/G.8251 (ODCp clock) apply.~~

On declaration of aAIS the function shall output an all-ONEs pattern/signal within 2 frames. On clearing of aAIS the all-ONEs pattern/signal shall be removed within 2 frames, with normal data being output. The AIS clock, frame start and multiframe start shall be independent from the incoming clock, frame start and multiframe start. The clock has to be within the ODUj frequency tolerance range as specified in Table 14-2 provisioned by the MI_Nominal_Bitrate_and_Tolerance from a free-running oscillator. Jitter and wander requirements, as defined in Annex A of [ITU-T G.8251] (ODCa clock), apply.

In Figure 14-69/G.798 – ODUkP/ODUj-21_A_So processes add the additional MI.

Replace the Figure 14-69 with the following figure showing the additional Management interface:

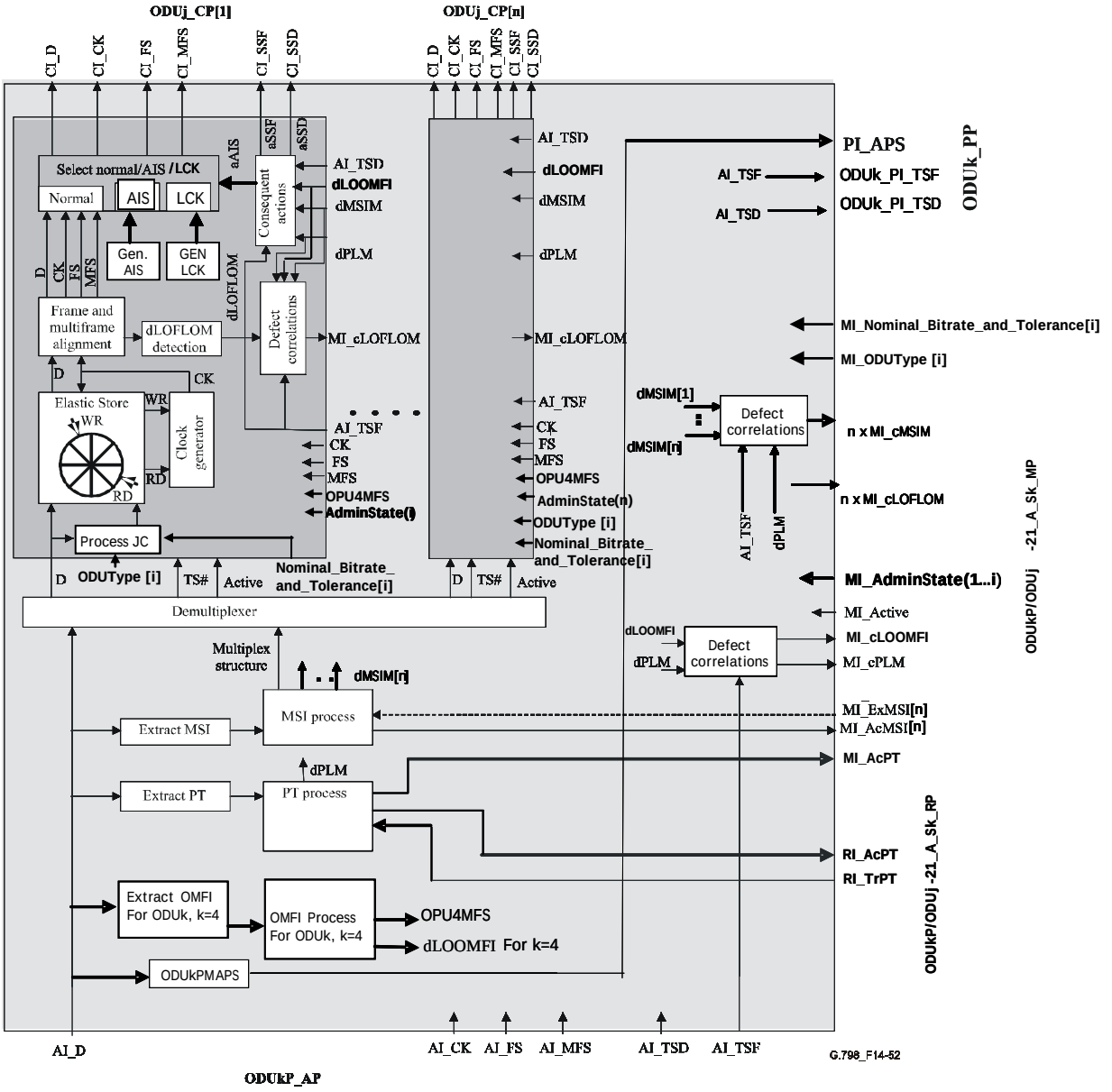

Figure 14-69/G.798 – ODUkP/ODUj-21_A_Sk processes

The last phrase of Consequent actions, that describes aAIS process, has to be deleted as shown below.

Consequent actions

See clause 10.1.1.2 of [ITU-T G.806], taking the following definitions of mMSU and mMSU_L:

mMSU[i] ← MI_ProvM[i] and (AI_TSF[i] or dPLM[i] or dLOM[i] or dLOA or dSQM[i])

mMSU_L[i] ← MI_ProvM[i] and (AI_TSF[i] or dPLM[i] or dMND[i] or AI_TSD[n] or dLOM[i])

~~On declaration of aAIS, the function shall output a generic AIS signal within two frames; on clearing of aAIS, the function shall output normal data within two frames. The bit rate of this generic AIS signal shall be consistent with the value of _X_{AR} as calculated by the processes involved.~~

3.9 Modifications in clause 14.5.1.1.2 ODUkT trail termination sink function (ODUkT_TT_Sk)

Add the LTCAct_Enable input to table 14-42:

Table 14-42 – ODUkT_TT_Sk inputs and outputs

Input(s)	Output(s)
ODUk_TCP: ODUk_CI_CK ODUk_CI_D ODUk_CI_FS ODUk_CI_MFS ODUk_CI_SSF **ODUkT_TT_Sk_MP**: ODUkT_TT_Sk_MI_ExSAPI ODUkT_TT_Sk_MI_ExDAPI ODUkT_TT_Sk_MI_GetAcTI ODUkT_TT_Sk_MI_TIMDetMo ODUkT_TT_Sk_MI_TIMActDis ODUkT_TT_Sk_MI_DEGThr ODUkT_TT_Sk_MI_DEGM ODUkT_TT_Sk_MI_1second ODUkT_TT_Sk_MI_DM_Source ODUkT_TT_Sk_MI_DMValue ODUkT_TT_Sk_MI_LTCAct_Enable **ODUkT_TT_Sk_TCMCP**: ODUkT_TT_Sk_TCMCI_Mode ODUkT_TT_Sk_TCMCI_Level	**ODUkT_AP**: ODUkT_AI_CK ODUkT_AI_D ODUkT_AI_FS ODUkT_AI_MFS ODUkT_AI_TSF ODUkT_AI_TSD ODUkT_AI_AIS **ODUkT_RP**: ODUkT_RI_BDI ODUkT_RI_BEI ODUkT_RI_BIAE ODUkT_RI_ DM **ODUkT_TT_Sk_MP**: ODUkT_TT_Sk_MI_AcTI ODUkT_TT_Sk_MI_cOCI ODUkT_TT_Sk_MI_cLCK ODUkT_TT_Sk_MI_cLTC ODUkT_TT_Sk_MI_cTIM ODUkT_TT_Sk_MI_cDEG ODUkT_TT_Sk_MI_cBDI ODUkT_TT_Sk_MI_cSSF ODUkT_TT_Sk_MI_pN_EBC ODUkT_TT_Sk_MI_pN_DS ODUkT_TT_Sk_MI_pF_EBC ODUkT_TT_Sk_MI_pF_DS ODUkT_TT_Sk_MI_pBIAE ODUkT_TT_Sk_MI_pIAE ODUkT_TT_Sk_MI_pN_delay

Add the LTCActT_Enable input to Figure 14-85, replacing it with the following:

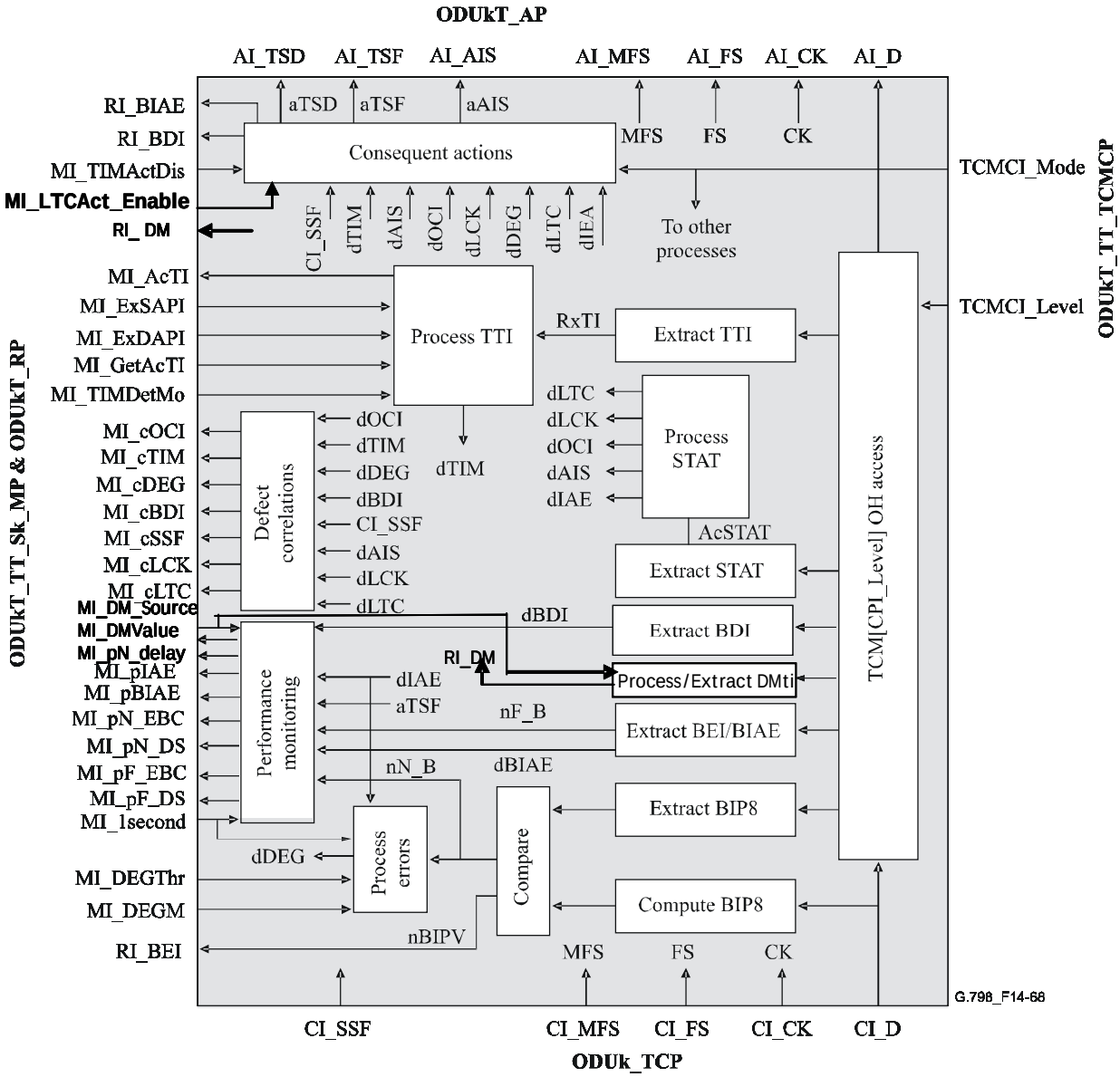

Figure 14-85 – ODUkT_TT_Sk processes

Modify Consequent action aTSF and aAIS as follows:

aTSF ← CI_SSF or ((dAIS or dLTC and LTCAct_Enable or dOCI or dLCK or (dTIM and (not TIMActDis))) and TCMCI_Mode == OPERATIONAL)

aAIS ← (dOCI or dLTC and LTCAct_Enable or dLCK or (dTIM and (not TIMActDis))) and TCMCI_Mode == OPERATIONAL

Note 1 – Equipment prior to this version of the Recommendation will not execute aAIS consequent action in the case of dLTC.

Note 2 – The default value for the MI_LTCAct_Enable is to be set to "false" to align the consequent action execution to existing network implementations.