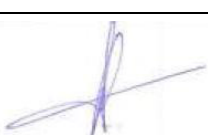**AKKA**
TECHNOLOGIES

Pôle Informatique & Systèmes

Agence ou Service : NTIC

Projet : Développement du noyau AMDA-NG (3ème partie) et intégration avec l'IHM

DOSSIER DE CONTROLE DES INTERFACES DU NOYAU AMDA-NG (3EME PARTIE)

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LISTE DES MODIFICATIONS DU DOCUMENT

Vers.	Date	Paragraphe	Description de la modification
01.0	30/10/2014	Tous	Création du document
01.1	02/02/2015	Tous	Prise en compte des modifications pour la Release 3

SOMMAIRE

1 INTRODUCTION

Ce document constitue un addendum à [DR06] résultant de la réalisation de la troisième partie du noyau AMDA-NG par AKKA.

Le document [DR06] n'est que peu impacté par cette troisième partie, la structure de ce document est exactement identique à [DR06], seuls les paragraphes modifiés sont développés.

2   DOCUMENTS APPLICABLES (DA)

A/R	Référence	Titre
[DA01]	CDPP-CO-32500-452-CNES, 06/05/2013, Ed. 01 Rev 00.	Consultation AC-IS N°DAJ/AR/EO-2013.08449 "Développement du noyau AMDA-NG -Seconde Partie"
[DA02]	CDPP-ST-32500-451-CES, 13/05/2013, Ed. 01 Rev 00	Spécification de besoins techniques pour la seconde prestation du nouveau noyau AMDA
[DA03]	DCT/PS-2011-003173.	Cahier des Clauses Techniques Particulières AC-IS.
[DA04]	DCT/PS-2010-15734	Exigence de réponse aux clauses de sécurité des Systèmes d'information de l'Accord Cadre AC-IS
[DA05]	DCT/PS-2011-003191	Projet de cahier des prescriptions de Sécurité des Systèmes d'Information Accord Cadre Informatique Spatiale Clauses Générique
[DA06]	ACIS-ACIBS-SP-GEN-1-CNES	Exigences Normatives associées aux prestations de développement et de maintenance dans le domaine de l'informatique spatiales

3   DOCUMENTS DE REFERENCE (DR)

A/R	Référence	Titre
[DR01]	CDPP-AR-32500-382-SI, Ed. 02 Rev. 01, 29/11/2012.	Dossier d'architecture du noyau d'AMDA-NG
[DR02]	CDPP-CD-32500-436-SI, Ed. 01 Rev. 06,11/02/2013.	Dossier de conception du noyau d'AMDA-NG
[DR03]	CDPP-IF-32500-438-SI, Ed. 01 Rev. 04, 05/02/2013	Dossier de contrôle des interfaces du noyau AMDA-NG
[DR04]	CDPP-NT-32500-383-SI, Ed. 01 Rev. 02, 10/01/2010.	Étude sur les solutions alternatives à IDL.
[DR05]	CDPP-MI-32500-440-SI, Ed. 01 Rev 05, 11/02/2013	Manuel d'installation de AMDA Kernel
[DR06]	CDPP-IF-32500-458-CS Ed 1.4 du 23/01/2014	Dossier de contrôle des interfaces du noyau AMDA-NG – 2nde partie

4 PRESENTATION DU SYSTEME

Cf. [DR06]

4.1 NOMENCLATURE DES INTERFACES

Cf. [DR06]

5   LISTE DES INTERFACES

Cf. [DR06]

5.1   INTERFACES EXTERNES

Cf. [DR06]

5.1.1   Fichier de configuration du noyau AMDA

Cf. [DR06]

5.1.2   Journalisation

Cf. [DR06]

5.1.3   Données externes

Identification	Description	Producteur	Consommateur
IF_E_DDSERV_GET-PARAM	Interface de récupération de données via DDServer	DDSERV	KERNEL
IF_E_WEBINT_PARAM	Fichier XML de description d'un paramètre	WEBINT	KERNEL
IF_E_WEBINT_INFO	Interface de récupération des informations sur les paramètres	WEBINT	KERNEL
IF_E_WEBINT_REQUEST	Fichier XML de description d'une requête	WEBINT	KERNEL
IF_E_WEBINT_LOCAL-BASE	Fichier XML de description d'une base de données de fichiers locaux	WEBINT	KERNEL
IF_E_DEV_PLUGIN-LIB	Plugin proposant de nouvelles fonctionnalités	DEV	KERNEL
IF_E_DEV_PLUGIN-FONC	Plugin proposant une fonction mathématique	DEV	KERNEL

5.2   INTERFACES INTERNES

Cf. [DR06]

6   DESCRIPTION DES INTERFACES EXTERNES

Cf. [DR06]

6.1   FICHIERS DE CONFIGURATION DU NOYAU AMDA

Cf. [DR06]

6.1.1   IF_E_ADM_CONF : app.properties

Cf. [DR06]

6.1.1.1 Description détaillée

Ce fichier contient une liste de propriétés sous la forme clé=valeur. Le caractère # en début de ligne indique

que le reste de la ligne est un commentaire.

Il contient les propriétés de localisation suivantes :

- ✓ app.log4cxx.configfile : nom du fichier de configuration du module de journalisation
- ✓ app.param.path : chemin absolu ou relatif du répertoire contenant les fichiers xml décrivant les paramètres
- ✓ app.parameter.xsd : chemin absolu ou relatif du fichier XSD de description des paramètres
- ✓ app.request.xsd : chemin absolu ou relatif du fichier XSD de description des requêtes
- ✓ app.paramInfo.xsd : chemin absolu ou relatif du fichier XSD de description des informations relatives à un paramètre (contenu de l'élément <info>)
- ✓ app.dataSetInfo.path : chemin absolu ou relatif du répertoire contenant les fichiers XML d'informations datasets
- ✓ app.dataSetInfo.xsd : chemin absolu ou relatif du fichier XSD de description des informations relatives à un dataset
- ✓ app.instrumentInfo.path : chemin absolu ou relatif du répertoire contenant les fichiers XML d'informations instruments
- ✓ app.instrumentInfo.xsd : chemin absolu ou relatif du fichier XSD de description des informations relatives à un instrument
- ✓ app.missionInfo.path : chemin absolu ou relatif du répertoire contenant les fichiers XML d'informations missions
- ✓ app.missionInfo.xsd : chemin absolu ou relatif du fichier XSD de description des informations relatives à une mission
- ✓ app.plugin : répertoire de dépôt des plugins AMDA plugin directory
- ✓ app.plot.configfile : nom du fichier de configuration du module Plot

Le paramétrage de la procédure de génération de code :

- ✓ app.process.src : le répertoire de destination de fichiers source générés
- ✓ app.process.lib : répertoire de destination des librairies obtenues
- ✓ app.process.CXX_COMPILER : le compilateur utilisé
- ✓ app.process.CMAKE_CXX_FLAGS : option de compilation de la librairie
- ✓ app.process.INCLUDE : les includes "-I" de première nécessité
- ✓ app.process.LIB : les librairies de première nécessité

Des constantes générales utilisées par l'application

- ✓ app.param.gapthreshold : Valeur par défaut du nombre d'échantillons à partir duquel une absence de données représente un trou de données (utilisé au niveau du resampling et du plot)

6.1.2 IF_E_ADM_AMDA_PROP : amda.properties

Cf. [DR06]

6.1.2.1 Description détaillée

Ce fichier contient une liste de propriétés sous la forme clé=valeur. Le caractère # en début de ligne indique que le reste de la ligne est un commentaire.

Il contient les propriétés suivantes :

- ✓ createdby : copyright affiché sur les outputs de type Plot
- ✓ acknowledgement : Utilisé dans les entêtes de fichiers (Download) pour les remerciements

6.1.3 IF_E_ADM_PLOT_CONF

Cf. [DR06]

6.1.3.1 Description détaillée

Cf. [DR06]

6.1.3.1.1 Section default

Cf. [DR06]

6.1.3.1.2 Section colormap

Cf. [DR06]

6.2 JOURNALISATION

Cf. [DR06]

6.2.1 IF_E_AMD_CONF-LOG

Cf. [DR06]

6.2.1.1 Description détaillée

Cf. [DR06]

6.2.1.2 Exemple

Cf. [DR06]

6.2.2 IF_E_KERNEL_LOG

Cf. [DR06]

6.3 DONNEES EXTERNES

Cf. [DR06]

6.3.1 IF_E_DDSERV_GET-PARAM

Cf. [DR06]

6.3.1.1 Description détaillée

Cf. [DR06]

6.3.2 IF_E_WEBINT_PARAM

Cf. [DR06]

6.3.2.1 Schémas XSD

Cf. [DR06]

6.3.2.1.1 <u>all.xsd</u>

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
    <xs:include schemaLocation="getddbase.xsd" />
    <xs:include schemaLocation="getlocalfile.xsd" />
    <xs:include schemaLocation="getamdaparam.xsd" />
</xs:schema>
```

6.3.2.1.2   parameter.xsd

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">


    <xs:complexType name="GetterType">
            <xs:attribute name="name" type="xs:string" />
    </xs:complexType>


    <xs:element name="Getter" type="GetterType" abstract="true" />


    <xs:element name="param">
            <xs:complexType>
                    <xs:sequence>
        <xs:element name="info" type="infoType" minOccurs="0" maxOccurs="1"></xs:element>
        <xs:element name="time_resolution" type="xs:integer"
                                minOccurs="0" maxOccurs="1" />
                        <xs:element name="gap_threshold" type="xs:integer"
                                minOccurs="0" maxOccurs="1" />
                        <xs:element name="get">
                                <xs:complexType>
                                        <xs:sequence>
                                                <xs:element ref="Getter" minOccurs="1"
                                                        maxOccurs="unbounded" />
                                        </xs:sequence>
                                </xs:complexType>
                        </xs:element>
                        <xs:element name="clbProcess" type="xs:string"
                                minOccurs="0" maxOccurs="unbounded" />
                        <xs:element name="process">
                                <xs:complexType>
                                        <xs:simpleContent>
                                                <xs:extension base="xs:string">
                                                        <xs:attribute name="description" type="xs:string"/>
                                                </xs:extension>
                                        </xs:simpleContent>
                                </xs:complexType>
                        </xs:element>
                        <xs:element name="output">
                                <xs:complexType>
                                        <xs:sequence>
                                                <xs:any minOccurs="0" maxOccurs="unbounded"
                                                        processContents="skip" />
                                        </xs:sequence>
                                </xs:complexType>
```

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```
                    </xs:element>
                </xs:sequence>
                <!--xs:attribute name="xml:id" type="xs:ID" use="required"/ -->
                <xs:attribute name="id" type="xs:ID" use="required" />
                <!--xs:attribute ref="xml:id" use="required" /-->
            </xs:complexType>
        </xs:element>


    <xs:complexType name="infoType">
        <xs:sequence>
            <xs:any minOccurs="0" maxOccurs="unbounded" processContents="skip"></xs:any>
        </xs:sequence></xs:complexType>
</xs:schema>
```

6.3.2.1.3   getddbase.xsd

Cf. [DR06]

6.3.2.1.4   getamdaparam.xsd

Cf. [DR06]

6.3.2.1.5   getlocalfile.xsd

```
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
        <xs:include schemaLocation="parameter.xsd" />

        <xs:complexType name="localFileParamType">
                <xs:attribute name="id" type="xs:string" use="required" />
                <xs:attribute name="type" type="xs:string" />
                <xs:attribute name="size" type="xs:string" />
                <xs:attribute name="minSampling" type="xs:string" use="required" />
                <xs:attribute name="maxSampling" type="xs:string" use="required" />
                <xs:attribute name="useNearestValue" type="xs:boolean" />
        </xs:complexType>

        <xs:complexType name="local-vi-type">
                <xs:complexContent>
                        <xs:extension base="GetterType">
                                <xs:sequence>
                                        <xs:element name="param" type="localFileParamType"
                                                minOccurs="1" maxOccurs="unbounded" />
                                </xs:sequence>
                                <xs:attribute name="id" type="xs:string" use="required" />
```

```
            </xs:extension>
         </xs:complexContent>
      </xs:complexType>

      <xs:element name="localvi" substitutionGroup="Getter" type="local-vi-type" />
</xs:schema>
```

6.3.2.2 Exemples

Cf. [DR06]

6.3.2.2.1   Description de paramètre AMDA

Cf. [DR06]

6.3.2.2.2   Description de paramètre de DDServer

Cf. [DR06]

6.3.2.2.3   Description de paramètre local

```xml
<?xml version="1.0" encoding="UTF-8"?>
<param xml:id="local_cdf_bgse">
 <get>
 <localvi id="0">
       <param id="BGSEc" minSampling="3600" maxSampling="3600"/>
 </localvi>
 </get>
 <process/>
 <output/>
</param>
```

6.3.3   IF_E_WEBINT_REQUEST

Cf. [DR06]

6.3.3.1 Schémas XSD

Cf. [DR06]

6.3.3.1.1   all.xsd

Ce schéma est le point d'entrée pour la validation des fichiers XML de requête.

```xml
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:include schemaLocation="interval.xsd" />
      <xs:include schemaLocation="download.xsd" />
```

```
<xs:include schemaLocation="intervalTrue.xsd" />
<xs:include schemaLocation="dataMining.xsd" />
<xs:include schemaLocation="statistic.xsd" />
<xs:include schemaLocation="plot.xsd" />
<xs:include schemaLocation="asciiPlot.xsd" /> <!-- just for test -->
<xs:include schemaLocation="instantPlot.xsd" />
<xs:include schemaLocation="paramPlot.xsd" />
<xs:include schemaLocation="timePlot.xsd" />
<xs:include schemaLocation="epochPlot.xsd" />
<xs:include schemaLocation="tickPlot.xsd" />
<xs:include schemaLocation="statusPlot.xsd" />
<xs:include schemaLocation="xyPlot.xsd" />
      <xs:include schemaLocation="postProcessing.xsd" />
      <xs:include schemaLocation="request.xsd" />
</xs:schema>
```

6.3.3.1.2 request.xsd

Cf. [DR06]

6.3.3.1.3 interval.xsd

```
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:include schemaLocation="request.xsd" />

  <xs:element name="interval" substitutionGroup="TimeElement" >
            <xs:complexType>
                  <xs:sequence>
                        <xs:element name="startTime"  type="xs:string" minOccurs="1" maxOccurs="1"/>
                        <xs:element     name="timeInterval"      type="xs:string"      minOccurs="1"
maxOccurs="1"/>
                  </xs:sequence>
            </xs:complexType>
      </xs:element>

      <xs:element name="timetable" substitutionGroup="TimeElement" >
            <xs:complexType>
                        <xs:attribute name="id" type="xs:string"  use="required"/>
                        <xs:attribute name="index" type="xs:integer"/>
            </xs:complexType>
      </xs:element>

      <xs:element name="catalog" substitutionGroup="TimeElement" >
```

```
            <xs:complexType>
                    <xs:attribute name="id" type="xs:string"  use="required"/>
                    <xs:attribute name="index" type="xs:integer"/>
            </xs:complexType>
        </xs:element>

</xs:schema>
```

6.3.3.1.4   download.xsd

Ce schéma décrit un output de type download.

```
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
        <xs:include schemaLocation="request.xsd" />

        <xs:element name="PostProcessingElement" abstract="true" />

   <xs:element name="download" substitutionGroup="OutputElement" >
            <xs:complexType>
                    <xs:sequence>
                            <xs:element name="timeFormat" minOccurs="0"
                                    maxOccurs="1">
                                    <xs:simpleType>
                                            <xs:restriction base="xs:string">
                                                    <xs:enumeration value="DD"></xs:enumeration>
                                                    <xs:enumeration value="ISO"></xs:enumeration>
                                                    <xs:enumeration value="DOUBLE"></xs:enumeration>
                                            </xs:restriction>
                                    </xs:simpleType>
                            </xs:element>
                            <xs:element name="fileFormat" minOccurs="0"
                                    maxOccurs="1">
                                    <xs:simpleType>
                                            <xs:restriction base="xs:string">
                                                    <xs:enumeration value="ASCII"></xs:enumeration>
                                                    <xs:enumeration value="CDF"></xs:enumeration>
                                                    <xs:enumeration value="NETCDF"></xs:enumeration>
                                                    <xs:enumeration value="JSON"></xs:enumeration>
                                                    <xs:enumeration value="VOT"></xs:enumeration>
                                            </xs:restriction>
                                    </xs:simpleType>
                            </xs:element>
                            <xs:element name="fileName" type="xs:string" minOccurs="0" maxOccurs="1"/>
```

```xml
                        <xs:element name="param" minOccurs="1" maxOccurs="unbounded">
                            <xs:complexType>
                                <xs:sequence>
                                    <xs:element name="index" type="xs:string" minOccurs="0"
maxOccurs="unbounded"/>
                                    <xs:element    name="calibration_info"    type="xs:string"
minOccurs="0" maxOccurs="unbounded"/>
                                </xs:sequence>
                                <xs:attribute name="id" type="xs:string"  use="required"/>
                            </xs:complexType>
                        </xs:element>
                        <xs:element name="timeResolution" minOccurs="0" maxOccurs="1"/>
                        <xs:element name="outputStructure" minOccurs="0" maxOccurs="1">
                          <xs:simpleType >
            <xs:restriction base="xs:string">
              <xs:enumeration value="one-file" />
                                        <xs:enumeration value="one-file-refparam" />
              <xs:enumeration value="one-file-per-interval" />
                                        <xs:enumeration value="one-file-per-interval-refparam" />
              <xs:enumeration value="one-file-per-parameter-per-interval" />
            </xs:restriction>
          </xs:simpleType>
                        </xs:element>
                        <xs:element ref="PostProcessingElement" minOccurs="0" maxOccurs="1"/>
                </xs:sequence>
      <xs:attribute name="precision" type="xs:string" />
            </xs:complexType>
     </xs:element>

</xs:schema>
```

6.3.3.1.5 intervalTrue.xsd

Cf. [DR06]

6.3.3.1.6 dataMining.xsd

Cf. [DR06]

6.3.3.1.7 plot.xsd

Ce schéma décrit un output de type tracé.

```xml
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:include schemaLocation="request.xsd" />

  <xs:element name="PlotElement" abstract="true"/>
```

```xml
<xs:complexType name="FontType">
      <xs:attribute name="name" type="xs:string" />
      <xs:attribute name="size" type="xs:integer" />
      <xs:attribute name="style" type="xs:string" use="optional"></xs:attribute>
      <xs:attribute name="weight" type="xs:string" use="optional"></xs:attribute>
</xs:complexType>

<xs:attributeGroup name="ColorGroup">
  <xs:attribute name="color" type="xs:string" />
  <xs:attribute name="colorMapIndex" type="xs:integer" />
</xs:attributeGroup>

<xs:complexType name="TitleType">
  <xs:simpleContent>
    <xs:extension base="xs:string">
     <xs:attributeGroup ref="titleGroup"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>

<xs:attributeGroup name="titleGroup">
  <xs:attribute name="position">
    <xs:simpleType>
     <xs:restriction base="xs:string">
      <xs:enumeration value="top" />
      <xs:enumeration value="bottom" />
     </xs:restriction>
    </xs:simpleType>
  </xs:attribute>
  <xs:attribute name="align">
    <xs:simpleType  >
     <xs:restriction base="xs:string">
      <xs:enumeration value="center" />
      <xs:enumeration value="left" />
      <xs:enumeration value="right" />
     </xs:restriction>
    </xs:simpleType>
  </xs:attribute>
  <xs:attributeGroup ref="labelGroup"/>
</xs:attributeGroup>

<xs:attributeGroup name="axisGroup">
      <xs:attribute name="origin">
```

```xml
            <xs:simpleType>
                    <xs:restriction base="xs:float">
                            <xs:enumeration value="0.0" />
                    </xs:restriction>
            </xs:simpleType>
    </xs:attribute>
    <xs:attribute name="position">
            <xs:simpleType>
                    <xs:restriction base="xs:string">
                            <xs:enumeration value="top" />
                            <xs:enumeration value="bottom" />
                            <xs:enumeration value="left" />
                            <xs:enumeration value="right" />
                    </xs:restriction>
            </xs:simpleType>
    </xs:attribute>
    <xs:attribute name="thickness" type="xs:integer" />
    <xs:attributeGroup ref="ColorGroup" />
    <xs:attribute name="reverse" type="xs:boolean" />
    <xs:attribute name="visible" type="xs:boolean" />
    <xs:attribute name="scale">
            <xs:simpleType>
                    <xs:restriction base="xs:string">
                            <xs:enumeration value="linear" />
                            <xs:enumeration value="logarithmic" />
                    </xs:restriction>
            </xs:simpleType>
    </xs:attribute>
    <xs:attribute name="showLegend" type="xs:boolean"></xs:attribute>
    <xs:attribute name="showTickMark" type="xs:boolean"></xs:attribute>
</xs:attributeGroup>

<xs:attributeGroup name="labelGroup">
  <xs:attribute name="fontName" type="xs:string"/>
  <xs:attribute name="fontSize" type="xs:integer"/>
  <xs:attribute name="style" type="xs:string"/>
  <xs:attributeGroup ref="ColorGroup"/>
</xs:attributeGroup>

<xs:attributeGroup name="legendGroup">
 <xs:attribute name="text" type="xs:string"/>
 <xs:attributeGroup ref="labelGroup"/>
</xs:attributeGroup>
```

```xml
<!-- Define configuration for parameter -->
<xs:element name="ParameterDrawElement" abstract="true" />


<xs:complexType name="ParametersType">
  <xs:annotation>
     <xs:documentation>Parameter identifier</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="param" minOccurs="1" maxOccurs="unbounded">
      <xs:complexType>
          <xs:sequence>
                <xs:element name="default"
                        type="ParameterDefaultPropertiesType" minOccurs="0"
                        maxOccurs="1">
                </xs:element>
                <xs:element ref="ParameterDrawElement" maxOccurs="unbounded" minOccurs="0"/>
          </xs:sequence>
          <xs:attribute name="id" type="xs:string" use="required"/>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="PlotLegendType">
  <xs:annotation>
     <xs:documentation>Additional legends for plot</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="paramsLegend" minOccurs="0"
            maxOccurs="1">
            <xs:complexType>
                  <xs:sequence>
                        <xs:element name="font" type="FontType"
                                minOccurs="0" maxOccurs="1" />
                  </xs:sequence>
                  <xs:attribute name="type">
                        <xs:simpleType>
                              <xs:restriction base="xs:string">
                                    <xs:enumeration value="text-line-symbol" />
                                    <xs:enumeration value="text-only" />
                              </xs:restriction>
                        </xs:simpleType>
                  </xs:attribute>
                  <xs:attribute name="showParamInfo" type="xs:boolean"/>
```

```xml
                    <xs:attribute name="showIntervalInfo" type="xs:boolean"/>
                    <xs:attribute name="intervalInfoType">
                            <xs:simpleType>
                                    <xs:restriction base="xs:string">
                                            <xs:enumeration value="index" />
                                            <xs:enumeration value="start-stop" />
                                    </xs:restriction>
                            </xs:simpleType>
                    </xs:attribute>
                    <xs:attribute name="position">
                            <xs:simpleType>
                                    <xs:restriction base="xs:string">
                                            <xs:enumeration value="inside" />
                                            <xs:enumeration value="outside" />
                                    </xs:restriction>
                            </xs:simpleType>
                    </xs:attribute>
                    <xs:attribute name="defaultTextColor"
                            type="xs:string" />
                    <xs:attribute name="borderVisible"
                            type="xs:boolean" />
                    <xs:attribute name="borderColor" type="xs:string" />
            </xs:complexType>
    </xs:element>
    <xs:element name="textLegend" minOccurs="0" maxOccurs="unbounded">
            <xs:complexType>
                    <xs:sequence>
                            <xs:element name="font" type="FontType"
                                    minOccurs="0" maxOccurs="1">
                            </xs:element>
                    </xs:sequence>
                    <xs:attribute name="text" type="xs:string">
                    </xs:attribute>
                    <xs:attribute name="position">
                            <xs:simpleType>
                                    <xs:restriction base="xs:string">
                                            <xs:enumeration value="right" />
                                            <xs:enumeration value="left" />
                                            <xs:enumeration value="top" />
                                            <xs:enumeration value="bottom" />
                                    </xs:restriction>
                            </xs:simpleType>
                    </xs:attribute>
                    <xs:attribute name="color"
```

```
                    type="xs:string">
                </xs:attribute>
            </xs:complexType></xs:element>
    </xs:sequence>
</xs:complexType>

<xs:element name="serie" type="ParameterYPropertiesType" substitutionGroup="ParameterDrawElement">
    <xs:annotation>
    <xs:documentation>
            define drawing properties for one
            serie associated to that parameter.
    At least one serie should be
        attached to a parameter, but more
        can be associated when related
        parameter is not a simple type (a
        vector for instance).
    </xs:documentation>
    </xs:annotation>
</xs:element>

<xs:element                    name="spectro"                    type="ParameterSpectroPropertiesType"
substitutionGroup="ParameterDrawElement">
            <xs:annotation>
    <xs:documentation>
            define drawing properties for one
            spectrogram associated to that parameter.
    </xs:documentation>
    </xs:annotation>
</xs:element>

<xs:element                    name="colorserie"                    type="ParameterColorSeriePropertiesType"
substitutionGroup="ParameterDrawElement">
            <xs:annotation>
    <xs:documentation>
            define drawing properties for a
            colored serie.
    </xs:documentation>
    </xs:annotation>
</xs:element>


<!-- Define additional plot objects  -->
<xs:complexType name="AdditionalObjetctsType">
    <xs:annotation>
        <xs:documentation>Additional object such as textPlot...</xs:documentation>
```

```
        </xs:annotation>
        <xs:sequence>
                <xs:element          name="textPlot"          type="TextPlotPropertiesType"          minOccurs="0"
maxOccurs="unbounded">
                        <xs:annotation>
                                <xs:documentation>
                                        define drawing properties for a plot box
                                </xs:documentation>
                        </xs:annotation>
                </xs:element>
                <xs:element          name="circlePlot"          type="CirclePlotPropertiesType"          minOccurs="0"
maxOccurs="unbounded">
                        <xs:annotation>
                                <xs:documentation>
                                        define drawing properties for a circle
                                </xs:documentation>
                        </xs:annotation>
                </xs:element>
                <xs:element          name="curvePlot"          type="CurvePlotPropertiesType"          minOccurs="0"
maxOccurs="unbounded">
                        <xs:annotation>
                                <xs:documentation>
                                        define drawing properties for a curve
                                </xs:documentation>
                        </xs:annotation>
                </xs:element>
        </xs:sequence>
    </xs:complexType>

    <!-- Define base axis -->
    <xs:complexType name="AxisElement">
        <xs:sequence>
            <xs:element name="range" minOccurs="0" maxOccurs="1">
                    <xs:complexType>
                            <xs:attribute name="min" type="xs:float" />
                            <xs:attribute name="max" type="xs:float" />
                            <xs:attribute name="extend" type="xs:boolean" />
                    </xs:complexType>
            </xs:element>
            <xs:element name="tick" minOccurs="0" maxOccurs="1">
                    <xs:complexType>
                            <xs:simpleContent>
                                    <xs:extension base="xs:string">
                                            <xs:attribute name="majorNumber"
                                                    type="xs:integer" />
```

```xml
                        <xs:attribute name="minorNumber"
                                type="xs:integer" />
                        <xs:attribute name="majorSpace"
                                type="xs:float" />
                        <xs:attribute name="minorSpace"
                                type="xs:float" />
                        <xs:attribute name="position">
                                <xs:simpleType>
                                        <xs:restriction base="xs:string">
                                                <xs:enumeration value="inwards" />
                                                <xs:enumeration
                                                        value="outwards" />
                                        </xs:restriction>
                                </xs:simpleType>
                        </xs:attribute>
                        <xs:attribute name="lengthFactor"
                                type="xs:float" />
                        <xs:attribute name="minorGrid"
                                type="xs:boolean" />
                        <xs:attribute name="majorGrid"
                                type="xs:boolean" />
                </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<xs:element name="legend" minOccurs="0" maxOccurs="1">
    <xs:complexType>
        <xs:attributeGroup ref="legendGroup" />
    </xs:complexType>
</xs:element>
<xs:element name="constantLine" maxOccurs="unbounded" minOccurs="0">
    <xs:complexType>
        <xs:attribute name="color" type="xs:string">
        </xs:attribute>
        <xs:attribute name="style">
            <xs:annotation>
                <xs:documentation>
                        Line Style. Can be one of the following
                        values : - plain : plain line style -
                        dot : line with short dashes and gaps -
                        long-spaced-dot : line with long dashes
                        and long gaps. - long-short-dot : line
                        with long dashes and short gaps.
                </xs:documentation>
```

```
                </xs:annotation>
                <xs:simpleType>
                        <xs:restriction base="xs:string">
                                <xs:enumeration value="plain"></xs:enumeration>
                                <xs:enumeration value="dot"></xs:enumeration>
                                <xs:enumeration
                                        value="long-spaced-dot">
                                </xs:enumeration>
                                <xs:enumeration
                                        value="long-short-dot">
                                </xs:enumeration>
                        </xs:restriction>
                </xs:simpleType>
            </xs:attribute>
            <xs:attribute name="width" type="xs:integer">
            </xs:attribute>
            <xs:attribute name="value" type="xs:string">
            </xs:attribute>
            <xs:attribute name="id"
                    type="xs:integer">
            </xs:attribute>
          </xs:complexType></xs:element>
    </xs:sequence>
    <xs:attributeGroup ref="axisGroup"/>
</xs:complexType>


<!-- Define axis that can only be used in X axis -->

<!-- Time axis base -->
<xs:complexType name="TimeAxis">
   <xs:complexContent>
      <xs:extension base="AxisElement">
         <xs:attribute name="format" type="xs:string"/>
      </xs:extension>
   </xs:complexContent>
</xs:complexType>

<!-- Epoch axis base -->
<xs:complexType name="EpochAxis">
   <xs:complexContent>
      <xs:extension base="AxisElement">
         <xs:attribute name="normalized" type="xs:boolean"/>
      </xs:extension>
```

```
      </xs:complexContent>
  </xs:complexType>

<!-- Digital axis base -->
<xs:complexType name="DigitalAxis">
  <xs:complexContent>
    <xs:extension base="AxisElement">
      <xs:attribute name="id" use="required"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

<!-- Color axis base -->
<xs:complexType name="ColorAxis">
  <xs:complexContent>
    <xs:extension base="AxisElement">
     <xs:attribute name="minValColor" type="xs:string"/>
     <xs:attribute name="maxValColor" type="xs:string"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

<xs:element name="plot" substitutionGroup="OutputElement" >
  <xs:complexType>
    <xs:sequence>
     <xs:element name="outputStructure" minOccurs="0" maxOccurs="1">
                           <xs:simpleType  >
          <xs:restriction base="xs:string">
            <xs:enumeration value="one-file" />
            <xs:enumeration value="one-file-per-interval" />
          </xs:restriction>
        </xs:simpleType>
                         </xs:element>
      <xs:element name="page" minOccurs="1" maxOccurs="1">
        <xs:complexType>
          <xs:sequence>
              <xs:element name="title" type="TitleType"
                      minOccurs="0" maxOccurs="1" />
              <xs:element name="margin" minOccurs="0"
                      maxOccurs="1">
                      <xs:complexType>
                            <xs:attribute name="x"
                                    type="xs:decimal" />
                            <xs:attribute name="y"
```

```xml
                                    type="xs:decimal" />
                </xs:complexType>
        </xs:element>
        <xs:element name="font" type="FontType"
                minOccurs="0" maxOccurs="1" />
        <xs:element name="layout" minOccurs="0"
                maxOccurs="1">
                <xs:complexType>
                        <xs:sequence></xs:sequence>
                        <xs:attribute name="type">
                                <xs:simpleType>
                                        <xs:restriction
                                                base="xs:string">
                                                <xs:enumeration
                                                        value="manual">
                                                </xs:enumeration>
                                                <xs:enumeration
                                                        value="auto">
                                                </xs:enumeration>
                                                <xs:enumeration
                                                        value="vertical">
                                                </xs:enumeration>
                                        </xs:restriction>
                                </xs:simpleType>
                        </xs:attribute>
                        <xs:attribute name="panelHeight"
                                type="xs:double">
                        </xs:attribute>
                        <xs:attribute name="panelSpacing"
                                type="xs:double">
                        </xs:attribute>
                        <xs:attribute
                                name="firstPanelHeightFactor"
                                type="xs:double">
                        </xs:attribute>
                        <xs:attribute name="expand"
                                type="xs:boolean">
                        </xs:attribute>
                </xs:complexType>
        </xs:element>
        <xs:element name="panelDefaults"
                minOccurs="0" maxOccurs="1">
                <xs:complexType>
                        <xs:sequence>
```

```xml
                        <xs:element name="font"
                                type="FontType" minOccurs="0" maxOccurs="1" />
                </xs:sequence>
                <xs:attribute name="resolution"
                        type="xs:integer" />
                <!-- default series max resolution -->
                <xs:attribute name="backgroundColor"
                        type="xs:string" />
                <xs:attribute name="colorMapIndex"
                        type="xs:integer" />
                <xs:attribute name="charSizeUnits"
                        type="xs:integer" />
        </xs:complexType>
</xs:element>
<xs:element name="panel" minOccurs="1"
        maxOccurs="unbounded">
        <xs:complexType>
                <xs:sequence>
                        <xs:element name="bounds"
                                minOccurs="0" maxOccurs="1">
                                <xs:complexType>
                                        <xs:attribute name="x"
                                                type="xs:decimal" />
                                        <xs:attribute name="y"
                                                type="xs:decimal" />
                                        <xs:attribute
                                                name="width" type="xs:decimal" />
                                        <xs:attribute
                                                name="height" type="xs:decimal" />
                                </xs:complexType>
                        </xs:element>
                        <xs:element name="font"
                                type="FontType" minOccurs="0" maxOccurs="1" />
                        <xs:element name="title"
                                type="TitleType" minOccurs="0" maxOccurs="1" />
                        <xs:element ref="PlotElement"
                                minOccurs="1" maxOccurs="1" />
                        <xs:element name="tickPlot"
                                minOccurs="0" maxOccurs="1">
                                <xs:complexType>
                                        <xs:annotation>
                                                <xs:documentation>
                                                        This enable to
                                                        add decoration
```

```
                                            for time plot.
                                    </xs:documentation>
                            </xs:annotation>
                            <xs:sequence>
                                    <xs:element
                                            name="params"

type="TickPlotParams"
                                            minOccurs="0" maxOccurs="1" />
                            </xs:sequence>
                            <xs:attribute
                                    name="format" type="xs:string"
                                    use="optional">
                                    <xs:annotation>
                                            <xs:documentation>
                                                    tickmarks
                                                    format. Uses
                                                    printf
                                                    format
                                                    specification.
                                                    (resulting
                                                    string will
                                                    be limited
                                                    to 40 chars,
                                                    due to
                                                    plplot
                                                    limitation)
                                            </xs:documentation>
                                    </xs:annotation>
                            </xs:attribute>
                    </xs:complexType>
            </xs:element>
            <xs:element name="statusPlot"
                    minOccurs="0" maxOccurs="1">
                    <xs:complexType>
                            <xs:annotation>
                                    <xs:documentation>
                                            This enable to
                                            add decoration
                                            for time plot.
                                    </xs:documentation>
                            </xs:annotation>
                            <xs:sequence>
                                    <xs:element
                                            name="params"

type="StatusPlotParams"
```

```
                                                                minOccurs="0" maxOccurs="1" />
                                                            </xs:sequence>
                                                            <xs:attribute
                                                                    name="colorMapIndex" type="xs:integer"
                                                                    use="optional">
                                                                <xs:annotation>
                                                                        <xs:documentation>
                                                                                color map
                                                                                index.
                                                                        </xs:documentation>
                                                                </xs:annotation>
                                                            </xs:attribute>
                                                            <xs:attribute name="position" use="optional">
                                                                    <xs:simpleType>
                                                                        <xs:restriction base="xs:string">
                                                                    <xs:enumeration value="top" />
                                                                    <xs:enumeration value="bottom" />
                                                                        </xs:restriction>
                                                                    </xs:simpleType>
                                                                            </xs:attribute>
                                                </xs:complexType>
                                        </xs:element>
                                </xs:sequence>
                                <xs:attribute name="backgroundColor"
                                        type="xs:string" />
                                <xs:attribute name="colorMapIndex"
                                        type="xs:integer" />
                                <xs:attribute name="preferedWidth"
                                        type="xs:double">
                                </xs:attribute>
                                <xs:attribute name="preferedHeight"
                                        type="xs:double">
                                </xs:attribute>
                                <xs:attribute name="xMargin"
                                        type="xs:string">
                                </xs:attribute>
                                <xs:attribute name="yMargin"
                                        type="xs:string">
                                </xs:attribute>
                        </xs:complexType>
                </xs:element>
            </xs:sequence>
            <xs:attribute name="format" use="required">
                    <xs:simpleType>
```

```xml
                    <xs:restriction base="xs:string">
                            <xs:enumeration value="png" />
                            <xs:enumeration value="pdf" />
                            <xs:enumeration value="ps" />
                            <xs:enumeration value="svg" />
                    </xs:restriction>
            </xs:simpleType>
    </xs:attribute>
    <xs:attribute name="dimension">
            <xs:simpleType>
                    <xs:restriction base="xs:string">
                            <xs:enumeration value="ISO A4" />
                            <xs:enumeration value="US letter" />
                    </xs:restriction>
            </xs:simpleType>
    </xs:attribute>
    <xs:attribute name="orientation">
            <xs:simpleType>
                    <xs:restriction base="xs:string">
                            <xs:enumeration value="landscape" />
                            <xs:enumeration value="portrait" />
                    </xs:restriction>
            </xs:simpleType>
    </xs:attribute>
    <xs:attribute name="mode">
            <xs:simpleType>
                    <xs:restriction base="xs:string">
                            <xs:enumeration value="color" />
                            <xs:enumeration value="grayscale" />
                    </xs:restriction>
            </xs:simpleType>
    </xs:attribute>
    <xs:attribute name="defaultTimePlotWidth"
            type="xs:double">
    </xs:attribute>
    <xs:attribute name="defaultTimePlotHeight"
            type="xs:double">
    </xs:attribute>
    <xs:attribute name="defaultTimePlotXMargin"
            type="xs:string">
    </xs:attribute>
    <xs:attribute name="defaultTimePlotYMargin"
            type="xs:string">
    </xs:attribute>
```

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```xml
            <xs:attribute name="defaultXYPlotWidth"
                    type="xs:double">
            </xs:attribute>
            <xs:attribute name="defaultXYPlotHeight"
                    type="xs:double">
            </xs:attribute>
            <xs:attribute name="defaultXYPlotXMargin"
                    type="xs:string">
            </xs:attribute>
            <xs:attribute name="defaultXYPlotYMargin"
                    type="xs:string">
            </xs:attribute>
            <xs:attribute name="superposeMode"
                    type="xs:boolean">
            </xs:attribute>
        </xs:complexType>
      </xs:element>
      <xs:element ref="PostProcessingElement" minOccurs="0" maxOccurs="1"/>
    </xs:sequence>
  </xs:complexType>
 </xs:element>


    <xs:complexType name="ResamplingType">
            <xs:annotation>
        <xs:documentation>Resampling specifications. Define resampling to use to draw the object.
                    </xs:documentation>
    </xs:annotation>
    <xs:attribute name="type">
      <xs:annotation>
       <xs:documentation>Resampling type. Can be one of :
auto : determine automatically the resampling to use. The effect depends to the object to draw, but generally the
natural parameter sampling will be used
xparam: use the xparam as reference to resample the yparam
yparam: use the yparam as reference to resample the xparam
manual: define a sampling time to apply to parameter for drawing</xs:documentation>
      </xs:annotation>
      <xs:simpleType>
       <xs:restriction base="xs:string">
            <xs:enumeration value="auto"></xs:enumeration>
            <xs:enumeration value="xparam"></xs:enumeration>
            <xs:enumeration value="yparam"></xs:enumeration>
            <xs:enumeration value="manual"></xs:enumeration>
       </xs:restriction>
      </xs:simpleType>
    </xs:attribute>
```

```xml
<xs:attribute name="value" type="xs:double" default="0.">
        <xs:annotation>
                <xs:documentation>Value to use for resampling. Only used when resampling type is 'manual'</xs:documentation>
        </xs:annotation>
</xs:attribute>
</xs:complexType>


<xs:attributeGroup name="CurveGroup">
    <xs:annotation>
        <xs:documentation>Curve specifications. Define properties for a curve.
                    </xs:documentation>
    </xs:annotation>
    <xs:attribute name="style">
    <xs:annotation>
    <xs:documentation>Curve Style. Can be one of the following values :
- plain : plain Curve style
- dot : Curve with short dashes and gaps
- long-spaced-dot : Curve with long dashes and long gaps.
- long-short-dot : Curve with long dashes and short gaps.
                            </xs:documentation>
    </xs:annotation>
    <xs:simpleType>
    <xs:restriction base="xs:string">
            <xs:enumeration value="plain"></xs:enumeration>
            <xs:enumeration value="dot"></xs:enumeration>
            <xs:enumeration value="long-spaced-dot"></xs:enumeration>
            <xs:enumeration value="long-short-dot"></xs:enumeration>
    </xs:restriction>
    </xs:simpleType>
    </xs:attribute>
    <xs:attribute name="width" type="xs:int" default="1">
            <xs:annotation>
                    <xs:documentation>Curve width in mm. Default is 1mm</xs:documentation>
            </xs:annotation></xs:attribute>
    <xs:attributeGroup ref="ColorGroup"/>
</xs:attributeGroup>


<xs:complexType name="LineType">
    <xs:annotation>
        <xs:documentation>Line specifications. Define properties for a line attached to a parameter.
Properties set there will override default value or general properties that could have been set in tag's parent</xs:documentation>
    </xs:annotation>
    <xs:attribute name="type">
```

```xml
        <xs:annotation>
         <xs:documentation>Line type. Can be one of :
no : no line is drawn
line: a line is drawn between each points
histo: an histogram is drawn for each point

Note : This attribute may be unecessary since kind of line may be deduce from Plot Type [TBC]
</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
         <xs:restriction base="xs:string">
                <xs:enumeration value="no"></xs:enumeration>
                <xs:enumeration value="line"></xs:enumeration>
                <xs:enumeration value="histo"></xs:enumeration>
         </xs:restriction>
        </xs:simpleType>
    </xs:attribute>
    <xs:attributeGroup ref="CurveGroup"/>
  </xs:complexType>

  <xs:complexType name="SymbolType">
    <xs:annotation>
      <xs:documentation>Symbol displayed for each points. By default, no symbol is drawn if a line is defined. A
'point' symbol is used othrewise</xs:documentation>
    </xs:annotation>
    <xs:attribute name="type">
            <xs:annotation>
                  <xs:documentation>Symbol type.</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                  <xs:restriction base="xs:string">
                        <xs:enumeration value="no"></xs:enumeration>
                        <xs:enumeration value="dot"></xs:enumeration>
                        <xs:enumeration value="plus"></xs:enumeration>
                        <xs:enumeration value="wildcard"></xs:enumeration>
                        <xs:enumeration value="circle"></xs:enumeration>
                        <xs:enumeration value="crux"></xs:enumeration>
                        <xs:enumeration value="square"></xs:enumeration>
                        <xs:enumeration value="triangle"></xs:enumeration>
                        <xs:enumeration value="crux-in-circle"></xs:enumeration>
                        <xs:enumeration value="dot-in-circle"></xs:enumeration>
                        <!-- <xs:enumeration value="square-2"></xs:enumeration>  -->
                        <xs:enumeration value="diamond"></xs:enumeration>
                        <xs:enumeration value="star"></xs:enumeration>
                        <!-- <xs:enumeration value="christian-crux"></xs:enumeration> -->
```

```xml
                <xs:enumeration value="david-star"></xs:enumeration>
                <xs:enumeration value="full-square"></xs:enumeration>
                <xs:enumeration value="full-circle"></xs:enumeration>
                <xs:enumeration value="full-star"></xs:enumeration>
            </xs:restriction>
        </xs:simpleType>
    </xs:attribute>
    <xs:attribute name="size" type="xs:int" default="4">
        <xs:annotation>
            <xs:documentation>
                symbol size in mm. Default is 4mm
            </xs:documentation>
        </xs:annotation>
    </xs:attribute>
    <xs:attributeGroup ref="ColorGroup"/>
</xs:complexType>


    <xs:complexType name="ParameterXPropertiesType">
    <xs:attribute name="index" type="xs:string">
        <xs:annotation>
            <xs:documentation>
                Index of serie to put on x axis (in case Parameter is not a
                scalar type).
            </xs:documentation>
        </xs:annotation>
    </xs:attribute>
    <xs:attribute name="xAxis" type="xs:string" use="required"></xs:attribute>
    <xs:attribute name="min" type="xs:double" use="optional"></xs:attribute>
        <xs:attribute name="max" type="xs:double" use="optional"></xs:attribute>
</xs:complexType>

    <xs:complexType name="ParameterYPropertiesType">
        <xs:sequence>
            <xs:element name="resampling" type="ResamplingType"
                maxOccurs="1" minOccurs="0">
            </xs:element>
            <xs:element name="line" type="LineType" maxOccurs="1"
                minOccurs="0">
            </xs:element>
            <xs:element name="symbol" type="SymbolType" maxOccurs="1"
                minOccurs="0">
            </xs:element>
            <xs:element name="timeTick" type="TimeTickType"
```

```
                    minOccurs="0" maxOccurs="1">
                </xs:element>
                <xs:element name="intervalTick" type="IntervalTickType"
                    minOccurs="0" maxOccurs="1">
                </xs:element>
                <xs:element        name="errorBar"        type="errorBarType"        maxOccurs="1"
minOccurs="0"></xs:element>
            </xs:sequence>
            <xs:attribute name="index" type="xs:string">
                <xs:annotation>
                    <xs:documentation>
                        Index of serie to plot (in case Parameter is not a
                        scalar type). Default to 1 if Parameter is a simple
                        type.
                    </xs:documentation>
                </xs:annotation>
            </xs:attribute>
            <xs:attribute name="yAxis" type="xs:string"></xs:attribute>
            <xs:attribute name="xAxis" type="xs:string"></xs:attribute>
            <xs:attribute name="resolution" type="xs:integer" />
            <xs:attribute name="min" type="xs:double" use="optional"></xs:attribute>
            <xs:attribute name="max" type="xs:double" use="optional"></xs:attribute>
            <xs:attribute name="id" type="xs:integer"></xs:attribute>
            <xs:attribute name="colorSerieId" type="xs:integer"></xs:attribute>
    </xs:complexType>

    <xs:complexType name="ParameterOrbitPropertiesType">
        <xs:sequence>
            <xs:element name="line" type="LineType" maxOccurs="1"
                minOccurs="0">
            </xs:element>
            <xs:element name="symbol" type="SymbolType" maxOccurs="1"
                minOccurs="0">
            </xs:element>
            <xs:element name="timeTick" type="TimeTickType"
                minOccurs="0" maxOccurs="1">
            </xs:element>
            <xs:element name="intervalTick" type="IntervalTickType"
                minOccurs="0" maxOccurs="1">
            </xs:element>
        </xs:sequence>
        <xs:attribute name="projection">
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:enumeration value="XY"></xs:enumeration>
```

```xml
                            <xs:enumeration value="XZ"></xs:enumeration>
                            <xs:enumeration value="YZ"></xs:enumeration>
                            <xs:enumeration value="XR"></xs:enumeration>
                            <xs:enumeration value="YR"></xs:enumeration>
                            <xs:enumeration value="ZR"></xs:enumeration>
                        </xs:restriction>
                    </xs:simpleType>
                </xs:attribute>
                <xs:attribute name="yAxis" type="xs:string"></xs:attribute>
                <xs:attribute name="xAxis" type="xs:string"></xs:attribute>
                <xs:attribute name="resolution" type="xs:integer" />
                <xs:attribute name="id" type="xs:integer"></xs:attribute>
                <xs:attribute name="colorSerieId" type="xs:integer"></xs:attribute>
        </xs:complexType>

        <xs:complexType name="ParameterSpectroPropertiesType">
        <xs:attribute name="yAxis" type="xs:string" />
        <xs:attribute name="index" type="xs:string" use="optional"></xs:attribute>
        <xs:attribute name="min" type="xs:double" use="optional"></xs:attribute>
        <xs:attribute name="max" type="xs:double" use="optional"></xs:attribute>
</xs:complexType>

        <xs:complexType name="ParameterColorSeriePropertiesType">
                <xs:attribute name="index" type="xs:string"></xs:attribute>
                <xs:attribute name="id" type="xs:integer"></xs:attribute>
</xs:complexType>

<xs:complexType name="ParameterDefaultPropertiesType">
    <xs:annotation>
            <xs:documentation>
                    Default values for all series. Can be overriden in
                    each series element.
            </xs:documentation>
    </xs:annotation>
    <xs:sequence>
            <xs:element name="line" type="LineType" minOccurs="0" maxOccurs="1">
                    <xs:annotation>
                            <xs:documentation>Default line properties</xs:documentation>
                    </xs:annotation></xs:element>
            <xs:element name="symbol" type="SymbolType" minOccurs="0" maxOccurs="1">
                    <xs:annotation>
                            <xs:documentation>Default symbol properties</xs:documentation>
                    </xs:annotation></xs:element>
    </xs:sequence>
```

```xml
<xs:attribute name="yAxis" type="xs:string" use="optional">
        <xs:annotation>
                <xs:documentation>Default yAxis value</xs:documentation>
        </xs:annotation></xs:attribute>
<xs:attribute name="xAxis" type="xs:string" use="optional">
        <xs:annotation>
                <xs:documentation>Default xAxis value</xs:documentation>
        </xs:annotation>
</xs:attribute>
<xs:attributeGroup ref="ColorGroup"/>
</xs:complexType>

<xs:complexType name="TextPlotPropertiesType">
    <xs:sequence>
            <xs:element name="font" type="FontType" minOccurs="0"
                    maxOccurs="1">
            </xs:element>
    </xs:sequence>
    <xs:attribute name="text" type="xs:string" use="required"></xs:attribute>
    <xs:attribute name="x" type="xs:string" use="optional"></xs:attribute>
    <xs:attribute name="y" type="xs:string"></xs:attribute>
    <xs:attribute name="angle" type="xs:string"></xs:attribute>
    <xs:attribute name="color" type="xs:string"></xs:attribute>
    <xs:attribute name="align" use="optional">
            <xs:simpleType>
                    <xs:restriction base="xs:string">
                            <xs:enumeration value="left"></xs:enumeration>
                            <xs:enumeration value="center"></xs:enumeration>
                            <xs:enumeration value="right"></xs:enumeration>
                    </xs:restriction>
            </xs:simpleType>
    </xs:attribute>
</xs:complexType>

    <xs:complexType name="CirclePlotPropertiesType">
    <xs:attribute name="x" type="xs:string"/>
    <xs:attribute name="y" type="xs:string"/>
            <xs:attribute name="radius" type="xs:string"/>
            <xs:attributeGroup ref="CurveGroup"/>
</xs:complexType>

    <xs:complexType name="CurvePlotPropertiesType">
            <xs:sequence>
                    <xs:element name="function" minOccurs="0" maxOccurs="1">
```

```xml
                    <xs:complexType>
                        <xs:annotation>
                            <xs:documentation>Curve function definition</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                            <xs:element name="attributes" minOccurs="0" maxOccurs="1">
                                <xs:complexType>
                                    <xs:sequence>
                                        <xs:element            name="attribute"
minOccurs="0" maxOccurs="unbounded">
                                            <xs:complexType>
                                                <xs:attribute
name="name" type="xs:string"/>
                                                <xs:attribute name="value"
type="xs:decimal"/>
                                            </xs:complexType>
                                        </xs:element>
                                    </xs:sequence>
                                </xs:complexType>
                            </xs:element>
            </xs:sequence>
            <xs:attribute name="name" type="xs:string" use="required"/>
                    </xs:complexType>
                </xs:element>
        </xs:sequence>
        <xs:attribute name="serieId" type="xs:string" use="required"/>
        <xs:attributeGroup ref="CurveGroup"/>
    </xs:complexType>

<xs:complexType name="TimeTickType">
    <xs:all>
        <xs:element name="symbol" type="SymbolType" minOccurs="0"
            maxOccurs="1">
        </xs:element>
        <xs:element name="firstSymbol" type="SymbolType"
            minOccurs="0" maxOccurs="1">
        </xs:element>
        <xs:element name="font" type="FontType" minOccurs="0"
            maxOccurs="1">
        </xs:element>
    </xs:all>
    <xs:attribute name="step" type="xs:string" use="optional"></xs:attribute>
    <xs:attribute name="number" type="xs:int" use="optional"></xs:attribute>
    <xs:attribute name="minor" type="xs:int" use="optional"></xs:attribute>
    <xs:attribute name="color" type="xs:string" use="optional"></xs:attribute>
```

```xml
</xs:complexType>

<xs:complexType name="IntervalTickType">
    <xs:all>
            <xs:element name="symbol" type="SymbolType" minOccurs="0"
                    maxOccurs="1">
            </xs:element>
            <xs:element name="font" type="FontType" minOccurs="0"
                    maxOccurs="1">
            </xs:element>
    </xs:all>
    <xs:attribute name="color" type="xs:string" use="optional"></xs:attribute>
    <xs:attribute name="mode" use="optional">
            <xs:simpleType>
                    <xs:restriction base="xs:string">
                            <xs:enumeration value="symbol-only"></xs:enumeration>
                            <xs:enumeration value="interval-index"></xs:enumeration>
                            <xs:enumeration value="start-time"></xs:enumeration>
                            <xs:enumeration value="start-stop-time"></xs:enumeration>
                    </xs:restriction>
            </xs:simpleType>
    </xs:attribute>
</xs:complexType>

<!-- Define Fills types -->

<xs:complexType name="FillsType">
    <xs:sequence>
            <xs:element name="fillSerieConstant"
                    type="FillSerieConstantType" minOccurs="0" maxOccurs="unbounded">
            </xs:element>
            <xs:element          name="fillSerieSerie"         type="FillSerieSerieType"          minOccurs="0"
maxOccurs="unbounded"></xs:element>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="FillSerieConstantType">
    <xs:attribute name="serieId" type="xs:int"></xs:attribute>
    <xs:attribute name="constantId" type="xs:int"></xs:attribute>
    <xs:attribute name="colorGreater" type="xs:string"></xs:attribute>
    <xs:attribute name="colorLess" type="xs:string"></xs:attribute>
</xs:complexType>

<xs:complexType name="FillSerieSerieType">
    <xs:attribute name="firstSerieId" type="xs:int"></xs:attribute>
```

```xml
            <xs:attribute name="secondSerieId" type="xs:int"></xs:attribute>
            <xs:attribute name="colorGreater" type="xs:string"></xs:attribute>
            <xs:attribute name="colorLess" type="xs:string"></xs:attribute>
    </xs:complexType>

    <xs:complexType name="errorBarType">
        <xs:sequence>
                <xs:element name="line" type="LineType" maxOccurs="1"
                        minOccurs="0">
                </xs:element>
                <xs:element name="errorMinMax" type="errorMinMaxType"
                        maxOccurs="1" minOccurs="0">
                </xs:element>
                <xs:element name="errorDelta" type="errorDeltaType"
                        maxOccurs="1" minOccurs="0">
                </xs:element>
        </xs:sequence>
    </xs:complexType>

    <xs:complexType name="errorMinMaxType">
        <xs:attribute name="paramMin" type="xs:string" use="required"></xs:attribute>
        <xs:attribute name="indexMin" type="xs:string"></xs:attribute>
        <xs:attribute name="paramMax" type="xs:string" use="required"></xs:attribute>
        <xs:attribute name="indexMax" type="xs:string"></xs:attribute>
    </xs:complexType>

    <xs:complexType name="errorDeltaType">
        <xs:attribute name="param" type="xs:string" use="required"></xs:attribute>
        <xs:attribute name="index" type="xs:string"></xs:attribute>
    </xs:complexType>
</xs:schema>
```

6.3.3.1.8   timePlot.xsd

Ce schéma décrit un output de type tracé f(t) avec ou sans tickmark, il s'appuie sur le schéma plot.xsd

```xml
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:include schemaLocation="plot.xsd" />

  <xs:element name="timePlot" substitutionGroup="PlotElement">
   <xs:complexType>
    <xs:sequence>
      <xs:element name="legends" type="PlotLegendType"
                minOccurs="0" maxOccurs="1" />
```

```xml
            <xs:element name="params" type="ParametersType"
                    minOccurs="0" maxOccurs="1" />
            <xs:element name="axes" minOccurs="1" maxOccurs="1">
                <xs:complexType>
                    <xs:sequence>
                        <xs:element name="xAxis">
                            <xs:complexType>
                                <xs:sequence minOccurs="1"
                                        maxOccurs="1">
                                    <xs:element name="timeAxis"
                                            type="TimeAxis" />
                                </xs:sequence>
                            </xs:complexType>
                        </xs:element>
                        <xs:element name="yAxis">
                            <xs:complexType>
                                <xs:sequence minOccurs="1"
                                        maxOccurs="unbounded">
                                    <xs:element name="digitalAxis"
                                            type="DigitalAxis" />
                                </xs:sequence>
                            </xs:complexType>
                        </xs:element>
                        <xs:element name="zAxis" minOccurs="0"
                                maxOccurs="1">
                            <xs:complexType>
                                <xs:sequence minOccurs="1"
                                        maxOccurs="1">
                                    <xs:element name="colorAxis"
                                            type="ColorAxis" />
                                </xs:sequence>
                            </xs:complexType>
                        </xs:element>
                    </xs:sequence>
                </xs:complexType>
            </xs:element>
            <xs:element name="additionalObjects"
                    type="AdditionalObjetctsType" minOccurs="0" maxOccurs="1" />
            <xs:element name="fills" type="FillsType" minOccurs="0" maxOccurs="unbounded"></xs:element>
        </xs:sequence>
    </xs:complexType>
</xs:element>

</xs:schema>
```

6.3.3.1.9 xyPlot.xsd

Ce schéma décrit un output de type tracé f(x), il s'appuie sur le schéma plot.xsd.

```xml
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
 <xs:include schemaLocation="plot.xsd" />

  <xs:element name="xyPlot" substitutionGroup="PlotElement">
   <xs:complexType>
    <xs:sequence>
     <xs:element name="legends" type="PlotLegendType"
             minOccurs="0" maxOccurs="1" />
     <xs:element name="params" minOccurs="0" maxOccurs="1">
      <xs:complexType>
       <xs:annotation>
         <xs:documentation>Parameter serie definition</xs:documentation>
       </xs:annotation>
       <xs:sequence>
                        <xs:element name="param" minOccurs="1" maxOccurs="unbounded">
         <xs:complexType>
           <xs:sequence>
                <xs:element name="default"
                       type="ParameterDefaultPropertiesType" minOccurs="0"
                       maxOccurs="1">
                </xs:element>
                <xs:element name="xserie"
                       type="ParameterXPropertiesType" maxOccurs="unbounded"
                       minOccurs="0">
                       <xs:annotation>
                            <xs:documentation>
                                    define xaxis values
                            </xs:documentation>
                       </xs:annotation>
                </xs:element>
                <xs:element name="yserie"
                       type="ParameterYPropertiesType" maxOccurs="unbounded"
                       minOccurs="0">
                       <xs:annotation>
                            <xs:documentation>
                                    define drawing properties for one
                                    serie associated to that parameter.
                                    At least one serie should be
```

```
                                        attached to a parameter, but more
                                        can be associated when related
                                        parameter is not a simple type (a
                                        vector for instance).
                            </xs:documentation>
                        </xs:annotation>
                    </xs:element>
                <xs:element name="orbitserie"
                            type="ParameterOrbitPropertiesType" maxOccurs="unbounded" minOccurs="0">
                    </xs:element>
                    <xs:element         name="colorserie"         type="ParameterColorSeriePropertiesType"
maxOccurs="unbounded" minOccurs="0">
                            <xs:annotation>
                                <xs:documentation>
                                    define drawing properties for one
                                    colored serie associated to that parameter.
                                </xs:documentation>
                            </xs:annotation>
                        </xs:element>
                </xs:sequence>
                <xs:attribute name="id" type="xs:string"/>
            </xs:complexType>
        </xs:element>
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="axes" minOccurs="1" maxOccurs="1">
  <xs:complexType>
  <xs:sequence>
    <xs:element name="xAxis">
     <xs:complexType>
      <xs:sequence minOccurs="1" maxOccurs="1">
        <xs:choice>
         <xs:element name="digitalAxis" type="DigitalAxis"/>
        </xs:choice>
      </xs:sequence>
     </xs:complexType>
    </xs:element>
    <xs:element name="yAxis">
     <xs:complexType>
      <xs:sequence minOccurs="1" maxOccurs="unbounded">
       <xs:element name="digitalAxis" type="DigitalAxis"/>
      </xs:sequence>
     </xs:complexType>
    </xs:element>
```

```
            <xs:element name="zAxis" minOccurs="0" maxOccurs="1">
                <xs:complexType>
                        <xs:sequence minOccurs="1" maxOccurs="1">
                                <xs:element name="colorAxis" type="ColorAxis" />
                        </xs:sequence>
                </xs:complexType>
            </xs:element>
        </xs:sequence>
      </xs:complexType>
      </xs:element>
      <xs:element name="additionalObjects" type="AdditionalObjetctsType" minOccurs="0" maxOccurs="1"/>
    </xs:sequence>
    <xs:attribute name="isotropic" type="xs:boolean"/>
  </xs:complexType>
 </xs:element>
</xs:schema>
```

6.3.3.1.10 postProcessing.xsd

Cf. [DR06]

6.3.3.1.11 instantPlot.xsd

Ce schéma décrit un output de type tracé d'un instant donné pour un spectrogramme, il s'appuie sur le schéma plot.xsd

```
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
 <xs:include schemaLocation="plot.xsd" />

  <xs:element name="ParameterInstantDrawElement" abstract="true" />

  <xs:element name="instantPlot" substitutionGroup="PlotElement">
   <xs:complexType>
      <xs:sequence>
            <xs:element name="legends" type="PlotLegendType"
                    minOccurs="0" maxOccurs="1" />
            <xs:element name="params" minOccurs="0" maxOccurs="1">
                    <xs:complexType>
                        <xs:annotation>
                            <xs:documentation>
                                    Parameter serie definition
                            </xs:documentation>
                        </xs:annotation>
                        <xs:sequence>
```

```xml
<xs:element name="param" minOccurs="1"
        maxOccurs="1">
        <xs:complexType>
                <xs:sequence>
                        <xs:element    ref="ParameterInstantDrawElement"
maxOccurs="1" minOccurs="1"/>
                </xs:sequence>
                <xs:attribute name="id"
                        type="xs:string" />
        </xs:complexType>
</xs:element>
        </xs:sequence>
        </xs:complexType>
</xs:element>
<xs:element name="axes" minOccurs="1" maxOccurs="1">
        <xs:complexType>
                <xs:sequence>
                        <xs:element name="xAxis">
                                <xs:complexType>
                                        <xs:sequence minOccurs="1"
                                                maxOccurs="1">
                                                <xs:element name="digitalAxis"
                                                        type="DigitalAxis" />
                                        </xs:sequence>
                                </xs:complexType>
                        </xs:element>
                        <xs:element name="yAxis">
                                <xs:complexType>
                                        <xs:sequence minOccurs="1"
                                                maxOccurs="1">
                                                <xs:element name="digitalAxis"
                                                        type="DigitalAxis" />
                                        </xs:sequence>
                                </xs:complexType>
                        </xs:element>
                        <xs:element name="zAxis" minOccurs="0"
                        maxOccurs="1">
                        <xs:complexType>
                                <xs:sequence minOccurs="1"
                                        maxOccurs="1">
                                        <xs:element name="colorAxis"
                                                type="ColorAxis" />
                                </xs:sequence>
                        </xs:complexType>
                </xs:element>
```

```xml
                </xs:sequence>
            </xs:complexType>
        </xs:element>
        <xs:element name="fills" type="FillsType" minOccurs="0" maxOccurs="unbounded"></xs:element>
    </xs:sequence>
    <xs:attribute name="time" type="xs:string"></xs:attribute>
  </xs:complexType>
</xs:element>

<xs:complexType name="ParameterInstantSeriePropertiesType">
    <xs:sequence>
        <xs:element name="line" type="LineType"></xs:element>
        <xs:element name="symbol" type="SymbolType"></xs:element>
    </xs:sequence>
    <xs:attribute name="xAxis" type="xs:string"></xs:attribute>
    <xs:attribute name="yAxis" type="xs:string"></xs:attribute>
    <xs:attribute name="tableOnXAxis" type="xs:boolean"></xs:attribute>
    <xs:attribute name="id" type="xs:int"></xs:attribute>
</xs:complexType>

<xs:complexType name="ParameterInstantSpectroPropertiesType">
    <xs:attribute name="xAxis" type="xs:string"></xs:attribute>
    <xs:attribute name="yAxis" type="xs:string"></xs:attribute>
    <xs:attribute name="dimOnXAxis" type="xs:integer"></xs:attribute>
</xs:complexType>

<xs:element                name="iserie"               type="ParameterInstantSeriePropertiesType"
substitutionGroup="ParameterInstantDrawElement">
    <xs:annotation>
    <xs:documentation>
            define drawing properties for one
            instant serie
    </xs:documentation>
    </xs:annotation>
</xs:element>

    <xs:element               name="ispectro"              type="ParameterInstantSpectroPropertiesType"
substitutionGroup="ParameterInstantDrawElement">
    <xs:annotation>
    <xs:documentation>
            define drawing properties for one
            instant spectro
    </xs:documentation>
    </xs:annotation>
</xs:element>
```

```
</xs:schema>
```

6.3.3.1.12 asciiPlot.xsd

```xml
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
        <xs:include schemaLocation="plot.xsd" />

   <xs:element name="asciiPlotOutput" substitutionGroup="PlotElement"/>

</xs:schema>
```

6.3.3.1.13 epochPlot.xsd

```xml
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:include schemaLocation="plot.xsd" />

  <xs:element name="epochPlot" substitutionGroup="PlotElement">
   <xs:complexType>
    <xs:sequence>
      <xs:element name="legends" type="PlotLegendType"
            minOccurs="0" maxOccurs="1" />
      <xs:element name="params" type="ParametersType"
            minOccurs="0" maxOccurs="1" />
      <xs:element name="axes" minOccurs="1" maxOccurs="1">
            <xs:complexType>
                  <xs:sequence>
                        <xs:element name="xAxis">
                              <xs:complexType>
                                    <xs:sequence minOccurs="1"
                                          maxOccurs="1">
                                          <xs:element name="epochAxis"
                                                type="EpochAxis" />
                                    </xs:sequence>
                              </xs:complexType>
                        </xs:element>
                        <xs:element name="yAxis">
                              <xs:complexType>
                                    <xs:sequence minOccurs="1"
                                          maxOccurs="unbounded">
                                          <xs:element name="digitalAxis"
                                                type="DigitalAxis" />
                                    </xs:sequence>
```

```
                            </xs:complexType>
                        </xs:element>
                        <xs:element name="zAxis" minOccurs="0"
                                maxOccurs="1">
                            <xs:complexType>
                                    <xs:sequence minOccurs="1"
                                            maxOccurs="1">
                                            <xs:element name="colorAxis"
                                                    type="ColorAxis" />
                                    </xs:sequence>
                            </xs:complexType>
                        </xs:element>
                </xs:sequence>
            </xs:complexType>
        </xs:element>
    </xs:sequence>
    <xs:attribute name="centerTimeId" type="xs:string"></xs:attribute>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

6.3.3.1.14 paramPlot.xsd

```
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:include schemaLocation="plot.xsd" />

  <xs:element name="paramPlot" substitutionGroup="PlotElement">
   <xs:complexType>
    <xs:attribute name="id" type="xs:string"/>
   </xs:complexType>
  </xs:element>
</xs:schema>
```

6.3.3.1.15 statistic.xsd

```
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
        <xs:include schemaLocation="request.xsd" />

        <xs:element name="statistic" substitutionGroup="OutputElement" >
                <xs:complexType>
                        <xs:sequence>
                                <xs:element         name="timeFormat"         minOccurs="1"         maxOccurs="1"
type="TimeFormatType"/>
```

```xml
                                    <xs:element       name="fileFormat"      minOccurs="1"       maxOccurs="1"
type="FileFormatType"/>
                                    <xs:element      name="outputStructure"      minOccurs="0"      maxOccurs="1"
type="StatisticOutputStructureType"/>
                                    <xs:element name="fileName" minOccurs="0" maxOccurs="1"/>
                                    <xs:element      name="params"      type="StatisticParams"      minOccurs="1"
maxOccurs="1" />
                                    <xs:element ref="PostProcessingElement" minOccurs="0" maxOccurs="1"/>
                        </xs:sequence>
                </xs:complexType>
        </xs:element>

        <xs:complexType name="StatisticParams">
   <xs:annotation>
   <xs:documentation>Parameters list with statistic functions to apply</xs:documentation>
   </xs:annotation>
   <xs:sequence>
   <xs:element name="param" minOccurs="1" maxOccurs="unbounded">
    <xs:complexType>
      <xs:sequence>
              <xs:element name="function" maxOccurs="unbounded" minOccurs="1">
                              <xs:complexType>
                                      <xs:sequence>
                                              <xs:element  name="argument"  maxOccurs="unbounded"
minOccurs="0">
                                                      <xs:complexType>
                                                              <xs:attribute                name="name"
type="xs:string"/>
                                                              <xs:attribute               name="value"
type="xs:string"/>
                                                      </xs:complexType>
                                              </xs:element>
                                      </xs:sequence>
                                      <xs:attribute name="name" type="xs:string"/>
                              </xs:complexType>
                      </xs:element>
      </xs:sequence>
      <xs:attribute name="id" type="xs:string"/> <!-- parameter id -->
      <xs:attribute name="index" type="xs:int"/> <!-- parameter index -->
    </xs:complexType>
   </xs:element>
   </xs:sequence>
  </xs:complexType>

  <xs:simpleType name="StatisticOutputStructureType">
   <xs:restriction base="xs:string">
```

```
        <xs:enumeration value="one-file" />
        <xs:enumeration value="one-file-per-parameter" />
    </xs:restriction>
  </xs:simpleType>


</xs:schema>
```

6.3.3.1.16 statusPlot.xsd

```xml
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
 <xs:include schemaLocation="plot.xsd" />

  <xs:complexType name="StatusPlotParams">
   <xs:annotation>
   <xs:documentation>Parameter serie definition for status plot</xs:documentation>
   </xs:annotation>
   <xs:sequence>
   <xs:element name="param" minOccurs="1" maxOccurs="unbounded">
    <xs:complexType>
    <xs:sequence>
     <xs:element name="serie" maxOccurs="unbounded" minOccurs="0">
     <xs:annotation>
       <xs:documentation>
       define serie index for vector componant
       </xs:documentation>
     </xs:annotation>
     <xs:complexType>
       <xs:attribute name="index" type="xs:string"/>
       <xs:attribute name="resolution" type="xs:integer"/>
     </xs:complexType>
     </xs:element>
    </xs:sequence>
    <xs:attribute name="id" type="xs:string"/> <!-- parameter name -->
    </xs:complexType>
   </xs:element>
   </xs:sequence>
  </xs:complexType>

 <xs:element name="statusPlot" substitutionGroup="PlotElement">
  <xs:complexType >
   <xs:annotation>
    <xs:documentation>
  This plot is a standalone plot, it has its own time axis.
    </xs:documentation>
```

```
    </xs:annotation>
    <xs:sequence>
     <xs:element name="params" type="StatusPlotParams" minOccurs="0" maxOccurs="1"/>
     <xs:element name="axes" minOccurs="1" maxOccurs="1">
      <xs:complexType>
       <xs:sequence>
        <xs:element name="xAxis">
         <xs:complexType>
          <xs:sequence minOccurs="0" maxOccurs="1">
           <xs:element name="timeAxis" type="TimeAxis"/>
          </xs:sequence>
         </xs:complexType>
        </xs:element>
       </xs:sequence>
      </xs:complexType>
     </xs:element>
    </xs:sequence>
    <xs:attribute name="colorMapIndex" type="xs:integer" use="optional">
     <xs:annotation>
      <xs:documentation>color map index to use</xs:documentation>
     </xs:annotation>
    </xs:attribute>
    <xs:attribute name="position" use="optional">
     <xs:simpleType>
      <xs:restriction base="xs:string">
       <xs:enumeration value="top" />
       <xs:enumeration value="bottom" />
      </xs:restriction>
     </xs:simpleType>
    </xs:attribute>
   </xs:complexType>
  </xs:element>

</xs:schema>
```

6.3.3.1.17 tickPlot.xsd

```
<?xml version="1.0" encoding="UTF-8"?>


<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
 <xs:include schemaLocation="plot.xsd" />


  <xs:complexType name="TickPlotParams">
   <xs:annotation>
   <xs:documentation>Parameter serie definition for tick plot</xs:documentation>
   </xs:annotation>
```

```xml
<xs:sequence>
<xs:element name="param" minOccurs="1" maxOccurs="unbounded">
 <xs:complexType>
 <xs:sequence>
  <xs:element name="serie" maxOccurs="unbounded" minOccurs="0">
  <xs:annotation>
   <xs:documentation>
   define serie index for vector componant
   </xs:documentation>
  </xs:annotation>
  <xs:complexType>
   <xs:attribute name="index" type="xs:string"/>
   <xs:attribute name="resolution" type="xs:integer"/>
  </xs:complexType>
  </xs:element>
 </xs:sequence>
 <xs:attribute name="id" type="xs:string"/> <!-- parameter name -->
 </xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>

<xs:element name="tickPlot" substitutionGroup="PlotElement">
 <xs:complexType >
 <xs:annotation>
  <xs:documentation>
 This plot is a standalone plot, it has its own time axis.
  </xs:documentation>
 </xs:annotation>
 <xs:sequence>
  <xs:element name="params" type="TickPlotParams" minOccurs="0" maxOccurs="1"/>
  <xs:element name="axes" minOccurs="1" maxOccurs="1">
   <xs:complexType>
    <xs:sequence>
     <xs:element name="xAxis">
      <xs:complexType>
       <xs:sequence minOccurs="0" maxOccurs="1">
        <xs:element name="timeAxis" type="TimeAxis"/>
       </xs:sequence>
      </xs:complexType>
     </xs:element>
    </xs:sequence>
   </xs:complexType>
  </xs:element>
```

```
  </xs:sequence>
  <xs:attribute name="format" type="xs:string" use="optional">
   <xs:annotation>
    <xs:documentation>tickmarks format. Uses printf format specification.
(resulting string will be limited to 40 chars, due to plplot limitation)</xs:documentation>
   </xs:annotation>
  </xs:attribute>
 </xs:complexType>
 </xs:element>


</xs:schema>
```

6.3.4   IF_E_WEBINT_INFO

Interface IF_E_WEBINT_INFO	
Nomenclature : variable	**Type** : XML
Description	
Rôle : Décrire les informations associées à un paramètre	
Producteur	**Consommateur**
WEBINT : Interface Web	*KERNEL : Noyau AMDA-NG*
Espaces de stockage	
Variable, le chemin de la requête est passé en paramètre de l'exécutable du noyau AMDA-NG.	
Production	
Fréquence de génération : Sur demande utilisateur	
Portée *: KERNEL (Noyau AMDA-NG)*	**Volumétrie** : quelques Ko

6.3.4.1 Schéma XSD

Les fichiers d'information des paramètres respectent leur définition identifiée dans les schémas XSD présentés ci-dessous.

L'emplacement de ces schémas est configurable via des propriétés de l'interface **IF_E_AMD_CONF** : app.properties :

- app.paramInfo.xsd : Informations sur les paramètres,

- app.dataSetInfo.xsd : Informations sur les datasets,

- app.instrumentInfo.xsd : Informations sur les instruments,

- app.missionInfo.xsd : Informations sur les missions.

6.3.4.1.1   paramInfo.xsd

Ce schéma décrit les informations liées à un paramètre.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

    <xs:element name="param" type="paramType"></xs:element>

    <xs:complexType name="paramType">
        <xs:sequence>
                <xs:element name="info" type="paramInfoType" minOccurs="0" maxOccurs="1"></xs:element>
                <xs:any minOccurs="0" maxOccurs="unbounded" processContents="skip"></xs:any>
        </xs:sequence>
        <xs:anyAttribute processContents="skip"></xs:anyAttribute>
    </xs:complexType>

        <xs:element name="TableDef" abstract="true" />

        <xs:attributeGroup name="TableGroup">
                <xs:attribute name="dim" type="xs:int" />
                <xs:attribute name="name" type="xs:string" />
                <xs:attribute name="units" type="xs:string" />
    </xs:attributeGroup>

        <xs:element name="boundsTable" substitutionGroup="TableDef">
                <xs:complexType>
                        <xs:attributeGroup ref="TableGroup" />
                        <xs:attribute name="boundsName" type="xs:string" use="required" />
                </xs:complexType>
        </xs:element>

        <xs:element name="minMaxTable" substitutionGroup="TableDef">
                <xs:complexType>
                        <xs:attributeGroup ref="TableGroup" />
                        <xs:attribute name="minName" type="xs:string" use="required" />
                        <xs:attribute name="maxName" type="xs:string" use="required" />
                </xs:complexType>
        </xs:element>

        <xs:element name="centerTable" substitutionGroup="TableDef">
                <xs:complexType>
                        <xs:attributeGroup ref="TableGroup" />
                        <xs:attribute name="centerName" type="xs:string" use="required" />
                        <xs:attribute name="size" type="xs:double" use="required" />
                </xs:complexType>
        </xs:element>
```

```xml
      <xs:attributeGroup name="StatusGroup">
    <xs:attribute name="minVal" type="xs:double" />
    <xs:attribute name="maxVal" type="xs:double" />
    <xs:attribute name="name"   type="xs:string" />
  </xs:attributeGroup>


  <xs:complexType name="paramInfoType">
      <xs:sequence>
              <xs:element name="name" type="xs:string"></xs:element>
              <xs:element name="short_name" type="xs:string"></xs:element>
      <xs:element name="components" type="xs:string"></xs:element>
      <xs:element name="units" type="xs:string"></xs:element>
              <xs:element name="coordinates_system" type="xs:string"></xs:element>
              <xs:element name="tensor_order" type="xs:string"></xs:element>
              <xs:element name="si_conversion" type="xs:string"></xs:element>
              <xs:element name="table" minOccurs="0" maxOccurs="1">
                          <xs:complexType>
                                  <xs:sequence>
                                          <xs:element ref="TableDef" minOccurs="1"
                                                  maxOccurs="unbounded" />
                                  </xs:sequence>
                          </xs:complexType>
                  </xs:element>
              <xs:element name="fill_value" type="xs:string"></xs:element>
              <xs:element name="ucd" type="xs:string"></xs:element>
              <xs:element name="status_def" minOccurs="0" maxOccurs="1">
                          <xs:complexType>
                                  <xs:sequence>
                                          <xs:element name="status" minOccurs="1"
                                                  maxOccurs="unbounded" >
                                                  <xs:complexType>
                                                          <xs:attributeGroup ref="StatusGroup" />
                                                  </xs:complexType>
                                          </xs:element>
                                  </xs:sequence>
                          </xs:complexType>
                  </xs:element>
              <xs:element name="dataset_id" type="xs:string"></xs:element>
      </xs:sequence>
  </xs:complexType>
</xs:schema>
```

6.3.4.1.2   dataSetInfo.xsd

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
```

```
<xs:element name="dataset" type="DataSetType"></xs:element>

<xs:complexType name="DataSetType">
    <xs:sequence>
        <xs:element name="name" type="xs:string"></xs:element>
        <xs:element name="description" type="xs:string"></xs:element>
        <xs:element name="source" type="xs:string"></xs:element>
        <xs:element name="global_start" type="xs:string"></xs:element>
        <xs:element name="global_stop" type="xs:string"></xs:element>
        <xs:element name="min_sampling" type="xs:string"></xs:element>
        <xs:element name="max_sampling" type="xs:string"></xs:element>
        <xs:element name="caveats" type="xs:string"></xs:element>
        <xs:element name="acknowledgement" type="xs:string"></xs:element>
        <xs:element name="instrument_id" type="xs:string"></xs:element>
    </xs:sequence>
    <xs:attribute name="id" type="xs:ID" use="required" />
</xs:complexType>
</xs:schema>
```

6.3.4.1.3   instrumentInfo.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
    <xs:element name="instrument" type="InstrumentType"></xs:element>

    <xs:complexType name="InstrumentType">
        <xs:sequence>
            <xs:element name="name" type="xs:string"></xs:element>
            <xs:element name="description" type="xs:string"></xs:element>
            <xs:element name="url" type="xs:string"></xs:element>
            <xs:element name="measurement_type" type="xs:string"></xs:element>
            <xs:element name="pi" type="xs:string"></xs:element>
            <xs:element name="instrument_type" type="xs:string"></xs:element>
            <xs:element name="mission_id" type="xs:string"></xs:element>
        </xs:sequence>
        <xs:attribute name="id" type="xs:ID" use="required" />
    </xs:complexType>
</xs:schema>
```

6.3.4.1.4   missionInfo.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
    <xs:element name="mission" type="MissionType"></xs:element>

    <xs:complexType name="MissionType">
        <xs:sequence>
```

```
            <xs:element name="name" type="xs:string"></xs:element>
            <xs:element name="description" type="xs:string"></xs:element>
            <xs:element name="url" type="xs:string"></xs:element>
        </xs:sequence>
        <xs:attribute name="id" type="xs:ID" use="required" />
    </xs:complexType>
</xs:schema>
```

6.3.5 IF_E_WEBINT_LOCAL-BASE

Interface IF_E_WEBINT_LOCAL-BASE	
Nomenclature : variable	**Type** : XML
Description	
Rôle : Décrire une base de données de fichiers locaux	
Producteur	**Consommateur**
WEBINT : Interface Web	*KERNEL : Noyau AMDA-NG*
Espaces de stockage	
Variable, le chemin de la requête est passé en paramètre de l'exécutable du noyau AMDA-NG.	
Production	
Fréquence de génération : Sur demande utilisateur	
Portée *: KERNEL (Noyau AMDA-NG)*	**Volumétrie** : quelques Ko

6.3.5.1 Schéma XSD

Les fichiers de description d'une base de données de fichiers locaux respectent leur définition identifiée dans le schéma XSD présenté ci-dessous.

L'emplacement de ce schéma est configurable via la propriété *app.localbase.xsd* de l'interface **IF_E_AMD_CONF** : app.properties.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

    <xs:element name="base" type="baseType"></xs:element>

    <xs:complexType name="baseType">
        <xs:sequence>
                <xs:element          name="vi"          type="virtualInstrumentType"          minOccurs="0"
maxOccurs="unbounded"></xs:element>
        </xs:sequence>
    </xs:complexType>

    <xs:complexType name="virtualInstrumentType">
        <xs:sequence>
            <xs:element name="mask" type="xs:string" minOccurs="0" maxOccurs="1"/>
```

```xml
            <xs:element name="file" type="fileType" minOccurs="1" maxOccurs="unbounded"></xs:element>
        </xs:sequence>
        <xs:attribute name="id" type="xs:string" use="required" />
        <xs:attribute name="format" use="required">
          <xs:simpleType>
        <xs:restriction base="xs:string">
         <xs:enumeration value="ASCII" />
         <xs:enumeration value="CDF" />
         <xs:enumeration value="VOT" />
        </xs:restriction>
       </xs:simpleType>
         </xs:attribute>
        <xs:attribute name="start" type="xs:string" use="required" />
        <xs:attribute name="stop" type="xs:string" use="required" />
    </xs:complexType>

    <xs:complexType name="fileType">
        <xs:attribute name="name" type="xs:string" use="required" />
        <xs:attribute name="start" type="xs:string" use="required" />
        <xs:attribute name="stop" type="xs:string" use="required" />
    </xs:complexType>
</xs:schema>
```

6.3.6 IF_E_DEV_PLUGIN-LIB

Cf. [DR06]

6.3.7 IF_E_DEV_PLUGIN-FONC

Cf. [DR06]

6.3.7.1 Description détaillée

Cf. [DR06]

7 DESCRIPTION DES INTERFACES INTERNES

Cf. [DR06]

7.1.1 IF_I_KERNEL_CC-TMP

Cf. [DR06]

7.1.1.1 Description détaillée

Cf. [DR06]

7.1.2 IF_I_KERNEL_PLUGIN-LIB

Cf. [DR06]

7.1.2.1 Description détaillée

Cf. [DR06]

8   GLOSSAIRE

Abréviation	Définition
AC-IS	**Accord Cadre Informatique Spatiale**
AMDA	**Automated Multiple Dataset Analysis**
AMDA-NG	**Automated Multiiple Dataset Analysis - New Generation**
CCTP	**Cahier des Clauses Techniques Particulières**
CDPP	**Centre de Données de la Physique des Plasmas**
CNES	**Centre National d'Études Spatiales**
CSSI	**Communication et Systèmes – Systèmes d'Information.**
IRAP	**Institut de Recherche en Astrophysique et Planétologie**
DV	**Plan de développement**
NFS	**Network File System**