[CCB-279] Mis-Matched <axes> and Axis_Array Specifications Created: 10/Feb/20 Updated: 24/Feb/20

Status:	Open
Project:	PDS4 Standards Change Control Board
Component/s:	None
Affects Version/s:	1.D.0.0
Fix Version/s:	None

Type:	Enhancement / Improvement	**Priority:**	Urgent
Reporter:	Steven Hughes	**Assignee:**	Emily Law
Resolution:	Unresolved		
Labels:	Ready		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Problem Statement:	There is no validation in the Array base class to ensure that the value provided by <axes> is the same as the number of occurrences of <Axis_Array>.
Proposed Solution:	Add a schematron rule for Array (base) that checks the value of <axes> against the number of occurrences of <Axis_Array>.

Requested Changes:	Add a schematron rule for Array (base) that checks the value of <axes> against the number of occurrences of <Axis_Array>. For example:
	
	`<sch:pattern>`
	`  <sch:rule context="pds:Array">`
	`    <sch:assert test="number(pds:axes) = count(pds:Axis_Array)">`
	`    The value of pds:axes must match the number of pds:Axis_Array classes in the Array.`
	`    </sch:assert>`
	`  </sch:rule>`
	`</sch:pattern>`

Impact Statement:	Impact: -- Information Model -- The requested change has a minor impact on the IM. No Impact: -- Standards Reference -- PDS Tools -- Concepts Document -- APG -- DPH -- External Agencies -- ISO Standards -- PDS Website -- PAG
Technical Assessment:	The request is to validate the use of the class Array base to ensure that the value provided by <axes> is the same as the number of occurrences of <Axis_Array>. This change helps ensure the consistent use of the class Array base. This change request is reasonable.
System Impact:	non-backwards compatible
DDWG Notes:	DDWG vote item: -- Item Passed: 8 Yes (atm, cis, en, geo, ipda, ppi, rs, sbn), 2 not present (naif, rms)

Description

Products developed by ESA data providers included label statements that gave values for <axes> that were inconsistent with the number of Axis_Array specifications. Early stages of validation were successful, but final validation failed. A Schematron rule that enforces the dimensional consistency requirement would provide early detection of this error.

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