

## SPACEBEL / ESA-ESRIN

# DRAFT Acceptance Test Report for the EO Product Catalogue for VITO CVB



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# 1 INTRODUCTION

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## 1.1 PURPOSE

This document is the Acceptance Test Report of the HMA EO Product Catalogue for the VITO Centrum voor Beeldverwerking (CVB). It is formal deliverable identified in WP3000 of the GIM-VITO-ERDAS proposal submitted for the Heterogeneous Missions Accessibility - Testbed (HMA-T) Phase 2 call in reply to the joint Spacebel/ESA ITT AO/HMA-T-2/780 – HMA Testbed Phase 2 [AD01].

## 1.2 SCOPE

The objectives of the HMA-Testbed project are

1. To permit the evolution and testing of the interoperability standards which have been initially defined within the Heterogeneous Missions Accessibility contract, in parallel with the EO Data Access Integration Layer EO-DAIL implementation and the implementation of the specified interfaces within the partners' ground segments.
2. To permit the conformance testing of the HMA adopted standards and to support industry and institutions in the testing of their own products or developments.
3. To support the take-up of HMA defined standards by European Institutional Users (e.g. INSPIRE Legally Mandated Organisations (LMOs) and geospatial software product developers).

The work performed by our Consortium headed by GIM and further consisting of VITO and ERDAS focuses on the EO Product metadata and HMA Product Catalogs.

- The EO Product Metadata standardised within the GML 3.1.1 Application schema for Earth Observation products specification (OGC06-080) has been applied to a set of representative VITO EO Products. This study work did allow testing of this specification on a range of products and did lead to the creation of specific derived GML application schemas (as foreseen by this specification). It also provided VITO with the required experience to allow future adoption of this specification as common EO Product Metadata format.
- Once this study was completed, one of the VITO systems was selected for the implementation of an HMA Catalog. This Catalog prototype was setup using the ERDAS Catalog software and was implemented by and hosted at GIM and filled with a representative set of metadata provided by VITO and converted and harvested by GIM. The Catalog Service instance is compliant with the OGC Catalogue Services Specification 2.0 Extension Package for ebRIM Application Profile: Earth Observation Products, further referred to as EO EP within this document.
- Subsequently this Catalogue Service is integrated in the ESA HMA/SSE Portal. Two Clients for this Service are developed. The first Catalogue service instantiation uses the GetRecords and GetRecordsById operation like normal practice with EO Products Extension Package ebRIM CSW Catalogues in the HMA context. A second service that uses the alternative GetRepositoryItem operation has also been implemented.

The subject acceptance test report describes the results of the acceptance tests that were conducted.

To note is that at the moment of writing there was no single harmonised set of compliance tests for validating the Catalogue service instances. Instead several sets of compliance tests were used. An updated version of this document will be provided once such a harmonised set of compliance tests will become available.

## 1.3 APPLICABLE DOCUMENTS

|      |   |
|------|---|
| AD01 | Invitation to tender AO/HMA-T-2/780– HMA Testbed Phase 2, Hoeilaart, 31 January 2008, |
|------|---|

|      |  |
|------|--|
| AD02 | Statement of Work SPB-HMA-T-SOW-002- Issue 1 - Rev. 0, 31 January 2008   |
| AD03 | Appendix 3 To Spacebel AO/HMA-T-2/780: Special Conditions of Tender  |
| AD04 | Appendix 2 to Spacebel AO/HMA-T-2/780: Draft Contract  |
| AD05 | ECSS Space Engineering Standards – Software ECSS E-40B (with tailoring)  |
| AD06 | Management, Administrative and Financial proposal - EO Profile of GML and HMA Product Catalog for VITO CVB, CP08028B/SS/ss/001/v01 (2008-04-11)                    |
| AD07 | Technical proposal HMA-T Phase 2 EO Profile of GML and HMA Catalog for VITO CVB, CP08028B/SS/ss/002/v01 (2008-04-11)   |
| AD08 | GML 3.1.1 Application schema for Earth Observation products, OGC 06-080r4, Version 0.9.3, dated 2008/07/21   |
| AD09 | HMA-T-MOM-2003-SPB, HMA-T PDR / Progress Meeting 26 November 2008 Minutes of Meeting   |
| AD10 | HMA-T-TN-0002-GIM, Issue 1.2, 2009-07-07, Technical Note on the application of the GML 3.1.1 Application Schema for EO Products to the VITO EO product collections |
| AD11 | OGC Catalogue Services Specification 2.0 Extension Package for ebRIM Application Profile: Earth Observation Products, Version: 0.2.0, OGC 06-131r5                 |
| AD12 | HMA-T-MOM-2005-SPB, HMA-T AR-1 CDR Meeting 18-19 February 2009 - Minutes of Meeting  |
| AD13 | OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW, version 1.0.1, 2009/02/05, OGC 07-110r4   |
| AD14 | OGC CSW-ebRIM Registry Service – Part 2 : Basic extension package, version 1.0.1, 2009/02/05, OGC 07-144r4   |
| AD15 | HMA-T-TN-0003-GIM, Technical Note on the design of the HMA EO Product Catalogue for VITO CVB   |
| AD16 | HMA-T-ATP-0001-GIM, DRAFT Acceptance Test Plan for the EO Product Catalogue for VITO CVB, Issue 1.0, 2009-07-14  |

## 1.4 REFERENCE DOCUMENTS

|      |  |
|------|--|
| RD01 | HMA-T-MOM-2008-SPB ; HMA-T AR-2 Part 1 (CNR) |
|------|--|

## 1.5 ACRONYMS

|            |  |
|------------|--|
| BAE        | Burnt Area Estimate  |
| CSW        | Catalogue Services for Web   |
| CVB        | VITO Centrum voor Beeldverwerking  |
| DMP        | Dry Matter Productivity  |
| EO         | Earth Observation  |
| EO EP      | OGC Catalogue Services Specification 2.0 Extension Package for ebRIM Application Profile: Earth Observation Products, further referred to as EO EP within this document. |
| ESA        | European Space Agency  |
| ESRIN      | European Space Research Institute  |
| FAPAR      | Fraction of Absorbed Photosynthetically Active Radiation   |
| fCover     | Fractional cover   |
| GeoSuccess | Global Earth Observation in Support of Climate Change and Environmental Security Studies   |

|         |   |
|---------|---|
| GML     | Geographic Mark-up Language                     |
| GUI     | Graphical User Interface                        |
| HDF     | Hierarchical Data Format                        |
| HMA     | Heterogeneous Missions Accessibility            |
| HTTP    | Hyper Text Transfer Protocol                    |
| ICD     | Interface Control Document                      |
| ITT     | Invitation to Tender                            |
| LAI     | Leaf Area Index                                 |
| MIR     | Mid-Infrared                                    |
| MVC     | Maximum Value Composite                         |
| NDVI    | Normalized Difference Vegetation Index          |
| NIR     | Near Infra red                                  |
| NEP     | Net Ecosystem Productivity                      |
| NPP     | Net Primary Productivity                        |
| PAR     | Photosynthetically Active Radiation             |
| N/A     | Not Applicable                                  |
| OGC     | Open Geospatial Consortium                      |
| SOW     | Statement of Work                               |
| SWIR    | Short wave Infrared                             |
| VGT-P   | Vegetation Physical Values                      |
| VGT-S1  | Vegetation Synthesis over 1 day                 |
| VGT-S10 | Vegetation Synthesis over 10 days               |
| VGT-D10 | Vegetation bidirectional Synthesis over 10 days |
| VPI     | Vegetation Productivity Indicator               |

## 2 EO EP FOR EBRIM CSW AP COMPLIANCE TESTS

### 2.1 INTRODUCTION

This section describes the test results of the conformance testing of the EO EP Catalogues using the executable test scripts. At the moment of writing three versions of these test scripts are available provided by IMAA-CNR, IGN and INTECS.

This section of the document is to be updated when a harmonised set of compliance tests will become available. Potential Alignment with the proposed structure for Acceptance Test plan as outlined in [RD01] is also foreseen for a next revision of this document.

The numbers of the test cases refer to [AD16]. Some of the test cases were rerun multiple times during the process of bug fixing in Catalogue instance or test case. Only the results of the first and last test case are presented here.

### 2.2 VT01.01 IMAA- CNR TEST ENGINE – CATALOGUE WITH EXTENDED VGT METADATA 18/06/2009

#### 2.2.1 Test Scope

Results of the original tests as conducted by GIM on 18/06/2009 against the Catalog with extended vgt GML Application schema. After this original test session, both the Catalogue service and the CITE tests were changed to resolve a number of issues. The results of this test are only provided for reference purposes. **They are superseded by the test results given in section 2.3.**

#### 2.2.2 Test Summary

|                |           |
|----------------|-----------|
| <b>Pass</b>    | <b>8</b>  |
| <b>Warning</b> | <b>0</b>  |
| <b>Failed</b>  | <b>14</b> |

#### 2.2.3 Test Results

|                                   | <b>Result</b> | <b>Error / Warning</b>                                     | <b>Comments</b>  |
|-----------------------------------|---------------|--|--|
| Test rim:level1-conformance-tests | Fail          | SOAP 1.2 endpoint is not specified in Capabilities!        | Problem in test case. No issue when rerunning the tests.   |
| Test rim:execute-ATC.1            | Fail          | Missing response RegistryPackage element.                  | Recognised issue in ERDAS Catalogue – will be fixed for september release  |
| Test rim:execute-ATC.2            | Fail          | Lots of warnings “Problems while checking presence of ...” | The testcase checks all slots, also if they are not available in the EO GML<br>It would be more logical to verify which elements are present in the GML, before giving a warning |
| Test rim:execute-ATC.3            | Pass          |  |  |

|                                     |      |  |  |
|-------------------------------------|------|--|--|
| Test rim:execute-ATC.4              | Fail | Wrong Name property in RegistryPackage element.  | Name of property in RegistryPackage is urn:x-ogc:specification:csw-ebrim:package:EOProducts. This should be EOProduct.   |
| Test rim:execute-ATC.5              | Fail | SOAP 1.2 endpoint is not specified in Capabilities!  | Problem was test case. No issue when rerunning the tests – as this test appears to be removed.   |
| Test rim:level2-conformance-tests   | Fail | Inherited failure  |  |
| Test rim:execute-ATC.6              | Fail | Inherited failure  |  |
| Test ebrimeo:correspondences.table3 | Fail | Bad attribute correspondence as defined in OGC 06-131, Table 3, row 4, 6, 11, 13, 14, 15, 35, 36, 38, 39 | <p>Rows 13 and 14 compare the value of the begin- and endPosition in the EO GML output with the corresponding values in the ebRIM output.</p> <p>The test uses a literal (string) comparison of both values.</p> <p>In ebRIM, the timestamps contain a 'Z' time zone designator, in EO GML the timestamps don't contain this designator.</p> <p>Therefore these tests fail (2008-01-01T00:00:00 ≠ 2008-01-01T00:00:00Z).</p> <p>Rows 4, 6, 11, 15, 36, 38, 39: in the VGT schema we extend the eop:EarthObservationMetaData element with a vgt:EarthObservationMetaData-element. The subelements of this vgt:EarthObservationMetaData-element are harvested.</p> <p>The test compares the slots in the EO GML with the slots in the ebRIM, but for the EO GML the test explicitly looks for the <b>eop:EarthObservationMetaData</b> element which is not found (since we use the vgt namespace prefix in our EO GML)</p> <p>Row 35: should not return an error, since the checked methodVersion slot is absent in both the EO GML as the ebRIM output.</p> <p>Probably a test case error</p> |
| Test rim:execute-ATC.7              | Fail | Inherited failure  |  |
| Test ebrimeo:correspondences.table4 | Fail | Bad attribute correspondence as defined in OGC 06-131, Table 4, row 2, 3, 5, 6, 8.                       | <p>To note is that this problem was solved when re-executing the tests</p> <p>The original test probably also took into account the used prefix of the EarthObservation-element in the EO GML.</p> <p>So, the test looked for</p>  |



|                                      |      |   |  |
|--------------------------------------|------|---|--|
|                                      |      |   | eop:EarthObservation and since we use vgt:EarthObservation, this element was never found.<br>In later tests, the prefix of the EarthObservationElement was ignored.  |
| Test ebrimeo:correspondences.table5  | Fail | Bad attribute correspondence as defined in OGC 06-131, Table 4, row 2, 5. | To note is that this problem was solved when re-executing the tests<br><br>The original test probably also took into account the used prefix of the EarthObservation-element in the EO GML.<br><br>So, the test looked for eop:EarthObservation and since we use vgt:EarthObservation, this element was never found.<br><br>In later tests, the prefix of the EarthObservationElement was ignored. |
| Test ebrimeo:correspondences.table6  | Pass |   |  |
| Test ebrimeo:correspondences.table7  | Pass |   |  |
| Test ebrimeo:correspondences.table8  | Pass |   |  |
| Test ebrimeo:correspondences.table9  | Pass |   |  |
| Test ebrimeo:correspondences.table10 | Pass |   |  |
| Test ebrimeo:correspondences.table11 | Pass |   |  |
| Test rim:level4-conformance-tests    | Fail | Inherited failure   |  |
| Test rim:execute-ATC.9               | Pass |   |  |
| Test rim:execute-ATC.10              | Fail | Sum of OPT, SAR and ATM is not equal to the number of EOProducts.         | The harvested products have the product type VGT, so it is logical that the sum of the OPT, SAR and ATM products does not equal the number of EOProducts.  |

## 2.3 VT01.01 IMAA CNR TEST ENGINE – CATALOGUE WITH EXTENDED METADATA (SITUATION AS PER 13/07/2009)

### 2.3.1 Test Scope

Results of the original tests as conducted by GIM on 13/07/2009 against the Catalog with extended metadata schema. After this original test session, both the Catalogue service and the CITE tests were changed to resolve a number of issues. Note that this catalogue employed the extended vgt metadata schemas which gives rise to failures when the metadata prefixes are taking into account when comparing EO ebRIM and EO Profile of GML. **The test results in the section 2.4 give hence a more accurate view of the actual (non)conformance.**

### 2.3.2 Test Summary

|                |           |
|----------------|-----------|
| <b>Pass</b>    | <b>12</b> |
| <b>Warning</b> | <b>1</b>  |
| <b>Failed</b>  | <b>8</b>  |

### 2.3.3 Test Results

|                                     | <b>Result</b> | <b>Error / Warning</b>   | <b>Comments</b>  |
|-------------------------------------|---------------|--|--|
| Test rim:level1-conformance-tests   | Fail          | Capabilities has to be published in namespace <a href="http://www.opengis.net/cat/wrs/1.0">http://www.opengis.net/cat/wrs/1.0</a> as stated in OGC 07-110 (8.3 GetCapabilities response) | The request contains the parameter service=CSW. This should be service=CSW-ebRIM.  |
| Test rim:execute-ATC.1              | Fail          | Missing response RegistryPackage element.  | Recognised issue in ERDAS Catalogue – will be fixed for september release  |
| Test rim:execute-ATC.2              | Warning       | Lots of warnings “Problems while checking presence of ...”   | The testcase checks all slots, also if they are not available in the EO GML<br>It would be more logical to verify which elements are present in the GML, before giving a warning |
| Test rim:execute-ATC.3              | Pass          |  |  |
| Test rim:execute-ATC.4              | Pass          |  |  |
| Test rim:level2-conformance-tests   | Fail          | Inherited failure  |  |
| Test rim:execute-ATC.6              | Fail          | Inherited failure  |  |
| Test ebrimeo:correspondences.table3 | Fail          | Bad attribute correspondence as defined in OGC 06-131, Table 3, row 2, 4, 6, 11,   | Rows 13 and 14 compare the value of the begin- and endPosition in the EO GML output with the corresponding values in the ebRIM output.   |

|                                     |      |                        |  |
|-------------------------------------|------|------------------------|--|
|                                     |      | 13, 14, 15, 36, 38, 39 | <p>The test uses a literal (string) comparison of both values. In ebRIM, the timestamps contain a 'Z' time zone designator, in EO GML the timestamps don't contain this designator. Therefore these tests fail (2008-01-01T00:00:00 ≠ 2008-01-01T00:00:00Z).</p> <p>Rows 2, 4, 6, 11, 15, 36, 38, 39: in the VGT schema we extend the eop:EarthObservationMetaData element with a vgt:EarthObservationMetaData-element. The subelements of this vgt:EarthObservationMetaData-element are harvested. The test compares the elements in the EO GML with the slots in the ebRIM, but for the EO GML the test explicitly looks for the <b>eop:EarthObservationMetaData</b> element which is not found (since we use another prefix in our EO GML)</p> <p>Even if the tests won't take into account the prefix of EarthObservationMetaData, some tests will still fail, because we changed the cardinality of the element eop:ProcessingInformation (subelement of eop:EarthObservationMetadata) in the eop.xsd. Now it's possible to have multiple ProcessingInformation-elements. The test, however, uses the string-function to convert the result of an XPath-query to a string. When the XPath query returns multiple nodes, the string-function will fail (too many items).</p> |
| Test rim:execute-ATC.7              | Pass |                        |  |
| Test ebrimeo:correspondences.table4 | Pass |                        |  |
| Test ebrimeo:correspondences.table5 | Pass |                        |  |
| Test ebrimeo:correspondences.table6 | Pass |                        |  |
| Test ebrimeo:correspondences.table7 | Pass |                        |  |

|                                      |      |   |   |
|--------------------------------------|------|---|---|
| Test ebrimeo:correspondences.table8  | Pass |   |   |
| Test ebrimeo:correspondences.table9  | Pass |   |   |
| Test ebrimeo:correspondences.table10 | Pass |   |   |
| Test ebrimeo:correspondences.table11 | Pass |   |   |
| Test rim:level4-conformance-tests    | Fail | Inherited failure   |   |
| Test rim:execute-ATC.9               | Pass |   |   |
| Test rim:execute-ATC.10              | Fail | Sum of OPT, SAR and ATM is not equal to the number of EOProducts. | The harvested products have the product type VGT, so it is logical that the sum of the OPT, SAR and ATM products does not equal the number of EOProducts. |

## 2.4 VT01.02 IMAA CNR TEST ENGINE – CATALOGUE WITH METADATA CORRESPONDING TO THE EOP GML APPLICATION SCHEMA (SITUATION AS PER 13/07/2009)

### 2.4.1 Test Scope

In order to prove that some of the observed issues are due to the use of extended schemas, we converted have harvested the metadata of the VGT4africa using the eop schemas so not including the extended metadata elements.

### 2.4.2 Test Summary

|                |           |
|----------------|-----------|
| <b>Pass</b>    | <b>14</b> |
| <b>Warning</b> | <b>1</b>  |
| <b>Failed</b>  | <b>6</b>  |

Of the failed and warning test cases we believe that 3 issues are due to issues in the conformance tests (indicated in orange below) tests. One issue is recognised to be a problem with the ERDAS Catalog Software. Other issues are “inherited failures”.

### 2.4.3 Test Results

|                           | Result | Error / Warning   | Comments |
|---------------------------|--------|-------------------|----------|
| Test:rim:conformance-test | Fail   | Inherited Failure |          |

|                                     |         |  |   |
|-------------------------------------|---------|--|---|
| Test rim:level1-conformance-tests   | Fail    | Capabilities has to be published in namespace <a href="http://www.opengis.net/cat/wrs/1.0">http://www.opengis.net/cat/wrs/1.0</a> as stated in OGC 07-110 (8.3 GetCapabilities response) | The request contains the parameter service=CSW. This should be service=CSW-ebRIM.   |
| Test rim:execute-ATC.1              | Fail    | Missing response RegistryPackage element.  | Recognised issue in ERDAS Catalogue – will be fixed for september release   |
| Test rim:execute-ATC.2              | Warning | Lots of warnings "Problems while checking presence of ..."   | The testcase checks all slots, also if they are not available in the EO GML<br>It would be more logical to verify which elements are present in the GML, before giving a warning  |
| Test rim:execute-ATC.3              | Pass    |  |   |
| Test rim:execute-ATC.4              | Pass    |  |   |
| Test rim:level2-conformance-tests   | Fail    | Inherited failure  |   |
| Test rim:execute-ATC.6              | Fail    | Inherited failure  |   |
| Test ebrimeo:correspondences.table3 | Fail    | Bad attribute correspondence as defined in OGC 06-131, Table 3, row 13 and 14.   | Rows 13 and 14 compare the value of the begin- and endPosition in the EO GML output with the corresponding values in the ebRIM output.<br>The test uses a literal (string) comparison of both values.<br>In ebRIM, the timestamps contain a 'Z' time zone designator, in EO GML the timestamps don't contain this designator.<br>Therefore these tests fail (2008-01-01T00:00:00 ≠ 2008-01-01T00:00:00Z). |
| Test rim:execute-ATC.7              | Pass    |  |   |
| Test ebrimeo:correspondences.table4 | Pass    |  |   |
| Test ebrimeo:correspondences.table5 | Pass    |  |   |
| Test ebrimeo:correspondences.table6 | Pass    |  |   |
| Test ebrimeo:correspondences.table7 | Pass    |  |   |
| Test ebrimeo:correspondences.table8 | Pass    |  |   |
| Test                                | Pass    |  |   |

|                                      |      |  |  |
|--------------------------------------|------|--|--|
| ebrimeo:correspondences.table9       |      |  |  |
| Test ebrimeo:correspondences.table10 | Pass |  |  |
| Test ebrimeo:correspondences.table11 | Pass |  |  |
| Test rim:level4-conformance-tests    | Pass |  |  |
| Test rim:execute-ATC.9               | Pass |  |  |
| Test rim:execute-ATC.10              | Pass |  |  |

## 2.5 VT01.03 - IGN TESTS (SITUATION AS PER 14/07/2009)

### 2.5.1 Test Scope

Catalogue using the eop schemas so not including the extended metadata elements.

### 2.5.2 Test Summary

|                |           |
|----------------|-----------|
| <b>Pass</b>    | <b>38</b> |
| <b>Warning</b> | <b>0</b>  |
| <b>Failed</b>  | <b>8</b>  |

Of the failed test cases, we believe that most issues are due the the conformance tests (indicated in orange below) tests. One issue is recognised to be a problem with the ERDAS Catalog Software.

To note is that for some failure test cases we apparently cannot find the corresponding test code. Since the tests were only available since one day, we have not had sufficient time for analysing these issues.

### 2.5.3 Test Results

|                              | Result | Error / Warning                           | Comments   |
|------------------------------|--------|---|--|
| Test ebrimeo:execute-ATC.1.2 | Fail   | Missing response RegistryPackage element. | Recognised Issue in ERDAS Catalogue<br><br>The test calls the AdhocQuery 'urn:ogc:def:ebRIM-Query:OGC:listExtensionPackages'. Since this AdhocQuery is not defined by the catalog, the catalog returns an ows:ExceptionReport. |
| Test ebrimeo:execute-ATC.1.3 | Fail   | The root element name is incorrect        | There seems to be an error in the test.  |

|                                     |      |   |   |
|-------------------------------------|------|---|---|
|                                     |      | No collections found in the capabilities document – 0 | The test specifies a GetCapabilities-request in the body-element, but it uses the GET instead of the POST method to send this request to <a href="http://193.74.120.28/ionicwrs3/wrs/WRS">http://193.74.120.28/ionicwrs3/wrs/WRS</a> .<br>The catalog returns an ows:ExceptionReport stating that the SERVICE parameter is missing. |
| Test ebrimeo:execute-ATC.1.4        | Fail | Inherited failure                                     |   |
| Test ebrimeo:DocumentValidity       | Pass |   |   |
| Test ebrimeo:ExternalIdentifier     | Fail | ExternalIdentifier attribute correctness test failed! | Do not find the source code of the tests.<br>Perhaps the source code shown in the application is not the latest version?  |
| Test ebrimeo:DoiSlot                | Pass |   |   |
| Test ebrimeo:ParentIdentifierSlot   | Pass |   |   |
| Test ebrimeo:ProductTypeSlot        | Pass |   |   |
| Test ebrimeo:StatusSlot             | Pass |   |   |
| Test ebrimeo:MultiExtentOfSlot      | Pass |   |   |
| Test ebrimeo:CenterOfSlot           | Pass |   |   |
| Test ebrimeo:AcquisitionTypeSlot    | Pass |   |   |
| Test ebrimeo:AcquisitionSubTypeSlot | Pass |   |   |
| Test ebrimeo:BeginPositionSlot      | Pass |   |   |
| Test ebrimeo:EndPositionSlot        | Pass |   |   |
| Test ebrimeo:AcquisitionStationSlot | Pass |   |   |
| Test ebrimeo:AcquisitionDateSlot    | Pass |   |   |

|  |      |  |  |
|--|------|--|--|
| Test ebrimeo:OrbitNumberSlot                     | Pass |  |  |
| Test ebrimeo>LastOrbitNumberSlot                 | Pass |  |  |
| Test ebrimeo:OrbitDirectionSlot                  | Pass |  |  |
| Test ebrimeo:AcrossTrackIncidenceAngleSlot       | Pass |  |  |
| Test ebrimeo:AlongTrackIncidenceAngleSlot        | Pass |  |  |
| Test ebrimeo:PitchSlot                           | Pass |  |  |
| Test ebrimeo:YawSlot                             | Pass |  |  |
| Test ebrimeo:RollSlot                            | Pass |  |  |
| Test ebrimeo:AscendingNodeDateSlot               | Pass |  |  |
| Test ebrimeo:StartTimeFromAscendingNodeSlot      | Pass |  |  |
| Test ebrimeo:CompletionTimeFromAscendingNodeSlot | Pass |  |  |
| Test ebrimeo:AscendingNodeLongitudeSlot          | Pass |  |  |
| Test ebrimeo:OrbitDurationSlot                   | Pass |  |  |
| Test ebrimeo:IncidenceAngleSlot                  | Pass |  |  |
| Test ebrimeo:WrsLongitudeGridSlot                | Pass |  |  |
| Test ebrimeo:WrsLatitudeGridSlot                 | Pass |  |  |
| Test ebrimeo:ImageQualityDegradationSlot         | Pass |  |  |
| Test ebrimeo:ImageQualityDegradationQuotation    | Pass |  |  |



| ModeSlot                      |      |   |  |
|-------------------------------|------|---|--|
| Test ebrimeo:execute-ATC.1.6  | Fail | Couldn't find the EOProduct extrinsic object in the registry package instance | This can not be found in the code?<br>Perhaps the source code shown in the application is not the latest version?  |
| Test ebrimeo:execute-ATC.1.23 | Fail | Missing response RegistryPackage element                                      | Recognised ERDAS Catalogue problem – will be rectified.<br><br><b>It was noticed that the test executes a GetRecordById-request without providing an id. This yields to an empty result.</b><br>So, even if this problem (Missing response RegistryPackage element) is fixed, I still expect the test to fail. |

## 2.6 VT01.04 INTECS TEST ENGINE

### 2.6.1 Test Scope

Catalog employing the vgt schemas was employed within this project. Tests were run only once from the INTECS development environment. More information is required on the tests to ascertain the cause of the problems.

### 2.6.2 Test Summary

|                |           |
|----------------|-----------|
| <b>Pass</b>    | <b>43</b> |
| <b>Warning</b> | <b>0</b>  |
| <b>Failed</b>  | <b>11</b> |

### 2.6.3 Test Results

|                               | Result | Error / Warning  | Comments |
|-------------------------------|--------|--|----------|
| Testing ebrimeo:execute-A.1.1 | Fail   | Validation error: cvc-complex-type.2.4.a: Invalid content was found starting with element 'soap:faultcode'. One of '{faultcode}' is expected.. |          |
| Testing ebrimeo:package.check | Fail   | Not valid document   |          |
| Testing ebrimeo:execute-A.1.2 | Fail   | The root element name is incorrect. No collections found in the capabilities   |          |

|   |      |   |   |
|---|------|---|---|
|   |      | document - 0.   |   |
| Testing<br>ebrimeo:execute-<br>ATC.1.3        | Fail | Inherited failure   |   |
| Testing<br>ebrimeo:cardinality.tabl<br>e3     | Fail | wrong cardinality as<br>defined in OGC 06-131,<br>Table 3, row 2 (1)  | There is no ExternalIdentifier in the<br>ebRIM.   |
| Testing<br>ebrimeo:execute-<br>ATC.1.4        | Fail | Inherited failure   |   |
| Testing<br>ebrimeo:corresponden<br>ces.table3 | Fail | - unable to find<br>//eop:EarthObservation<br>MetaData element in<br>Item document<br><br>- bad attribute<br>correspondence as<br>defined in OGC 06-131,<br>Table 3, row 4, 5, 6, 11,<br>15, 36, 37 | In the VGT schema we extend the<br>eop:EarthObservationMetaData<br>element with a<br>vgt:EarthObservationMetaData-<br>element.<br><br>Therefore,<br>eop:EarthObservationMetaData<br>will not be found and this also<br>causes the 'bad attribute<br>correspondence'-errors. |
| Testing<br>ebrimeo:execute-<br>ATC.1.5        | Pass |   |   |
| Testing<br>ebrimeo:execute-<br>ATC.1.6        | Pass |   |   |
| Testing<br>ebrimeo:execute-<br>ATC.1.7        | Pass |   |   |
| Testing<br>ebrimeo:execute-<br>ATC.1.8        | Pass |   |   |
| Testing<br>ebrimeo:cardinality.tabl<br>e4     | Pass |   |   |
| Testing<br>ebrimeo:execute-A.1.9              | Pass |   |   |
| Testing<br>ebrimeo:corresponden<br>ces.table4 | Pass |   |   |
| Testing<br>ebrimeo:execute-<br>A.1.10         | Pass |   |   |
| Testing<br>ebrimeo:execute-<br>A.1.11         | Pass |   |   |
| Testing<br>ebrimeo:cardinality.tabl<br>e5     | Pass |   |   |
| Testing<br>ebrimeo:execute-                   | Pass |   |   |

|   |      |   |  |
|---|------|---|--|
| A.1.12  |      |   |  |
| Testing<br>ebrimeo:corresponden<br>ces.table5 | Pass |   |  |
| Testing<br>ebrimeo:execute-<br>A.1.13         | Pass |   |  |
| Testing<br>ebrimeo:execute-<br>A.1.14         | Pass |   |  |
| Testing<br>ebrimeo:cardinality.tabl<br>e6     | Pass |   |  |
| Testing<br>ebrimeo:execute-<br>A.1.15         | Fail | Inherited failure   |  |
| Testing<br>ebrimeo:corresponden<br>ces.table6 | Fail | bad attribute<br>correspondence as<br>defined in OGC 06-131,<br>Table 6, row 1. Found (0)<br>EO:EOBrowseInformatio<br>n ExtrinsicObject but (1)<br>BrowseInformation in the<br>GML document |  |
| Testing<br>ebrimeo:execute-<br>A.1.16         | Pass |   |  |
| Testing<br>ebrimeo:execute-<br>A.1.17         | Pass |   |  |
| Testing<br>ebrimeo:cardinality.tabl<br>e7     | Pass |   |  |
| Testing<br>ebrimeo:execute-<br>A.1.18         | Pass |   |  |
| Testing<br>ebrimeo:corresponden<br>ces.table7 | Pass |   |  |
| Testing<br>ebrimeo:execute-<br>A.1.19         | Pass |   |  |
| Testing<br>ebrimeo:execute-<br>A.1.20         | Pass |   |  |
| Testing<br>ebrimeo:cardinality.tabl<br>e8     | Pass |   |  |
| Testing<br>ebrimeo:execute-                   | Pass |   |  |

|   |      |  |  |
|---|------|--|--|
| A.1.21                                  |      |  |  |
| Testing ebrimeo:correspondences.table8  | Pass |  |  |
| Testing ebrimeo:execute-A.1.22          | Fail | Validation error: cvc-complex-type.2.4.a: Invalid content was found starting with element soap:faultcode'. One of '{faultcode}' is expected. |  |
| Testing ebrimeo:execute-A.1.23          | Fail | Wrong HTTP status code expected 404 received 200.  |  |
| Testing ebrimeo:execute-A.1.25          | Pass |  |  |
| Testing ebrimeo:execute-A.2.1           | Pass |  |  |
| Testing ebrimeo:cardinality.table9      | Pass |  |  |
| Testing ebrimeo:execute-A.2.2           | Pass |  |  |
| Testing ebrimeo:correspondences.table9  | Pass |  |  |
| Testing ebrimeo:execute-A.3.1           | Pass |  |  |
| Testing ebrimeo:cardinality.table10     | Pass |  |  |
| Testing ebrimeo:execute-A.3.2           | Pass |  |  |
| Testing ebrimeo:correspondences.table10 | Pass |  |  |
| Testing ebrimeo:execute-A.4.1           | Pass |  |  |
| Testing ebrimeo:execute-A.4.2           | Pass |  |  |
| Testing ebrimeo:cardinality.table11     | Pass |  |  |
| Testing ebrimeo:execute-A.4.3           | Pass |  |  |
| Testing ebrimeo:correspondences.table11 | Pass |  |  |

|                                       |      |   |   |
|---------------------------------------|------|---|---|
| Testing<br>ebrimeo:execute-<br>A.1.24 | Fail | The root element name is incorrect.<br>Error on Capability document. No eop:EarthObservation resourceType element has been found for the Harvest operation. | The resourceType in the capabilities is http://earth.esa.int/eop instead of eop:EarthObservation. |
| Testing<br>ebrimeo:execute-A.2.3      | Fail | The root element name is incorrect.<br>Error on Capability document. No sar:EarthObservation resourceType element has been found for the Harvest operation. | The resourceType in the capabilities is http://earth.esa.int/sar instead of sar:EarthObservation. |
| Testing<br>ebrimeo:execute-A.3.3      | Fail | The root element name is incorrect.<br>Error on Capability document. No opt:EarthObservation resourceType element has been found for the Harvest operation. | The resourceType in the capabilities is http://earth.esa.int/opt instead of opt:EarthObservation. |
| Testing<br>ebrimeo:execute-A.4.4      | Fail | The root element name is incorrect.<br>Error on Capability document. No atm:EarthObservation resourceType element has been found for the Harvest operation. | The resourceType in the capabilities is http://earth.esa.int/atm instead of atm:EarthObservation. |

## 3 HMA PORTAL INTEGRATION TESTS

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### 3.1 TEST CASE VT02.01 TEST THE GETRECORDS OPERATION

|         |      |
|---------|------|
| Step 5  | Pass |
| Step 9  | Pass |
| Step 11 | Pass |
| Step 13 | Pass |
| Step 15 | Pass |
| Step 17 | Pass |
| Step 19 | Pass |
| Step 21 | Pass |

### 3.2 TEST CASE VT02.02 TEST THE GETRECORDBYID OPERATION

|         |      |
|---------|------|
| Step 10 | Pass |
|---------|------|

### 3.3 TEST CASE VT02.03 TEST THE GETRECORDBYID OPERATION

|         |      |
|---------|------|
| Step 10 | Pass |
|---------|------|