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1 ETS Data conformance assessment

Go up to the main LPIS ETS page

This article presents the complete ETS setup as a generic "conformance assessment" use case. Such use case is the list of the steps as well as interactions between the ETS inspector ("actor") and the LPIS data base.

1.1 Diagram

A standard activity diagram provides a intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

[Activity diagram: Perform data conformance assessment]

1.2 Instructions

1.2.1 Activity diagram: Perform data conformance assessment

-- Name --

Perform data conformance assessment

-- Description --

This is a generic use case to explain how the formal conformance assessment process of ISO 19105:200 is applied in LPISQA. Its implementation is detailed in the related low level use cases.

Pre-conditions:

- System under test (SUT) is sufficiently documented,
- Reference(s) against which conformance has to be evaluated have been selected,
- Applicability of ICS pro-forma has been clarified
- Implementation extra information (IXIT) is available
Post Condition:

(Abstract and) Executable test cases for conformance testing have been defined.

NOTE 1: For data conformance testing in LPISQA executables test cases are based on assessing pre-defined data quality measures.

NOTE 2. Element: Activity diagram.

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start data conformance assessment</td>
<td>--Name--</td>
</tr>
<tr>
<td></td>
<td>Start data conformance assessment</td>
</tr>
<tr>
<td></td>
<td>--Description--</td>
</tr>
<tr>
<td></td>
<td>A.k.a. ETS</td>
</tr>
<tr>
<td></td>
<td>--Name--</td>
</tr>
<tr>
<td></td>
<td>Eligibility profile has not changed?</td>
</tr>
<tr>
<td>Eligibility profile upgraded?</td>
<td>--Description--</td>
</tr>
<tr>
<td>MAIN STEP 1:</td>
<td>Verify whether there is a trigger (legal change) for upgrading the eligibility profile. This step is about the validity and currency of the eligibility profile.</td>
</tr>
<tr>
<td>--Name--</td>
<td>Eligibility profile has not changed?</td>
</tr>
<tr>
<td>Eligibility profile is valid</td>
<td>--Description--</td>
</tr>
<tr>
<td></td>
<td>Merge point after checking the validity of the eligibility profile.</td>
</tr>
<tr>
<td></td>
<td>--Name--</td>
</tr>
<tr>
<td></td>
<td>Retrieve ETS executable test cases</td>
</tr>
<tr>
<td>Retrieve ETS executable test cases</td>
<td>--Description--</td>
</tr>
<tr>
<td>MAIN STEP 2:</td>
<td>Retrieve ETS executable test cases from ETS suite.</td>
</tr>
<tr>
<td></td>
<td>NOTE: LPISQA ETS test cases relate to the different data quality measures and quality elements.</td>
</tr>
<tr>
<td></td>
<td>--Name--</td>
</tr>
<tr>
<td></td>
<td>Retrieve SUT from ICS</td>
</tr>
<tr>
<td>Retrieve SUT from ICS</td>
<td>--Description--</td>
</tr>
<tr>
<td>MAIN STEP 3:</td>
<td>Retrieve system under test (SUT) from Implementation conformance statement (ICS).</td>
</tr>
<tr>
<td></td>
<td>NOTE 1: SUT is the LPIS implementation (i.e. database and all the data in it) of the MS/Region.</td>
</tr>
<tr>
<td>Define ETS item under inspection</td>
<td>--Description--</td>
</tr>
<tr>
<td>MAIN STEP 4:</td>
<td>Definition of the scope of testing. It can be a single reference parcel, an aggregate of reference parcels or an EFA item.</td>
</tr>
<tr>
<td></td>
<td>NOTE 2: The implementation conformance statement relates to the six data quality elements required by Article 6 (1) of Regulation (EU) 640/2014.</td>
</tr>
<tr>
<td></td>
<td>--Name--</td>
</tr>
<tr>
<td></td>
<td>Define ETS item under inspection</td>
</tr>
</tbody>
</table>
NOTE: Element: Activity.

--Name--

Prepare conformance Log

--Description--

MAIN STEP 5:
In frame of this step, the conformance report (a.k.a ETS scoreboard) is started by documenting the generic metadata and other aspects of testing.

NOTE: Update: ConformanceTestReport.conformanceLog <> Null

--Name--

Retrieve testing results

--Description--

MAIN STEP 6a:
For purposes of assessing conformity the results of the appropriate data quality measures are retrieved from the information system.

--Name--

Retrieve verdict criteria

--Description--

MAIN STEP 6b:
For purposes of assessing conformity, the verdict criteria of the appropriate data quality measures are retrieved from the ETS technical guidance.

--Name--

Analyse results

--Description--

MAIN STEP 7:
Compare data quality results (testing results) with the verdict criteria.

--Name--

Register executable test case verdicts

--Description--

MAIN STEP 8:
Introduce the verdict (judgement) on each DQM result in the which? information system.

Update: ConformanceTestReport.executableTestCaseVerdict <> Null

--Name--

Register abstract test case verdicts

--Description--

MAIN STEP 9:
Aggregated results of ETS verdicts shall be registered in the conformance test report.

Update: ConformanceTestReport.abstractTestCaseVerdict <> Null

--Name--

Register test module verdicts

NOTE: In practice, these verdicts are the conformity statements on the aggregated DQM results (QE1a, QE1b1, QE1b2, QE2a1, QE2a2, QE3, etc).

--Name--
MAIN STEP 10:
Register the verdict(s) for each of the two test modules: conformance class 1 and conformance class 2.

Update: ConformanceTestReport.abstractTestModuleVerdict <> Null

Name--
Retrieve: ICS and IXIT

MAIN STEP 11:
Retrieve implementation conformance statement and implementation extra information for testing.

In the context of LPISQA, other conformance statements (e.g. on a specific INSPIRE data specification, LADM standard) can be given. However, these are not mandatory.

Name--
Prepare conformance test report

MAIN STEP 12:
In LPISQA there are two types of reports:
- ETS report to be delivered to DG AGRI and
- ETS scoreboard to be delivered to DG JRC.

Name--
Finish conformance assessment
Go up to the main LPIS ETS page
2 ETS Definition of ETS item under inspection

Go up to the main ETS page

Inspections are organized on an item basis; inspection procedures observe items and the observations are made and reported in item terms. For the LPIS ETS, an item can be one of two kinds: either a standalone reference parcels or an aggregation of reference parcels. Both types represent an "item of inspection" that corresponds to a particular "land of inspection" (LUI), the target of inspections observations.

The concept of the "LUI" as object of inspection for each item under inspections is as follows:

**Item under inspection**

The record of a geographically delimited patch of land addressed by either a unique identification or aggregation of unique identifications and holding a simple or aggregated reference area attribute (registered in the GIS in the Member State’s LPIS)

**Land under inspection**

The actual land, visible on the image or on the ground, that was intended to be represented by the Reference Parcel or aggregation of reference parcels (in line with that very parcel’s definition and aggregation rules). This land is to be inspected and the features present delineated for each item under inspection.

**LUI definition**

**Illustration 1 of the Reference Parcel Boundary and the corresponding Land Under Inspection (LUI)**
Parcel aggregation is applicable when:

1. a single crop covers the original LUI.
2. LUI expansion (following that single crop) stops at the first visible boundary of that crop.
3. an amalgamation of reference parcels is exact match for this crop area / expanded LUI.

In the example below, the Reference parcel RP_02 is preselected, its LUI can't be delineated as the crop in the field EXACTLY covers 5 adjacent reference parcels.

Reference parcel RP_02 is sampled for inspection
As the LUI is now reset to this first visible crop boundary, the ensuing measurement (of the crop) will be checked against the outer perimeter of the amalgamated reference parcels - magenta polygon.

Parcel aggregation is not applicable when:

any of the three conditions is not met

In the example blow, the sampled reference parcel yellow color) has no delineable features on its perimeter and the original LUI is covered by 6 crops (blue asterisks) LUI expansion extends to first visible boundary of each and every of these crops (red line) BUT its outer perimeter of the reference parcels (yellow color) surrounding the original item is not an exact match for this expanded LUI (note at the blue arrow). Hence parcel aggregation is not applicable.
Parcel aggregation not feasible

A standard activity diagram provides an intuitive illustration of the various workflow steps of this stage. It indicates which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

2.1 Diagram
link: Activity diagram: Define ETS item under inspection

2.2 Instructions

2.2.1 Activity diagram: Define ETS item under inspection

Name:

Define ETS item under inspection

Description:

Based on the spatial objects in the GIS, the item of data inspection in, such as the-ETS, can be either of the following feature types:
Currently only the process of RP inspection is addressed. The item under inspection can be a single reference parcel, of the aggregate of parcels.

Pre-conditions:
Vector data for RP have been included in LPIS. Decision about the applicability of parcel aggregation method has been made.

Post-condition:
Inspection methodology, software, and database for recording inspection results are available.

NOTE. Element: Activity diagram.

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start designation of item under inspection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Start designation of the item under inspection, i.e. the reference parcel -Name--</td>
</tr>
<tr>
<td></td>
<td>Retrieve list of pre-selected RP issued by DG JRC</td>
</tr>
<tr>
<td>Retrieve list of pre-selected RP</td>
<td></td>
</tr>
<tr>
<td>issued by DG JRC</td>
<td>-Description--</td>
</tr>
<tr>
<td></td>
<td>MAIN STEP 1: Retrieve the list of pre-selected RP from the LPIS QA pre-selection issued by DG JRC</td>
</tr>
<tr>
<td></td>
<td>NOTE: Pre-selected parcels are listed in the LpisSamplePreselectionSatus.xml file -Name--</td>
</tr>
<tr>
<td>Continue with the parcels</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-Description--</td>
</tr>
<tr>
<td></td>
<td>Merge point after skipping an item -Name--</td>
</tr>
<tr>
<td></td>
<td>Select the first uninspected parcel</td>
</tr>
<tr>
<td>Select the first uninspected parcel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-Description--</td>
</tr>
<tr>
<td></td>
<td>MAIN STEP 2 Select the uninspected parcel with the smallest sequential number from the pre-selected list. The inspection shall strictly follow the order of sequential number of parcels issued by DG JRC.</td>
</tr>
<tr>
<td></td>
<td>NOTE: When a specific RP present in the pre-selected list has already entered in the inspection process because of parcel aggregation, it should not be re-inspected. Instead, the next sequential un-inspected parcel has to be taken. -Name--</td>
</tr>
<tr>
<td></td>
<td>Retrieve parcel aggregation applicability</td>
</tr>
<tr>
<td>Retrieve parcel aggregation</td>
<td></td>
</tr>
<tr>
<td>applicability</td>
<td>-Description--</td>
</tr>
<tr>
<td></td>
<td>MAIN STEP 3 The LPIS custodian should decide and notify the Commission whether the aggregation methodology is applicable and used for the LPIS quality assessment. It should be communicated before each LPIS assessment year. The methodology should be consistently used throughout the procedure.</td>
</tr>
<tr>
<td>Parcel aggregation applicable for LPIS?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NOTE. Retrieve: LpisLot.parcelAggregation -Name-- Parcel aggregation is applicable for LPIS?</td>
</tr>
</tbody>
</table>

- reference parcel (single or aggregated),
- EFA element.
MAIN STEP 4

The applicability should be documented in the description of LPIS lot. This is a general decision about the methodology to be applied all the time when there is a reason for aggregation.

If the parcel aggregation method is applicable on the level of the system, proceed with the positive YES flow of events. Else, proceed with the alternative “NO” flow of events.

NOTE: For combined and field measurement method parcel aggregation is not applicable, since the measurements (by exception of force major events) is always feasible.

Can be the given parcel aggregated?

MAIN STEP 5

Analyse visually should the item be considered for the parcel aggregation method be applied. It means that all boundary section should be visible both on the imagery and vector data (feasibility for measurement). If affirmative continue with the positive “YES” flow of events. Else, proceed with the alternative “NO” flow of events.

Aggregate parcel

MAIN STEP 6

Apply the parcel aggregation methodology for the item.

Process of expanding the item under inspection towards the boundaries of each and every land cover (land use) entity present on the surface of the original parcel.

This practice helps to locate measurable boundary section in proximity of the parcel selected for inspection. As a result, the item under inspection will be not the original parcel, but an aggregate (amalgamate) of a number of reference parcels that, as a set, match the expanded boundaries. Every observation should relate to this aggregation of RP.

NOTE: Parcel aggregation methodology is applied for the item with the first surrounding reference parcels matching the physical limits of the land cover/land use class, and not the item alone. Therefore, the inspection is extended to the amalgamated item boundary for which the further observation relate to the sum of aggregated reference parcel area forming such amalgamate.

In practice, this method is essential for the LPIS:
- with the reference to cadastre parcels, where parcels may be smaller than the true physical land cover boundaries, where the cadastral parcels represent more the historical process of transactions rather than current use,
- with the reference to production blocks, where the block hasn’t been updated according to land cover/land use changes or agricultural management activities or where the crop condition at inspection time doesn’t allow the delineation of the block boundaries underneath.

Mark aggregate as item under inspection

MAIN STEP 7

An amalgamate can consist of RP belonging to the LPIS pre-selection list and other RP from the LPIS. Therefore it is necessary to mark all constituting RP as being inspected (in the LPIS preselection list) and create an additional list of all RP being aggregated. The additional inspected RP should be listed with providing the same information and structure that is applied in the pre-selection list.

NOTE. List the IDs of reference parcels entering in to aggregation.

Update: EtsItemUnderInspection.referenceParcelId

Item is ready for inspection

Merge point after recoding the PR ID or IDs for the parcel(s) that have become an item under inspection
Inspection feasible?

--Description--

MAIN STEP 8

Analyze visually if the item is feasible for inspection by overlapping the parcel geometric property (usually polygon) against the latest reference imagery acquired by EC. If affirmative continue with the positive “YES” flow of events. Else, proceed with the alternative “NO” flow of events (Step 2.)

NOTE: The feasibility for inspection measure on the parcel level indicates the local suitability of the information source (imagery, vector data) for inspection purposes. The conditions comprise the quality of the imagery, the unambiguous identification and localisation of the reference parcel, etc. a RP is not feasible for inspection in cases when reference information doesn’t allow reliable inspection. Those items are thus “skipped” due to the following technical reasons listed in SkippingReasonTypeValue code list.

In practice feasibility for inspection is recorded as an attribute in LpisSamplePreselectionStatus.xml.

NOTE 1. Update: PreselectedParcel.feasibilityForInspection <> Null

NOTE 2. Dedicated LPIS QA image acquisition had removed the need to assess the generalised technical suitability of information sources (a.k.a. discarding zones)

Inspect item

--Description--

MAIN STEP 9

Inspect item as described the related use case

NOTE. Element: Activity.

--Name--

Update the number of inspected items

Update number of inspected items

--Description--

MAIN STEP 10

Update number of inspected items (add +1 to the sum of the total number previously inspected items).

In case of parcel aggregation, even the aggregate adds +1 inspected item! (The count is related to the inspected items, not the parcels.)

NOTE. Update: EtsSample.numberOfInspectedItems +1

--Name--

Enough inspected items?

--Description--

MAIN STEP 11

Verify if the current number of the total inspected items meets the minimum size requirement. If affirmative continue with the positive “YES” flow of events. Else, return to the main Step 2.

NOTE: the number of parcels to be inspected is determined by the limiting quality (LQ) values derived from ISO 2859-2:2005. LQ is set to 2.0 which requires the inspection of 500/800/1250 parcels depending on the size of the lot (full population of reference parcels).

Update number of measured items

--Description--

MAIN STEP 12

Update number of measured items (add +1 to the sum of the total number previously measured items).
NOTE: Update: EtsSample.numberOfMeasuredItems+1

--- Name --

Enough measured items?

--- Description --

MAIN STEP 13

Verify if the current number of the total measured items meets the minimum size requirement. If affirmative continue with the positive “YES” flow of events. Else, return to the main Step 2.

NOTE: the number of items to be inspected is determined by the limiting quality (LQ) values derived from ISO 2859-2:2005. LQ is set to 2.0 which requires the measurement of 200 parcels, regardless los size.

By consequence, when the first 500/800/1250 inspected parcels of the sample pre-selection did not yield 200 parcels fit for measurement, the normal inspection process should continue with the next parcels from the sequential list until the number of measured parcels reaches 200.

--- Name --

Analyse result and prepare remedial action plan

--- Description --

Calculated and analyse ETS aggregated quality measures (quality elements) and prepare the reports and if appropriate, the remedial action plan as described in the appropriate use case.

--- Name --

End definition of item under inspection

--- Name --

End definition of item under inspection

--- Name --

Record skipping reason

--- Name --

Record skipping reason
- Extra parcel due to scoping error
- Parcel already inspected as part of an aggregate.

Values shall be taken from the code list SkippingReasonTypeValue of LPISQA Leaf.

NOTE1: Depending on the inspection method the value of the code list shall be restricted. For example, in case of field measurements only errorInScope, forceMajor, and notPersistentIdentifier are applicable.

NOTE2: Update: PreselectedParcel.skippingReasonType <> Null.

---Name---
Insufficient sample size

---Description---
Merge point after deciding about the sufficiency of inspected/measured items.

---Name---
Skip item

---Description---
ALTERNATIVE STEP 9b
Ignore the inspection of the item and take the next parcel in the pre-selected list because of justified technical reasons.

Go up to the main ETS page
Go up to the main ETS page

The inspection process provides the bulk of observations made against the current ground during the year of assessment. There are so many examples and illustrations available at this core procedure they are grouped in a separate article in chapter 2. Here is the direct link to these examples.

A standard activity diagram provides an intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

### 3.1 Diagram

![Activity diagram: Inspect item](link)

### 3.2 Instructions

**3.2.1 Activity diagram: Inspect item**

---

**Name**

Inspect item

---

**Description**

Collection of evidences by observation and measurements of different properties of the item under inspection.

Pre-conditions:

- LPIS sample pre-selection parcels have been issued by DG JRC,
- current year imagery are ready and fit for purpose (geometric consistency of the vector and raster data are checked),
- inspection environment is set,
- latest LPIS QA guidelines are available.

Pre-conditions:
- LPIS sample pre-selection parcels have been issued by DG JRC,
- current year imagery are ready and fit for purpose (geometric consistency of the vector and raster data are checked),
- inspection environment is set,
- latest LPIS QA guidelines are available.

NOTE. Element: Activity diagram.

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start item inspection</td>
<td>- Name--</td>
</tr>
<tr>
<td>Start item inspection</td>
<td>- Name--</td>
</tr>
<tr>
<td>Retrieve: item under inspection</td>
<td>- Description--</td>
</tr>
<tr>
<td>Retrieve: item under inspection</td>
<td>MAIN STEP 1:</td>
</tr>
<tr>
<td>Retrieve: item under inspection</td>
<td>Retrieve the list of preselected parcels from the LPIS QA preselection issued by DG JRC</td>
</tr>
<tr>
<td>NOTE. Pre-selected parcels are listed in the <em>LpisSamplePreselectionSatus.xml</em> file</td>
<td>- Name--</td>
</tr>
<tr>
<td>Critical defects free?</td>
<td>- Description--</td>
</tr>
<tr>
<td>Critical defects free?</td>
<td>MAIN STEP 2:</td>
</tr>
<tr>
<td>Critical defects free?</td>
<td>Decide whether one of the following critical defects can be observed for the item:</td>
</tr>
<tr>
<td>Critical defects free?</td>
<td>- total absence of agricultural land</td>
</tr>
<tr>
<td>Critical defects free?</td>
<td>- invalid perimeter</td>
</tr>
<tr>
<td>Critical defects free?</td>
<td>- invalid common RP boundary</td>
</tr>
<tr>
<td>Critical defects free?</td>
<td>- incomplete block</td>
</tr>
<tr>
<td>Critical defects free?</td>
<td>- multi-surface</td>
</tr>
<tr>
<td>Critical defects free?</td>
<td>- multi-parcels</td>
</tr>
<tr>
<td>Critical defects free?</td>
<td>NOTE: for the definition of the critical defect types see the conceptual model! link</td>
</tr>
<tr>
<td>Critical defects free?</td>
<td>- Name--</td>
</tr>
<tr>
<td>Mark item critical defect conformance as conforming</td>
<td>- Description--</td>
</tr>
<tr>
<td>Mark item critical defect conformance as conforming</td>
<td>MAIN STEP 3:</td>
</tr>
<tr>
<td>Mark item critical defect conformance as conforming</td>
<td>If no critical defect is found in the item, it is conforming for this criterion.</td>
</tr>
<tr>
<td>Critical defect assessed</td>
<td>NOTE: Update: EtsItemUnderInspection.dataQualityMeasureResult as conforming (EtsItemUnderInspection.dataQualityMeasureType = itemCriticalDefectConformance)</td>
</tr>
<tr>
<td>Critical defect assessed</td>
<td>- Name--</td>
</tr>
<tr>
<td>Contamination free?</td>
<td>- Description--</td>
</tr>
<tr>
<td>Contamination free?</td>
<td>Merge point after examination for critical defects</td>
</tr>
<tr>
<td>Contamination free?</td>
<td>- Name--</td>
</tr>
<tr>
<td>Contamination free?</td>
<td>Contamination free?</td>
</tr>
<tr>
<td>Contamination free?</td>
<td>- Description--</td>
</tr>
<tr>
<td>Contamination free?</td>
<td>MAIN STEP 4:</td>
</tr>
</tbody>
</table>
Observe and locate the contamination conditions listed below observed for the item:
- artificial sealed surface,
- crosscutting non-agricultural land cover.

IS THIS NONCONFORMITY GEOLOCATED (for conformity class 2)?

For definition of contamination types see the conceptual model!

---

Waivering assessed

---

Merge point after assessing the applicability of waivers

Mark contamination as conforming

---

Mark contamination as conforming

MAIN STEP 5:
When no contamination has been found or when an observed contamination has been waived the item is conforming for this criterion.

NOTE. Update: EtsItemUnderInspection.dataQualityMeasureResult as conforming (EtsItemUnderInspection.dataQualityMeasureType = itemContaminationConformance)

Contaminations assessed

---

Merge point after examination for contaminations.

Classify agricultural land

---

Detect the presence of different agricultural LC classes which are on the land represented by the item under inspection. Use the corresponding class definitions from the eligibility profile.

Update: AgriculturalLand.landCover <>Null

Classification error of agricultural land insignificant

---

Merge point after deciding about the cause of misclassification of agricultural LC types

Mark classification correctness as conforming

---

Mark classification correctness as conforming

MAIN STEP 8:
When each LC instance present in the item under inspection has been correctly classified mark item as conforming for this criterion.

NOTE. Update: AgriculturalLand.dataQualityMeasureResult=TRUE (AgriculturalLand.dataQualityMeasureType = classificationCorrectness)

Correctly classified agricultural land?
MAIN STEP 7: Decide for each instance of observed agricultural land whether the item had assigned the right LC class of the eligibility profile.

Classification of agricultural land is assessed

CLASSIFICATION OF AGRICULTURAL LAND IS ASSESSED

MAIN STEP 9: Verify in the eligibility profile whether and which landscape features (LC) are applicable.

LF applicable?

CLASSIFY LANDSCAPE FEATURE

MAIN STEP 10: Detect LF instances that are inside or on the immediate border of the item under inspection and classify them according to the types defined in the eligibility profile.

NOTE. Update: LandscapeFeatureUnderInspection.landCover <> Null

Correctly classified landscape feature?

CLASSIFICATION OF LF LC ASSESSED

MAIN STEP 11: Verify the correctness of LC classification for each instance of LF present in the item under inspection.

LF classification error insignificant

MARK CLASSIFICATION CORRECTNESS AS CONFORMING

MAIN STEP 12: When each LF LC instance present in the item under inspection has been correctly classified mark item as conforming for this criterion.

NOTE 1. Update: LandscapeFeatureUnderInspection.dataQualityMeasureResult=TRUE (LandscapeFeatureUnderInspection.dataQualityMeasureType = classificationCorrectness)

NOTE 2. Feasibility for measurement measure indicates availability and completeness of the local ground conditions, as seen on the reference imagery, that allow quantification of the agricultural area on the IUI through CAPI method.

Measurement feasible?
Measurement feasible?

---Description--

MAIN STEP 13:
Decide whether there is any reason preventing the area measurement of the item under inspection! Area measurement is not feasible, when any boundary section is not visible in the orthoimage, or in case of a force major event (both for CAPI and field measurements).

- **Name**--

Measure item

---Description--

MAIN Step 14:
Process of defining the surface area of each LC type present in the item under inspection by delineating their boundaries.

NOTE. Low level use case element.

- **Name**--

Measure item

---Description--

Assess item conformity

MAIN STEP 15:
Definition of conformance verdict based on partial conformance verdicts (critical defect, contamination, classification correctness, area) resulting from the inspection process.

NOTE. Low level use case element

- **Name**--

End item inspection

---Description--

ALTERNATIVE STEP 3a:
Classification of critical defects according to types listed in CriticalDefectValueType code list:
- total absence of agricultural land
- invalid perimeter
- invalid common RP boundaries
- incomplete block
- multi-surface
- multi-parcel

NOTE 1. For definition of critical defect types see LPISQA conceptual model!

---Description--

ALTERNATIVE STEP 3b:
Define the cause of critical defect

NOTE 2. Update: CriticalDefect.criticalDefect <>Null

---Description--
Define the cause of critical defect selecting one from the ReasonValue code list:
- missed update
- missed upgrade
- incomplete processing
- processing error
- incompatible design

NOTE 1. For the definition of reason values see LPISQA conceptual model!

NOTE 2. Update: CriticalDefect.criticalDefectCause <> Null
--Name--
Mark item critical defect conformance as non conforming

---Description---
ALTERNATIVE STEP 3c:
Any critical defect detected in the item under inspection involves non-conformity.

NOTE. Update: EtsItemUnderInspection.dataQualityMeasureResult as non conforming
(EtsItemUnderInspection.dataQualityMeasureType = itemCriticalDefectConformance)
--Name--
Classify contamination

---Description---
ALTERNATIVE STEP 5a:
Classify contamination type according to the ContaminationTypeValue as:
- artificial sealed surface
- crosscutting non-agricultural land

NOTE 1. For definition of contamination types see LPISQA conceptual model!

NOTE 2. Update: Contamination.contaminationType <> Null
--Name--
Define the cause of contamination

---Description---
ALTERNATIVE STEP 5b:
Define the cause of contamination selecting one from the TechnicalReasonValue code list:
- missed update
- missed upgrade
- incomplete processing
- processing error
- incompatible design

NOTE 1. For definition of technical reason values see LPISQA conceptual model!

NOTE 2. Update: Contamination.contaminationCause <> Null
--Name--
Subject to waiving?

---Description---
ALTERNATIVE STEP 5c:
Verify in the eligibility profile if a waiver for the contamination type has been defined.

Mark contamination as waivered

ALTERNATIVE STEP 5dA:
The contamination is vindicated at instance level since the problem stems from schema level and does not affect system performance.

NOTE 1. Vindication means that the problem has been identified as systematic for the whole LPIS but have no impact on performance. Such problems occur in course of upgrades (i.e. when the upgrade has not been applied to all instances yet).

NOTE 2. Update: Contamination.waivered = TRUE
Mark contamination as not waivered

ALTERNATIVE STEP 5dB:
The contamination is not vindicated (i.e. no applicable waiver has been identified).

NOTE. Update: Contamination.waivered = FALSE
Mark contamination as non conforming

ALTERNATIVE STEP 5e:
In absence of a waiver the contamination causes non-conformity.

NOTE. Update: EtsItemUnderInspection.dataQualityMeasureResult as non conforming (EtsItemUnderInspection.dataQualityMeasureType = itemContaminationConformance)
Document the cause of misclassification of agricultural land

ALTERNATIVE STEP 8a:
Document the cause of misclassification selecting one from the ReasonValue code list:
- missed update
- missed upgrade
- incomplete processing
- processing error
- incompatible design

NOTE 1. For definition of reason values see LPISQA conceptual model!

NOTE 2. Update: AgriculturalLand.missclasificationCause <>Null
Misclassification compromises eligibility?
ALTERNATIVE STEP 8b:
Depending on the level of classification detail of the eligibility profile, classification errors may or may not compromise eligibility.

EXAMPLE: An MS decides to apply crops instead of the generic arable crop group. Even though classifying corn as wheat is an error in terms of LC, from point of view of eligibility this error is irrelevant. On the contrary, classifying one pro-rata permanent grassland (e.g. PG70%) category into another pro-rata category (e.g. PG80%) represents an error influencing the eligibility value and thus the conformity of the item under inspection.

Mark classification correctness as non conforming

ALTERNATIVE STEP 8c:
Misclassification that has an impact on eligibility and the potential payment means that the item is not conforming.

NOTE: Update: AgriculturalLand.dataQualityMeasureResult=FALSE (AgriculturalLand.dataQualityMeasureType = classificationCorrectness)

Define the cause of misclassification of LF

ALTERNATIVE STEP 12a:
Define the cause of misclassification selecting one from the TechnicalReasonValue code list:
- missed update
- missed upgrade
- incomplete processing
- processing error
- incompatible design

NOTE 1. For definition of technical reason values see LPISQA conceptual model!

Update: LandscapeFeatureUnderInspection.missclassificationCause <> Null

LF misclassification compromises eligibility?

ALTERNATIVE STEP 12b:
If an instance of LF that belongs to eligible class X is misclassified to class Y that is eligible too, such an error does not compromise conformity of the item under inspection. In such cases you can turn back to main step 12.

Mark classification correctness as non conforming

ALTERNATIVE STEP 12c:
Misclassification has an impact on eligibility and the potential payment. It means that the item is not conforming.

NOTE: Update: LandscapeFeatureUnderInspection.dataQualityMeasureResult=FALSE (LandscapeFeatureUnderInspection.dataQualityMeasureType = classificationCorrectness)

Go up to the main ETS page
4 ETS Item measurement

Go up to the main LPIS ETS page

This short articles deals with deriving an area value from the observation on the LUI.

A standard activity diagram provides an intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

4.1 Diagram

![Activity diagram: Measure item](image)

4.2 Instructions

4.2.1 Activity diagram: Measure item

--Name--

Measure item

--Description--

Process of measuring the surface area of each LC type present in the item under inspection by delineating their boundaries.

Pre-conditions:

- Decision about inspection methodology has been made,
- LPIS vector data available
- (for CAPI) imagery of sufficient quality and software for data processing available
- (for field measurements) measurement instruments and data processing software is available.

Post condition:

- Measurement data is recorded in the information system.

NOTE. Element: Activity diagram.

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start area measurement</td>
<td>Measure item</td>
</tr>
<tr>
<td>Delineate LC within item</td>
<td>MAIN STEP 1: Delineate (capture geometry of) the physical boundaries of the land cover/agricultural land use of the item under inspection according to the eligibility profile classes of MS/Region.</td>
</tr>
<tr>
<td>Calculate area difference</td>
<td>Calculate: area difference correctness</td>
</tr>
<tr>
<td>Notes</td>
<td>--Name--</td>
</tr>
<tr>
<td>Start area measurement</td>
<td>Start area measurement</td>
</tr>
<tr>
<td>Delineate LC within item</td>
<td>Delineate LC within item under inspection</td>
</tr>
<tr>
<td>Calculate area difference</td>
<td>Calculate: area difference correctness</td>
</tr>
</tbody>
</table>
MAIN STEP 2a:
Subtract the observed area value from the reference area.

NOTE. Update: EtsItemUnderInspection.dataQualityMeasureResult <> Null
(EtsItemUnderInspection.dataQualityMeasureType = areaDifferenceCorrectness)

Calculate: relative area correctness

MAIN STEP 2b:
Calculate the relative area correctness by dividing observed area by reference area of the inspected item. Use the same units (hectares or m²) to come up to relative area difference, and express in parts per hundred.

NOTE. Update: EtsItemUnderInspection.dataQualityMeasureResult <> Null
(EtsItemUnderInspection.dataQualityMeasureType = relativeAreaCorrectness)

Within tolerance?

MAIN STEP 3:
Analyse the result of the relative area correctness with the size of the item of inspection to categorise the tolerated conformance level:

1. For item of inspection area > 5,000 m²
   - more (=) than 97% and less (=) than 103%
   - AND the difference area is not greater than 10,000 m²,
2. For item of inspection area ≥ 2,000 m² and < = 5,000 m²
   - more (=) than 95% and less (=) than 105%,
3. For item of inspection area < 2,000 m²
   - more (=) than 93% and less (=) than 107%.

Based on the category, assess the area conformance and proceed with the “YES” flow of events in case the result is true. Else, proceed with the alternative “NO” alternative flow of events.

Mark area conformance as conforming

MAIN STEP 4:
Document the area conformance for the item as conforming, and continue with the next step from the diagram.

NOTE 1. Area observed is within the tolerated area difference from the reference area for the inspected item. Therefore the reference area is accepted to be conformant for the LPIS.

NOTE 2. Update: DtsItemUnderInspection.dataQualityMeasureResult as conforming
(DtsItemUnderInspection.dataQualityMeasureType = areaConformance)

Area conformance evaluated

Merge point after recording area conformity value.
--Description--

ALTERNATIVE STEP 4:

Document the area conformance for the item as non-conforming, and continue with the next step from the diagram.

NOTE 1. If the area observed is not within the specified area difference from the reference area for the inspected item, the reference area is not accepted to be conformant for the LPIS.

NOTE 2. Update: EtsItemUnderInspection.dataQualityMeasureResult as non-conforming (EtsItemUnderInspection.dataQualityMeasureType = areaConformance)

Go up to the main LPIS ETS page
5 ETS Conformity Assessment

At this step, all observations and partial verdicts made during the previous steps are combined to issue a conformity verdict of each item under inspection.

A standard activity diagram provides an intuitive illustration of the various workflow steps of this stage. It indicates which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

5.1 Diagram

link: Activity diagram: Assess conformity

5.2 Instructions

5.2.1 Activity diagram: Measure item

--Name--

Measure item

--Description--

Process of measuring the surface area of each LC type present in the item under inspection by delineating their boundaries.

Pre-conditions:
- Decision about inspection methodology has been made,
- LPIS vector data available
- (for CAPI) imagery of sufficient quality and software for data processing available
- (for field measurements) measurement instruments and data processing software is available.

Post condition:
- Measurement data is recorded in the information system.

NOTE. Element: Activity diagram.
**Start area measurement**

Delineate LC within item under inspection

**Delineate LC within item under inspection**

MAIN STEP 1:

Delineate (capture geometry of) the physical boundaries of the land cover/agricultural land use of the item under inspection according to the eligibility profile classes of MS/Region.

In case of CAPI use a GIS tool to draw vector/polygon geometries. In case of field measurements use appropriate instruments (GPS, total station, etc) and post-processing to arrive to correct geometries of LC instances.

Calculate: area difference correctness

**Calculate area difference correctness**

MAIN STEP 2a:

Subtract the observed area value from the reference area.

NOTE. Update: EtsItemUnderInspection.dataQualityMeasureResult <> Null (EtsItemUnderInspection.dataQualityMeasureType = areaDifferenceCorrectness)

Calculate: relative area correctness

**Calculate: relative area correctness**

MAIN STEP 2b:

Calculate the relative area correctness by dividing observed area by reference area of the inspected item. Use the same units (hectares or m²) to come up to relative area difference, and express in parts per hundred.

NOTE. Update: EtsItemUnderInspection.dataQualityMeasureResult <> Null (EtsItemUnderInspection.dataQualityMeasureType = relativeAreaCorrectness)

Within tolerance?

**Within tolerance?**

MAIN STEP 3:

Analyse the result of the relative area correctness with the size of the item of inspection to categorise the tolerated conformance level:

1. For item of inspection area > 5,000 m²
   - more (≥) than 97% and less (≤) than 103%
   - AND the difference area is not greater than 10,000 m².
2. For item of inspection area ≥ 2,000 m² and < 5,000 m²
   - more (≥) than 95% and less (≤) than 105%.
3. For item of inspection area < 2,000 m²
   - more (≥) than 93% and less (≤) than 107%.

Based on the category, assess the area conformance and proceed with the “YES” flow of events in case the result is true. Else, proceed with the alternative “NO” alternative flow of events.

Mark area conformance as conforming

**Update area conformance as conforming**

MAIN STEP 4:

Document the area conformance for the item as conforming, and continue with the next step from the diagram.
NOTE 1. Area observed is within the tolerated area difference from the reference area for the inspected item. Therefore the reference area is accepted to be conformant for the LPIS.

NOTE 2. Update: DtsItemUnderInspection.dataQualityMeasureResult as conforming (DtsItemUnderInspection.dataQualityMeasureType = areaConformance)

Area conformance evaluated

Area conformance evaluated

--Description--

Merge point after recording area conformity value.

--Name--

End area measurement

--Name--

Update area conformance as non conforming

--Description--

ALTERNATIVE STEP 4:

Document the area conformance for the item as non-conforming, and continue with the next step from the diagram.

NOTE 1. If the area observed is not within the specified area difference from the reference area for the inspected item, the reference area is not accepted to be conformant for the LPIS.

NOTE 2. Update: EtsItemUnderInspection.dataQualityMeasureResult as non-conforming (EtsItemUnderInspection.dataQualityMeasureType = areaConformance)

Go up to the main ETS page
QE1 A looks at the absence of bias (i.e. accuracy) of the land represented in the LPIS as a whole. Accuracy is only one component: an ineligible entry could offset or compensate for eligible land that is missing. Such offsets will be investigated through QE1 B.

A standard activity diagram provides an intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

### 6.1 Diagram

![Activity diagram: Calculate QE1a value](link: Activity diagram: Calculate QE1a value)

### 6.2 Instructions

#### 6.2.1 Activity diagram: Calculate QE1a value

**Name**

Calculate value for QE1a

**Description**

Pre-condition:

Minimum number of items in ETS sample has been inspected and measured. If applicable, inspected items found not feasible for measurement have been ignored.

Post-condition:

Conformance assessment has been performed and documented.

**NOTE. Element: Activity diagram.**

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Start calculating QE1a value

--Name--
Start calculating QE1a value

--Description--
Retrieve: item inspection data

Retrieve: item inspection data

MAIN STEP 1:
Retrieve item inspection data from the LPIS ETS sample.

NOTE. Retrieve: EtsItemUnderInspection.observedArea
Retrieve: EtsItemUnderInspection.referenceArea
(EtsItemUnderInspection.feasibilityForMeasurement = TRUE)

--Name--
Calculate the total observed area of measured items

--Description--

MAIN STEP 2a:
Calculate total observed area of all measured items from the LPIS ETS only.

NOTE 1: Area for measured items must be summed up using consistent measurement units, i.e. m² or hectares (For LPISQA, choose one as for xml).

NOTE 2: Update: EtsSample.totalObservedArea <> Null

--Name--
Calculate the total reference area corresponding to measured items

--Description--

MAIN STEP 2b:
Calculate total reference area corresponding to measured items from the previous step.

NOTE 1: Reference area for measured items must be summed up using consistent measurement units, i.e. m² or hectares.

NOTE 2: Update: EtsSample.totalReferenceAreaMeasuredItems <> Null

--Name--
Calculate the relative area correctness (QE1a)

--Description--

MAIN STEP 3:
Calculate relative area correctness QE1a by dividing the total of observed area with the total reference area from the ETS sample (using the same unit for both). Express in parts per hundred: multiply by 100 to find the value as a percent. Record with one decimal place.

NOTE: Update: EtsSample.dataQualityMeasureResult <> Null
(EtsSample.dataQualityMeasureType = lpisRelativeAreaCorrectness)

--Name--
End calculating QE1a value

Go up to the main ETS page
7 ETS Calculating system precision

Go up to the main ETS page.

QE1 B looks at the precision of the land represented in the system. To be correct, a system had to be both accurate and precise.

\[\text{QE1 B1 estimates the proportion of area in the LPIS that is registered, but not found in the field. To eliminate the measurement uncertainties, only observed differences larger than 3\% are considered. Registered area that is not found in the field represent a risk for over-declaration.}\]

\[\text{QE1 B2 estimates the proportion of area in the LPIS that is not registered, but found in the field. To eliminate the measurement uncertainties, only observed differences larger than 3\% are considered. Area in the field that is not registered force the farmer to make an under-declaration.}\]

A standard activity diagram provides an intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

7.1 Diagram

![Activity Diagram: Calculate QE1b1 and QE1b2 values](image)

7.2 Instructions

7.2.1 Activity diagram: Calculate QE1b1 and QE1b2 values

--Name--

Calculate value for QE1b1 and QE1b2

--Description--

Pre-condition:

Minimum number of items in ETS sample has been inspected and measured. If applicable, inspected items found not feasible for measurement have been ignored.

Post-condition:

Conformance assessment has been performed.
Retrieve item inspection data

---Description---
MAIN STEP 1:
Retrieve item inspection data from the LPIS ETS sample.

Retrieve: EtsItemUnderInspection.referenceArea
(EtsItemUnderInspection.feasibilityForMeasurement = TRUE)

Calculate the total reference area corresponding to measured items

---Description---
MAIN STEP 2:
The area value has to be recorded as attribute of ETS sample feature type.

NOTE 1: Use consistent measurement units, i.e. m2 or hectares in two decimal places.

NOTE 2: Update: EtsSample.totalReferenceAreaMeasuredItems <> Null

Count items with relative area correctness <= -3%

---Description---
MAIN STEP 3a:
For this step retrieve relative area correctness values for each measure item under inspection and select those where this value is smaller or equal to -3%.

NOTE 1: The reference area of these items is overestimated.

NOTE 2: Retrieve: EtsSample.dataQualityMeasureResult
(EtsSample.dataQualityMeasureType = lpisRelativeAreaCorrectness)

Count items with relative area correctness >= +3%

---Description---
MAIN STEP 3b:
For this step retrieve relative area correctness values for each measure item under inspection and select those where this value is greater or equal to +3%.

NOTE 1: The reference area of these items is underestimated.

NOTE 2: Retrieve: EtsSample.dataQualityMeasureResult
(EtsSample.dataQualityMeasureType = lpisRelativeAreaCorrectness)
Calculate: the corresponding total overestimated area

--Name--
Calculate: the corresponding total overestimated area

--Description--
MAIN STEP 4a:
For this purpose retrieve the corresponding areaDifferenceCorrectness values and sum them up to get the total overestimate error. Record the overestimate error in the information system.

NOTE 1. Retrieve EtsItemUnderInspection.dataQualityMeasureResult
(EtsItemUnderInspection.dataQualityMeasureType = areaDifferenceCorrectness)

NOTE 2. Update: EtsSample.totalOverestimatedArea <> Null

Calculate the corresponding total underestimated area

--Name--
Calculate the corresponding total underestimated area

--Description--
MAIN STEP 4b:
For this purpose retrieve the corresponding areaDifferenceCorrectness values and sum them up to get the total underestimate error. Record the underestimate error in the information system.

NOTE 1. Retrieve EtsItemUnderInspection.dataQualityMeasureResult
(EtsItemUnderInspection.dataQualityMeasureType = areaDifferenceCorrectness)

NOTE 2. Update: EtsSample.totalUnderestimatedArea <> Null

Calculate the overestimated area rate (OER)

--Name--
Calculate the overestimated area rate (OER)

--Description--
MAIN STEP 5a:
Calculate overestimated area rate (OER) by dividing total overestimate error with total reference area. Express in parts per hundred: multiply by 100 to find the value as a percent. Record with two decimal places.

Calculate the underestimated area rate (UER)

--Name--
Calculate the underestimated area rate (UER)

--Description--
MAIN STEP 5b:
Calculate underestimated area rate (UER) by dividing total underestimated error with total reference area. Express in parts per hundred: multiply by 100 to find the value as a percent. Record with two decimal places.

Calculate the Lower Interval Boundary (LIB) QE1b1

--Name--
Calculate the Lower Interval Boundary (LIB) QE1b1

--Description--
MAIN STEP 6a:
Compute and record the value of the Lower Interval Boundary (LIB) QE1b1 by applying the formula:

\[
\text{LIB} = 100 \times \left( \frac{OER - z \times \text{SIGMA}_{r}}{N} \right)
\]

where \( z = 1.6449 \) and \( \text{SIGMA}_{r} = \frac{N \times \text{SIGMA}_{e}}{R \times \sqrt{n}} \)

NOTE 1:
\( n = \) size of the ETS sample,
\( N = \) total number of the parcels in the LPIS system,
Calculate the Upper Interval Boundary (UIB) QE1b2

**MAIN STEP 6b:**
Calculate and record the value of the Upper Interval Boundary (UIB)

\[
\text{UIB} = \text{UER} + z \times \text{SIGMAr}, \quad \text{where}
\]

\[
z = 1.6449
\]

and

\[
\text{SIGMAr} = \frac{N \times \text{SIGMAe}}{R \times \sqrt{n}}
\]

**NOTE 1:**
- \(n\) = size of the ETS sample,
- \(N\) = total number of the parcels in the LPIS system,
- \(R\) = total recorded (reference) area in the LPIS system,
- \(\text{SIGMAe}\) = standard deviation of the selected items.

**NOTE 2:** Update: \(\text{EtsSample.dataQualityMeasureResult} <> \text{Null} \) (\(\text{EtsSample.dataQualityMeasureType} = \text{lpisAreaOverestimates}\))

End calculating QE1b values

Go up to the main ETS page
ETS Calculating RP with incorrect reference area

QE2 assesses the parcels that have correctness issues. Either they have:

- inaccurate area values
- contamination of non-agricultural land
- incorrect land categorization

A system should have no more than 5% of such problematic parcels. Quantitative assessment of that expectation from a sample is indexed by setting the limiting quality (LQ) index at 12.5.

A standard activity diagram provides an intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

8.1 Diagram

8.2 Instructions

8.2.1 Activity diagram: Calculate QE2a1 and QE2a2 values

---Name---

Calculate value for QE2a1 and QE2a2

---Description---

Pre-condition:

ETS sample has been inspected and area non-conforming items are reported separately for

- (1) the whole ETS sample and
- (2) ETS sample containing only RPs > 0.1 ha.
Post-condition
Conformity of these quality elements have been evaluated.

NOTE. Element: Activity diagram.

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start calculating QE2a values</td>
<td>-- Name--</td>
</tr>
<tr>
<td></td>
<td>Start calculating QE2a values</td>
</tr>
<tr>
<td></td>
<td>-- Name--</td>
</tr>
<tr>
<td></td>
<td>Retrieve item inspection data</td>
</tr>
<tr>
<td>Retrieve item inspection data</td>
<td>-- Description --</td>
</tr>
<tr>
<td></td>
<td>MAIN STEP 1:</td>
</tr>
<tr>
<td></td>
<td>Retrieve item inspection data from the LPIS ETS sample.</td>
</tr>
<tr>
<td></td>
<td>NOTE. Retrieve: EtsItemUnderInspection.dataQualityMeasureResult</td>
</tr>
<tr>
<td></td>
<td>(EtsItemUnderInspection.dataQualityMeasureType = itemConformance)</td>
</tr>
<tr>
<td></td>
<td>-- Name--</td>
</tr>
<tr>
<td></td>
<td>Count the number of area non-conforming items (N)</td>
</tr>
<tr>
<td>Count the number of area non-conforming items (N)</td>
<td>-- Description --</td>
</tr>
<tr>
<td></td>
<td>MAIN STEP 2a:</td>
</tr>
<tr>
<td></td>
<td>Count and record the number of area non-conforming items (N).</td>
</tr>
<tr>
<td></td>
<td>NOTE. Update: EtsItemUnderInspection.dataQualityMeasureResult</td>
</tr>
<tr>
<td></td>
<td>(EtsItemUnderInspection.dataQualityMeasureType = numberOfAreaNonConformingItems)</td>
</tr>
<tr>
<td></td>
<td>-- Name--</td>
</tr>
<tr>
<td></td>
<td>Count: number of bigger (&gt;0,1 ha) area non-conforming items (N1)</td>
</tr>
<tr>
<td>Count: number of bigger (&gt;0,1 ha) area non-conforming items (N1)</td>
<td>-- Description --</td>
</tr>
<tr>
<td></td>
<td>MAIN STEP 2b:</td>
</tr>
<tr>
<td></td>
<td>Count and record the number of bigger area non-conforming items (N1).</td>
</tr>
<tr>
<td></td>
<td>NOTE. Update: EtsItemUnderInspection.dataQualityMeasureResult</td>
</tr>
<tr>
<td></td>
<td>(EtsItemUnderInspection.dataQualityMeasureType = numberOfLargeAreaNonConformingItems)</td>
</tr>
<tr>
<td></td>
<td>-- Name--</td>
</tr>
<tr>
<td></td>
<td>Retrieve the number of measured items</td>
</tr>
<tr>
<td></td>
<td>-- Description --</td>
</tr>
<tr>
<td></td>
<td>MAIN STEP 3a:</td>
</tr>
<tr>
<td>Retrieve the number of measured items N</td>
<td>The number of measured items is recorded as an attribute of the ETS sample feature type.</td>
</tr>
<tr>
<td></td>
<td>NOTE 1. Retrieve: EtsItemUnderInspection.dataQualityMeasureResult</td>
</tr>
<tr>
<td></td>
<td>(EtsItemUnderInspection.dataQualityMeasureType = itemConformance)</td>
</tr>
<tr>
<td></td>
<td>(EtsItemUnderInspection.feasibilityForMeasurement = TRUE)</td>
</tr>
<tr>
<td></td>
<td>NOTE 2. Update: EtsSample.numberOfMeasuredItems &lt;&gt; Null</td>
</tr>
<tr>
<td>Count the number of measured bigger</td>
<td>-- Name--</td>
</tr>
</tbody>
</table>
Count the number of measured bigger (>0,1 ha) items

-- Description --

MAIN STEP 3b:
The number of bigger measured items is recorded as an attribute of the ETS sample feature type.

NOTE 1. Retrieve: EtsItemUnderInspection.dataQualityMeasureResult
(EtsItemUnderInspection.dataQualityMeasureType = itemConformance)
(EtsItemUnderInspection.feasibilityForMeasurement = TRUE)

NOTE 2. Update: EtsSample.numberOfLargeMeasuredItems <> Null
-- Name--
Calculate over-sampling parameter

-- Description --

MAIN STEP 4a:
Divide the number of measured items by 200 to define the over-sampling parameter (k). (200 are the minimum number of measured items regardless the size of the LPIS lot).

NOTE 1. The sample size for inspection is index by LQ=2.0 whereas QE2 operates at LQ12.5. According to LPISQA rules when feasibility for measurement is true than the item under inspection has to be measured. Therefore there is over-sampling. In consequence the acceptance number kAc must be proportionally increased.

NOTE 2. Update: EtsSample.oversamplingParameter <> Null

NOTE3. Parameters are calculated separately for
- K1 for all RP
- K2 for bigger parcels
-- Name--
Calculate over-sampling parameter

-- Description --

MAIN STEP 4b:
Divide the number of measured items by 200 to define the over-sampling parameter (k). (200 are the minimum number of measured items regardless the size of the LPIS lot).

NOTE 1. The sample size for inspection is index by LQ=2.0 whereas QE2 operates at LQ12.5. According to LPISQA rules when feasibility for measurement is true than the item under inspection has to be measured. Therefore there is over-sampling. In consequence the acceptance number kAc must be proportionally increased.

NOTE 2. Update: EtsSample.oversamplingParameter <> Null
-- Name--
Calculate corrected acceptance number (kAc)

-- Description --

MAIN STEP 5a:
Calculate corrected acceptance number (kAc) based on limiting quality LQ=12.5 as follows: kAc=k*Ac

NOTE. Ac is retrieved from LpisLot.nonConformingItemAcceptanceNumber

EXAMPLE. LPIS has 1,550,645 RPs. The corresponding ETS sample of inspected items is 1,250. The minimum number of measured items is 200. Out of these 200 up to 18 can be non-conforming in area terms without compromising the conformance of the whole sample and the lot. Suppose that 1,115 items were actually measured. The corrected acceptance number becomes 100 (=1.115*18/200, truncated).
-- Name--
Calculate \((k1*Ac)\) corrected acceptance number

-- Description --

MAIN STEP 5b:
Calculate corrected acceptance number \((Ac)\) based on limiting quality \(LQ=12.5\) as follows: \(k1*Ac\)

NOTE. \(Ac\) is retrieved from \(LpisLot\).\textit{nonConformingItemAcceptanceNumber}\n
\(LpisLot\).\textit{nonConformingItemAcceptanceNumber}

-- Name--
Calculate \((N- kAc)\)

-- Description --

MAIN STEP 6a:
Compare the number of area non-conforming items with the corrected acceptance number.

NOTE. Update: \(\text{EtsSample.dataQualityMeasureResult} <> \text{Null}\)
\((\text{EtsSample.dataQualityMeasureType} = \text{numberOfAreaNonConformingItems})\)

-- Name--
Calculate: \(N1-K1*Ac\)

-- Description --

MAIN STEP 6b:
Compare the number of area non-conforming bigger items with the corrected acceptance number.

NOTE. Update: \(\text{EtsSample.dataQualityMeasureResult} <> \text{Null}\)
\((\text{EtsSample.dataQualityMeasureType} = \text{numberOfLargeAreaNonConformingItems})\)

-- Name--
End calculating QE2a values

Go up to the main ETS page
QE3 assesses the parcels that have functional issues. Either they:

- represent no agricultural land at all
- have no physical meaning
- make no sense as unit of land
- have issues of identification
- miss boundaries that are essential for their specification (2 different types)

A system should have no more than 1% of such defective parcels. Quantitative assessment of that expectation from a sample is indexed by setting the limiting quality (LQ) index at 2.

A standard activity diagram provides a intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

### 9.1 Diagram

![Activity diagram: Calculate value for QE3](image)

#### 9.2 Instructions

9.2.1 Activity diagram: Calculate value for QE3

--Name--
Calculate value for QE3

Pre-condition:
ETS sample has been inspected.

Post-condition:
QE3 value is documented in the ETS report.

NOTE. Element: Activity diagram.

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start calculating Q3 value</td>
<td>Start calculating Q3 value</td>
</tr>
<tr>
<td>Retrieve item inspection data</td>
<td>Retrieve item inspection data</td>
</tr>
<tr>
<td>Count the instances of critical defects</td>
<td>Count the instances of critical defects</td>
</tr>
<tr>
<td>Count: number of inspected items M</td>
<td>Count: number of inspected items M</td>
</tr>
<tr>
<td>Select acceptance number Ac based on limiting quality LQ=2,0</td>
<td>Select acceptance number Ac based on limiting quality LQ=2,0</td>
</tr>
</tbody>
</table>

--Description--
MAIN STEP 1:
Retrieve item inspection data from the LPIS ETS sample. Select those items that have critical defects.

NOTE. Retrieve: EtsItemUnderInspection.referenceParcelId

--Description--
MAIN STEP 2:
Count the inspected items where a critical defect (CD) was found.

NOTE. Update: EtsSample.dataQualityMeasureResult <> Null
(EtsSample.dataQualityMeasureType = numberOfCriticalDefects)

--Description--
MAIN STEP 3:
Select acceptance number Ac based on limiting quality LQ=2,0

NOTE. Update: EtsSample.numberOfInspectedItems <> Null

NOTE 1. If the lot size is > 500.000 RPs, the prescribed ETS sample consists of 1.250 inspected items. Acceptance number (Ac) of CDs is 18.

NOTE 2. If the lot size is in between 150.001 – 500.000 RPs, the prescribed ETS sample consists of 800 inspected items. Acceptance number (Ac) of CDs is 10.
EXAMPLE. LPIS has 1,550,645 RPs, the inspected ETS sample should be 1,250. Its acceptance number for CDs is 18. If 19 or more out of 1,250 items are found to be a critical defect, that LPIS is non-conforming.

LpisLot.criticalDefectAcceptanceNumber

-- Name --
Calculate M-Ac

-- Description --
MAIN STEP 5:
Calculate indicator M-Ac for further conformance assessment.

NOTE. Update: EtsSample.dataQualityMeasureResult <> Null
(EtsSample.dataQualityMeasureType = lpisCriticalDefectsConformance)

-- Name --
End calculating Q3 value

Go up to the main ETS page

End calculating Q3 value
The first conformance class focuses on quality issues that can be directly linked to the reference parcel content:

- incorrect land representation (QE1)
- inaccurate area measurement value (QE2)
- functional deficiencies (QE3)

This page describes the overall process of conformance class 1 assessment, subsequent pages explain the individual sub-processes.

A standard activity diagram provides a intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

10.1 Diagram

10.2 Instructions

10.2.1 Activity diagram: Report LPIS conformance with class 1

--Name--

Report conformity with class 1

--Description--

Preparation of the aggregated conformance result.
Pre-condition:
- Quality elements QE1a, QE1b, QE2a, and QE3 have been defined (and have been recorded in the EtsScoreboard.xml

Post-condition:
- Conformance result for class 1 recorded in the information system.

NOTE. Element: Activity diagram.

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start reporting</td>
<td>Start reporting</td>
</tr>
<tr>
<td></td>
<td>Calculate QE1a value</td>
</tr>
<tr>
<td>Calculate QE1a value</td>
<td>Description</td>
</tr>
<tr>
<td></td>
<td>MAIN STEP 1a:</td>
</tr>
<tr>
<td></td>
<td>Calculate QE1a value as described in the related use case!</td>
</tr>
<tr>
<td></td>
<td>NOTE. Low level use case element.</td>
</tr>
<tr>
<td></td>
<td>Calculate QE1b1 and QE1b2 values</td>
</tr>
<tr>
<td>Calculate QE1b1 and QE1b2 values</td>
<td>Description</td>
</tr>
</tbody>
</table>
| | MAIN STEP 1b :
| | Calculate value of the quality element as described in the related use case! |
| | NOTE. Low level use case element. |
| | Calculate QE2a1 and QE2a2 values |
| Calculate QE2a1 and QE2a2 values | Description |
| | MAIN STEP 1c:
| | Calculate value of the quality element as described in the related use case! |
| | NOTE. Low level use case element. |
| | Calculate value for QE3 |
| Calculate value for QE3 | Description |
| | MAIN STEP 1d:
| | Calculate value of the quality element as described in the related use case! |
| | NOTE. Low level use case element. |
| Retrieve QE1 Value | Name |
| | Retrieve QE1 Value |
| | Description |
| | MAIN STEP 2a :
Retrieve value as attribute of ETS sample feature type.

Name

Retrieve QE1b1 and QE1b2 values

Description

MAIN STEP 2b:

Retrieve value as attribute of ETS sample feature type.

Name

Retrieve QE2a1 and QE2a2 values

Description

MAIN STEP 2c:

Retrieve value as attribute of ETS sample feature type.

Name

Retrieve QE3 value

Description

MAIN STEP 2d:

Retrieve value as attribute of ETS sample feature type.

Name

Within +/- 2%?

Description

MAIN STEP 3a:

Retrieve value as attribute of ETS sample feature type.

Name

Within +/- 2%?

Description

MAIN STEP 3b:

Retrieve value as attribute of ETS sample feature type.

Name

Ac-N >=0?

Description

MAIN STEP 3c:

Retrieve value as attribute of ETS sample feature type.

Name

Ac-M >=0?

Description

MAIN STEP 3d:

Retrieve value as attribute of ETS sample feature type.

Name

All quality elements are conforming?

Description

MAIN STEP 4:

Retrieve value as attribute of ETS sample feature type.

Name

Record LPIS as conforming to class 1

Record LPIS as conforming to class 1
MAIN STEP 5:
In the ETS conformance report, document LPIS as conforming to conformance class 1.

NOTE. Update: EtsSample.dataQualityMeasureResult as conforming
(DtsSample.dataQualityMeasureType = conformityClass1)

--Description--
Conformity to class 1 assessed

End reporting

--Description--
Merge point after documenting conformity to class 1

--Name--
End reporting

--Name--
One or more elements non-conforming

--Description--
Merge point after non-conforming decisions

--Name--
Record LPIS as non-conforming to class 1

ALTERNATIVE STEP 4a:
In the ETS conformance report, document LPIS as non-conforming to conformance class 1.

Update: EtsSample.dataQualityMeasureResult as non conforming (EtsSample.dataQualityMeasureType = conformityClass1)

--Name--
Confirm LPIS as non-conforming to class 1

ALTERNATIVE STEP 5a:
If any of the input quality elements is non-conforming the overall result shall be non-conforming too.

NOTE. Update: EtsSample.dataQualityMeasureResult as non conforming (EtsSample.dataQualityMeasureType = conformityClass1)

Go up to the main LPIS page
11 ETS Calculation missed updates

Go up to the main ETS page

This article is merely a detailed, stepwise instruction to derive the above value or aggregated quality measure.

A standard activity diagram provides an intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

11.1 Diagram

![Activity diagram: Calculate QE6 value](image)

11.2 Instructions

11.2.1 Activity diagram: Calculate QE6 value

---Name---

Calculate value for QE6

---Description---

Quality element 6 evaluates the percentage, accumulated over the years, of the reference parcels which had been subject to change, but were not addressed in IACS. Accumulation of the missed update rate starts on the year of last systematic update over the LPIS, as identified by its oldest reference parcel. The Member State should implement appropriate upkeep processes to monitor the land change and to guarantee the currency of its registers. This relies on both daily update processing. QE6 so monitors the need to launch a systematic refresh.

When a significant proportion of the parcels is estimated to have undergone changes that were not addressed by the LPIS custodian, launching a systematic refresh using appropriately recent data source (in preference orthoimagery) should be investigated, by default as soon as the cumulative change rate exceeds 25 percent. This 25 percent is calculated by adding up, year after year, the observed annual rate of not addressed land changes.

Pre-conditions:

- ETS sample has been inspected and missed update instances have been counted
- cumulated number of missed updates (since the last LPIS refresh) is available

Post-condition:

QE6 value is documented in the ETS conformance report.
<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start calculating QE6 value</td>
<td>Start calculating QE6 value</td>
</tr>
<tr>
<td>Retrieve item inspection data</td>
<td>Retrieve item inspection data</td>
</tr>
<tr>
<td>Retrieve number of inspected items M</td>
<td>Retrieve number of inspected items M</td>
</tr>
<tr>
<td>Retrieve instances of missed update</td>
<td>Retrieve instances of missed update</td>
</tr>
<tr>
<td>Calculate the annual rate of missed updates</td>
<td>Calculate the annual rate of missed updates</td>
</tr>
<tr>
<td>Retrieve the values of QE6 of previous year</td>
<td>Retrieve the values of QE6 of previous year</td>
</tr>
<tr>
<td>Calculate the cumulative rate of missed updates QE6</td>
<td>Calculate the cumulative rate of missed updates QE6</td>
</tr>
</tbody>
</table>
MAIN STEP 6:
Calculate the cumulative value of QE6 by summing up the annual rate in percentage and previous QE6 value in percentage

NOTE. Update: EtsSample.dataQualityMeasureResult <> Null
(EtsSample.dataQualityMeasureType = cumulativeRateOfMissedUpdates)

End calculating QE6 value

Go up to the main ETS page
The second conformance class focuses on weaknesses that can be found in the system:

- poor process monitoring (QE4)
- low effectiveness for farmer declaration (QE5)
- insufficient update mechanisms (QE6)

This page describes the overall process of conformance class 2 assessment, subsequent pages explain the individual sub-processes.

A standard activity diagram provides an intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

12.1 Diagram

12.2 Instructions

12.2.1 Activity diagram: Report LPIS conformance with class 2

---Name---

Report conformity with class 2

---Description---

In theory, conformity with class 2 would involve all QE elements. Currently conformance threshold has been defined for those elements that are included in Class 1 and for QE4 and QE6 only.

NOTE. Element: Activity diagram.
Calculate value for QE6

--Description--
MAIN STEP 1a:
Calculate QE6 value as described in the use case.

NOTE. Low level use case element
--Name--
Calculate values for QE4

Calculate values for QE4

--Description--
MAIN STEP 1b:
Calculate value as described in use case.

NOTE. Low level use case
--Name--
Report LPIS conformance with class 1

Report LPIS conformance with class 1

--Description--
MAIN STEP 1c:
Evaluate conformity as described in use case link.

NOTE. Low level use case element
--Name--
Retrieve QE 6 value

Retrieve QE 6 value

--Description--
MAIN STEP 2a:
Retrieve QE6 value from the ETS conformance report.
--Name--
Retrieve QE4 values

Retrieve QE4 values

--Description--
MAIN STEP 2b:
Retrieve QE4 values from the ETS conformance report.
--Name--
Retrieve conformity value to Class 1

Retrieve conformity value to Class 1

--Description--
MAIN STEP 2c:
Retrieve Class 1 conformity value from the ETS conformance report.
--Name--
Within 25%?

Within 25%?

--Description--
MAIN STEP 3a
Analyse if the QE6 value is <=25%. If affirmative, proceed with the “YES” flow of events. Else, proceed with the “NO” flow of events:
--Name--
Kn<= Ac?

Kn<= Ac?
MAIN STEP 3b:
Analyse whether the numbers of non-conformity reasons in any category is not bigger than the acceptance number that belongs to LQ=12.5.
Class 1 conforming?

MAIN STEP 3c:
Verify whether the conformance verdict for Class 1 is pass or fail.
Confirm overall conformity

MAIN STEP 4:
In the ETS conformance report, document LPIS as conforming to conformance class 2.

ALTERNATIVE STEP 4a:
In the ETS conformance report, document LPIS as non-conforming to conformance class 2.
13 ETS Calculating distribution of RP with incorrect area

Go up to the main ETS page

This article is merely a detailed, stepwise instruction to derive the above value or aggregated quality measure.

A standard activity diagram provides a intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

### 13.1 Diagram

![Activity Diagram: Calculate values for QE2b]

### 13.2 Instructions

13.2.1 Activity diagram: Calculate values for QE2b

---Name---

Calculate value for QE2b

---Description---

Pre-condition:

DTS sample has been inspected and a minimum number of reference parcels have been measured.

Post-condition:

Measured parcels from ETS sample have been distributed and presented in a distribution diagram as QE2b score. There is no specific conformance threshold for the distribution. The distribution primarily serves as a visualisation of correctness of the eligible area found in respect to the area recorded in the system.

NOTE. Element: Activity diagram.

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start preparing input values for QE2b</td>
<td>--Name--</td>
</tr>
<tr>
<td>Retrieve item inspection data</td>
<td>Start Calculating values for QE2b</td>
</tr>
</tbody>
</table>
Retrieve item inspection data

--Description--
MAIN STEP 1:
For each measured item retrieve the relative area correctness (RAC) value.

NOTE. Retrieve: etsItemUnderInspection.dataQualityMeasureResult
(EtsSample.dataQualityMeasureType = relativeAreaCorrectness)

Calculate RACn

--Description--
MAIN STEP 2:
This is the normalised relative area correctness that is calculated as follows:

\[ RACn = RAC - 1 \]

Count items with value RACn <= -0.50

Count items with value -0.50 < RACn <= -0.20

Count items with value -0.20 < RACn <= -0.12

Count items with value -0.12 < RACn <= -0.08

Count items with value -0.08 < RACn <= -0.04

Count items with value -0.04 < RACn <= -0.02

Count items with value -0.02 < RACn <= 0.00

Count items value 0.00 < RACn <= +0.02
MAIN STEP 3h

- Description

Count items with value +0.02 < RACn <= +0.04

Name

Count items with value +0.02 < RACn <= +0.04

MAIN STEP 3i

- Description

Count items with value +0.04 < RACn <= +0.08

Name

Count items with value +0.04 < RACn <= +0.08

MAIN STEP 3j

- Description

Count items with value +0.08 < RACn <= +0.12

Name

Count items with value +0.08 < RACn <= +0.12

MAIN STEP 3k

- Description

Count items with value +0.12 < RACn <= +0.20

Name

Count items with value +0.12 < RACn <= +0.20

MAIN STEP 3l

- Description

Count items with value -0.20 < RACn <= +0.50

Name

Count items with value -0.20 < RACn <= +0.50

MAIN STEP 3m

- Description

Count items with value RACn > +0.50

Name

Count items with value RACn > +0.50

MAIN STEP 3n

- Description

Plot distribution diagram

Name

Plot distribution diagram

Based on the intervals and the number of items plot the distribution graph.

NOTE. Update: EtsSample.etsReport <> Null

Record area correctness distribution

---

Record area correctness distribution

- Description

Record in the information system the distribution (number of items per categories) based on relative area correctness values.

NOTE. Update: EtsSample.dataQualityMeasureResult <> Null

(EtsSample.dataQualityMeasureType = areaCorrectnessDistribution)

Finish processing of QE2b values

Go up to the main ETS page

Finish processing of QE2b values
### 14.1 Diagram

[Activity diagram: Calculate values for QE2c]

#### 14.2 Instructions

**14.2.1 Activity diagram: Calculate values for QE2c**

---

**Name**

Calculate value for QE2c

---

**Description**

Pre-condition:

ETS sample has been inspected.

Post-condition:

QE2c value is documented in the ETS report.
NOTE. Element: Activity diagram.

**Name**
- **Start calculating QE2c values**
  - **Notes**
    - Start calculating QE2c values
  - **Description**
    - For evaluating the this quality element for each inspected item every instance of misclassification shall be detected and evaluated. For this, LC types of agricultural land and the eventual landscape features have to be observed.

  **NOTE 1.** Retrieve: AgriculturalLand.dataQualityMeasureResult = FALSE (AgriculturalLand.dataQualityMeasureType = classificationCorrectness)

  **NOTE 2.** Retrieve: LandscapeFeature.dataQualityMeasureResult = FALSE (LandscapeFeature.dataQualityMeasureType=classificationCorrectness)

**Prepare matrix containing all types of the eligibility profile**
- **Description**
  - MAIN STEP 2:
    - All LC types of the eligibility profile (both for agricultural land and landscape feature) have to be listed in the first row and the first column of the matrix.

  **NOTE:** Update: EtsSample.dataQualityMeasureResult <> Null (EtsSample.dataQualityMeasureType = misclassificationMatrix)

  **--Name--**
  - Count the number of misclassified instances for each cell of the matrix

**Count number of misclassified instances for each field**
- **Description**
  - MAIN STEP 3:
    - Fill the matrix with the number of misclassified items (per error types).

  **NOTE.** Update: EtsSample.dataQualityMeasureResult <> Null (EtsSample.dataQualityMeasureType = misclassificationMatrix) records must be filled in.

  **EXAMPLE.** During the ETS 2 permanent grassland areas have been observed in the RP. However in LPIS the corresponding areas have been assigned to arable (A) and permanent grassland (PG) 50 %.

  The number of misclassified instances:

  -1 from A to PG.
  -1 from PG 50 % to PG.

  So, two matrix cells must be filled in misclassification matrix.

  **--Name--**

**End calculating QE2c values**
- **End calculating QE2c values**

Go up to the main ETS page
15 ETS Calculating causes of nonconformities

Go up to the main ETS page

This article is merely a detailed, stepwise instruction to derive the above value or aggregated quality measure.

A standard activity diagram provides an intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

15.1 Diagram

15.2 Instructions
15.2.1 Activity diagram: Calculate values for QE4
--Name--
Calculate value for QE4

--Description--
Quality element 4 involves the categorisation of issues found in problematic reference parcels along the underlying causes of the problem. Problematic reference parcels in this case are defective or don’t correctly account existing agricultural area and/or account ineligible area. The reasons why and how some parcels misrepresent the eligible area, are categorised into 5 categories.
Note that if a single reference parcel carries is effected by one or more issues (“non-conformities”), each issue is investigated as a separate instance.

Pre-condition:
ETS sample has been inspected and measured.

Post-condition:
QE4 value is documented in the ETS report.

NOTE. Element: Activity diagram.

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start calculating values for QE4</td>
<td></td>
</tr>
<tr>
<td>---Name--</td>
<td></td>
</tr>
<tr>
<td>Start calculating values for QE4</td>
<td></td>
</tr>
<tr>
<td>---Name--</td>
<td></td>
</tr>
<tr>
<td>Retrieve item inspection data</td>
<td></td>
</tr>
</tbody>
</table>

**--Description--**

MAIN STEP 1:
Retrieve all non-conforming items and select the technical reason type values that caused the non-conformity. Since one item may have more non-conformity reason, therefore more values for this attribute can be found.

NOTE. Retrieve: EtsItemUnderInspection.referenceParcelId
(EtsItemUnderInspection.areaNonConformanceCause<>Null)

Retrieve: AgriculturalLand.missclasificationCause
Retrieve: LandscapeFeature.missclasificationCause
Retrieve: Contamination.contaminationCause
Retrieve: CriticalDefect.criticalDefectCause
---Name--
Count number of instances of missed upgrade

**--Description--**

MAIN STEP 2a:
Sum up the non-conformities cased by missed upgrade for the whole sample.

NOTE. Update: EtsSample.numberOfMissedUpgrades<>Null
---Name--
Count number of instances of incomplete processing

**--Description--**

MAIN STEP 2b:
Sum up the non-conformities cased by incomplete processing for the whole sample.

NOTE. Update: EtsSample.numberOfIncompleteProcessing<>Null
---Name--
Count number of instances for processing errors

**--Description--**

MAIN STEP 2c:
Count number of instances for processing errors for the whole sample.

NOTE. Update: EtsSample.numberOfProcessingErrors<>Null

Count number of instances of incompatible design

Count number of instances of incompatible design

--Description--

MAIN STEP 2d:

Count number of instances of incompatible design for the whole sample.

NOTE. Update: EtsSample.numberOfIncompatibleDesign<>Null

Count instances of missed update

Count instances of missed update

--Description--

MAIN STEP 2e:

Count instances of missed update for the whole sample.

NOTE. Update: EtsSample.numberOfMissedUpdate<>Null

End calculating values for QE4

End calculating values for QE4

Go up to the main ETS page
16 ETS Calculation declared versus recorded

Go up to the main ETS page

This article is merely a detailed, stepwise instruction to derive the above value or aggregated quality measure.

A standard activity diagram provides an intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

16.1 Diagram

![Activity diagram: Calculate values for QE5a and QE5b](link)

16.2 Instructions

16.2.1 Activity diagram: Calculate values for QE5a and QE5b

--- Name ---

Calculate value for QE5a and QE5b

--- Description ---

Quality elements QE5a and QE5b investigate the ability of the reference parcel to facilitate correct aid declarations by *bona fide* farmers and to prevent aid declarations by *male fide* parties. The area declared, either for aid or other uses, represents the total agricultural land “use” administrated and controlled within IACS. Specific procedures should be activated when the declared area to eligible area ratio changes. This monitoring implies that the LPIS identifies those reference parcels which were not declared for aid or for other uses and that it quantifies the agricultural area declared for aid within each RP.

Pre-condition:

ETS sample has been inspected and measured.
Post-condition:
QE5a and QE5b values are documented in the ETS report.

NOTE. Element: Activity diagram.

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start calculating QE5 values</td>
<td>Start calculating QE5 values</td>
</tr>
<tr>
<td></td>
<td>Retrieve QE5 values</td>
</tr>
<tr>
<td></td>
<td>--Description--</td>
</tr>
<tr>
<td>MAIN STEP 1:</td>
<td>For this purposed retrieve declared area and reference area for the measured items.</td>
</tr>
<tr>
<td>Retrieve QE5 values</td>
<td>NOTE 1. Retrieve: EtsItemUnderInspection.declaredArea</td>
</tr>
<tr>
<td></td>
<td>Retrieve: EtsItemUnderInspection.referenceArea</td>
</tr>
<tr>
<td></td>
<td>(EtsItemUnderInspection.feasibilityForMeasurement = TRUE)</td>
</tr>
<tr>
<td></td>
<td>Retrieve: Application.declaredArea</td>
</tr>
<tr>
<td></td>
<td>Retrieve: ReferenceParcel.referenceArea</td>
</tr>
<tr>
<td></td>
<td>NOTE 2. The declared area comes from the Application feature type of the Aid applications and payment package of IACS.</td>
</tr>
<tr>
<td></td>
<td>--Name--</td>
</tr>
<tr>
<td></td>
<td>Calculate the total declared area Ad of measured items</td>
</tr>
<tr>
<td>Calculate the total declared area Ad of measured items</td>
<td>--Description--</td>
</tr>
<tr>
<td>MAIN STEP 2a:</td>
<td>Calculate the sum of declared area of measured items to get the sample’s area declared (Ad)</td>
</tr>
<tr>
<td></td>
<td>NOTE. Update: EtsSample.totalDeclaredAreaMeasuredItems &lt;&gt; Null</td>
</tr>
<tr>
<td></td>
<td>--Name--</td>
</tr>
<tr>
<td></td>
<td>Calculate the total declared area (AD) in LPIS</td>
</tr>
<tr>
<td>Calculate the total declared area AD in LPIS</td>
<td>--Description--</td>
</tr>
<tr>
<td>MAIN STEP 2b:</td>
<td>Calculate the sum of declared area in LPIS QA population to get the total AD.</td>
</tr>
<tr>
<td></td>
<td>NOTE. Update: EtsSample.totalDeclaredArea &lt;&gt; Null</td>
</tr>
<tr>
<td></td>
<td>--Name--</td>
</tr>
<tr>
<td></td>
<td>Calculate the sample’s total reference area Ar corresponding from measured items</td>
</tr>
<tr>
<td>Calculate the total reference area Ar corresponding to measured items</td>
<td>--Description--</td>
</tr>
<tr>
<td>MAIN STEP 3a:</td>
<td>Calculate the sum of reference area of measured items to get the total Ar.</td>
</tr>
<tr>
<td>Calculate the total reference area AR present in LPIS</td>
<td>NOTE. Update: EtsSample.totalReferenceAreaMeasuredItems &lt;&gt; Null</td>
</tr>
<tr>
<td>Calculate the total reference area AR present in LPIS</td>
<td>--Name--</td>
</tr>
<tr>
<td></td>
<td>Calculate the total reference area AR present in LPIS</td>
</tr>
</tbody>
</table>
MAIN STEP 3b:
Calculate the sum of reference area in LPIS QA population to get the total AR.

NOTE. Update: EtsSample.totalReferenceArea <> Null

Calculate ratio Ad/Ar

MAIN STEP 4a:
Calculate QE5a ratio by dividing Ad by Ar (Ad/Ar).

NOTE. Update: EtsSample.declaredToRecordedAreaMeasuredItems <> Null

Calculate ratio AD/AR

MAIN STEP 4b:
Calculate QE5b ratio by dividing AD by AR (AD/AR).

NOTE. Update: EtsSample.declaredToRecordedArea<>Null

End calculating QE5 values

Go up to the main ETS page
Aggregated quality measures require the processing of those items that were found non-conforming to come up with a verdict on the system. This chapter gives the overview of the activities to assess the aggregated measures. When the system is found non-conforming on an aggregated measure, remedial actions must be considered.

Each activity will be elaborated in subsequent pages.

A standard activity diagram provides a intuitive illustration of the various workflow steps of this stage. It indicating which activities can be done in parallel and whether there are alternative paths through the workflow. The table below the diagram completely describes each individual workflow step within the basic flow, and where applicable, one or more alternative flows.

Where applicable, ancillary documentation is appended below the descriptive table.

### 17.1 Diagram

#### 17.2 Instructions

#### 17.2.1 Activity diagram: Analyse results / prepare remedial action plan

---

**Name**

Analyse result and prepare remedial action plan

---

**Description**

Analyse ETS aggregated quality measures (quality elements) and prepare the reports and if appropriate, the remedial action plan.
Pre-conditions:
- All aggregated QE have been calculated,
- Reporting templates have been prepared

Post-condition:
Reports are sent in due time to EC services.

NOTE. Element: Activity diagram.

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start analysing results</td>
<td>Start analysing results --Name--</td>
</tr>
<tr>
<td>Report LPIS conformance with class 1</td>
<td>Report LPIS conformance with class 1 --Description--</td>
</tr>
<tr>
<td>Main STEP 1a: Evaluate conformity as described in the related use case.</td>
<td>NOTE. Element: Activity. --Name--</td>
</tr>
<tr>
<td>Report LPIS conformance with class 2</td>
<td>Report LPIS conformance with class 2 --Description--</td>
</tr>
<tr>
<td>Main STEP 1b: Evaluate conformity as described in the related use case.</td>
<td>NOTE. Low level use case --Name--</td>
</tr>
<tr>
<td>Calculate values for QE2b</td>
<td>Calculate values for QE2b --Description--</td>
</tr>
<tr>
<td>Main STEP 1c: Calculate value as described in the related use case.</td>
<td>NOTE. Low level use case --Name--</td>
</tr>
<tr>
<td>Calculate values for QE2c</td>
<td>Calculate values for QE2c --Description--</td>
</tr>
<tr>
<td>Main STEP 1d: Calculate value as described in the related use case.</td>
<td>NOTE. Low level use case --Name--</td>
</tr>
<tr>
<td>Calculate values for QE4</td>
<td>Calculate values for QE4 --Description--</td>
</tr>
<tr>
<td>Main STEP 1e:</td>
<td></td>
</tr>
</tbody>
</table>
Calculate values for QE5a and QE5b

NOTE. Low level use case
--Name--

Prepare report

--Description--
MAIN STEP 2:
Prepare report and deliver as follows:
- doc file to DG AGRI
- EtsScoreboard.xml as part of the ETS reporting package to DG JRC

The deadline for delivery is 31 January

NOTE. Update: EtsSample.etsReport <> Null
--Name--
Remedial action plan required?

--Description--
MAIN STEP 3:
Examine the value of each quality element! If any of them is non-conforming, follow the main (yes) flow of events.
--Name--
Prepare remedial action plan

Prepare remedial action plan

--Description--
MAIN STEP 4:
In case when any quality element results to be non-conforming, and the assessment report has not been able to vindicate the results, the preparation of remedial action plan is mandatory.

NOTE. Update: EtsSample.ipisRemedialActionPlan <> Null
--Name--
Need for remedial action plan assessed

--Description--
Merge point after decision about the remedial action plan.
--Name--
End analysis of results

End analysis of results

Go up to the main ETS page
18 ETS Workflows

This article presents the complete ETS setup as a generic "conformance assessment" use case. Such use case is the list of the steps as well as interactions between the ETS inspector ("actor") and the LPIS data base.

18.1 Use Case diagram: Perform ETS

-- Name --
Perform ETS

-- Definition --
Conformance testing process according to Art. 6 of R 640/2014

-- Description --
Data quality assessment process based on the quality elements specified in the data quality model developed for LPIS.

Pre-conditions:
- Data quality measures have been defined.
- Assessment methodology (data quality evaluation process) has been described
- Samples necessary for testing have been prepared.

Post-condition: Assessment results and verdicts are reported and if appropriate used for system improvement (remedial action plan).

NOTE. Element: Use Case diagram.
All instructions above have been expressed in LCM concepts. This technical page provides the comprehensive overview of all concepts and associations relevant for the ETS data testing. In particular you will find:

- concepts as:
  - classes
  - attributes
  - methods
- all interactions between classes and their constraints
- the applicable code lists
- package information

The schema elements serve as the basis for the schema descriptor files (*.xsd) used for all files in the ETS reporting package.

This schema can be downloaded to be customized for ETS software development by the LPIS custodian.

Warning: This is very extensive page
20 ETS Application Schema

This document provides an overview of the data model.

20.1 Quality assessment framework

Type: Package «Leaf»

Package: Identification system for agricultural parcels

Detail: Created on 2012-10-29. Last modified on 2015-02-06.

Notes:

-- Name --

Application schema describing LPISQA.

-- Definition --

Model of Quality assessment framework for reference parcels as part of Identification system for agricultural parcels.

-- Description --

The contents of an «Leaf» package exported as a GML Application Schema file. It contains the ATS for Model test suite (MTS) and ETS for data testing.

Quality assessment framework

Created By: Avdis on 2014-07-25

Last Modified: 2015-02-20, Version: 1.0

-- Name --

LPISQA application schema

-- Definition --

Class diagram of Quality assessment framework application schema.

-- Description --

Class diagram of Quality assessment framework application schema for reference parcels and agricultural areas.
ETS Application Schema

20.1.1 AgriculturalLand

Database: , Stereotype: «FeatureType», Package: Quality assessment framework


Notes:

-- Name --
Agricultural land

-- Definition --
Inventory of agricultural area types within the item of inspection according to the eligibility profile of the MS /region.

-- Description --
The eligibility profile is based on land cover types defined by the MS /region.

Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>metadata</td>
<td>FeatureLevelMetadata</td>
<td></td>
</tr>
<tr>
<td>geometry</td>
<td>GM_Surface</td>
<td></td>
</tr>
<tr>
<td>landCover</td>
<td>AgriculturalAreaTypeValue</td>
<td></td>
</tr>
<tr>
<td>determinedArea</td>
<td>Area</td>
<td></td>
</tr>
</tbody>
</table>

-- Definition --
Feature-level metadata are attributes of a feature type that is used to store auxiliary information about the data record belonging to that type.

-- Description --
Feature level metadata can include information about the life-cycle, status, data quality, usability, responsible entity, etc.

-- Name --
Geometry

-- Definition --
Geographic position and dimension of agricultural land cover types within the item under inspection.

-- Description --
Each LC type within the parcel (or aggregated) parcel has to be delineated and represented by GM_surface geometry.

-- Name --
Land cover

-- Definition --
Classification of the LC according to the types defined in the eligibility profile.

-- Description --
Identifiable instances of a land cover type listed in the eligibility profile located within the item under inspection. The value of this attribute has to be taken from the AgriculturalAreaValueType code list.

NOTE. Land cover classes with different pro-rata coefficients constitute separate land cover classes.
Determined area

-- Description --
Area for which all eligibility criteria have been met.

-- Description --
Area calculated as product of the surface area and the eventual pro-rata coefficient. When pro-rata is not applied it equals to the surface area directly taken from the representation geometry (from GM_Surface).

NOTE: the area value shall be given in square meters.

/* Value of determinedArea shall be given in square meters. */
inv: self.determinedArea.uom.uomSymbol='m2'

-- Name --
Data quality measure type

dataQualityMeasureType DataQualityMeasureTypeIuiCcValue

-- Definition --
Data quality measure used for evaluating classification correctness of agricultural land.

-- Description --
The value of this attribute is taken from DataQualityMeasureTypeIuiCcValue code list.

-- Name --
Data quality measure documentation

dataQualityMeasureDocumentation DataQualityMeasure

-- Definition --
Description of a particular data quality measure in terms of ISO 19157:2013.

-- Description --
Detailed description of data quality measure according to the profile of DQM_Measure data type derived from ISO 19157:2013.

-- Name --
Data quality measure result

dataQualityMeasureResult Boolean

-- Definition --
Value or values that describe the result of the quality assessment process.

-- Description --
This value can be a quantitative result, a conformance result, or descriptive result.

missclassificationCause TechnicalReasonValue

-- Name --
Misclassification cause

-- Definition --
Technical reason for misclassification.

-- Description --
Reason for misclassification shall be taken from the TechnicalReasonValue code list.
**Constraints**

**Name**

`determinedAreaUoM`

`/* Value of determinedArea shall be given in square meters. */`

determinedAreaUoM inv: self.determinedArea.uom.uomSymbol='m2'

**Relationships**

**Association**

`1 EtsItemUnderInspection.itemAgriculturalLandDetails`

Composition relationship between item under inspection and the related agricultural land(s).

`1..* AgriculturalLand.agriculturalLandCompositionDetails`

-- Description --

In the area of the inspected item the number of different agricultural land types may vary from
1 to many.

**20.1.2 Contamination**

*Database: , Stereotype: «FeatureType», Package: Quality assessment framework*

*Detail: Created on 2014-07-30. Last modified on 2015-02-05.*

*Notes:*

-- Name --

Contamination

-- Definition --

Unaccounted non-agricultural land cover features partly or totally located inside the item under inspection (Wikicap).

-- Description --

Instances of LC types that are not included in the eligibility profile. The contaminations shall be classified according to the ContaminationTypeValue code list.

NOTE 1. Each contamination shall open an anomaly instance.

NOTE2: Each detected contamination is instantiated as a separate non-conformity from ETSv6.0

**Columns**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>metadata</td>
<td>FeatureLevelMetadata</td>
<td>-- Name --</td>
</tr>
</tbody>
</table>

_Metadata--

Metadata

"""-- Definition --

Feature-level metadata are attributes of a feature type that is used to store auxiliary information about the data record belonging to that type"""
-- Description --
Feature level metadata can include information about the life-cycle, status, data quality, usability, responsible entity, etc.

-- Name --
Contamination type

ContaminationTypeValue

-- Definition --
Classification of contamination types.

-- Description --
Contamination types are defined according to the ContaminationTypeValues code list.

-- Name --
Geometry

-- Definition --
Position of the contamination.

-- Description --
Representation of the geographical position of an observed contamination within the inspected item.

NOTE: In order to facilitate anomaly processing, localization of the anomaly is required by point geometry (GM_Point).

-- Name --
Waivered

-- Definition --
Immunity that vindicates a physical contamination to cause non-conformance of the item under inspection.

waivered

-- Description --
A waiver can be applied when the following conditions are met:
- the usability of the parcel remains intact;
- the deviation from the generic rule stems from the semantic definition of the LPIS;
- the waiver has been created and approved before the inspection starts.

EXAMPLE: A road crosscutting an RP in an LPIS based on topographic blocks or cadastral parcels can be waived. NB: the area the road shall always be deducted from the reference area.

-- Name --
Contamination cause

contaminationCause

-- Definition --
Technical reason that has presumably caused the contamination.

-- Description --
Technical reason shall be selected from the TechnicalReasonValue code list.

NOTE. Contamination cause shall be given when value of waivered is FALSE.
Association

Notes

-- Name --
Association role between item under inspection and the related contamination(s).

1 EtsItemUnderInspection.itemContaminationDetails 0..* Contamination.contaminationCompositionDetails

-- Definition --
Composition relationship between ETS item under inspection and contaminations.

-- Description --
In the area of the inspected item the number of contamination may vary from 0 to many.

20.1.3 ContaminationTypeValue


Detail: Created on 2014-08-11. Last modified on 2015-02-25.

Notes:

-- Name --
Contamination type value

-- Definition --
List of contamination type values.

-- Description --
NOTE: the code list is centrally managed by the Commission services and cannot be extended by MS/Regions.

Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>artificialSealedSurface</td>
<td>-- Name --</td>
<td>Artificial sealed surface</td>
</tr>
<tr>
<td></td>
<td>-- Definition --</td>
<td>Sealed surface of man-made origin.</td>
</tr>
<tr>
<td></td>
<td>-- Description --</td>
<td>Any artificial surface such as roads, houses, other constructions.</td>
</tr>
<tr>
<td></td>
<td>-- Name --</td>
<td>Cross cutting non agricultural land</td>
</tr>
<tr>
<td>crosscuttingNonAgriculturalLc</td>
<td>-- Definition --</td>
<td>Ineligible land cover type crosscutting the item under inspection.</td>
</tr>
<tr>
<td></td>
<td>-- Description --</td>
<td>Ineligible LC type (e.g. road, a water body, etc.) that causes discontinuity of agricultural land within a reference parcel.</td>
</tr>
</tbody>
</table>

20.1.4 CriticalDefect

Database: , Stereotype: «FeatureType», Package: Quality assessment framework


Notes:

-- Name --

NOTE: This value is applicable in LPIS that follow the cadastral parcel or topographic block design.
Critical defect

-- Definition --
Critical defect is a non-conformance that obstructs the use of the item under inspection regarding the unambiguous localization of agricultural parcels, or the unique identification for cross-checks (Wikicap).

-- Description --
The usability of the RP can be obstructed by misclassification of the LC (no agricultural land present in the RP), by violating the design (semantic definition) if the LPIS or by processing errors within LPIS.

Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>metadata</td>
<td>FeatureLevelMetadata</td>
<td></td>
</tr>
<tr>
<td>geometry</td>
<td>GM_Object</td>
<td></td>
</tr>
<tr>
<td>criticalDefectType</td>
<td>CriticalDefectTypeValue</td>
<td></td>
</tr>
<tr>
<td>criticalDefectCause</td>
<td>TechnicalReasonValue</td>
<td></td>
</tr>
</tbody>
</table>

metadata

-- Definition --
Feature-level metadata are attributes of a feature type that is used to store auxiliary information about the data record belonging to that type.

-- Description --
Feature level metadata can include information about the life-cycle, status, data quality, usability, responsible entity, etc.

Geometry

-- Definition --
Position of the critical defect.

-- Description --
Representation of the geographical position of an observed critical defect within the inspected item.

NOTE: In order to facilitate anomaly processing, localisation of the anomaly is required by point geometry (GM_Point).

Critical defect type

Critical defects are classified according to the categories defined in CriticalDefectTypeValue code list.

Technical defect cause

Technical reason that has presumably caused the critical defect.

Technical reason shall be selected from the TechnicalReasonValue code list.
Constraints

Name Notes
/* Type of geometry shall be GM_Surface or GM_Curve or GM_Point */
geometryType inv: geometry.oclIsKindOf(GM_Surface) or geometry.oclIsKindOf(GM_Curve) or geometry.oclIsKindOf(GM_Point)

Relationships

Association Notes
--Name--
Association role between item under inspection and the related critical defect(s)

1 EtsItemUnderInspection.itemCriticalDefectDetails
0..* CriticalDefect.criticalDefectCompositionDetails

-- Definition --
Composition relationship between item under inspection and the related critical defect(s).

-- Description --
In the area of the inspected item the number of critical defects may vary from 0 to many.

20.1.5 CriticalDefectTypeValue

Detail: Created on 2014-08-11. Last modified on 2015-02-25.

Notes:

--Name--
Critical defect type value

-- Definition --
List of critical defect type values.

-- Description --
List of error types leading to obstruction of usability of the item under inspection (critical defect).

NOTE: The values invalidRpPerimeter present in ETS 5.3 has been removed because of introduction of the measurement of aggregated parcels.

Columns

Name Type Notes
--Name--
Total absence of agricultural land

-- Definition --
Item under inspection with total absence of agricultural land.

totalAbsenceOfAgriculturalLand

-- Description --
Item under inspection, which does not contain any instance of agricultural land cover type listed in the eligibility profile.

NOTE: Stand-alone eligible landscape features without agricultural area adjacent to the item of inspection are considered a critical defect.

invalidCommonRpBoundary

--Name--
Invalid common RP boundary
-- Definition --
Location of common boundaries that cannot be derived from surrounding land cover / land use elements.
[Wikicap]

-- Description --
NOTE: This types is applicable for physical and topographic block systems only.

-- Name--
Incomplete block

incompleteBlock

Production block, where Land use / land cover counter-indicates the presence of a true stable physical boundary
of the block. [Wikicap]

-- Definition --
NOTE: This types is applicable for physical and topographic block systems only.

-- Name--
Multi-surface

multiSurface

Invalid geometry type (multi -surface, GM_Multisurface) for an inspected item.

-- Description --
The parcel that carries one identifier consists of two or more disjoint surface units.

NOTE 1: This value is not applicable, when the parcel aggregation methodology is used.

NOTE 2: Previous name was multiPolygon.

-- Name--
Multi-parcel

multiParcel

Multi-parcel is a block that amalgamates ten or more clearly distinct parcels.

-- Description --
According to the internal rules of the given LPIS the contained units of agriculture land should have been
processed separately.

NOTE: This value is applicable to production and topographic blocks only.

-- Name--
Invalid RP perimeter

invalidRpPerimeter

Spatial representation on RP boundary which does not correspond to the observable ground truth.

-- Description --
RP with invalid perimeter is represented by a completely virtual polygon geometry that crosses through both
agricultural land and non agricultural land covers.

NOTE: It is applicable only for reference parcels that cannot be measured.
### 20.1.6 DataQualityMeasure

*Database: *, **Stereotype:** «DataType», **Package:** Quality assessment framework

**Detail:** Created on 2014-08-08. Last modified on 2015-02-04.

**Notes:**

---
**Name**
Data quality measure
---

---
**Definition** --
Data quality measure is a descriptor of a data quality element used for evaluating data quality.
---

---
**Description** --
In LPISQA specific data quality measures are used that are defined on the basis of data quality elements of ISO 19157:2013. The data quality measures are listed in the following code lists:

- DataQualityMeasureTypeIuiValue (for items under inspection)
- DataQualityMeasureTypeDTSValue (for LPIS as a whole)
---

### Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>measureIdentifier</td>
<td>DataQualityMeasureNameValue</td>
<td><strong>--Definition--</strong> Identifier uniquely identifying a DQM within a namespace.</td>
</tr>
<tr>
<td>name</td>
<td>CharacterString</td>
<td><strong>--Definition--</strong> Name of the data quality measure applied in LPISQA.</td>
</tr>
<tr>
<td>alias</td>
<td>CharacterString</td>
<td><strong>--Definition--</strong> Other recognized name, an abbreviation or a short name for the same data quality measure.</td>
</tr>
<tr>
<td>elementName</td>
<td>TypeName</td>
<td><strong>--Name--</strong> Element name</td>
</tr>
</tbody>
</table>
--Definition--
Name of the data quality element for which quality is reported.

--Description--
The data quality elements corresponding to the data quality measures are listed in the description of the specific DQM.

--Name--
Definition

definition CharacterString

--Definition--
Definition of the fundamental concept for the data quality measure.

--Description--
Whenever possible, definitions are taken from the legal acts and the related guidelines of CAP and from standard technical vocabularies (ISO, INSPIRE, mainstream IT).

--Name--
Description
description DataQualityMeasureDescription

--Definition--
Description of the data quality measure, including all formulae and/or illustrations needed to establish the result of applying the measure.

--Description--
When it serves understanding, description may include historic reference to the older versions of LCM or LPISQA.

--Name--
Value type

--Definition--
Value type is the data type used for reporting the result of the measure. The data types defined in ISO/TS 19103:2005 shall be used.

--Description--
For purposes of LPISQA the following data types are used:
- Primitive types: CharacterString, Integer, Real, Boolean
- Collections: Sequence, matrix

NOTE: Section 7 of ISO/TS 19103:2005 provides an overview of the applicable core data types.

--Name--
Value structure

valueType TypeName

--Definition--
Structure for reporting a complex data quality result.

--Description--
The applicable in LPISQA value structures are defined in ISO 19157:2013 in the DQM_ValueStructure code list.

description DataQualityMeasureDescription

--Name--
Example

--Definition--
Illustration of the use of a data quality measure.

--Description--
The Commission Services provides illustrations of the use for the DQM proposed for LPISQA. When and MS/Region opts for other than these DQM, examples shall be given (otherwise can be omitted).

20.1.7 DataQualityMeasureDescription

Database: , Stereotype: «DataType», Package: Quality assessment framework
Detail: Created on 2014-08-08. Last modified on 2015-02-06.

Notes:
--Name--
Data quality measure description

--Definition--
Narrative description of the data quality measure.

--Description--
This element is part of the LPISQA conceptual model provided by the Commission Services. In case a MS/Region opts for using other quality assessment system, the description of DQM shall be given in the eligibility profile. Otherwise it can be omitted.

Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
</table>
| textDescription | CharacterString | --Definition--
|             |               | Text description of the data quality measure. |
|            |               | --Description--
| extendedDescription | MD_BrowseGraphic | In case and MS/Region opts for using other than LPISQA for assessing quality, the descriptions of DQM shall be given also in English. |
|            |               | --Name--
|            |               | Extended description |

20.1.8 DataQualityMeasureNameValue

Detail: Created on 2014-08-11. Last modified on 2015-02-05.

Notes:
--Name--
Data quality measure name value
-- Definition --
Data quality measures applicable for LPIS quality assessment process.

-- Description --
This is the unified code list of all DQM applied at item and sample level.

**Columns**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>lpisRelativeAreaCorrectness</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>lpisRelativeAreaConformance</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>lpisAreaOverestimates</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>lpisAreaUnderestimates</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>lpisAreaPrecisionConformance</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>numberOfAreaNonConformingItems</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>numberOfLargeAreaNonConformingItems</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>lpisItemConformance</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>areaCorrectnessDistribution</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>numberOfCriticalDefects</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>lpisCriticalDefectConformance</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>conformityClass1</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>cumulativeRateOfMissedUpdates</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>conformityClass2</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
<tr>
<td>misclassificationMatrix</td>
<td>-- Description --</td>
<td>For definition and description see the corresponding value in DataQualityMeasureTypeEtsValue code list.</td>
</tr>
</tbody>
</table>
### DataQualityMeasureTypeEtsValue

**Description**

Data quality measures applicable for LPIS quality assessment process at sample level.

**Definition**

By exclusion of misclassification matrix the elements of the code list are user defined data quality measures to assess quality of the ETS sample. Misclassification matrix comes directly from ISO 19157:2013.

#### Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>lpisRelativeAreaCorrectness</td>
<td>Name</td>
<td>LPIS relative area correctness</td>
</tr>
<tr>
<td></td>
<td>Definition</td>
<td>Ratio of the total observed area in course of ETS to the sum of reference area of the corresponding parcels.</td>
</tr>
</tbody>
</table>
|                                     | Description | Measure identifier: L_RAC
Name: LPIS relative area correctness
Alias: LPIS maximum eligible area correctness
Element name: Relative or internal accuracy
Basic measure: Error rate
Value type: Measure. The ratio shall be expressed in percentages.
Value Structure: n.a. |
NOTE. Previously named: 10201 LPIS_RP_MEA

-- Name --
LPIS area accuracy conformance

-- Definition --
Assessment of correct quantification of the maximum eligible area according to EU 640/2014 Art. 6.1(a).

-- Description --
Conformance statement on area quantification. The threshold is +/- 2%.

**lpisAreaAccuracyConformance**

Measure identifier: L_RACON
Name: LPIS area accuracy correctness
Alias: QE1 conformance
Element name: Conceptual consistency
Basic measure: Error indicator
Value type: Boolean
Value Structure: n.a.

NOTE. Previously named: QE 1A

-- Name --
LPIS area overestimates

-- Definition --
One-sided probability boundary of the rate of the eligible hectares that indicate overestimations found in respect to the total number of eligible hectares currently recorded in the LPIS.

-- Description --
Technical definition: Lower Interval Boundary (LIB)
Calculation method: LIB=OER-1.6449xOERxstdev(OER)

**lpisAreaOverestimates**

Measure identifier: L_AOE
Name: LPIS area overestimates
Alias: LPIS lower interval boundary
Element name: Quantitative attribute accuracy
Basic measure: LE 98
Value type: Measure
Value Structure: n.a.

**lpisAreaUnderestimates**

NOTE. Previously it was known as part of 10201_2 LPIS_RP_MEA_B

-- Name --
LPIS area underestimates

-- Definition --
One-sided probability boundary of the rate if the eligible hectares that indicate underestimation found in respect to the total number of eligible hectares currently recorded in the LPIS.

-- Description --
Technical definition: Upper Interval Boundary

Calculation method: \( \text{UIB} = \text{UER} - 1.6449 \times \text{UER} \times \text{stdev(UER)} \)

Measure identifier: L_AUE
Name: LPIS area underestimates
Alias: LPIS upper interval boundary
Element name: Quantitative attribute accuracy
Definition: \( \text{LE98} \)
Value type: Measure
Value Structure: n.a.

NOTE. Previously named 10201_2 LPIS_RP_MEA_B

--Name--
LPIS area precision conformance

-- Definition --
Assessment of the severity of area under- and overestimates as required by Eu 640/2014 Art. 6.1(b).

-- Description --
Conformance statement on the severity of area under and overestimates.
Conformity thresholds: \( \text{LIB} \geq -2\% \), \( \text{UIB} \leq 2\% \).

Measure identifier: L_APCON
Name: LPIS area precision conformance
Alias: LPIS area over- and underestimate conformance
Element name: Conceptual consistency
Basic measure: Error indicator
Value type: Boolean
Value Structure: n.a.

NOTE. Previously known as part of QE1B or 10201_2 LPIS_RP_MEA_B

--Name--
Number of area non-conformities

-- Definition --
Number of area non-conforming inspected items (N1) within the ETS sample.

-- Description --
Count of items with itemConformance (area)=FALSE value.

Measure identifier: L_NANC_A
Name: Number of area non-conforming items
Alias: Item area non conformity number
Element name: Conceptual consistency
Basic measure: Error count
Value type: Number
Value Structure: n.a.

NOTE. Previously named 10201_2 LPIS_RP_MEA_B

--Name--
Number of large area non-conforming items
Number of large area non-conformities

-- Definition --
Number of non conforming inspected items (N2) with area >0.1 ha within the ETS sample.

-- Description --
Count of items with itemConformance (area)=FALSE value.

Measure identifier: L_NANC_B
Name: Number of area non-conforming items
Alias: Item area non conformity number
Element name: Conceptual consistency
Basic measure: Error count
Value type: Number
Value Structure: n.a.

-- Name --
LPIS item conformance

-- Definition --
Achievement of the value of the acceptance number prescribed for the area based quality measures.

-- Description --
Conformance statement whether the number of non-conforming item has exceeded the acceptance number.

Measure identifier: L_ICON
Name: LPIS item conformance
Alias: QE2a
Element name: Conceptual consistency
Basic measure: Error indicator
Value type: Boolean
Value Structure: n.a.

NOTE. Previously known as number of non-conforming reference parcels in LPIS, or 10202 LPIS_RP_NEA

Area correctness distribution

-- Name --
Area correctness distribution

-- Definition --
Statistical distribution of relative area correctness values.

-- Description --
The population of relativeAreaCorrectness values defined for the following intervals:
- [-50%,]< (-50,-20%], (-20,-12%], (-12,-8%], (-8,-4%], (-4,-2%], (-2, 0%], (0, 2%], (2, 4%], (4, 8%], (8, 12%], (12, 20%], (20, 50%], (<50%]

Measure identifier: L_ACD
Name: Area correctness distribution
Alias: QE2b
Element name: Relatives or internal accuracy
Value type: Measure
Value Structure: sequence (table)

NOTE 1: Previously named as 10203 LPIS_RP_SEA
NOTE 2: DQM_Measure.DQM_ValueStructure=Sequence (previously was Table).

---Name---
Number of critical defects

---Definition---
Number of all critical defects (M) found in course of inspection.

---Description---
The scope of this data quality measure is the critical defect property (instances of critical defects) occurring in course of inspection.

numberOfCriticalDefects

Measure identifier: L_NCD
Name: LPIS number of critical defects
Alias: LPIS critical defects
Element name: Conceptual consistency
Basic measure: Error count
Value type: Number
Value Structure: n.a.

NOTE. Previously named 10205 LPIS_RP_CRA

---Name---
LPIS critical defect conformance

---Definition---
Achievement of the acceptance number prescribed for critical defects for the given lot.

---Description---
For conformance the number of critical defects shall not exceed the value of criticalDefectAcceptanceNumber selected in function of the lot size and LQ=2.0.

lpisCriticalDefectConformance

Measure identifier: L_CDCON
Name: LPIS critical defect conformance
Alias: QE3
Element name: Conceptual consistency
Basic measure: Error indicator
Value type: Boolean
Value Structure: n.a.

NOTE. Previously named QE4, 10205 LPIS_RP_CRA.

---Name---
Conformity to class 1

---Definition---
Conformance class as defined in Article 6 (1) of EU 640/2014.
It is the aggregated quality measure of the conformance results of QE1, QE2, and QE3. In order to pass, each composing element shall be conforming.

Measure identifier: L_CLASS1
Name: Conformity with class 1
Alias: First conformance class
Element name: Conceptual consistency
Basic measure: Error indicator
Value type: Boolean
Value Structure: n.a.

--- Name ---
Cumulative rate of missed upgrades

--- Definition ---
Rate of undetected anomalies (changes of the land) since the last update of LPIS.

--- Description ---
Ratio of the abundance of missedUpdates to the number of inspected items calculated for each year and summed up starting from the year of last update (refresh).

Measure identifier: L_CRMU
Name: Cumulative rate of missed updates
Alias: Missed updated accumulation
Element name: Non-quantitative attribute correctness
Basic measure: Error rate
Value type: Real. The value shall be expressed in %.
Value Structure: n.a.

NOTE. Previously named QE6, 10207 LPIS_RP_CMC

--- Name ---
Conformity to class 2

--- Definition ---
Conformance class as defined in Article 6 (1) of EU 640/2014.

--- Description ---
It is the aggregated quality measure of the conformance results of QE4, QE5 and QE6. In order to pass, each composing element must pass the test.

Since at the moment no conformance for QE4 and QE5 are defined, the value of this element coincides with the values of QE6.

Measure identifier: L_CLASS2
Name: Conformity with class 2
Alias: Second conformance class
Element name: Conceptual consistency
Basic measure: Error indicator
Value type: Boolean
Value Structure: n.a.
--- Name ---
Misclassification matrix

--- Definition ---
Misclassification matrix comparing the assignment of LC types registered in LPIS to the LC types observed in course of inspection.

--- Description ---
All land cover types (both agricultural land and landscape feature) enter in the evaluation process.

Measure identifier: L_MCM
Name: LPIS misclassification matrix
Alias: LC confusion matrix
Element name: Classification correctness
Basic measure: n.a.
Value type: Measure
Value Structure: Matrix

NOTE 1: Classifying one pro-rata grassland type to another pro-rata class is considered as a misclassification instance.

NOTE 2: This is an indicative measure for self-evaluation, which is not required by regulation EU 640/2014.

NOTE 3: This is a DQM directly taken from IOS 19157:2013 (see table D.65).

20.1.10 DataQualityMeasureTypeIuiCcValue


Detail: Created on 2014-08-11. Last modified on 2015-02-25.

Notes:
--- Name ---
Classification Correctness DQM value

--- Definition ---
Data quality measure describing the correctness of classification of the feature type.

--- Description ---
The classification shall be performed according to the types defined in the eligibility profile. This DQM is applicable for evaluating the classification correctness of agricultural land(s) and the landscape feature(s) present in the item under inspection.

NOTE: This is a new quality measure from ETS v6.0 on.

Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>classificationCorrectness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

--- Name ---
Classification correctness

--- Definition ---
Thematic classification correctness as defined in ISO 19157:2013.
Thematic classification correctness applied to the land cover class.

NOTE. Each pro-rata type shall be regarded as a separate land cover class. Therefore classifying a permanent grassland of 50% to a permanent grassland 90% is a classification error.

20.1.11 DataQualityMeasureTypeIuiValue


Detail: Created on 2014-08-11. Last modified on 2015-02-25.

Notes:

-- Name --
Data quality measure types applicable to items under inspection

-- Definition --
List of data quality measure types applicable for inspecting items of reference parcels.

-- Description --
These user defined data quality measures are used to assess the quality of reference parcels in terms of area measurement accuracy and thematic classification correctness.

Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>relativeAreaCorrectness</td>
<td></td>
<td>Relative area correctness</td>
</tr>
<tr>
<td>-- Name --</td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td>-- Definition --</td>
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<td></td>
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</tr>
<tr>
<td>areaDifferenceCorrectness</td>
<td></td>
<td>Area difference correctness</td>
</tr>
<tr>
<td>-- Name --</td>
<td></td>
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<td></td>
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<td>-- Definition --</td>
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<tr>
<td>-- Description --</td>
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<td></td>
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</tr>
</tbody>
</table>

Relative area correctness

Ability of the reference area to quantify the area of all eligible land cover types present in the inspected item.

Measure identifier: I_RAC
Name: Relative area correctness
Alias: Relative area accuracy
Element name: Relative or internal accuracy
Basic measure: Error rate
Value type: Measure. Result output shall be provided in %.
Value Structure: n.a.

NOTE. Previously named: 10101 RP_MEA.

Area difference correctness

Difference between eligible area recorded and observed eligible area.

Measure identifier: I_ADC
Name: Area difference correctness
Alias: Area difference accuracy
Element name: Relative or internal accuracy
Value type: Measure
Value Structure: n.a.

NOTE 1: This measure is applicable for parcels >10000 sq.m.

NOTE 2: Previously named RP conformance (area purity) v2, 10102 RP_CNF.

---Name---
Area conformance

---Definition---
Conformance statement based on the value of relative area correctness.

---Description---
The conformance thresholds are area dependent:
- area >5000 sq.m.: 97.00% - 103.00% conforming;
- 2000 sq.m. < area < 5000 sq.m.: 95% - 105% conforming;
- area < 2000 sq.m.: 93% - 107% conforming.

Measure identifier: I_ACON
Name: Item area conformance
Alias: Parcel area conformance
Element name: Domain consistency
Basic measure: Error indicator
Value type: Boolean
Value Structure: n.a.

NOTE. Previously it was: part of RP conformance - code list for conformance level.

---Name---
Critical defect conformance

---Definition---
Conformance statement based on the detection of critical defect conditions.

---Description---
The item under inspection is conforming when no critical defect occurs (i.e. the multiplicity of the association role from ItemUnderInspection to CriticalDefect is zero).

Measure identifier: I_CDCON
Name: Item critical defect conformance
Alias: Critical defect conformance
Element name: Domain consistency
Value type: Boolean
Value Structure: n.a.

---Name---
Item conformance

---Definition---
Conformance statement on the item under inspection.
The item under inspection is conforming when no associated feature type is misclassified, it is contamination free or the contaminations found are waivered, and it is conforming in terms of area. The values of classificationCorrectness, waivered and areaConformance shall be true.

NOTE: since the conformance in term of critical defect is evaluated separately, the scope of this measure does not contain critical defects.

Measure identifier: I_CON
Name: Item conformance
Alias: Parcel conformance
Element name: Domain consistency
Basic measure: Error indicator
Value type: Boolean
Value Structure: n.a.

-- Name --
Item contamination conformance

-- Definition --
Conformance statement on the value of contaminations.

-- Description --
The item is conforming when t is contamination free, or the contaminations found are waivered.

Measure identifier: I_CCON
Name: Item contamination conformance
Alias: Parcel contamination conformance
Element name: Domain consistency
Basic measure: Error indicator
Value type: Boolean
Value Structure: n.a.

20.1.12 DataQualityMeasureValueStructureValue

Detail: Created on 2014-08-11. Last modified on 2015-02-04.
Notes:

-- Name --
Data quality Measure value structure

-- Definition --
Structure used for presenting multiple values of DQ results.

-- Description --
A result may consist of multiple values. In such cases, the result shall be structured using the value structure as given in C.3.3 of ISO 19157:2013.

EXAMPLE: The results for misclassification shall be given as a matrix.

Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>bag</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

-- Name --
Bag

--Definition--
Finite, unordered collection of related items (objects or values) that may be repeated (ISO 19107:2003).

--Description--
NOTE: Currently, this type is not being used in LPISQA.

--Name--
Set

set

--Definition--
Unordered collection of related items (objects or values) with no repetition (ISO 19107:2003).

--Description--
NOTE: Currently, this type is not being used in LPISQA.

--Name--
Sequence

sequence

--Definition--
Finite, ordered collection of related items (objects or values) that may be repeated (ISO 19107:2003).

--Description--
This structure can be used for providing QE2b values.

--Name--
Table

table

--Definition--
an arrangement of data in which each item may be identified by means of arguments or keys (ISO/IEC 2382-4:1999).

-Description--
This structure can be used for providing QE2b values.

--Name--
Matrix

matrix

--Definition--

--Description--
This structure is used to provide the misclassification matrix DQM.

--Name--
Coverage

coverage

--Definition--
Feature that acts as a function to return values from its range for any direct position within its spatial, temporal or spatiotemporal domain (ISO 19123:2005).

--Description--
NOTE: Currently, this type is not being used in LPISQA.
20.1.13 EtsItemUnderInspection

Database: , Stereotype: «FeatureType», Package: Quality assessment framework


Notes:

-- Name--

ETS item under inspection

-- Definition--

Reference parcel or, where applicable, aggregation of reference parcels sampled for LPIS quality assessment process.

-- Description--

The attributes of the instances of this feature type (except the reference parcel ID and the declared area) are defined in course of direct observations and measurements carried out according to the specifications of the given LPIS. The procedures to be followed are described in the Perform ETS use case of the LPIS dynamic model. The inspection methodology is based on observing the land cover types present in the RP.

Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>metadata</td>
<td>FeatureLevelMetadata</td>
<td>-- Name-- Metadata</td>
</tr>
<tr>
<td>referenceParcelId</td>
<td>CharacterString</td>
<td>-- Definition -- Feature-level metadata are attributes of a feature type that is used to store auxiliary information about the data record belonging to that type</td>
</tr>
<tr>
<td>declaredArea</td>
<td>Area</td>
<td>-- Definition -- Area declared by the farmer for the given reference parcel for the assessment year.</td>
</tr>
<tr>
<td>referenceArea</td>
<td>Area</td>
<td>NOTE 1. In our conceptual model this is the value of areaDeclared attribute.</td>
</tr>
</tbody>
</table>

---

NOTE 1. In our conceptual model this is the value of areaDeclared attribute.
**Definition**

Quantification of area as referred to in Art. 5(3) of (EU) R 640/2014.

**Description**

Reference area within an item under inspection; i.e. total area of the reference parcel or the aggregate of reference parcels.

**Name**

Feasibility for measurement

**Definition**

Usability (fitness for purpose) of the input vector and imagery data to quantify the area of each eligible land cover type present in the inspected item.

**Description**

Area measurement of the item under inspection is feasible on imagery when its whole territory is free of cloud, haze and any other phenomenon that prevents the observation of its boundaries and interior. The input vector data (LPIS) is fit for the purpose when it unambiguously defines the geometric extent of the item under inspection. In case of field measurements it comprises the necessary conditions for field measurement (unobscured visibility along the perimeter, absence of force major reason (e.g. land slide at a boundary section).

NOTE 1. If measurement is not feasible (feasibilityForMeasurement=false) then only values for itemCriticalDefectConformance and ItemConformance DQM should be defined in dataQualityMeasureType.

NOTE 2: In ETS 5.3 this measure was named 10101 RP_FSM.

**Name**

Observed area

**Definition**

Totality of the areas of all eligible land cover types within the parcel.

**Description**

This area value comprises the sum of areas of eligible agricultural land and landscape features contained within the item under inspection. The minimum condition for assigning a value for this attribute is the existence of one eligible agricultural land cover type within the item under inspection.

NOTE 1: By definition, a stand alone LF (i.e. LF without agricultural land) does not constitute agricultural land. If a RP does not contain agricultural land, it is a critical defect.

NOTE 2: The unit of measurement shall be m2.

/* Value of observedArea shall be given in square meters. */

inv: self.observedArea.uom.uomSymbol='m2'

**Name**

Data quality measure type

**Definition**

List of data quality measures applied in LPISQA.

**Description**

Data Quality measures shall be selected from DataQualityMeasureTypeIuiValue.
Data quality measure documentaion

Definition
Description of a particular data quality measure in terms of ISO 19157:2013.

Description
Detailed description of data quality measure according to the profile of DQM_Measure data type derived from ISO 19157:2013.

dataQualityMeasureResult
CharacterString

Definition
Value or values that describes the result of the quality assessment process.

Description
This value can be a quantitative result, a conformance result, or descriptive result.

Area non-conformance cause

Definition
Statement of the technical cause(s) leading to non-conformance in terms of the observed area of the item under inspection.

Description
The technical reason shall be assigned from the following list:
- missed update
- missed upgrade
- incomplete processing
- processing error
- incompatible design

NOTE: One or more technical reason value selected from the TechnicalReasonValue enumeration.

Non-structured evidence document

Definition
Any record that supports or documents the decisions made during the inspection process.

Description
EXAMPLES: description, sketch, photo, document, additional measurement data, etc.

Non-structured evidence citation

Definition
Any citation that supports the decisions made during the inspection process.
Constraints

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>declaredAreaUoM</td>
<td>/* Value of declaredArea shall be given in square hectares. */ declaredAreaUoM inv: self.declaredArea.uom.uomSymbol='ha'</td>
</tr>
<tr>
<td>observedAreaUoM</td>
<td>/* Value of observedArea shall be given in square meters. */ observedAreaUoM inv: self.observedArea.uom.uomSymbol='m2'</td>
</tr>
</tbody>
</table>

Relationships

Association

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 PreselectedParcel.preselectedParcelInspectionDetails</td>
<td>Association role between the pre-selected parcels and the item under inspection</td>
</tr>
<tr>
<td>0..1 EtsItemUnderInspection.detailsOfPreselectedParcelForInspection</td>
<td>Semantics relationship between the pre-selected parcels and item under inspection.</td>
</tr>
</tbody>
</table>

-- Description --

URI of services where the supporting document (ground photographs, documents, measurement results, etc.) are accessible.

---

1 EtsItemUnderInspection.itemContaminationDetails
0..* Contamination.contaminationCompositionDetails

-- Definition --

Composition relationship between ETS item under inspection and contaminations.

-- Description --

In the area of the inspected item the number of contamination may vary from 0 to many.

1 EtsItemUnderInspection.itemCriticalDefectDetails
0..* CriticalDefect.criticalDefectCompositionDetails

-- Definition --

Composition relationship between item under inspection and the related critical defect(s).

-- Description --

Association role between item under inspection and the related contamination(s).

-- Name --

Association role between the pre-selected parcels and the item under inspection

-- Definition --

Semantic relationship between the pre-selected parcels and item under inspection.

-- Description --

Approximately the first N RPs need to be inspected (N is the sample size prescribed by ISO 2859-2: Sampling procedures for inspection by attributes based on LQ=2,0). A preselected parcel may or may not become an item for inspection and can enter in the inspection process only once.

NOTE: When parcel aggregation methodology is applied the parcels that have been already inspected as part of an aggregate can be skipped when they are encountered as next pre-selected parcel. The appropriate skipping reason (inspectedInAggregation) has to be assigned.

-- Name --

Association role between item under inspection and the related contamination(s).
In the area of the inspected item the number of critical defects may vary from 0 to many.

--- Name ---

--- Definition ---

Association role between item under inspection and the related landscape feature(s).

--- Description ---

In the area of the inspected item the number of landscape features may vary from 0 to many.

NOTE: This is a weak composition. RP can exist without landscape features. In those MS, where no landscape features have been defined this feature type can be deleted from the eligibility profile.

--- Name ---

Association role between item under inspection and the related agricultural land(s)

--- Definition ---

Composition relationship between item under inspection and the related agricultural land(s).

--- Description ---

In the area of the inspected item the number of different agricultural land types may vary from 1 to many.

NOTE: This is a strong composition. Without agricultural land no RP exists.

--- Name ---

Association rule between items under inspection and the ETS sample.

--- Definition ---

Semantic relationship between inspected items and the ETS sample.

--- Description ---

The size of the ETS sample depends on the size of the LPIS lot. The minimal sample sizes are 500, 800, or 1250 inspected items.

--- Name ---

Association role between item under inspection and the related EFA element(s).

--- Definition ---

This is a placeholder only; currently not to be implemented.

--- Description ---

In the area of the inspected item the number of EFA elements may vary from 0 to many.
Association role between reference parcels and item under inspection.

--- Description ---
Whether a parcel becomes an item under inspection depends on the random sampling and on the sequential number on the list of pre-selected parcels.

### 20.1.14 EtsSample


*Notes:*

--- Name ---
ETS sample

--- Definition ---
Set of randomly selected parcel with ordered sequence.

--- Description ---
The inspection process follows the sequential order prescribed by DG JRC.

**Columns**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>metadata</td>
<td>FeatureLevelMetadata</td>
<td></td>
</tr>
<tr>
<td>totalObservedArea</td>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>totalReferenceArea</td>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>totalReferenceAreaMeasuredItems</td>
<td>Area</td>
<td></td>
</tr>
</tbody>
</table>
Total reference area of measured items

--Definition--
Total reference area of measured items as is recorded in LPIS.

--Description--
Sum of the reference areas recorded in LPIS for each measured item under inspection.

--Name--
Total overestimated area

**totalOverestimatedArea**

Area

--Definition--
Total area of the items under inspection that have discrepancy equal or more than -3%.

--Description--
NOTE. Previously it was: parameter of 10102_2 LPIS_RP_MEA_B

--Name--
Total underestimated area

**totalUnderestimatedArea**

Area

--Definition--
Total area of the items under inspection that have a discrepancy equal or less than 3%.

--Description--
NOTE. Previously it was: parameter of 10102_2 LPIS_RP_MEA_B.

--Name--
Number of measured items

**numberOfMeasuredItems**

Integer

--Definition--
Number of items under inspection for which the delineation of land cover was feasible.

--Description--
The items under inspection can correspond to single or aggregated parcels. A set of aggregated parcels counts as 1 item.

NOTE. Number of Measured parcels shall not be less than 200.

--Name--
Number of large measured items

**numberOfLargeMeasuredItems**

Integer

--Definition--
Number of items under inspection with surfaceArea>1000 m², for which the delineation of land cover was feasible.

--Description--
The items under inspection can correspond to single or aggregated parcels. A set of aggregated parcels counts as 1.

--Name--
Number of inspected items

**numberOfInspectedItems**

Integer
Definition

Number of items, for which inspection was feasible.

Description

The items can correspond to single or aggregated parcels. A set of aggregated parcels counts as 1. The need for aggregation is defined as function of feasibility for measurement. Once an aggregated item is being measured, that item shall be inspected in full.

NOTE. Number of inspected parcels shall not be less than the SampleSizeValue corresponding to limiting quality LQ=2.

--Name--

Area of conforming items

Area

Definition

Total area of items under inspection found conforming in terms of area values.

Description

Sum of the observed area for all conforming items (single and aggregated).

Name

Total declared area

Area

Definition

Total declared area in LPIS.

Description

Sum of the declared areas recorded in LPIS.

Name

Total declared area of measured items

Area

Definition

Total declared area of measured items within LPIS sample.

Description

Sum of the declared areas recorded in LPIS for measured items.

Name

Declared to recorded area

Number

Definition

Ratio of the total declared hectares with respect to the total number of eligible hectares recorded in LPIS.

Description

The scope of this data quality element are only items with areaConformance=TRUE value.

NOTE. Previously known as QE5 V2, 10206 LPIS_RP_DCA V2

Area

Declared to recorded area of measured items

Number

Name

Declared to recorded area of measured items
**Definition**

Ratio of the declared area of the conforming sample to the corresponding area of measured items recorded in LPIS.

**Description**

The scope of this data quality element are only items with areaConformance=TRUE value.

NOTE. Previously known as QE5 V1, 10206 LPIS_RP_DCA V1

**Name**

Number of missed updates

**Definition**

Abundance of missed updates within the sample as technical cause for critical defects and non-conformances.

**Description**

Occurrences of missedUpdate value assigned to the items under inspection within the sample. It comprises values of misclassificationCause, criticalDefectCause, contaminationCause, and areaNonConformityCause.

The scope of this data quality element are the above listed properties.

NOTE. Previously known as part of Abundance for the causes for occurrence of non-conforming reference parcels, or 10204 LPIS_RP_CEA.

**Name**

Number of missed upgrades

**Definition**

Abundance of missed upgrades within the sample as technical cause for critical defects and non-conformances.

**Description**

Occurrences of missedUpgrade value assigned to the items under inspection within the sample. It comprises values of misclassificationCause, criticalDefectCause, contaminationCause, and areaNonConformityCause.

The scope of this data quality element are the above listed properties.

NOTE. Previously known as part of Abundance for the causes for occurrence of non-conforming reference parcels, or 10204 LPIS_RP_CEA.

**Name**

Number of incomplete processing

**Definition**

Abundance of incomplete processing instances within the sample as technical cause for critical defects and non-conformances.

**Description**

Occurrences of incompleteProcessing value assigned to the items under inspection within the sample. It comprises values of misclassificationCause, criticalDefectCause, contaminationCause, and areaNonConformityCause.

The scope of this data quality element are the above listed properties.
NOTE. Previously known as part of Abundance for the causes for occurrence of non-conforming reference parcels, or 10204 LPIS_RP_CEA.

---Name---

Number of processing errors

--- Definition ---

Abundance of processing errors within the sample as technical cause for critical defects and non-conformances.

---Description---

Occurrences of processingErrors value assigned to the items under inspection within the sample. It comprises values of misclassificationCause, criticalDefectCase, contaminationCause, and areaNonConformityCause.

The scope of this data quality element are the above listed properties.

NOTE. Previously known as part of Abundance for the causes for occurrence of non-conforming reference parcels, or 10204 LPIS_RP_CEA.

---Name---

Number of incompatible design

--- Definition ---

Abundance of incompatible design instances within the sample as technical cause for critical defects and non-conformances.

---Description---

Occurrences of incompatibleDesign value assigned to the items under inspection within the sample. It comprises values of misclassificationCause, criticalDefectCase, contaminationCause, and areaNonConformityCause.

The scope of this data quality element are the above listed properties.

NOTE. Previously known as part of Abundance for the causes for occurrence of non-conforming reference parcels, or 10204 LPIS_RP_CEA.

---Name---

Data quality measure type

--- Definition ---

Data quality measure types applicable at ETS sample level.

--- Description ---

Selected from DataQualityMeasureTypeEtsValue. One data quality measure type can be used once for one sample.

NOTE. Previously known as part of Abundance for the causes for occurrence of non-conforming reference parcels, or 10204 LPIS_RP_CEA.

---Name---

Data quality measure documentation

--- Definition ---

Description of a particular data quality measure in terms of ISO 19157:2013.
Detailed description of data quality measure according to the profile of DQM_Measure data type derived from ISO 19157:2013.

**dataQualityMeasureResult**

- **Name**
  Data quality measure result

- **Definition**
  Value or values that describe the result of the quality assessment process.

- **Description**
  This value can be a quantitative result, a conformance result, or descriptive result.

**etsReport**

- **Name**
  ETS report

- **Definition**
  Presentation of the results of ETS.

- **Description**
  Report summarizing the results of the ETS inspection, the quality elements and their evaluation.

**lpisRemedialActionPlan**

- **Name**
  LPIS remedial action plan

- **Definition**
  Report describing measures and timescale of actions to be taken by the authority responsible for the maintenance of LPIS.

- **Description**
  This additional to the ETS report shall be delivered when the ETS sample results to be non conforming for quality elements QE1, QE2, QE3, and QE6. It shall also provide analysis of quality measures not evaluated by conformance results.

**oversamplingParameter**

- **Name**
  Oversampling parameter.

- **Definition**
  Extent of oversampling due to the difference between acceptance numbers prescribed by the indexes LQ=2.00 and LQ=12.50.

- **Description**
  For decisions based on LQ=12.50 the prescribed sample size is 200. However a number of items prescribed by LQ=2.00 is inspected and measured (resulting in oversampling for LQ=12.50). This parameter shows how the actual and sufficient population relate to one another.

  **EXAMPLE.** The sample size for LQ=2.00 is 1250 items. They have been inspected. Out of these items 1115 have been measured. The oversampling parameter will be defined proportionally (1115/200=5.575). It means that out of the measured items 100 (5.575x18=100,35 truncated) can be non conforming.

  **NOTE:** the prescribed sample size and acceptance number for LQ=2.00 test are NOT subject to proportional adaptation. i.e. only the first 500, 800 or 1250 inspected items are evaluated against an invariant acceptance number of 18.

_Constraints_
**Name**

<table>
<thead>
<tr>
<th>Notes</th>
</tr>
</thead>
</table>

/* Value of totalObservedArea shall be given in square meters. */

**totalObservedUoM**


totalReferenceAreaUoM

/* Value of totalReferenceArea shall be given in square meters. */

**totalReferenceAreaUoM**

/* Value of totalOverestimatedArea shall be given in square meters. */

**totalOverestimatedAreaUoM**

/* Value of totalUnderestimatedArea shall be given in square meters. */

**totalUnderestimatedAreaUoM**

/* Value of conformingItemsArea shall be given in square meters. */

**conformingItemsAreaUoM**

**Relationships**

**Association**

**Notes**

-- Name --
Association rule between items under inspection and the ETS sample.

**1 EtsSample.etsItemUnderInspectionWithinEtsSampleDetails**

**1..* EtsItemUnderInspection.etsSampleDetailsForEtsItemsUnderInspection**

**Notes**

-- Definition --
Semantic relationship between inspected items and the ETS sample.

-- Description --
The size of the ETS sample depends on the size of the LPIS lot. The minimal sample sizes are 500, 800, or 1250 inspected items.

-- Name --
Association rule between LPIS lot and the ETS sample.

**2 EtsSample.etsSampleDetailsForEtsSample**

**Notes**

-- Definition --
Semantic connection between LPIS lot and the ETS sample drawn from it.

-- Description --
Each application year for the purposes of LPISQA one ETS sample is drawn and inspected.

**20.1.15 InspectionMethodValue**

**Database:** .  **Stereotype:** «CodeList» .  **Package:** Quality assessment framework

**Detail:** Created on 2014-08-11. Last modified on 2015-02-04.

**Notes:**

-- Name --
Inspection method value

-- Definition --
Data collection methods applicable for LPISQA.

-- Description --
MS/Regions shall chose one of the following methods:
- field survey,
- computer assisted photo interpretation (CAPI)
- combined CAPI and field measurements.

**Columns**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>fieldSurvey</td>
<td>--</td>
<td>Name: Field survey</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>Description: Observations and measurements necessary for inspection are performed exclusively in the field.</td>
</tr>
<tr>
<td></td>
<td>-- Definition --</td>
<td>Measurements can be performed by any means listed in the common technical specifications (e.g. GNSS, total station, etc.)</td>
</tr>
<tr>
<td></td>
<td>-- Name--</td>
<td>Computer assisted photo interpretation (CAPI)</td>
</tr>
<tr>
<td>capi</td>
<td>--</td>
<td>Name: Computer assisted photo interpretation method of inspection.</td>
</tr>
<tr>
<td></td>
<td>-- Description --</td>
<td>All observations and measurements are performed on the basis of orthoimagery using suitable GIS software.</td>
</tr>
<tr>
<td></td>
<td>-- Name--</td>
<td>Combined CAPI and field survey</td>
</tr>
<tr>
<td></td>
<td>-- Definition --</td>
<td>Combined method of inspection using CAPI and field survey.</td>
</tr>
</tbody>
</table>
| combinedCapiAndFieldSurvey  | --            | Description: The default inspection method is CAPI. In case when the measurement of the item is not feasible, or unambiguous classification of land cover is not possible, field visit shall be performed. Therefore there are three options:
1. Combined CAPI supported by land cover detection and area measurement in the field,
2. Combined CAPI supported by land cover detection only in the field,
3. Combined CAPI supported by area measurement only in the field. |
|                             | -- Name--      | Computer assisted photo interpretation (CAPI) |

**20.1.16 LandscapeFeatureUnderInspection**

*Database*: , *Stereotype*: «FeatureType», *Package*: Quality assessment framework


*Notes:*

---

**Landscape feature under inspection**

---

*Description*: Elements of the agricultural area that are traditionally part of good agriculture cropping or utilization practices (EU 640/2014 Art. 9(1)).
The applicable LF types (if any) shall be taken from the eligibility profile of the MS/Region.

**Columns**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>metadata</td>
<td>FeatureLevelMetadata</td>
<td>-- Definition -- Feature-level metadata are attributes of a feature type that is used to store auxiliary information about the data record belonging to that type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-- Description -- Feature level metadata can include information about the life-cycle, status, data quality, usability, responsible entity, etc.</td>
</tr>
<tr>
<td>geometry</td>
<td>GM_Object</td>
<td>-- Definition -- Geometric representation of the landscape feature(s) that are inside or on the immediate border of the item under inspection.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-- Description -- In principle, representing with separate geometries a LF is not mandatory. However, as soon as a LF becomes EFA, their separate representation becomes mandatory. Any primitive from ISO 19107:2003 can be used.</td>
</tr>
<tr>
<td>landscapeFeatureType</td>
<td>LandscapeFeatureValueType</td>
<td>-- Definition -- Classification of the LF in terms of land cover types specified in the eligibility profile.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-- Description -- The value of this attribute are taken from the LandscapeFeatureValueType code list of the eligibility profile.</td>
</tr>
<tr>
<td>dataQualityMeasureType</td>
<td>DataQualityMeasureTypeIuiCcValue</td>
<td>-- Name-- Data quality measure type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-- Definition -- Data quality measure used for evaluating classification correctness of LF.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-- Description --</td>
</tr>
</tbody>
</table>

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The value of this attribute is taken from DataQualityMeasureTypeIuiCcValue code list.

-- Name --
Data quality measure documentation

dataQualityMeasureDocumentation

-- Definition --
Description of a particular data quality measure in terms of ISO 19157:2013.

-- Description --
Detailed description of data quality measure according to the profile of DQM_Measure data type derived from ISO 19157:2013.

-- Name --
Data quality measure result

dataQualityMeasureResult

-- Definition --
Value or values that describes the result of the quality assessment process.

-- Description --
This value can be a quantitative result, a conformance result, or descriptive result.

-- Name --
Misclassification cause.

misclassificationCause

-- Definition --
Technical reasons for misclassification.

-- Description --
Reason for misclassification shall be taken from the TechnicalReasonValue code list.

NOTE. MissclassificationCause shall be given when value of LandscapeFeature.dataQualityMeasureResult is FALSE (in present release only if: LandscapeFeature.dataQualityMeasureType=classificationCorrectness).

Constraints

Name   Notes
geometryType */ Type of geometry shall be GM_Surface or GM_Curve or GM_Point */

geometryType inv: geometry.oclIsKindOf(GM_Surface) or geometry.oclIsKindOf(GM_Curve) or geometry.oclIsKindOf(GM_Point)

Relationships

Association  Notes
1 EtsItemUnderInspection.itemLandscapeFeatureUnderInspectionDetails
0..* LandscapeFeatureUnderInspection.landscapeFeatureUnderInspectionCompositionDetails

-- Name --
Association role between item under inspection and the related landscape feature(s).

-- Definition --
Semantic relationship (composition between item under inspection and the related landscape feature(s).

-- Description --
In the area of the inspected item the number of landscape features may vary from 0 to many.

NOTE: RP can exist without landscape features. In those MS, where no landscape features have been defined this feature type can be deleted from the eligibility profile.

-- Name --
Association role between landscape feature under inspection and EFA item under inspection.

-- Definition --
This is a placeholder only; currently not to be implemented.

-- Description --
Composition (peer-peer)

-- Name --
Association role between LandscapeFeature and LandscapeFeatureUnderInspection

-- Definition --
Semantic relationship between LandscapeFeature and LandscapeFeatureUnderInspection.

-- Description --
Landscape features may or may not be selected for inspection (peer to peer).

### 20.1.17 LimitingQualityParameter

**Database:** , **Stereotype:** «DataType», **Package:** Quality assessment framework

**Detail:** Created on 2014-07-30. Last modified on 2015-02-04.

**Notes:**

-- Name --
Limiting quality parameter

-- Definition --
Limiting quality parameter as defined in the sampling schema parameter table of ISO 2859-2.

-- Description --
Applicable set of values must be selected by MS/Region based on the population size of their LPIS from ISO 2859-2:1985 (Sampling procedures for inspection by attributes, Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection).

**Columns**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>limitingQuality</td>
<td>LimitingQualityValue</td>
<td>Limiting quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sampling parameter (index) necessary for the definition of the acceptance values as function of a given sample size.</td>
</tr>
</tbody>
</table>

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Limiting quality value shall be taken from the corresponding enumeration. LQ applied for critical defects shall be 2,00. For any other conformance result LQ shall be 12,50.

-- Name --
Lot size

lotSize

LotSizeValue

-- Definition --
Number of items in a lot [ISO 2859-1:1999].

-- Description --
It is the number of reference parcels within the LPIS lot.

-- Name --
Sample size

sampleSize

SampleSizeValue

-- Definition --
Number of items in the sample [ISO 2859-1:1999].

-- Description --
Number of reference parcels sufficient for the purposes of LPISQA. Should be selected by the MS/Region as function of LQ and LPIS lot size.

-- Name --
Acceptance number

acceptanceNumber

AcceptanceNumberValue

-- Definition --
Indicator that is used to determine the acceptability of the lot based on inspection by sampling.

-- Description --
If the number of nonconforming items, or the total number of non-conformities, found in the sample is equal to or less than the acceptance number (Ac) specified in the plan, the lot shall be accepted [ISO 2859-2:1985].

20.1.18 LpisLot

"Database: , Stereotype: «FeatureType», Package: Quality assessment framework


Notes:

-- Name --
LPIS lot

-- Definition --
Definite number of reference parcels present in LPIS [adopted from ISO 2859-1:1999].

-- Description --
Total population of reference parcels within the LPIS subject of LPISQA. It comprises all the RPs where the reference area does not equal to zero.

Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>metadata</td>
<td>FeatureLevelMetadata</td>
<td>-- Name --</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Metadata</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-- Definition --</td>
</tr>
</tbody>
</table>
Feature-level metadata are attributes of a feature type that is used to store auxiliary information about the data record belonging to that type

-- Description --
Feature level metadata can include information about the life-cycle, status, data quality, usability, responsible entity, etc.

-- Name --
LPIS lot name

istringstream
 CharacterString

-- Definition --
Unique name of LPIS lot.

-- Description --
The name is defined by MS/Region.

-- Name --
LPIS lot size

istringstream
 Integer

-- Definition --
Number of items in a lot [ISO 2859-1:1999].

-- Description --
It is the number of reference parcels within the LPIS lot.

-- Name --
Parameter description

-- Definition --
Description of limiting quality parameter applicable to the LPIS lot.

-- Description --
Sampling schema parameter used. ISO2859-2: Sampling procedures for inspection by attributes, Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection.

NOTE: Record set must be maintained by MS.

-- Name --
Acceptance number for non-conforming items

-- Definition --
Acceptance number applicable for non-conforming items.

-- Description --
If the number of non-conforming items is equal or less than specified acceptance number, the total lot shall be accepted.

NOTE: Acceptance number of non-conforming items shall correspond to limiting quality value 12.5 specified in ISO 2859-2:1985.

-- Name --
Acceptance number for critical defects

-- Definition --
Acceptance number applicable for critical defect.
If the number of nonconforming items for critical defects is equal or less than specified acceptance number, the total lot shall be accepted.

NOTE. Acceptance number of items with critical defect shall correspond to limiting quality 2.00 specified in ISO 2859-2:1985

-- Name --
Inspection method

-- Definition --
Method applied for the quality assessment process.

-- Description --
The value shall be selected from the InspecionMethodValue code list before the inspection starts. The selected method shall be applied to all inspected items. Changing the inspection method from item to item is forbidden.

NOTE: MS/Region have the opportunity to change the inspection method from year to year. The selected method shall be reported together with the PointZeroState file.

-- Name --
Parcel aggregation

-- Definition --
Substitution of the single parcel targeted for inspection by an inspection item formed by the aggregation of reference parcels that represent the extension of agricultural land covering this single parcel.

-- Description --
This method is mostly relevant to the LPIS based on cadastral and agricultural parcels. When a boundary section of the RP cannot be measured because it is invisible, the item under inspection shall be extended till the visible boundaries of each LC types present in the parcel. All observations and measurement shall be performed for this extended parcel, which is, in fact, an aggregate of parcels. The IDs of parcels that enter in aggregation shall be noted in the ETS observation report.

NOTE: Parcel aggregation is frequently applicable for LPIS based on cadastral or agricultural parcels, but must be considered by all designs.

Relationships

Association Notes
-- Name --
Association role between LPIS lot and reference parcel.

1 LpisLot.referenceParcelWithinTheLotDetails 1..*
1..* ReferenceParcel.referenceParcelsLotDetails
Semantic connection between reference parcels and the LPIS lot.

-- Description --
For a given application year for the purposes of LPISQA the lot consists of those parcels that have a reference area value different from zero.

1 LpisLot.preselectedReferenceParcelWithinTheLotDetails -- Name --
0..* PreselectedParcel.referenceParcelsSelectionDetails
Association role between LPIS lot and pre-selected parcels.

Semantics connection between the pre-selected parcels and the LPIS lot.
The population of the LPIS lot is randomly sampled by DG JRC for each LPISQA control zone. The set of the pre-selected parcels exceeds the sample size corresponding to LQ=2.0 defined in ISO 2859-2:1985.

NOTE. The previous rule that the population of the pre-selected sample must be 3 times bigger of the necessary sample size for the inspection is no longer needed as with the new dedicated imagery for LPISQA discarding the zones becomes impossible.

-- Name --
Association role between LPIS lot and the ETS sample.

1 LpisLot.etsSampleDetailsForLpisLot
1 EtsSample.lpisLotDetailsForEtsSample

-- Definition --
Semantic connection between LPIS lot and the ETS sample drawn from it.

-- Description --
Each application year for the purposes of LPISQA one ETS sample is drawn and inspected.

-- Name --
Association role between the LPIS lot and the EFA sample.

1 LpisLot.efaSampleDetailsForLpisLot
1 EfaSample.lpisLotDetailsForEfaSample

-- Definition --
This is a placeholder only; currently not to be implemented.

20.1.19 PreselectedParcel


Notes:

-- Name --
Pre-selected parcel

-- Definition --
List of parcels produced in the sample pre-selection process performed by DG JRC in order to provide a preliminary sample of parcels for the executable test suit (ETS).

-- Description --
The population of the pre-selected parcels is three times more than the sample size defined as function the total LPIS population and the limiting quality value LQ=2 in ISO 2859-2. The identifiers of randomly pre-selected parcels are provided to the MS in a strict order, which prescribes the sequence of the inspection process. As soon as the prescribed sample size is reached the inspection process is considered to be complete.

Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
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<td>FeatureLevelMetadata</td>
<td>Metadata</td>
</tr>
<tr>
<td>referenceParcelId</td>
<td>CharacterString</td>
<td>Feature level metadata can include information about the life-cycle, status, data quality, usability, responsible entity, etc.</td>
</tr>
</tbody>
</table>

112
Reference parcel ID

-- Definition --
Unique thematic ID of reference parcel referred to in Article 70 of Regulation (EU) No 1306/2013.

-- Description --
Nation-wide unique alphanumerical thematic identification code of reference parcel.

-- Name --
Feasibility for inspection

-- Definition --
Correctness, completeness, and usability of input data as well as physical conditions that allow observations necessary for quality assessment.

-- Description --
Regardless of the inspection methodology the input and source data should be correct and complete and no force major conditions should prevent the inspection process. In addition, for CAPI inspection feasibility for inspection also depends on the usability and the completeness of the orthoimagery coverage.

NOTE: When inspection is not feasible, the preventing reason shall be documented using the values of the SkippingReasonTypeValue code list.

-- Name --
Skipping reason type

-- Definition --
Technical reasons that prevent the inspection of the given reference parcel.

-- Description --
Technical reasons that do not allow the inspection of the given reference parcel. Required if feasibilityForInspection value is TRUE. The values shall be taken from the SkippingReasonTypeValue code list.

-- Name --
Sequential number

-- Definition --
Sequential number of pre selected reference parcel defining the order of inspection.

-- Description --
The range of ordinal number is larger than the range of numbers of reference parcels to be inspected.

Relationships

<table>
<thead>
<tr>
<th>Association</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ReferenceParcel.referenceParcelSelectionReason</td>
<td>Association role between reference parcels and pre-selected parcels.</td>
</tr>
</tbody>
</table>
| 0..1 PreselectedParcel.selectedReferenceParcelDetails | -- Description --
In the pre-selection process some of the RPs are sampled for LPISQA. Therefore a RP may or may not become a member of the pre-selected pollution, |
| 1 LpisLot.preselectedReferenceParcelWithinTheLotDetails | -- Name --
Association role between LPIS lot and pre-selected parcels. |
Definition

Semantic connection between the pre-selected parcels and the LPIS lot.

Description

The population of the LPIS lot is randomly sampled by DG JRC for each LPISQA control zone. The set of the pre-selected parcels is larger than the sample size corresponding to LQ=2.0 defined in ISO 2859-2:1985 (Sampling procedures for inspection by attributes, Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection).

NOTE. The previous rule that the population of the pre-selected sample must be 3 time bigger of the necessary sample size for the inspection is no longer needed as with the new dedicated imagery for LPISQA discarding the zones becomes impossible.

Name

Association role between the pre-selected parcels and the item under inspection.

Definition

Semantic relationship between the pre-selected parcels and item under inspection.

Description

Approximately the first N RPs need to be inspected (N is the sample size prescribed by ISO 2859-2: Sampling procedures for inspection by attributes based on LQ=2.0). A preselected parcel may or may not become an item for inspection and can enter in the inspection process only once.

NOTE: When parcel aggregation methodology is applied the parcels that have been already inspected as part of an aggregate can be skipped when they are encountered as next pre-selected parcel. The appropriate skipping reason (inspectedInAggregation) has to be assigned.

SkippingReasonTypeValue


Detail: Created on 2014-08-11. Last modified on 2015-02-04.

Notes:

Name

 Skipping reason value type

Definition

List of reasons that do not allow the inspection of a given item under inspection.

Description

Objective reasons for skipping an item under inspection.

NOTE: This code list is managed by DG JRC. MS/Regions are not allowed to extend it.

Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>errorInScope</td>
<td>error</td>
<td>Error in scope</td>
</tr>
</tbody>
</table>

Definition

Systematic error in the scope of the population that has not been discovered at the moment of submitting the LPIS population for sampling.
The population submitted is complete, but it contains extra parcels that are not subject to inspection due to an erroneous query that can be easily reproduced/verified.

NOTE: In DTS 5.3 the value was erroneousScopingS1. The corresponding coded value was S1.

Name --
Force majeure

Definition --
Failure to inspect the item of inspection due to force majeure circumstances observed on the item of inspection.

Description --
EXAMPLES of force majeure: flood, fires, landslides, other natural hazards.

NOTE: In DTS 5.3 the value was forceMajeureCircumstancesObservedOnLuiF1. The corresponding coded value was F1.

Name --
Insufficient image quality

Definition --
Insufficient image quality obstructing the process of inspection by the method of CAPI.

Description --
Interpretation of the inspected item is not possible with the given orthoimagery.

NOTE 1: When an MS/Region opts for pure field observations and measurements, this reason is incompatible with this method. Therefore this value should be deleted from the eligibility profile.

NOTE 2: In DTS 5.3 the value was luiInterpretationImpossibleWithGivenOrthoimageC4. The corresponding coded value was C4.

Name --
Missing geometry

Definition --
Incomplete vector dataset that obstructs the inspection process.

Description --
Geometric representation of the item under is not available.

NOTE: In DTS 5.3 the value was parcelGeometryIsNotAvailable. The corresponding recommended coded value was T5.

Name --
Clouds or haze

Definition --
Insufficient image quality due to meteorological conditions.

Description --
Parcel partially or fully covered by clouds or haze.
NOTE 1: When an MS/Region opts for pure field observations and measurements, this reason is incompatible with the this method. Therefore this value should be deleted from the eligibility profile.

NOTE 2: In DTS 5.3 the value was: parcelIsPartiallyOrFullyCoveredByCloudsOrHaze. The corresponding recommended coded value was T4.

NOTE 3: With the introduction of dedicated LPIS QA image acquisition, applicability should become rare.

--- Name ---
Missing image coverage

--- Definition ---
Incomplete orthoimagery coverage.

--- Description ---
Parcel is partially or fully not covered by orthoimagery.

NOTE 1: When an MS/Region opts for pure field observations and measurements, this reason is incompatible with the this method. Therefore this value should be deleted from the eligibility profile.

NOTE 2: In DTS 5.3 the value was: parcelIsPartiallyOrFullyNotCoveredByImage. The corresponding recommended coded value was T2.

NOTE 3: With the introduction of dedicated LPIS QA image acquisition, applicability should become rare.

--- Name ---
Not persistent identifier

--- Definition ---
Unambiguous identification of the item of inspection is impossible due to the discrepancy between the position of the reference parcel feature type and the reality observed on the imagery or terrain.

--- Description ---
This problem is caused by re-using identifiers due to the unclear life cycle rules of the feature type corresponding to the item under inspection (e.g. reference parcel). Transaction like merging, splitting, or incorporating new agricultural land in an existing RP.

NOTE 1: It is recommended to assign a new unique identifier whenever a major transaction takes place.

NOTE 2: In DTS 5.3 the value was: referenceParcelIdFoundNotPersistentInLpisA3. The corresponding recommended coded value was A3.

--- Name ---
Inspected in aggregation

--- Definition ---
Parcel already inspected as part of an aggregation item.

--- Description ---
If pre selected parcel has previously entered in to an aggregation then this parcel shall not be inspected again.

NOTE. This value is applicable if only the parcel aggregation method has been adapted.
### TechnicalReasonValue

**Database:** , **Stereotype:** «CodeList», **Package:** Quality assessment framework

**Detail:** Created on 2014-08-11. Last modified on 2015-02-16.

**Notes:**

--- Name --

Technical reason value

--- Definition --

List of the technical reasons.

--- Description --

List of the causes leading to non-conformance of items under inspection.

#### Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>--- Name --</td>
<td></td>
<td></td>
</tr>
<tr>
<td>missedUpdate</td>
<td></td>
<td>Missed update</td>
</tr>
<tr>
<td>--- Definition --</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--- Description --</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes of the underlying land (real world objects) that have not been applied in the data. Data do not reflect the current state of real world objects. Non-conformity manifests at instance level.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--- Name --</td>
<td></td>
<td>Missed upgrade</td>
</tr>
<tr>
<td>--- Definition --</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--- Description --</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes in the legal acts have not been introduced in the data model. Presentation of data does not follow the prescribed requirements / conceptual model and/or the current national / regional eligibility profile. This brings systematic error in the dataset. Non-conformity manifests at the level of the feature / data types (all instances belonging to the type concerned).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--- Name --</td>
<td></td>
<td>Incomplete processing</td>
</tr>
<tr>
<td>--- Definition --</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--- Description --</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The completeness of data is not full because of missing items (attributes, values, features). Some steps of the standard workflow have not been foreseen (at system level) or have been omitted (at item level). Non-conformity manifests at instance level.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--- Name --</td>
<td></td>
<td>Processing error</td>
</tr>
<tr>
<td>--- Definition --</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--- Description --</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Deviations from the true values because of the deviations from the processing methodology.

Incompatible design

**Definition**

Incompatible design.

None of the other causes can be assigned.

Item under inspection does not follow the conceptual schema of the national/regional eligibility profile and/or the methodology for delineation. An instance classified to a feature type does not follow the semantics of the type.

**20.1.22 AcceptanceNumberValue**


*Notes:*

**Name**

Acceptance number value

**Definition**

List of possible acceptance values.

**Description**

Acceptance values are selected based on the sample size and the limiting quality values defined in ISO 2859-2:1985 Sampling procedures for inspection by attributes, Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection.

**Columns**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

5

**Definition**

Acceptance number value 5.

**Description**


10

**Definition**

Acceptance number value 10.

**Description**

ISO 2859-2: Sampling procedures for inspection by attributes, Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection.

18

**Name**
Acceptance number value 18.


### 20.1.23 LimitingQualityValue

**Database:** , **Stereotype:** «Enumeration», **Package:** Quality assessment framework

**Detail:** Created on 2014-07-30. Last modified on 2015-02-04.

**Notes:**

-- **Name** --

Limiting quality value

-- **Definition** --

List of limiting quality values applicable in LPISQA.

-- **Description** --

Limiting quality values are defined by ISO 2859-2:1985.

**Columns**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00</td>
<td>--Name--</td>
<td></td>
</tr>
<tr>
<td>2.00</td>
<td>-- Definition --</td>
<td>Limiting quality value LQ=2.0</td>
</tr>
<tr>
<td>12.50</td>
<td>--Name--</td>
<td></td>
</tr>
<tr>
<td>12.50</td>
<td>-- Definition --</td>
<td>Limiting quality value LQ=12.50</td>
</tr>
</tbody>
</table>

### 20.1.24 LotSizeValue

**Database:** , **Stereotype:** «Enumeration», **Package:** Quality assessment framework

**Detail:** Created on 2014-07-30. Last modified on 2015-02-06.

**Notes:**

-- **Name** --

Lot size value

-- **Definition** --

List of possible lot size range values. according to ISO 2859-2:1985.
-- Description --
The ranges are defined in ISO 2859-2:1985 Sampling procedures for inspection by attributes, Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection.

### Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>35001to150000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150001to500000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;500000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**20.1.25 SampleSizeValue**


**Notes:**

-- Name--

Sample size value

-- Definition --

List of sample size values applicable for LPISQA.

-- Description --

The sample size is selected as function of the lot size and the limiting quality defined in ISO 2859-2:1985 (Sampling procedures for inspection by attributes, Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection).

### Columns

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

-- Name--

200

-- Definition --

Sample size value (population) applicable in LPISQA for parcel measurements.

-- Description --
Value selected on the basis of lot size and $LQ = 12.5$ from ISO 2859-2:1985

--- Name ---
500

--- Definition ---
Sample size applicable for LPIS inspection, when the lot size is smaller than or equal to 150000.

--- Description ---
Sample population corresponding to $LQ = 2.0$ from ISO 2859-2:1985.

--- Name ---
800

--- Definition ---
Sample size applicable for LPIS inspection, when the lot size is bigger than 150000, but is smaller than or equal to 500000.

--- Description ---
Sample population corresponding to $LQ = 2.0$ from ISO 2859-2:1985.

--- Name ---
1250

--- Definition ---
Sample size applicable for LPIS inspection, when the lot size is bigger than 500000.

--- Description ---
Sample population corresponding to $LQ = 2.0$ from ISO 2859-2:1985.

Go up to the [main ETS page](#)
21 ETS Detailed instructions

Go up to the main ETS article

21.1 Introduction

This chapter describes the detailed inspection procedure.

Although you are viewing these articles on a mediawiki platform, the core content, i.e. the activity diagrams and supporting instructions are residing and managed in an Enterprise Architect project file.

Hence, although contained in a Wikimedia structure, the information in this chapter is merely offering a view on that technical documentation. The resulting content and formatting are a product from the automated conversion process. The publication from EAP to WikiCAP is not real-time, changes in content may take some hours to be reflected.

21.2 Executive summary

The quality assurance framework of LPIS is an integral part of LPIS management and upkeep processes. In this framework, the LPIS of a MS/Region is regarded as a system under test (SUT), which is composed of two major components: the local application schema (eligibility profile) and the data records stored in the system. The so called Executive test suite (ETS) targets at the data component by annually assessing conformity according to Article 6 of Regulation 640/2014.

For data testing, the high level requirements (abstract test cases) are explicitly provided by Article 6 of Regulation 640/2014. For simplicity and historic reasons, the abstract and executable test cases are merged into a single workflow and are referred to as ETS. The ETS proposed by DG JRC can be directly implemented by all MS/Regions. The conformance testing procedure is based on data quality assessment according to ISO 19157:2013 (Geographic information – Data quality) and ISO 2859-2:1985 (Sampling procedures for inspection by attributes, Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection).

These standards are used to define the data quality measures, the prescribed sample sizes, and the acceptance numbers for the quality measures. These elements together with the basic concepts (inspected item, critical defect, observed area, contamination, and land cover classification according to MS eligibility profile) are detailed in the LPIS quality assessment model leaf of the LCM. The data inspection methodology with detailed activity steps are described in the “Perform ETS” use case of the business model.

Go up to the main ETS article