INSPIRE IR change proposal for the *Human Health and Safety* data theme (*EnvHealthDeterminantMeasure*)

in the scope of creating END information exchange mechanism (EC, EEA, ETC)

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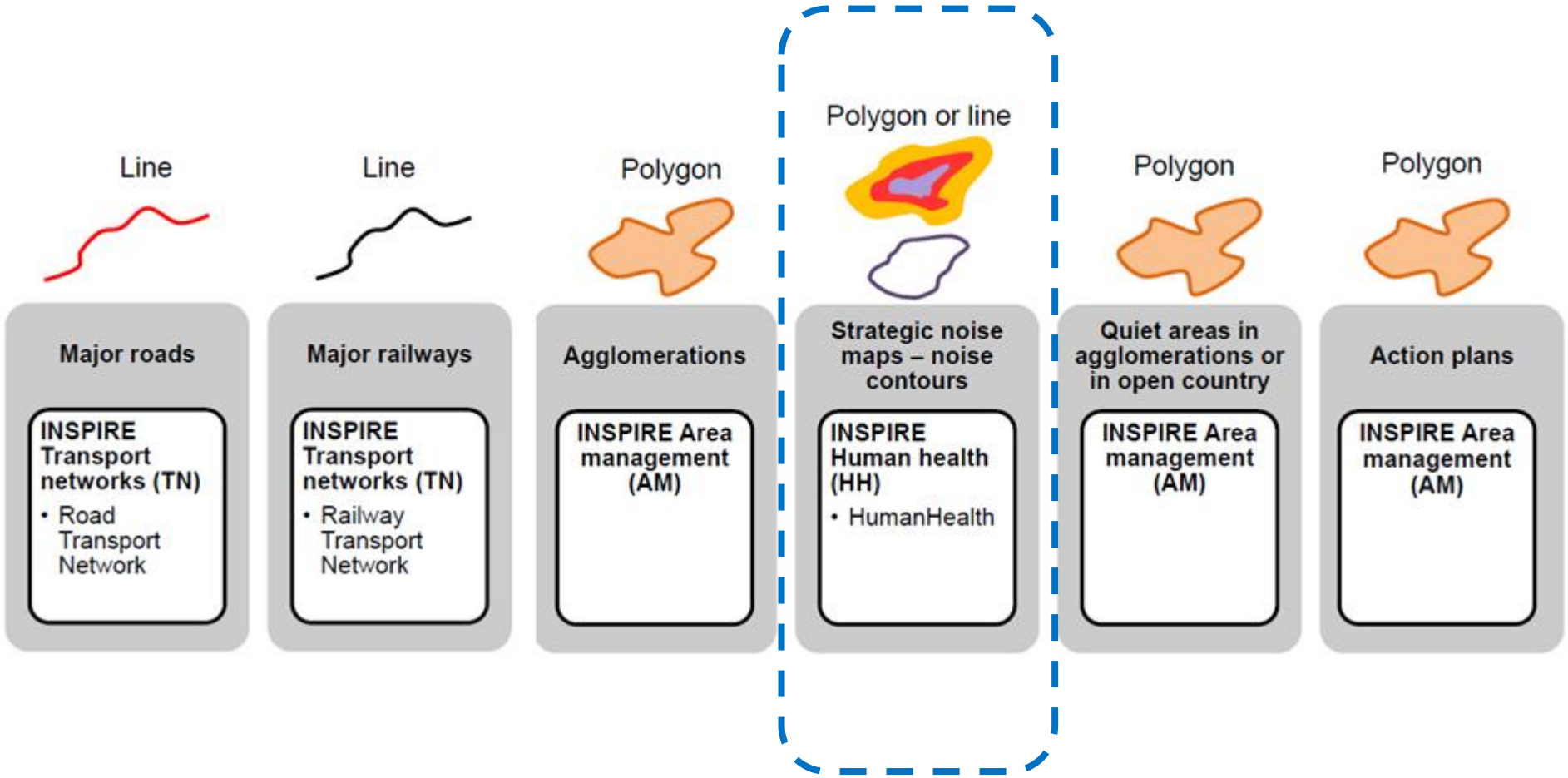
63rd INSPIRE MIG-T meeting 13-14 Oct 2020

Outline:

- The context: END e-reporting alignment to INSPIRE
- END Noise level measurements according to INSPIRE Human Health and Safety
- Proposed revision of the Human Health data model
  - Bug-fixing
    - '*source*' of the noise measurement
    - '*component*' and '*media*' of the concentration
  - Introduction of the measure 'category'

The context: END e-reporting alignment to INSPIRE



END Noise level measurements alignment to INSPIRE HH

HH data model contains a module to address **environmental health determinants** (envhealth). It offers a possibility to refer to:

- raw environmental health determinant measurement data. This model is based on ISO 19103 on measurements data. This model is extended for localised noise and concentration data, and may be extended in a similar way to other health determinants. EIONET code lists are recommended to describe these measurement data.
- aggregated environmental health determinant measurement data through linking with SU data model
- coverage data resulting from the interpolation of raw measurement data

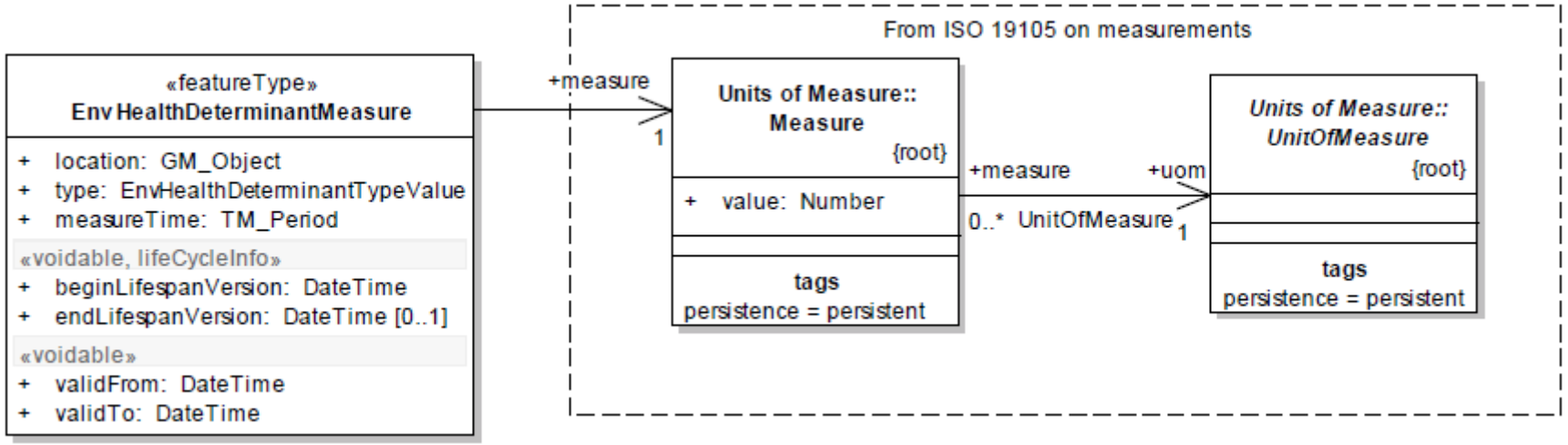
END Noise level measurements alignment to INSPIRE HH

Coverage option disregarded:

- *No coverage- specific application schema defined for the HH data theme*
- *No coverage-specific feature type in the HH data model*
- *Not yet mature implementation of interoperable INSPIRE coverage services*
- *Vector data format was most used in previous noise map reporting*

END Noise level measurements alignment to INSPIRE HH

'EnvHealthDeterminantMeasure' option



An environmental health determinant measure is characterized by a location, a type, and a measurement time. The measurement data are represented based on ISO 19103 measure class.

Noise level measurements as *EnvHealthDeterminantMeasure spatial objects*

Issue: *Not possible to provide the 'source' of the noise*

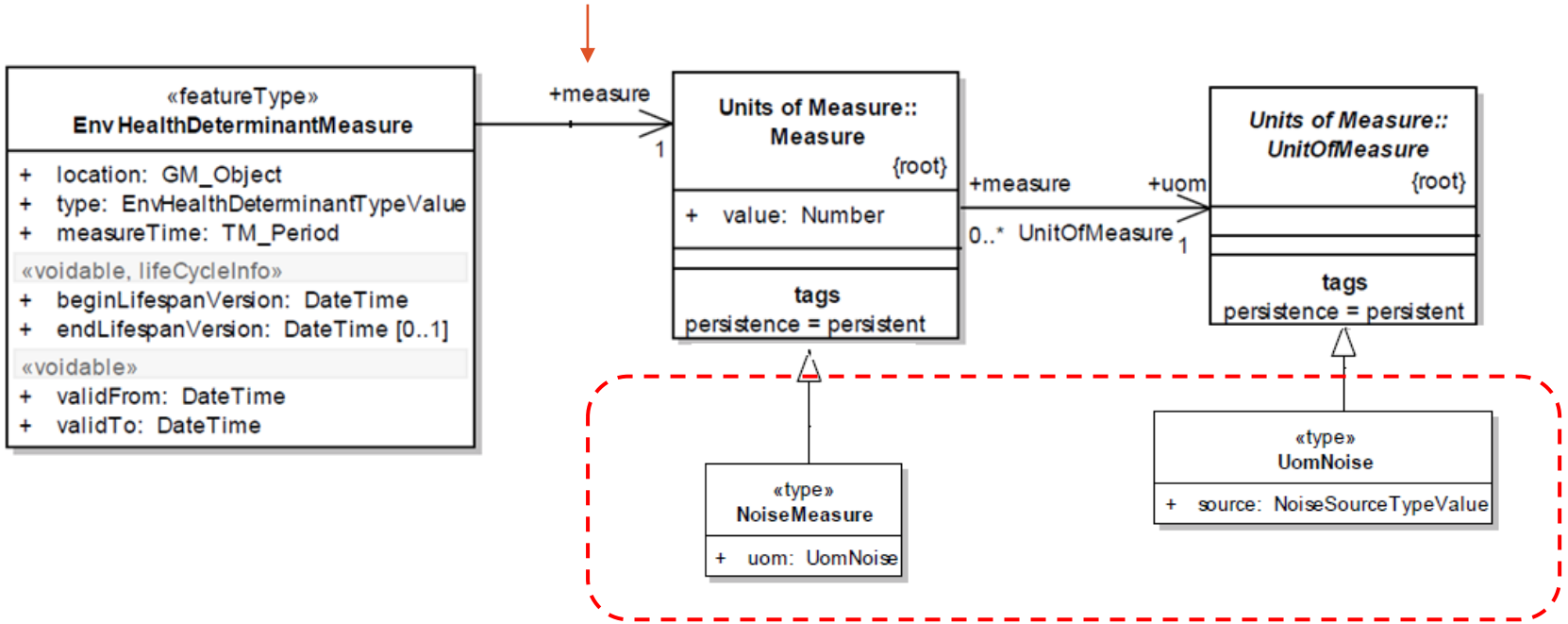
Data Specification on Human Health and Safety provide a specialisation of the ISO 19103 for the Noise and Concentration specific cases:

- A noise measurement is characterised by a source described in the EIONET code list
- A concentration measurement is characterised by the component whose concentration in a media is measured

However the current implementation of the conceptual data model does not allow provision of none of the above.

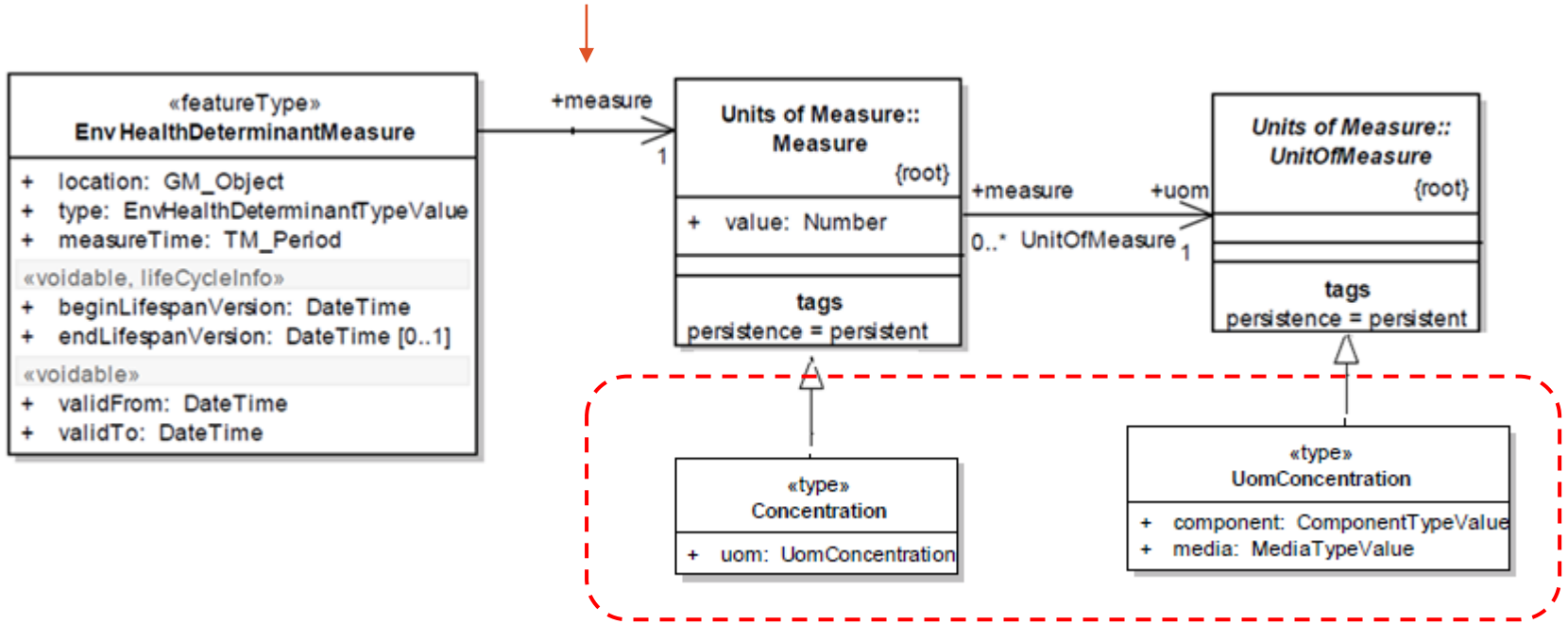
Current specialisation of the ISO 19103 for the Noise

element name="measure" type="gml:MeasureType" → *<hh:measure **uom**="db">50.0</hh:measure>*



Current specialisation of the ISO 19103 for the Concentration

element name="measure" type="gml:MeasureType" → *<hh:measure **uom**="db">50.0</hh:measure>*



Bug-fixing

Proposed Solution:

Provide noise measure ***source*** and concentration measure ***component*** and ***media*** as attributes of determinant-specific feature types

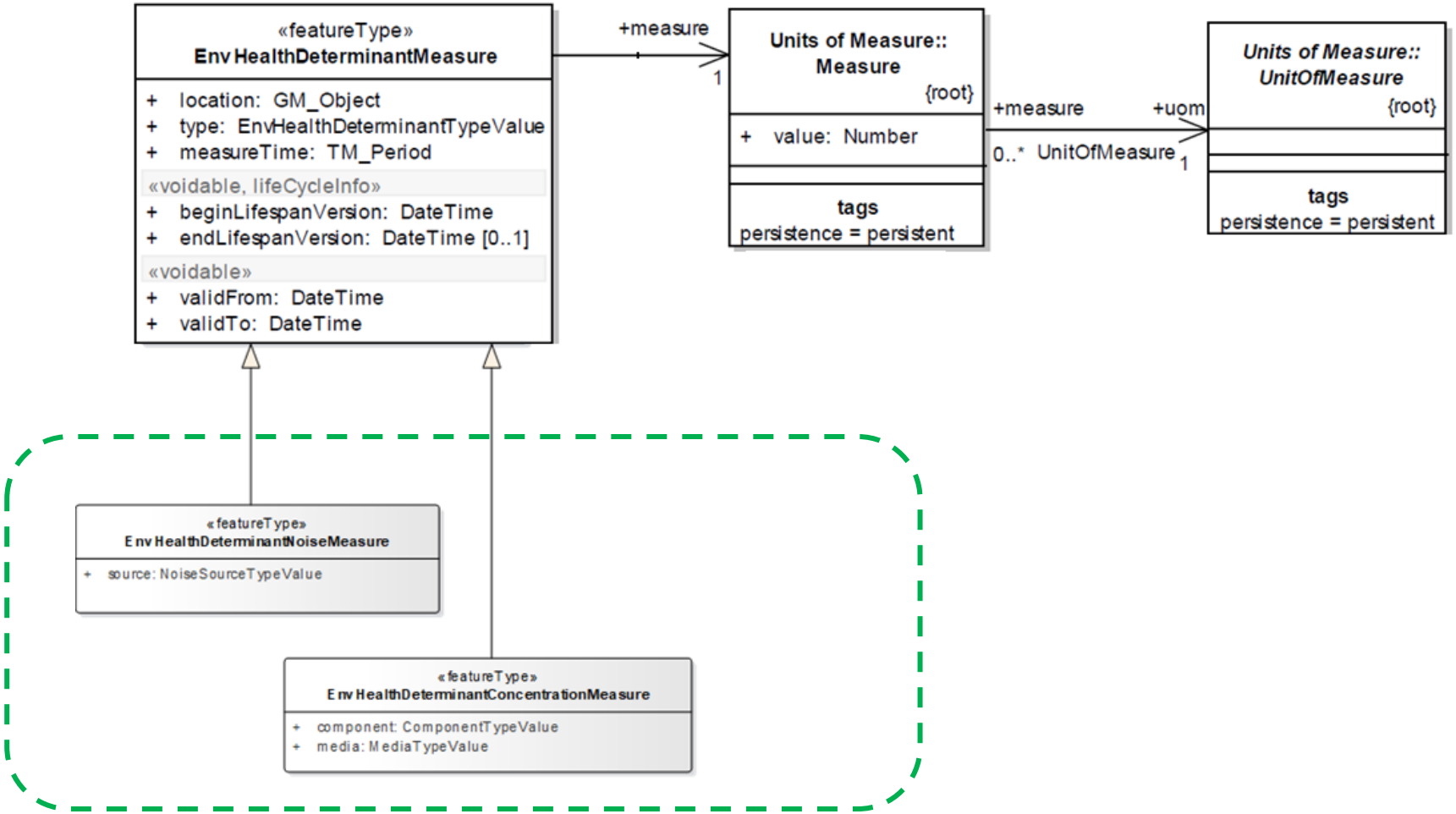
Related modifications in the HH data model:

Specialise the 'EnvHealthDeterminantMeasure' feature type by means of two determinant-specific feature types:

- *EnvHealthDeterminant**Noise**Measure* (with 'source' attribute)
- *EnvHealthDeterminant**Concentration**Measure* (with 'component' and 'media' attributes)

Proposed solution preserves backwards compatibility of the HH application schema

Proposed solution – UML diagram



END Noise level measurements as INSPIRE HH *EnvHealthDeterminantMeasure*

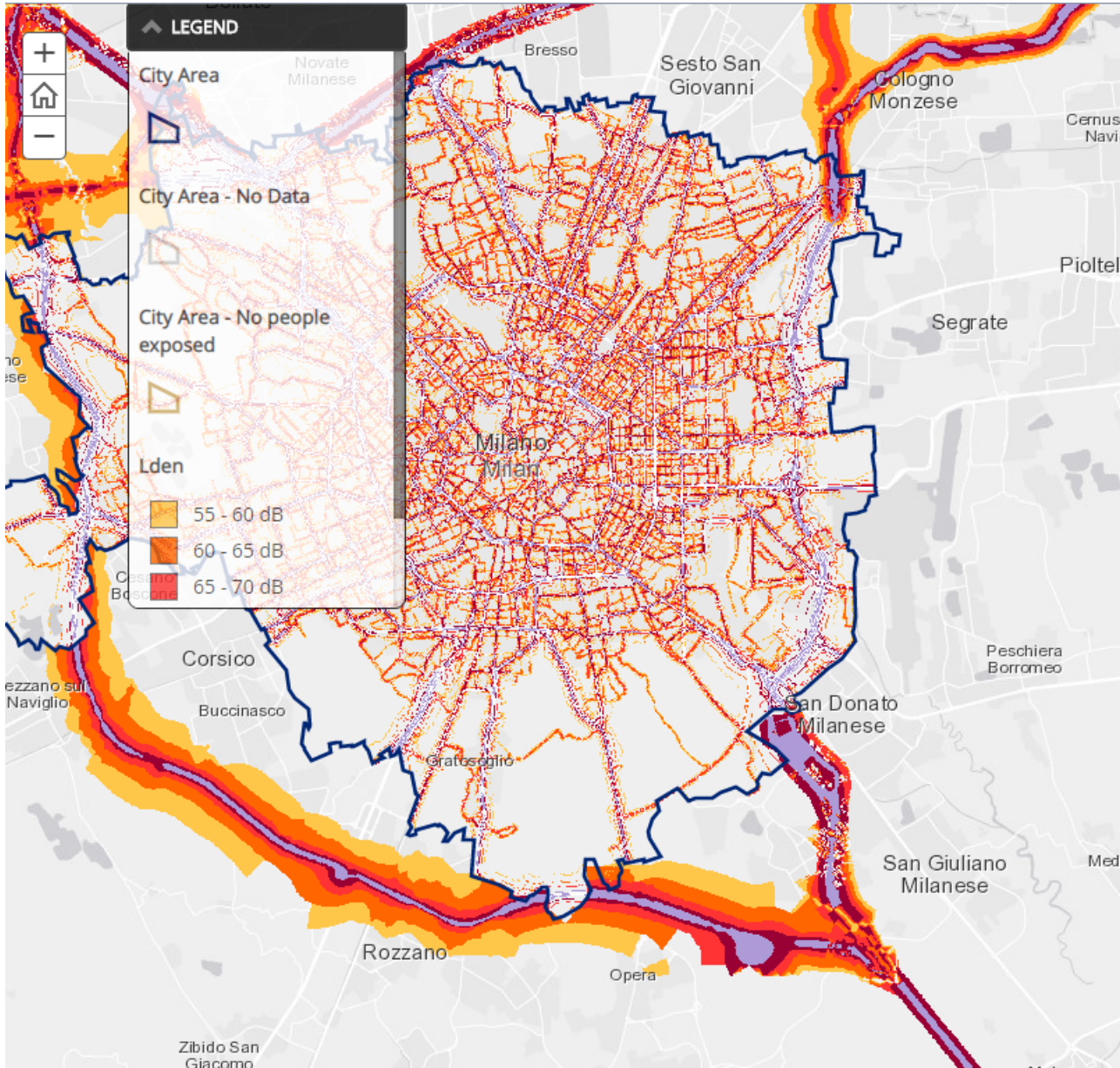
Issue:

In the END noise maps, the noise level in a certain area is characterized by a db range relating to a specific sound level indicator (e.g. Lden 50-54).

The ISO 19103 Measure Type – (value, uom) pair –

e.g. *<hh:measure **uom**="db">50.0</hh:measure>*

is not fit for the characterization of noise levels measurements in the strategic noise maps.



END Noise level measurements as INSPIRE HH *EnvHealthDeterminantMeasure*

Proposed Solution:

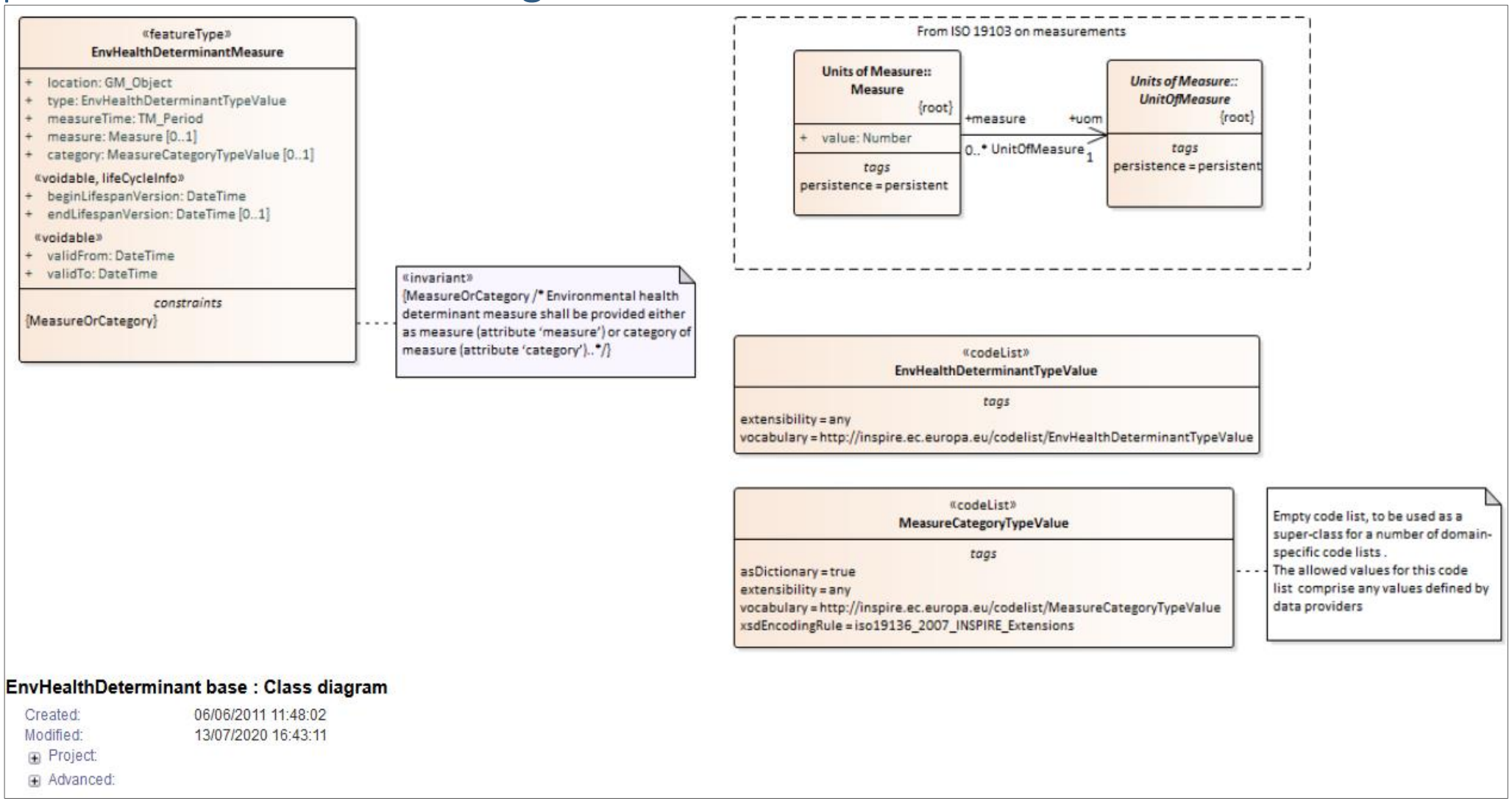
Allow provision of environmental health determinant measurement either as ISO 19103 measure - e.g. 50 db - or as **category of measure** e.g. Lnight 50-54

Related modifications in the HH data model :

- add a **new attribute** aimed to provision of ‘measure categories ’
- add a **new code list** from provision of measure category type values
- make the “measure” attribute optional
- add a **new constraint** **“**Environmental health determinant **measure shall be provided,** either as measure or category of measure".

Proposed solution preserves backwards compatibility of the HH application schema

Proposed solution – UML diagram



https://www.epsilon-italia.it/public/HumanHealth-IR-ChangeProposal/

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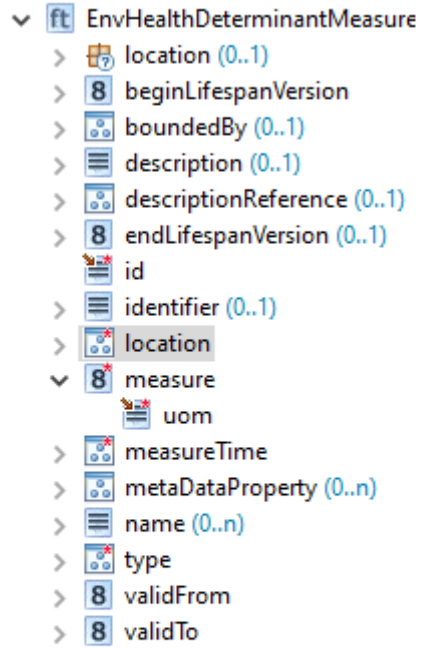
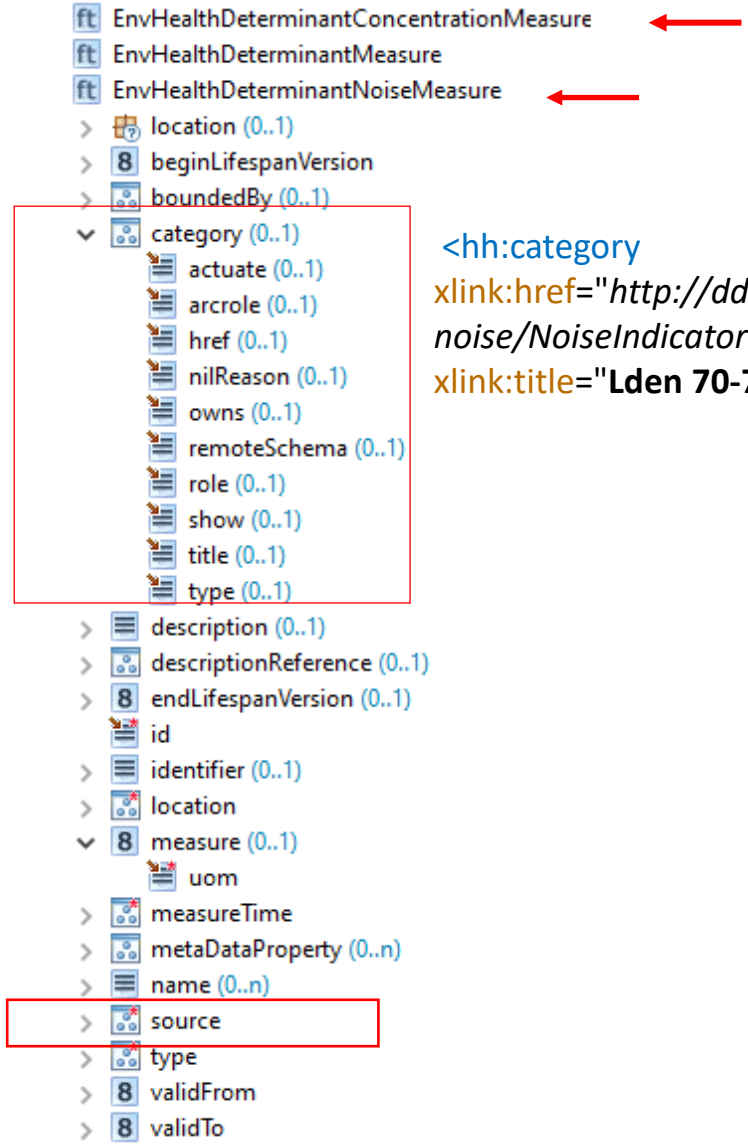
Current HH application schema



IR Change Proposal HH application schema




```
<hh:category
xlink:href="http://dd.eioneteuropa.eu/vocabularies/noise/NoiseIndicatorRangeValue/Lden7074"
xlink:title="Lden 70-74"></hh:category>
```

Revised schema

https://www.epsilon-italia.it/public/HumanHealth-IRChangeProposal.xsd

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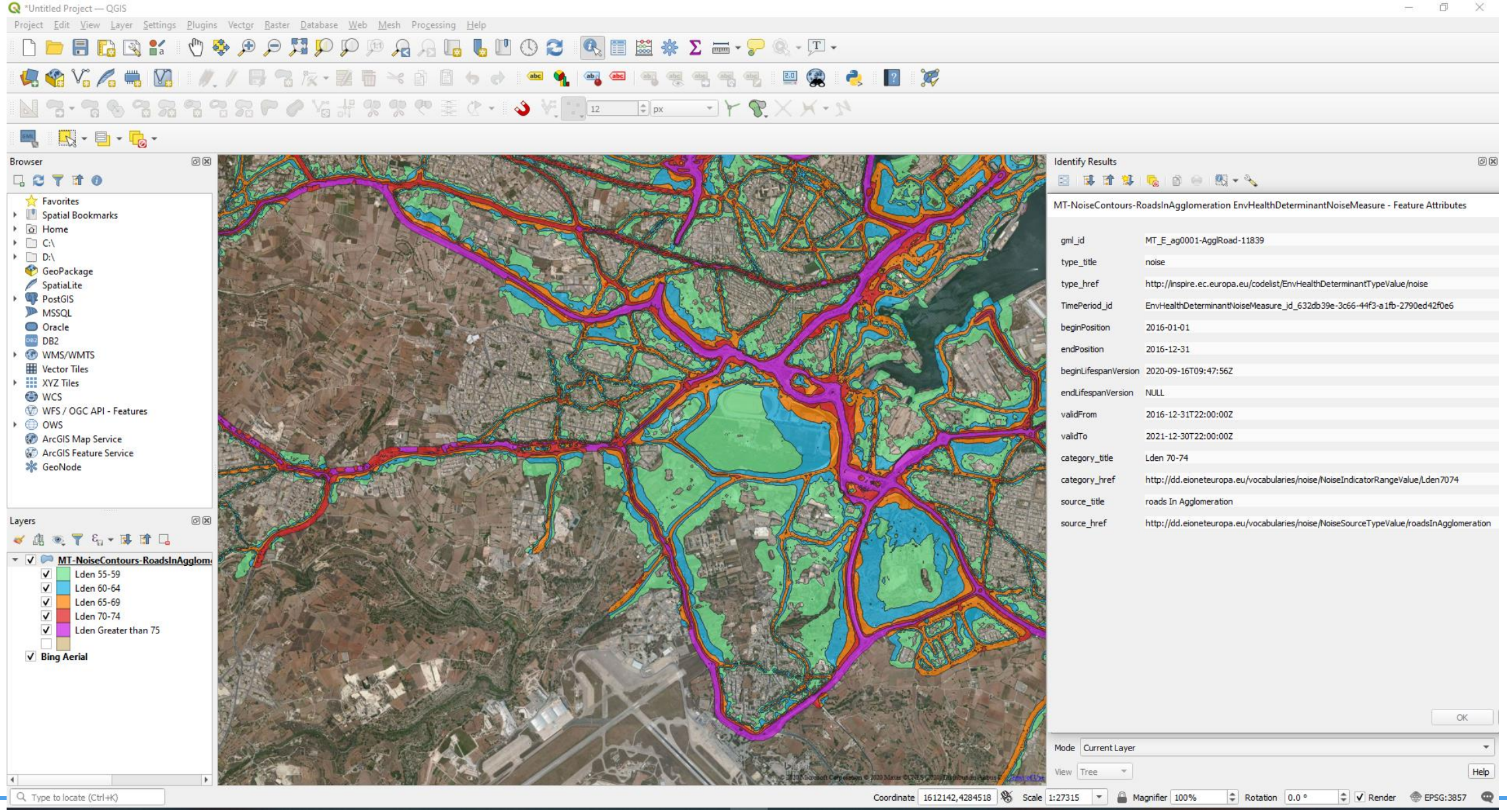
Roads in Agglomeration **INSPIRE Priority Dataset** conformant to revised HH



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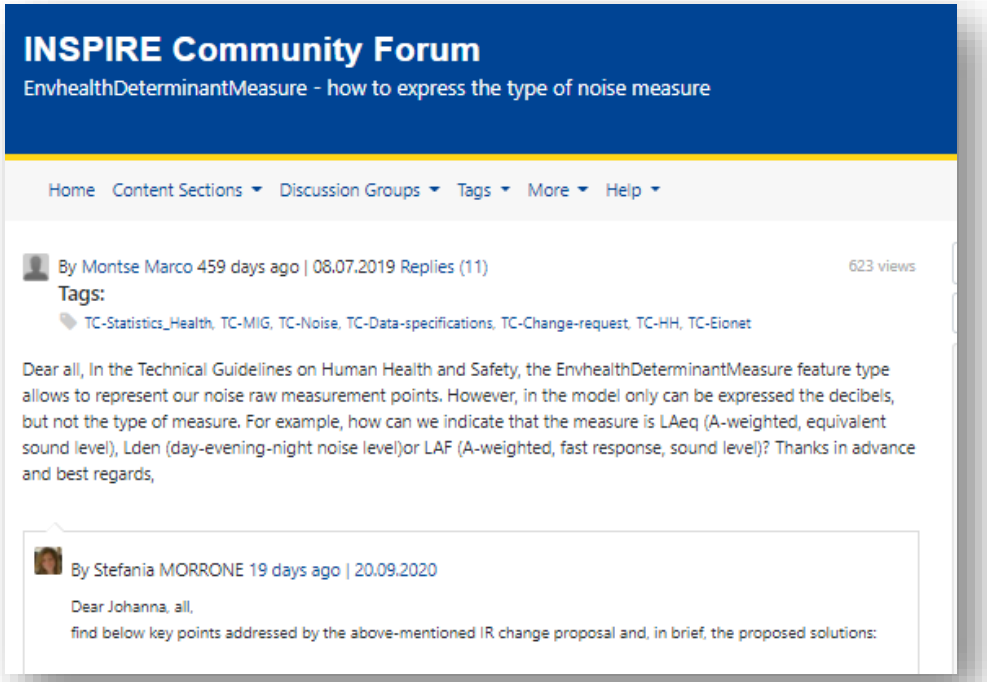
Highlights from the INSPIRE Community Forum



INSPIRE Community Forum

EnvhealthDeterminantMeasure - how to express the type of noise measure

Home Content Sections Discussion Groups Tags More Help

By Montse Marco 459 days ago | 08.07.2019 Replies (11) 623 views

Tags:

TC-Statistics_Health, TC-MIG, TC-Noise, TC-Data-specifications, TC-Change-request, TC-HH, TC-Eionet

Dear all, In the Technical Guidelines on Human Health and Safety, the EnvhealthDeterminantMeasure feature type allows to represent our noise raw measurement points. However, in the model only can be expressed the decibels, but not the type of measure. For example, how can we indicate that the measure is LAeq (A-weighted, equivalent sound level), Lden (day-evening-night noise level)or LAF (A-weighted, fast response, sound level)? Thanks in advance and best regards,

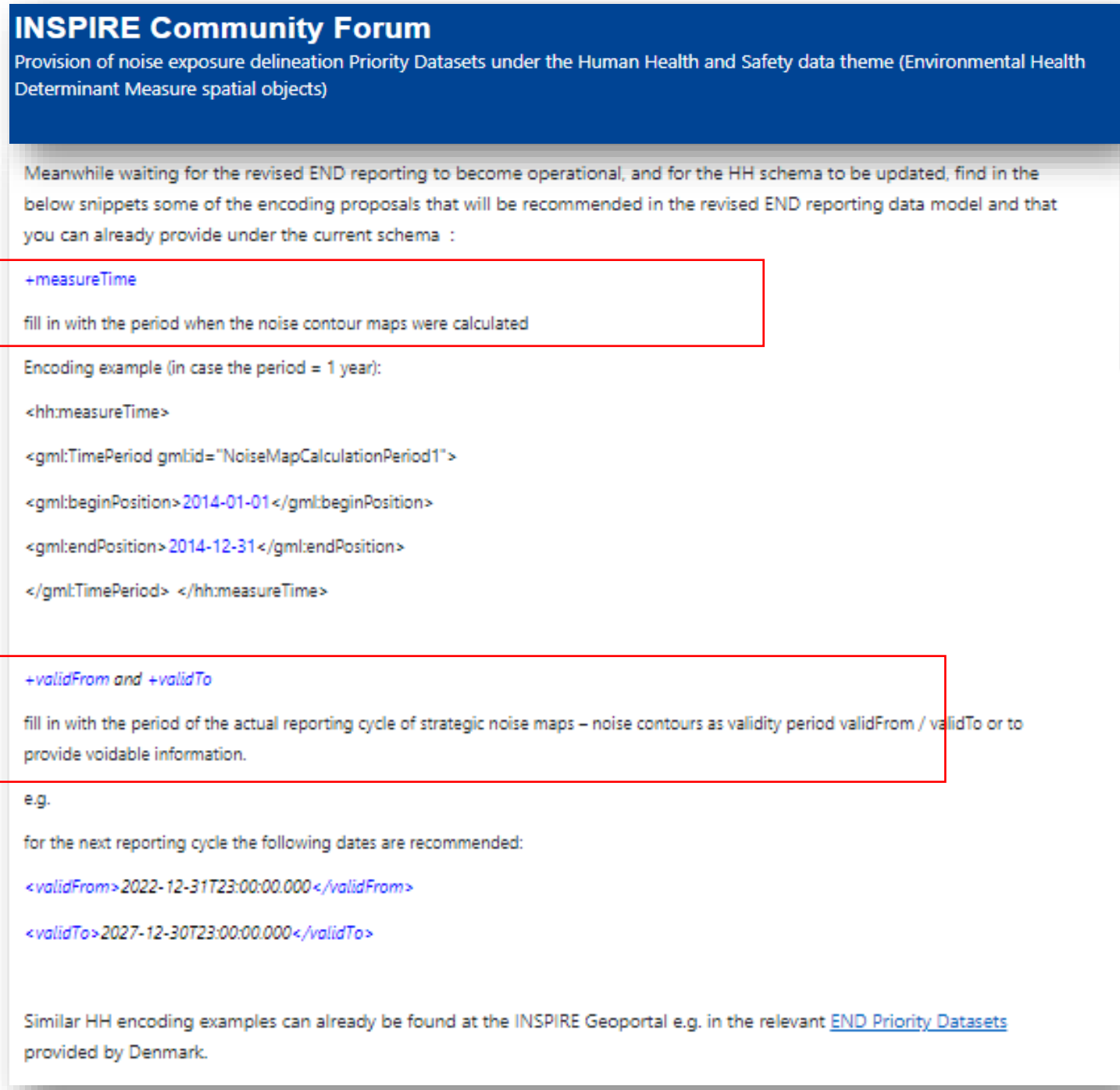
By Stefania MORRONE 19 days ago | 20.09.2020

Dear Johanna, all,

find below key points addressed by the above-mentioned IR change proposal and, in brief, the proposed solutions:

https://inspire.ec.europa.eu/forum/discussion/view/261192/envhealthdeterminantmeasure-how-to-express-the-type-of-noise-measure?offset=10#group-replies

https://inspire.ec.europa.eu/forum/discussion/view/268807/provision-of-noise-exposure-delineation-priority-datasets-under-the-human-health-and-safety-data-theme-environmental-health-determinant-measure-spatial-objects



INSPIRE Community Forum

Provision of noise exposure delineation Priority Datasets under the Human Health and Safety data theme (Environmental Health Determinant Measure spatial objects)

Meanwhile waiting for the revised END reporting to become operational, and for the HH schema to be updated, find in the below snippets some of the encoding proposals that will be recommended in the revised END reporting data model and that you can already provide under the current schema :

+measureTime

fill in with the period when the noise contour maps were calculated

Encoding example (in case the period = 1 year):

<hh:measureTime>

<gml:TimePeriod gml:id="NoiseMapCalculationPeriod1">

<gml:beginPosition>2014-01-01</gml:beginPosition>

<gml:endPosition>2014-12-31</gml:endPosition>

</gml:TimePeriod> </hh:measureTime>

+validFrom and +validTo

fill in with the period of the actual reporting cycle of strategic noise maps – noise contours as validity period validFrom / validTo or to provide voidable information.

e.g.

for the next reporting cycle the following dates are recommended:

<validFrom>2022-12-31T23:00:00.000</validFrom>

<validTo>2027-12-30T23:00:00.000</validTo>

Similar HH encoding examples can already be found at the INSPIRE Geoportal e.g. in the relevant END Priority Datasets provided by Denmark.