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| Abstract | This contribution proposes the corrections of semantics and examples for representing environmental sensor information in the physical world in a standardized data format. |
| Purpose | To start discussion on purpose of the standard |
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# Data formats for environmental sensors

## Ambient light sensor

### Semantics

The semantics of the lightSensorType:

| *Name* | *Definition* |
| --- | --- |
| lightSensorType | Tool for describing sensor data for a light sensor. |
| value | Describes the sensed intensity of the light with the unit defined in the unit attribute. This attribute can be used to represent “White” when the light sensor senses “RGBW”. |
| unit | Specifies the unit of the sensed value as a reference to a term that shall be using the valueType. |
| color | Describes the list of colors which the light sensor can sense either as a reference to a term that shall be using the colorType. |
| colorWType | Tool for describing a color in 1 byte (256 level) value of White. |
| colorValue | Describes the sensed values of a color sensor with color space models. |
| model | Describes the color model of the sensed values from a color sensor using colorSpaceType. |
| colorValueType | Describes three values from a color sensor. The meaning of the three values is determined by the color space model.  EXAMPLE The color model *CIEXYZ* would have three values of *X*, *Y*, and *Z* in order. |
| colorSpaceType | The color space models utilized by a color sensor are *Yxy*, *CIEXYZ*, *CIELAB*, *CIELCH*, *CIELUV*, and *Hunter Lab*. |

### Examples

The light sensor detected 200 lux of light. Colors represent blue with 0.14, 0.8, and 0.78 in the CIE XYZ color space

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| {  “sensedInfoBaseAttributes”:{},  “lightSensorType”: {  “value”: [200],  “unit”: “lux”,  “colorValue”: [0.14, 0.8, 0.78],  “model”: “XYZ”  }  } |

## Ambient noise sensor

### Semantics

Semantics of the ambientNoiseSensorType:

| *Name* | *Definition* |
| --- | --- |
| ambientNoiseSensorType | Tool for describing sensor data using an ambient noise sensor. |
| lifespan | Describes the duration taken to measure the information based on the timestamp. The unit of lifespan is the internal clock count. |
| value | Describes the sensed value of the ambient noise with the decibel (dB). |

### Examples

The ambient noise intensity is measured every 100 ticks of the clock in the ambient noise sensor. The ambient noise measured is 10 decibels.

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| {  “sensedInfoBaseAttributes”:{},  “ambientNoiseSensorType”: {  “lifespan”: 100,  “value”: 10,  }  } |

## Temperature sensor

### Semantics

Semantics of the temeratureSensorType:

| *Name* | *Definition* |
| --- | --- |
| temperatureSensorType | Tool for describing sensor data for a temperature sensor. |
| value | Describes the sensed value of the temperature with the unit defined in the unit attribute. |
| unit | Specifies the unit of the sensed value as a reference to a term that shall be using the unitType. |

### Examples

The measured temperature is 36.5 C˚.

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| {  “sensedInfoBaseAttributes”:{},  “temperatureSensorType”: {  “value”: 36.5,  “unit”: “celsius”  }  } |

### Semantics

The semantics of the humiditySensorType:

| *Name* | *Definition* |
| --- | --- |
| humiditySensorType | Tool for describing sensor data for a humidity sensor. |
| value | Describes the value sensed by the humidity sensor with a percentage (%). |

### Examples

The humidity measured was 60%.

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| {  “sensedInfoBaseAttributes”: {},  “humiditySensorType”: {  “value”: 60,  }  } |

## Wind sensor

### Semantics

The semantics of the windSensorType:

| *Name* | *Definition* |
| --- | --- |
| windSensorType | Tool for describing sensor data captured wind sensor. |
| velocity | Describes the speed and direction of a wind flow with the unit defined in the unit attribute. Values represent the wind speeds from the x, y, and z directions, respectively. |
| unit | Specifies the unit of the sensed value as a reference to a term that shall be using the unitType. |

### Examples

In this example, the velocities of wind measured were 1m/s from x-direction, 0.7m/s from y-direction, and 3.5m/s from z-direction.

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| {  “sensedInfoBaseAttributes”: {},  “windSensorType”: {  “velocity”: [1, 0.7, 3.5]  “unit”: “meterpersec”  }  } |

## Gas sensor

### Semantics

The semantics of the gasSensorType:

| *Name* | *Definition* |
| --- | --- |
| gasSensorType | Tool for describing sensor data for a gas sensor. |
| gasType | Specifies the type of gas as a reference to a term provided by gasType. |
| value | Describes the sensed gas concentration value by the gas sensor with the unit defined in the unit attribute. |
| unit | Specifies the unit of the sensed value as a reference to a term provided by unitType. |

### Examples

In this example, the gas sensor measured 100ppm of methane.

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| {  “sensedInfoBaseAttributes”: {},  “gasSensorType”: {  “gasType”: “methane”,  “value”: 100,  “unit”: “ppm”  }  } |

## Dust sensor

### Semantics

The semantics of the dustSensorType:

| *Name* | *Definition* |
| --- | --- |
| dustSensorType | Tool for describing sensor data for a dust sensor. |
| value | Describes the sensed dust concentration value by the dust check with the unit defined in the unit attribute. |
| unit | Specifies the unit of the sensed value as a reference to a term provided by unitType. |

### Examples

The dust concentration value measured was 100 microgram per cubic meter.

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| {  “sensedInfoBaseAttributes”: {},  “dustSensorType”: {  “value”: 100,  “unit”: “microgpcm”  }  } |