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| Project | **Specification of Sensor Interface for Cyber and Physical World**<<https://sagroups.ieee.org/2888.1/> **>** |
| Title | **Syntax and semantics of microphone sensor capabilities** |
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| Re: |  |
| Abstract | This contribution illustrates the basic JSON schema structure for representing microphone sensor capabilities in a standardized data format. The semantics and examples of the microphone sensor capabilities are presented.  |
| Purpose | To start discussion on purpose of the standard |
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# Introduction

This contribution illustrates the basic JSON schema structure for representing microphone sensor capabilities in a standardized data format. The semantics and examples of the microphone sensor capabilities are presented.

# Data formats for microphone sensor capabilities

## General

This sub-clause specifies a sensor capability of a microphone sensor.

## Syntax

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| "microphoneSensorCapabilityData": {"type": "object","properties": { "sensorCapabilityBaseData": { "$ref": "#/definitions/sensorCapabilityBaseData" }, "microphoneType": { "type": "string", "enum": [ "condenser", "dynamic", "ribbon", "carbon", "piezoelectric", "fiber optic", "laser", "liquied", "MEMS" ] }, "transducerArrayType: { "type": "string", "enum": [ "single array", "linear array", "curvilinear", "phased", "annular", "matrix array", "MEMS" ] }, "probeType": { "type": "string", "enum": [ "linear", "sector", "convex", "carbon", "trapezoid" ] }, "polarPattern": { "type": "string", "enum": [ "omnidirectional", "bi-directional", "subcardioid", "cardioid", "hypercardioid", "supercardioid", "shotgun" ] }, "frequencyRange" : { "type": "object", "properties": { "minFrequency": {"type": "number"}, "maxFrequency": {"type": "number"}, } }, "pickSensitivity": {"type": "number"}}} |

## Semantics

Semantics of the microphoneSensorCapabilityData:

| Name | Definition |
| --- | --- |
| microphoneSensor CapabilityData | Tool for describing a microphone sensor capability. |
| microphoneType | Defines the type of microphone |
| transducerArrayType | Defines array types of transducer probes |
| probeType | Defines the probing type of transducer |
| polarPattern | Defines polar pattern of transducer |
| frequencyRange | The pickup frequency range in Hz |
| minFreqeuncy | Minimum frequency in Hz |
| maxFrequency | Maximum frequency in Hz |
| pickSensitivity | Pick sensitivity of transducer in mV/Pa |

## Examples

This example shows the description of a microphone sensing capability with the following semantics. The microphone in this example is a condenser type, and the transducer is a single array type. The polar pattern is cardioid and has a frequency range of 20-20000Hz.

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| {"sensorCapabilityBaseData": {},"microphoneType": "Condenser","transducerArrayType": "single array","polarPattern": "Cardioid","frequencyRange": { "minFrequency": 20 "maxFrequency": 20000}} |