

# FS\_Sensing call #1

28.06.2022

Vasil Aleksiev

Study item rapporteur, Deutsche Telekom

# Sensing definitions

 Agreed during SA1#98e:

**Sensing measurement:** obtaining sensing measurement data about a target object

**Sensing result:** the information about a target object after processing, such as being present and object dimension, which is related to a particular sensing service

Open Questions: Should sensing measurements be exposed towards 3<sup>rd</sup> party?  
Would measurements alone be helpful without measurements context (location of the base station or UE making the measurements)?

# Sensing definitions

- Proposed, but not agreed:
- **Wireless Sensing:** aims to acquire information about remote object(s)' characteristics (e.g. shape, size, speed, location, distances or relative motion between objects, etc.) using Radio Frequency signals.
- **5G based wireless sensing service:** aims to enable 5G system to provide NG-RAN based wireless sensing.
- **Sensing data:** Is this sensing measurement or something else?

**Proposal 1:** To draft these definitions during the call to a suitable text which attending companies could agree.

# Sensing modes

## Proposed, but not agreed:

### Self-Transmitter/Receiver sensing

- Mode 1: UE as Transmitter/Receiver
- Mode 2: gNB/RSU as Transmitter/Receiver

### Non Self-Transmitter/Receiver sensing

- Mode 3: UE as Transmitter, gNB/RSU as Receiver
- Mode 4: UE as Transmitter, other UE as Receiver
- Mode 5: gNB/RSU as Transmitter, UE as Receiver
- Mode 6: gNB/RSU as Transmitter, other gNB/RSU as Receiver

Suggestion: To capture these in informative annex with having additional description with more details on applicability. Is there a mode to be excluded? Which mode requires changes in layer 1/physical layer?

# Sensing KPIs

## Proposal from S1-221098:

Use Case	Sensing Range	Distance Accuracy	Distance Resolution	Speed Range	Speed Accuracy	Angle Accuracy	Sensing Frequency
UAV DAA	≤500m	0.5m-1m	≤10m	≥10Km/h	0.5m/s -1m/s	≤0.5°	≤5Hz
UAV intrusion detection	≤500m	10m-30m	-	≥10Km/h	-	-	≤2Hz

**Potential KPIs:** Max range, range accuracy, max velocity, angular accuracy, maximum network load, target separation

**Proposal 2:** To draft and capture suitable parameters applicable for sensing.

# Summary/Agenda



- Draft potential definitions during the call to a suitable text which attending companies could agree.
- Draft and capture suitable parameters applicable for sensing.
- Discuss uploaded use cases in the drafts folder