Transmitted by the Chair of TF RWS
(TFRWS-10-03)

Informal document **GRBP-71-27-Rev.1**
(71st GRBP, January 28-31, 2020,
agenda item 6)

Status report to GRBP #71

Task Force on Reverse Warning Sound issues

Meeting

9th Meeting : October 22-24, 2019 – Brussels

Small group drafting meeting

10th Meeting : January 28, 2020 – Geneva

Task force meeting

9th meeting participants

Contracting parties : Japan, Germany, Netherland, EC

NGOs, etc : OICA, GREWUS (Guest), ESG (Guest)

10th meeting participants

Contracting parties : Japan

NGOs, etc : OICA, GREWUS(Guest)

Status of discussion

Schedule of document submission to GRBP

- TFRWS aimed to submit working document to GRBP in January, 2020 (GRBP #71).

- Then, we decided to postpone submitting because validation of test method has not been conducted yet, and the information of limit value table to be discussed has not been provided enough by contracting parties.

- Self-adjusting device is not expected at starting time of this group, however it is on a draft now. Making test method for self-adjusting device is taking more time than expected.

Completed items in a draft of new regulation

Questionnaire research

Scope

- M3, M2(3.5t >), N3, N2

Pause switch

- Pause switch should be allowed when the other safety device (e.g. camera monitor system or detection system) is effective.

Requirement of warning sound

- Sound emitting count per minutes, frequency range of tonal sound

Uncompleted items in a draft of new regulation

Part I : Component test

- Step-wise self adjusting device : Validation test
- Self adjusting device : Proposal of test method and validation test
- Limit value : Calculated based on limit value of Part II
- Effect of R28 : Modification of unsuitable sentences for RWS

Part II : Vehicle test

- Step-wise self adjusting device: Validation test
- Self adjusting device : Proposal of test method and validation test
- Limit value : Mode of sound level, necessity of limit value difference depending on sound type

Status of discussion

Requirement of warning sound

- CLEPA proposed tonal sound should be limited from 700 Hz to 2800 Hz.
- On the other hand, from 500 Hz to 4000 Hz of tonal sound which is defined in South Korean domestic law, and Japanese current situation is same frequency range. Based on the information above, TF group agreed tonal sound should be in the frequency range from 500 Hz to 4000 Hz.
- TF group agreed sound emitting count per minute are 24-120.
- Previously, table of limit value consists of 3 sound types (tonal sound, Broad band sound, 1/3 Octave band sound). After discussion in the group, TF group decided BBS and 1/3 octave band sound are same limit value.

Status of discussion

Test method for self-adjusting device

- The test method is being made, now. After completion, verification test will be conducted.

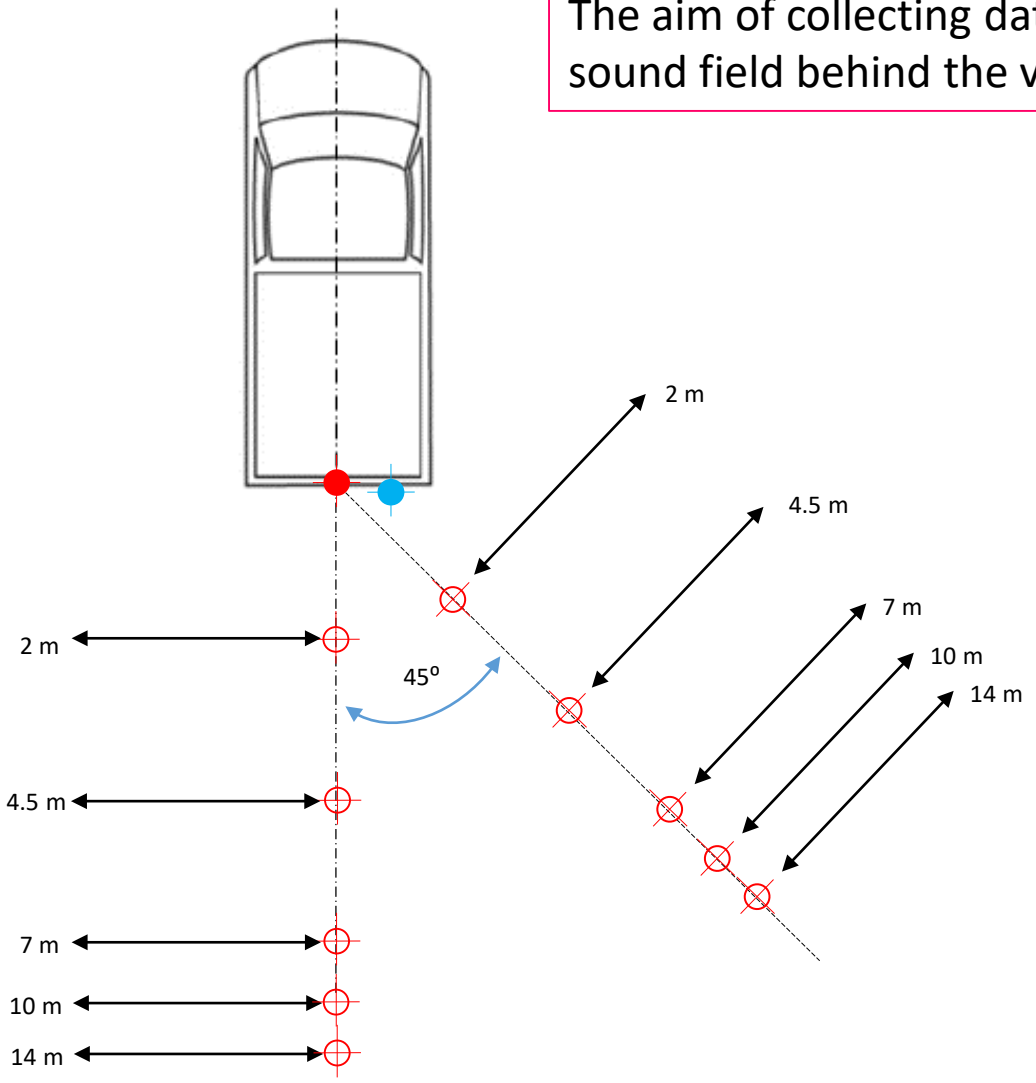
- In part I test (component test), 4 different volume pink noise is proposed to be used.

- In part II test (vehicle test), it is difficult to control BGN level, a realistic and an appropriate test method will be discussed.

Collecting measurement data protocol

Test Condition 1

The aim of collecting data is to understand sound field behind the vehicle.



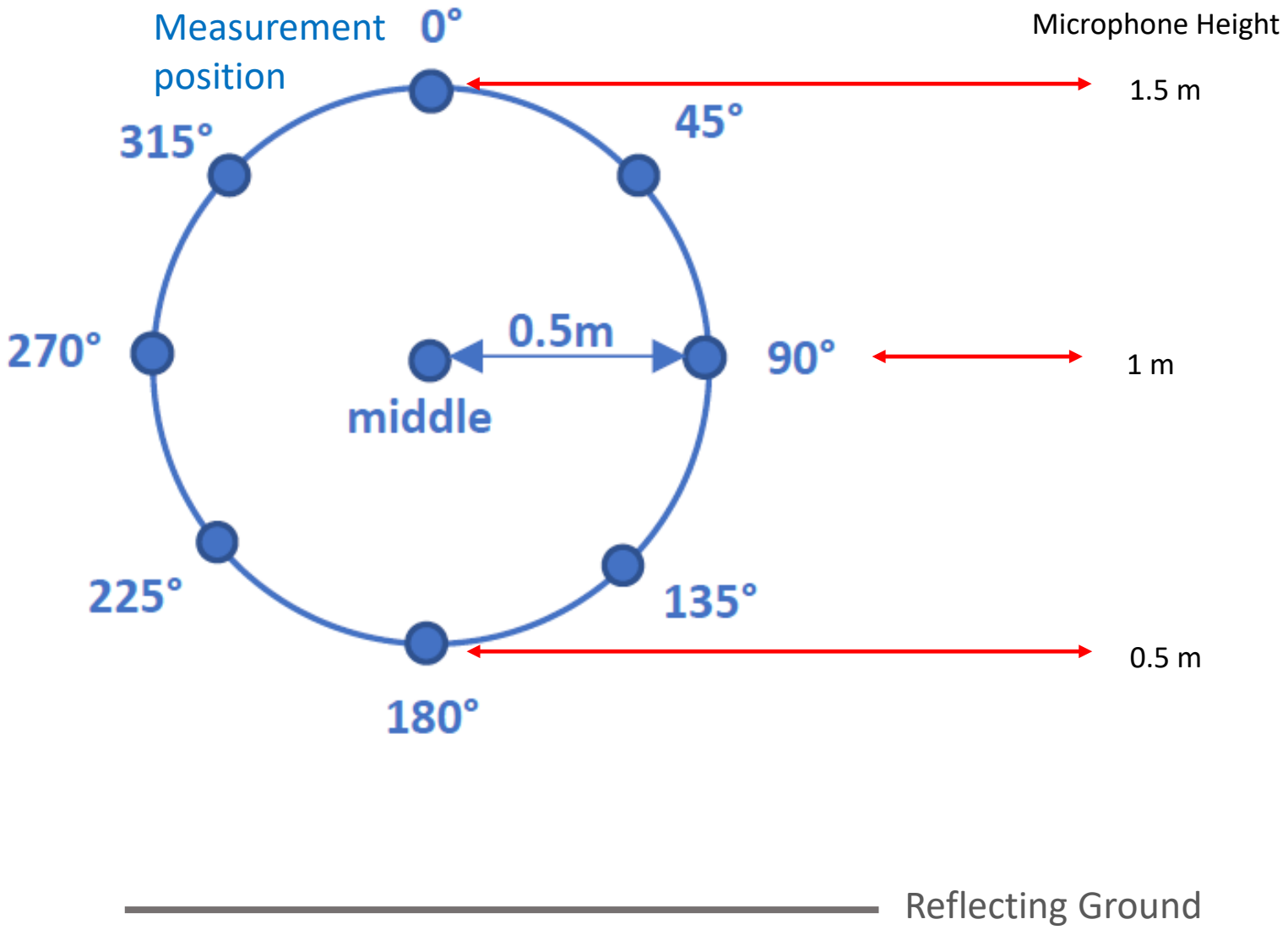
Measurement distance (Outdoors):
2 m
4,5 m
7 m
10 m
14 m

Collecting measurement data protocol

Test Condition 2

Microphone position above ground (Outdoors):

8 points on a circle

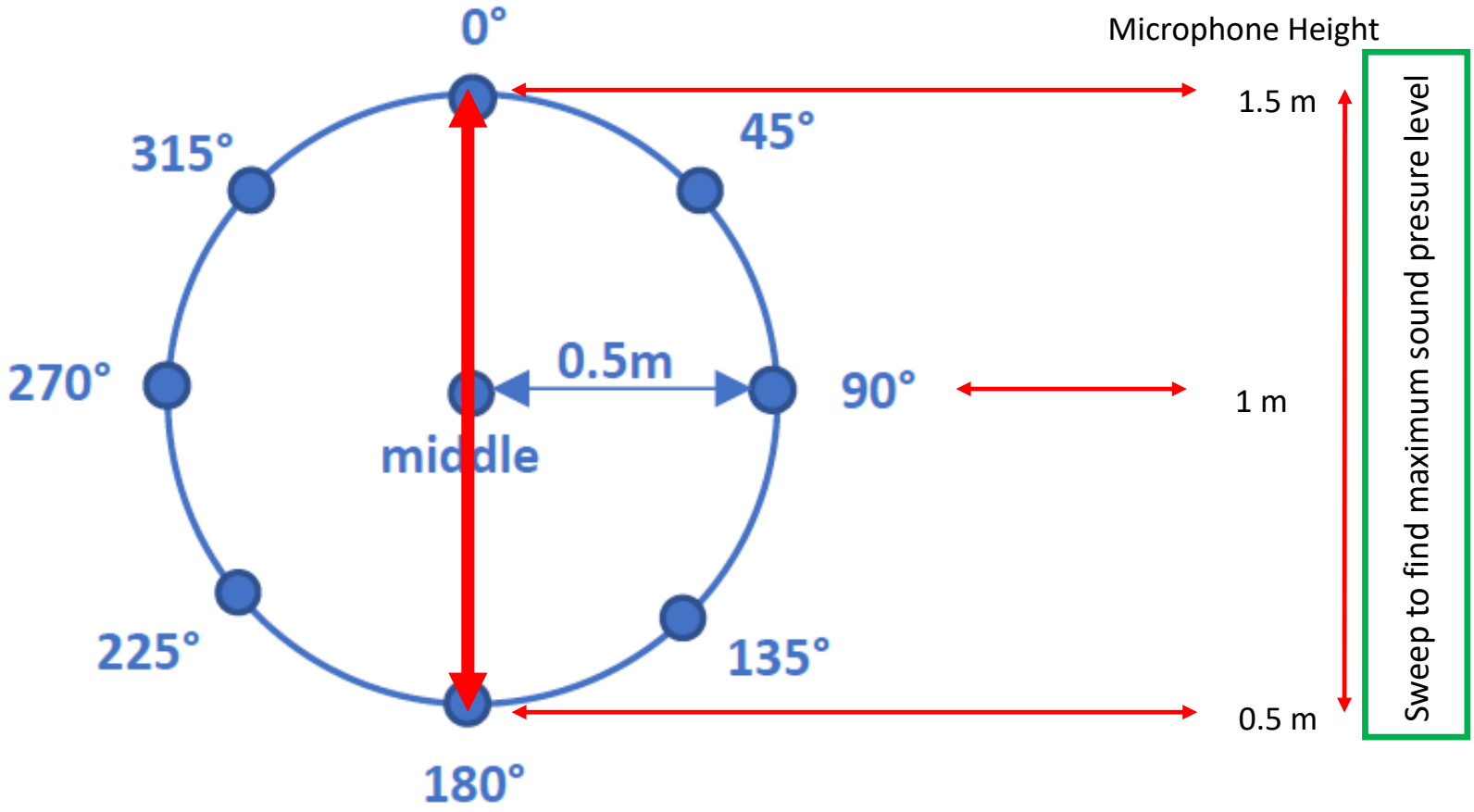


Collecting measurement data protocol

Test Condition 3

Microphone position above ground (Outdoors):

Sweep on the line between 0º and 180º

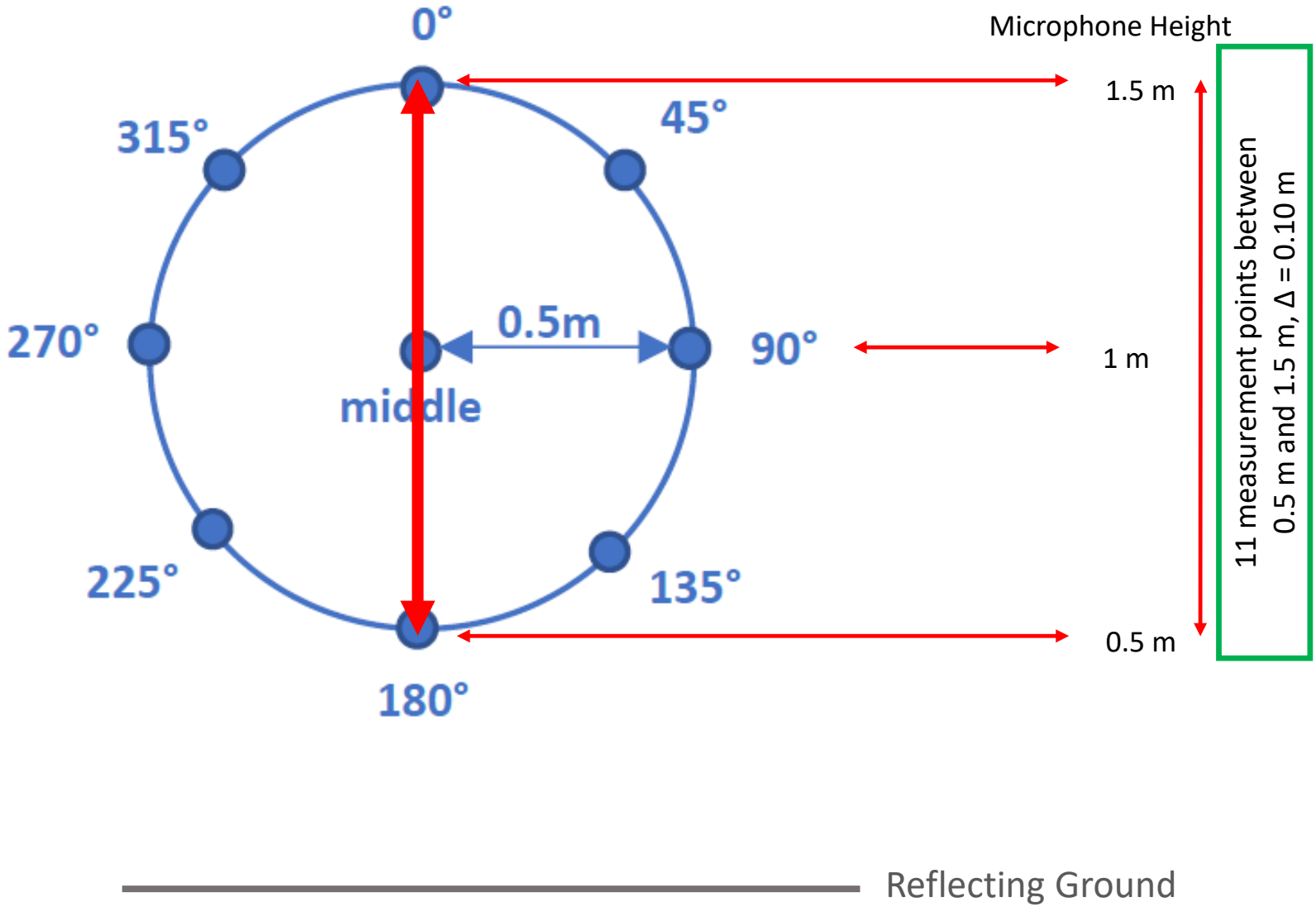


Collecting measurement data protocol

Test Condition 4

Microphone position above ground (Outdoors):

11 points on the line between 0º and 180º

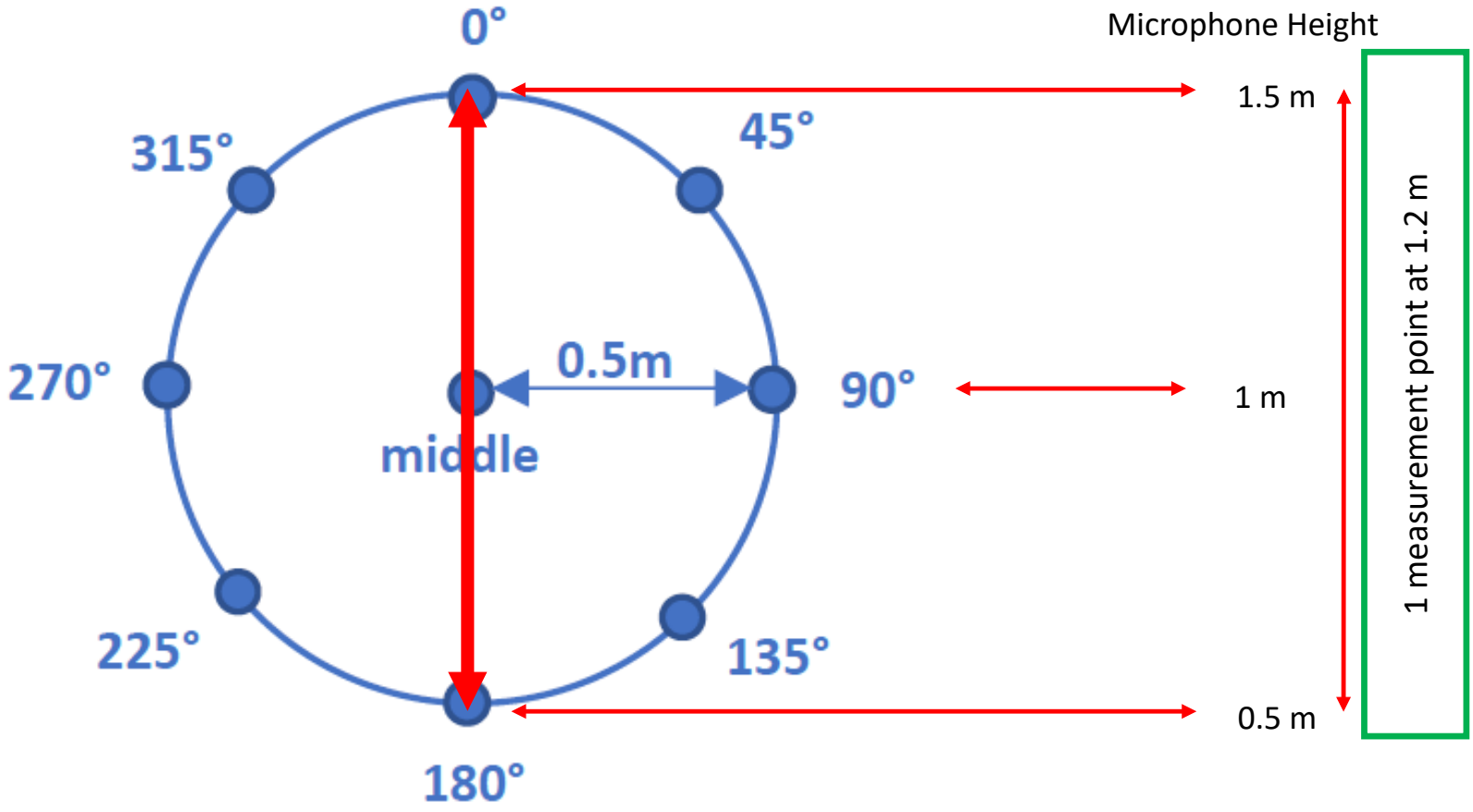


Collecting measurement data protocol

Test Condition 5

Microphone position above ground (Outdoors):

1 point at 1.2 m on the line between 0^o and 180^o

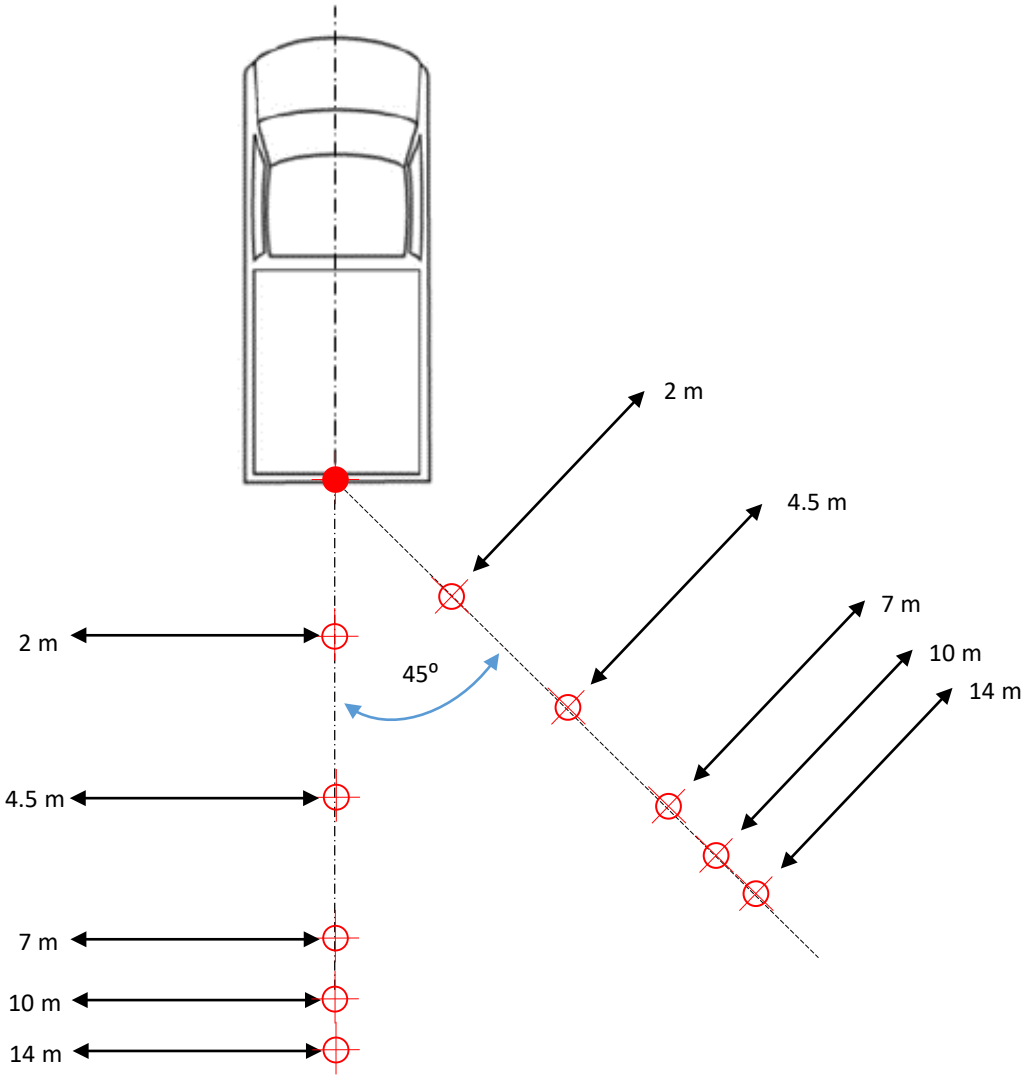


Collecting measurement data protocol

Test Conditions

At Measurement distance (Outdoors):	Microphone position above ground (Outdoors):
2 m	Condition 3, 5
4,5 m	Condition 3,5
7 m	Condition 2, 3, 4
10 m	Condition 3, 5
14 m	Condition 3, 5

The sound pressure level shall be measured at the fixed height(s) for a duration of at least 30 seconds



Coordination with GRSG and VRU-Proxi IWG

- Switzerland reported last our status report (GRBP-70-24) to GRSG (October, 2020).

Following sentences were made by Switzerland and secretariat of GRSG

- GRSG understand the need for a pause switch. However, it should not be active in every situation e.g. when a redundant safety system e.g. camera monitor system or detection system is not providing the sufficient safety.
- GRSG considered as an example the case of a vehicle with a coupled trailer. If the vehicle with trailer is in reversing gear, the pause switch should be ineffective as the camera would not deliver necessary information to the driver.
- GRSG recommends that the conditions shall be listed in the future regulation when the pause switch is effective or, if not possible, criteria shall be envisaged.

Coordination with GRSG and VRU-Proxi IWG (con't)

- Depending on suggestion by GRSG, the conditions when the pause switch is allowable or not, are summarized as follows.
- Regarding trailer, it should be discussed that it is possible to make a system enable to judge whether the other safety device installed in the trailer is effective or not.

Category	Pause function of reverse warning sound	
	Allowable condition	Unallowable condition
M3, M2(>3.5t), N3, N2	Pause function should be allowed when the other safty device which is installed to the vehicle is active.	Pause function should be prohibited when the other safty device which is installed to the vehicle is not active.
M3, M2(>3.5t), N3, N2 with trailer	Pause function should be allowed when the other safty device which is installed to the trailer is active.	Pause function should be prohibited when the other safty device which is installed to the trailer is not active.

Schedule

11th meeting :
May 26-27, 2020 – Brussels (TBC)

The main issue of 11th session is to verify measurement method and discuss about limit value.
The discussion will be proceed based on collected data.

Please submit data until May 22, 2020.
Any small information is welcomed!

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