

nesplora
aquarium

ASSESSMENT REPORT OF THE ATTENTION PROFILE

Full name: Markel Anon

Gender: Male

Age: 21

Execution of the test: 25/02/2022 11:18

This report is intended to be used by the test administrator as an interpretive aid. This is an orientation report.

Full name: Markel Anon
Gender: Male
Date of birth: 12/10/2000
Age: 21 years

Execution of the test: 25/02/2022 11:18
Duration of the test: 0:12:16
Scale used: 16-40 Male

Previous notes:

No previous comments

Subsequent notes:

No comments following the test

For a better interpretation of the report, it is recommended to consult the Nesplora Aquarium manual.

1. NESPLORA AQUARIUM ASSESSMENT REPORT

1.1. GENERAL DESCRIPTION

Nesplora Aquarium is a Continuous Performance Test (CPT) performed in a virtual environment through a system composed by a headset with motor sensors, headphones and a button to answer to the task. This test is designed to assess attention processes and help in the diagnosis of cognitive disorders.

The virtual environment presented in the headset is similar to a room of an aquarium and the perspective places the subject at the centre of this room. The software continuously shifts the subject's view of the room based on their head movements, providing them with the impression of actually being immersed in the virtual environment.

Between the two rocks in the main fish tank and through the headphones, a series of visual and auditory stimuli are presented to which the subject must respond according to the instructions.

The test consists of 3 tasks:

AX [Training]: Task 1. AX Paradigm The button must be pressed when certain visual and auditory stimulus is presented whenever it is preceded by another given auditory or visual stimulus. This task has the function of learning the stimuli with which one will work. The data obtained are not presented in this clinical report.

DUAL performance: Task 2. Dual Xno Paradigm. The button should be pressed when all visual and auditory stimuli appear except for a given visual stimulus and a given auditory stimulus (different from the visual one).

DUAL+I performance: Task 3. Dual Xno Paradigm. The button should be pressed when all visual and auditory stimuli appear except for a given visual stimulus and a given auditory stimulus (different from the visual one). These two are reversed with respect to the previous task, therefore including interference (+).

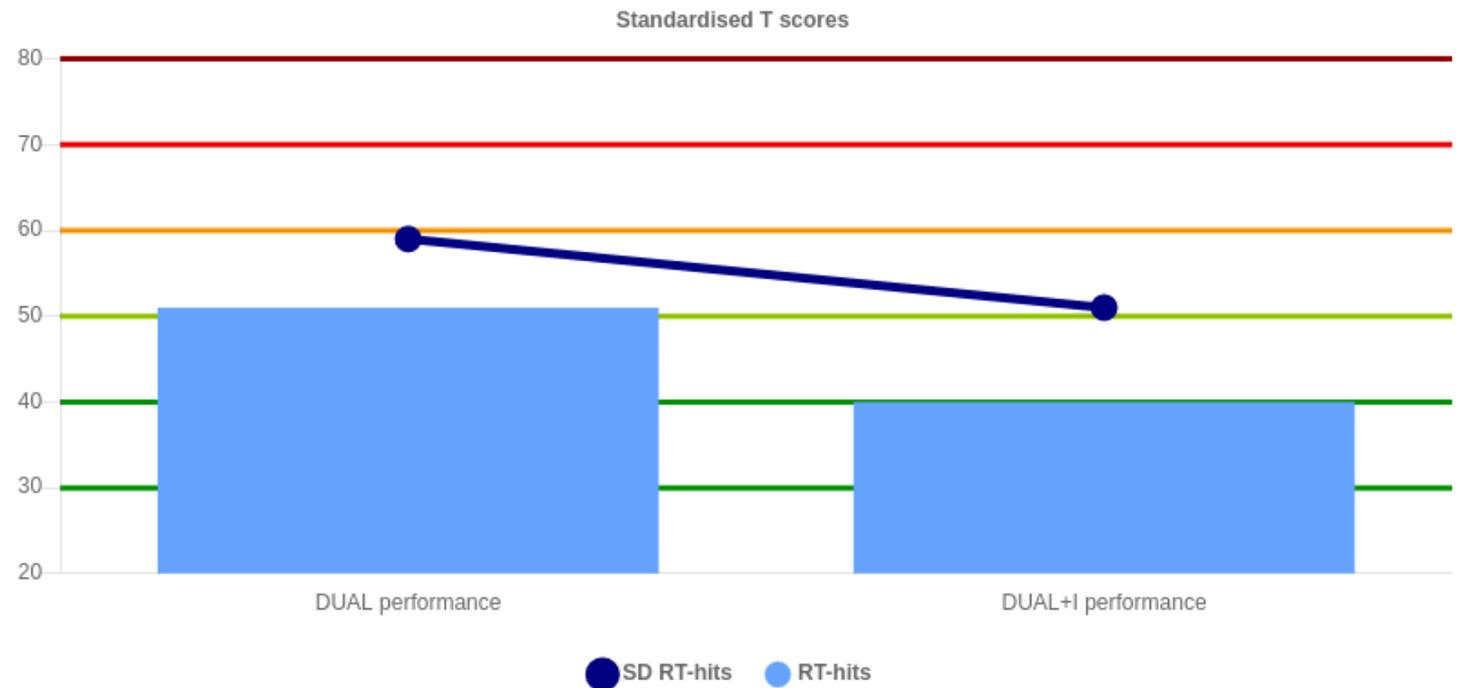
Data are displayed in graphs and tables along with text explaining the T-scores obtained in relation to performance.:



The symbol * next to a value in the results table indicates that this is significantly higher than the value of the same variable in another experimental condition.

2. SPEED OF RESPONSE AND SUSTAINED ATTENTION

The following tables present the scores related to the speed of response and attentional vigilance during the test:



	DUAL performance			DUAL+I performance			Total		
	Raw	Percentile	T score	Raw	Percentile	T score	Raw	Percentile	T score
RT-hits	890.32	56	51	820.23	15	40	851.93	29	44
SD RT-hits	319.32	81	59	305.86	55	51	313.96	72	56

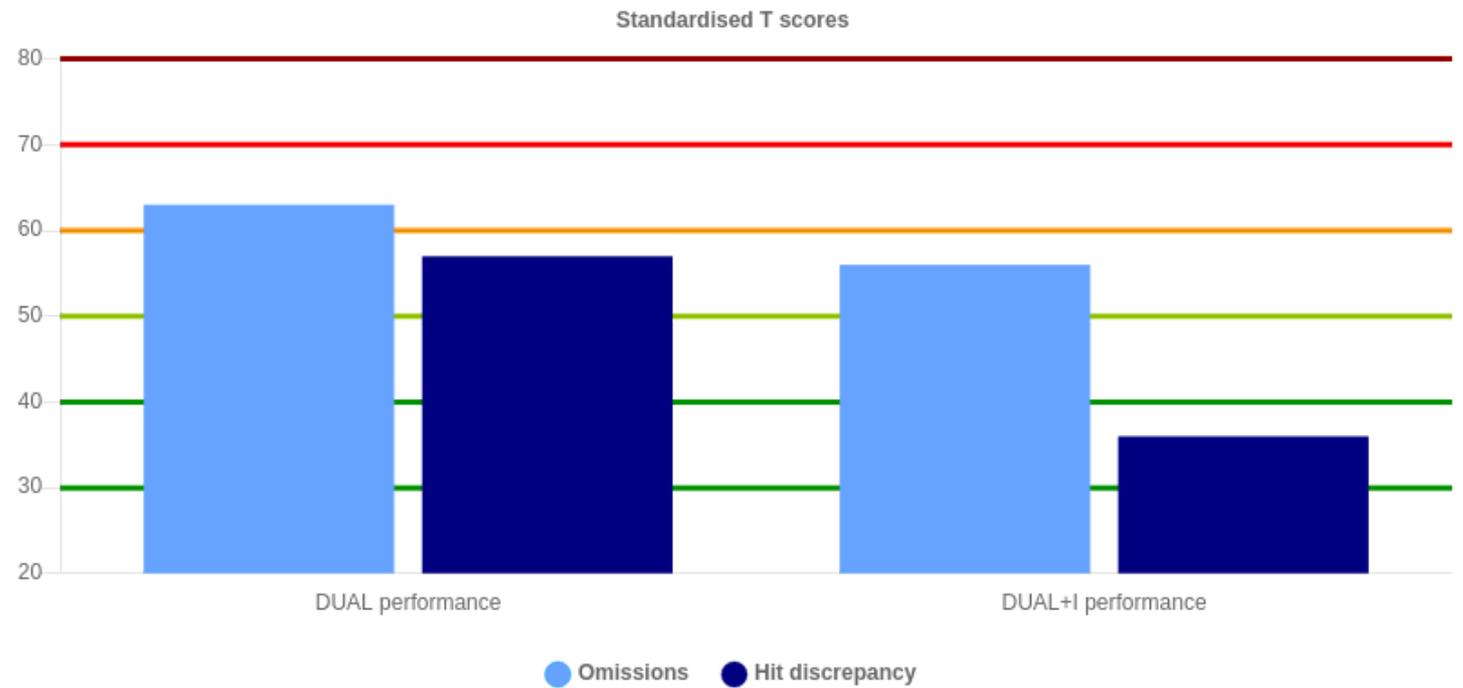
DESCRIPTION OF THE INDICES:

Mean RT (reaction time)-hits: It indicates the average time from the moment the stimulus appears until the button is pressed in the case of correct presses. This measure represents the average speed of response at which the stimulus is processed before responding. Markel has obtained a **normal performance** in this variable.

Standard deviation of RT in hits: It indicates the variability of the RT in hits throughout the test. It is considered a measure of response consistency, and it can be a sign of fluctuating sustained attention or decreased vigilance during the test. Markel has obtained a **normal performance** in this variable.

3. ATTENTION AROUSAL AND RESPONSE CONSISTENCY

The following tables present the scores related to alertness and response consistency during the test:



	DUAL performance			DUAL+I performance			Total		
	Raw	Percentile	T score	Raw	Percentile	T score	Raw	Percentile	T score
Omissions	27	91	63	12	73	56	39	87	61
Hit discrepancy	3	77	57	-8	8	36	-2.5	23	43

DESCRIPTION OF THE INDICES:

Omission errors: They occur when Markel has to press the button when the target stimulus appears but he/she does not. This variable is indicative of level of alertness (arousal) to respond to the target stimuli. Markel has obtained a **low performance** in this variable.

Hit discrepancy between blocks: This score is obtained by comparing the hits in the first half of the task and the those obtained in the second half of the task. This measure is considered an indicator of response consistency and fatigue during the task. Markel has obtained a **normal performance** in this variable.

4. INHIBITORY CONTROL

The following tables present the scores related to impulsivity and inhibitory control.



	DUAL performance			DUAL+I performance			Total		
	Raw	Percentile	T score	Raw	Percentile	T score	Raw	Percentile	T score
Commissions	4	37	47	8	44	49	12	36	46
RT-commissions	770.75	75	57	734.38	62	53	746.5	70	55

DESCRIPTION OF THE INDICES

Commission errors: They occur when Markel must not press the button when the presented stimulus appears and, however, he/she presses it. This variable is indicative of impulsivity or inhibitory control which are involved in selective attention processes. Markel has obtained a **normal performance** in this variable.

Mean RT (reaction time)-commissions: It indicates the average time from the moment the stimulus appears until the button is pressed in the case of incorrect presses (commissions). This measure provides an explanatory and complementary character to commission errors. Low reaction times are related to greater impulsivity and/or hyperactivity. High reaction times are considered a secondary measure of inattention. Markel has obtained a **normal performance** in this variable.

5. WORKING MEMORY (DUAL PERFORMANCE)

In Nesplora Aquarium, 2 dual performance tasks are held, which involve a load in the Central Executive System. The following graph and table present the hit rate in these tasks:



	DUAL performance			DUAL+I performance			Total		
	Raw	Percentile	T score	Raw	Percentile	T score	Raw	Percentile	T score
WM index	109	16	40	120	41	48	114.5	24	43

*Scores must be interpreted inversely, as they are based on the number of hits in the task.

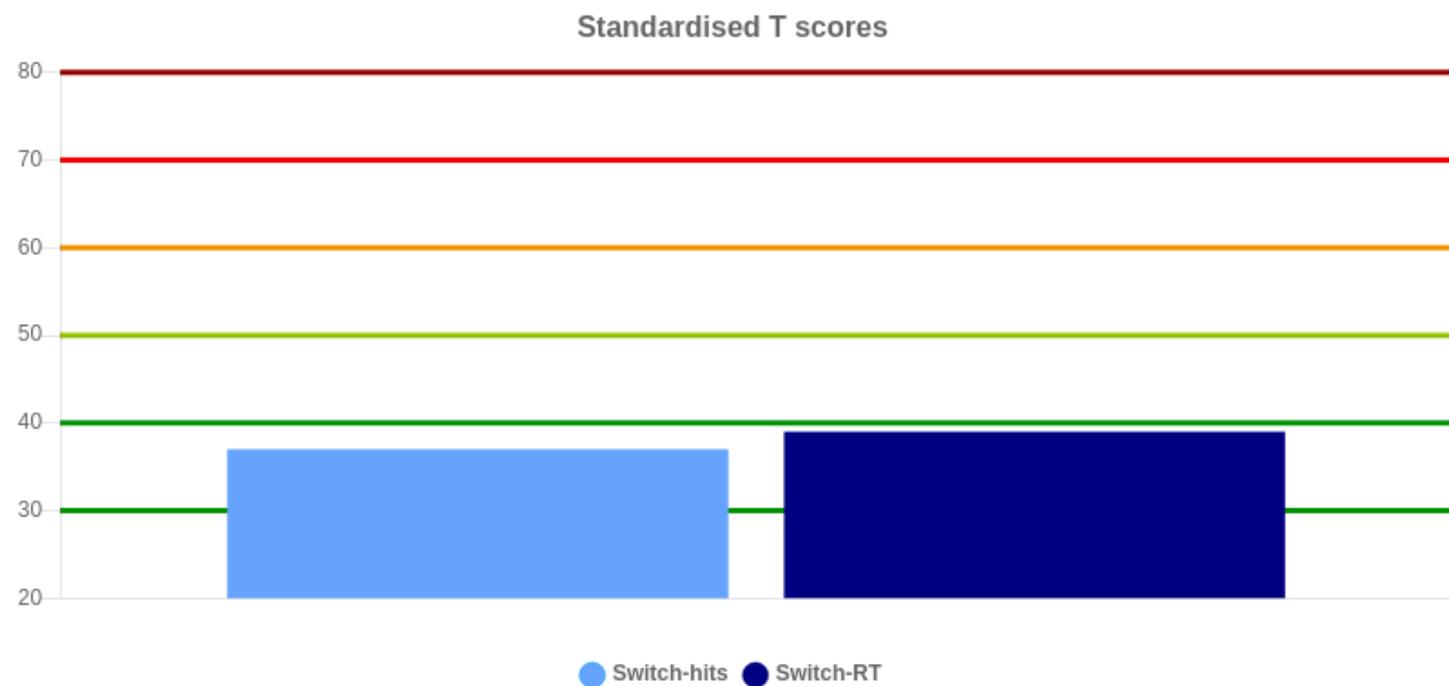
DESCRIPTION OF THE INDICES

Working memory index It is defined by Markel's overall performance in the dual performance tasks. The parallel processing of both sensory modalities defines these exercises as dual performance tasks. This index measures the capacity for parallel processing during the performance of the task. Markel obtained a **normal performance** in this variable.

6. SWITCHING (ADAPTATION TO CHANGE) AND INTERFERENCE

SWITCHING

In Nesplora Aquarium, the change between tasks 2 and 3 represents a challenge for the switching capacity or change of attentional resources. The following graph shows the indices corresponding to this capacity.



	Total		
	Raw	Percentile	T score
Switching	-3	10	37
Switching RT-hits	-4145	14	39

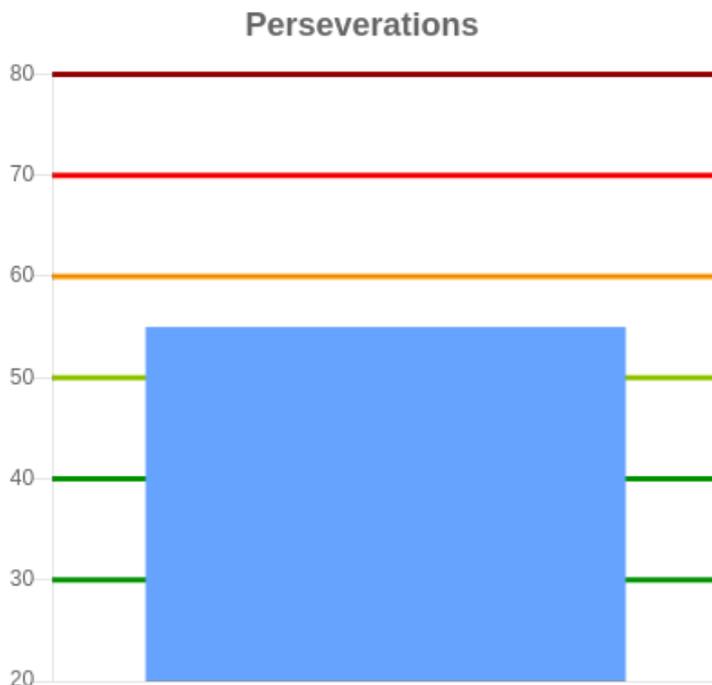
DESCRIPTION OF THE INDICES

Switching: This index indicates the ability to adapt to change, which reflects part of Markel's cognitive flexibility. The score shows the difference between the number of hits in the last part of task 2 and the number of hits at the beginning of task 3. Markel has obtained a **high performance** in this variable.

Switching RT-hits: This index measures the ability to adapt to change, which reflects part of Markel's cognitive flexibility. The score shows the difference between the reaction time on the hits in the last part of task 2 and the number of hits at the start of task 3. Markel has obtained a **high performance** in this variable.

PERSEVERATIONS

The following graph and table present Markel's perseverative error rate. These are those errors in task 3 (DUALXno) that are related to the target stimuli of the previous task:



	Raw	Percentile	T score
Perseverative errors	18	70	55

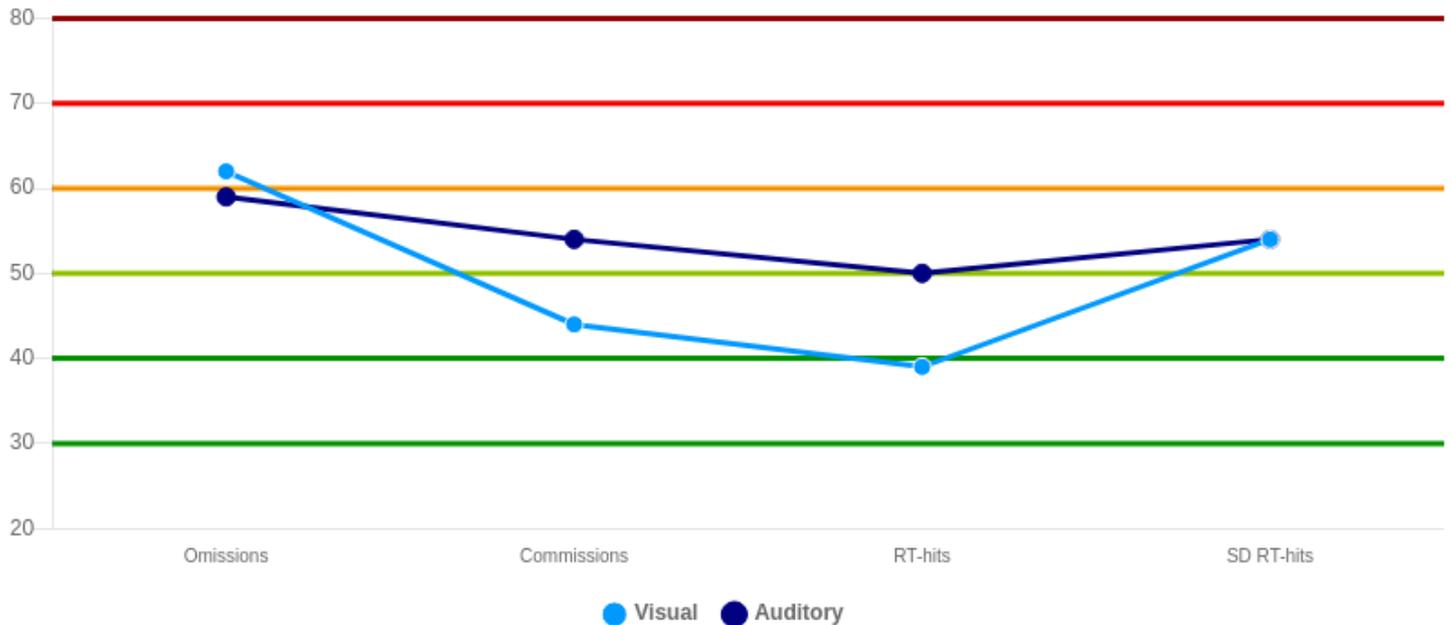
DESCRIPTION OF THE INDICES

Perseverative errors: This type of error occurs in task 3 (DUALXno) when Markel responds to the task by following the instructions of the previous task, in other words, when omitting pressing on the visual or auditory target stimulus of the previous task or when making commission errors. The score in this index shows Markel's capacity for interference control, who has obtained a **normal performance** in this variable.

7. PERFORMANCE BASED ON THE SENSORY CHANNEL:

In the tasks performed by Markel both visual and auditory stimuli have been involved. In the following tables, the performance between the visual and auditory stimuli in the different attention variables is compared.

Standardised T scores



	Visual			Auditory		
	Raw	Percentile	T score	Raw	Percentile	T score
Omissions	15	88	62	24	83	59
Commissions	6	29	44	6	65	54
RT-hits	673.11	13	39	*1052.5	50	50
SD RT-hits	209.76	67	54	*289.28	64	54

DESCRIPTION OF THE INDICES:

Omission errors: They occur when Markel has to press the button when the target stimulus appears but he/she does not. This variable is indicative of level of alertness (arousal) to respond to the target stimuli.

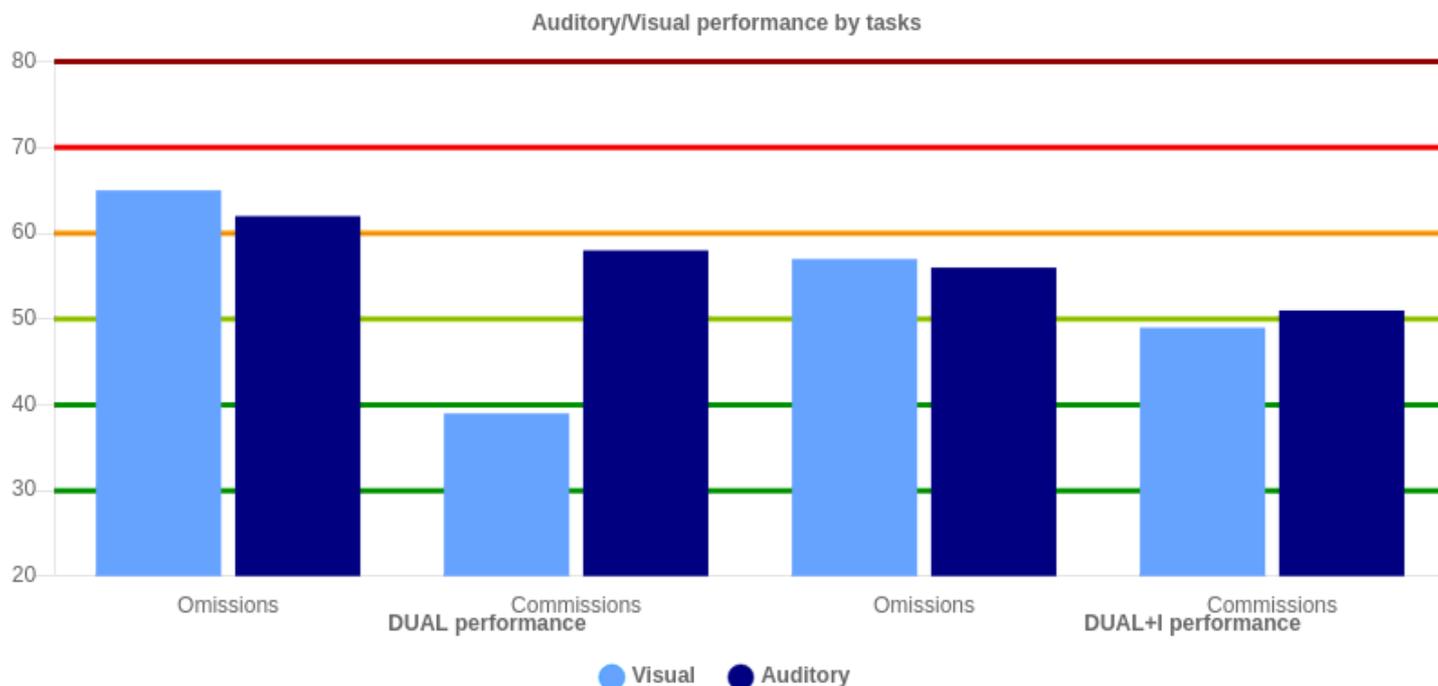
Commission errors: They occur when Markel must not press the button when the presented stimulus appears and, however, he/she presses it. This variable is indicative of impulsivity or inhibitory control which are involved in selective attention processes.

Mean RT (reaction time)-hits: It indicates the average time from the moment the stimulus appears until the button is pressed in the case of correct presses. This measure represents the average speed of response at which the stimulus is processed before responding.

Standard deviation of RT in hits: It indicates the variability of the RT in hits throughout the test. It is considered a measure of response consistency, and it can be a sign of fluctuating sustained attention or decreased vigilance during the test.

VISUAL/AUDITORY PERFORMANCE BY TASKS

In the following graph, we can observe how the scores in omissions and commissions have evolved throughout the task in both sensory modalities:



VISUAL PERFORMANCE:

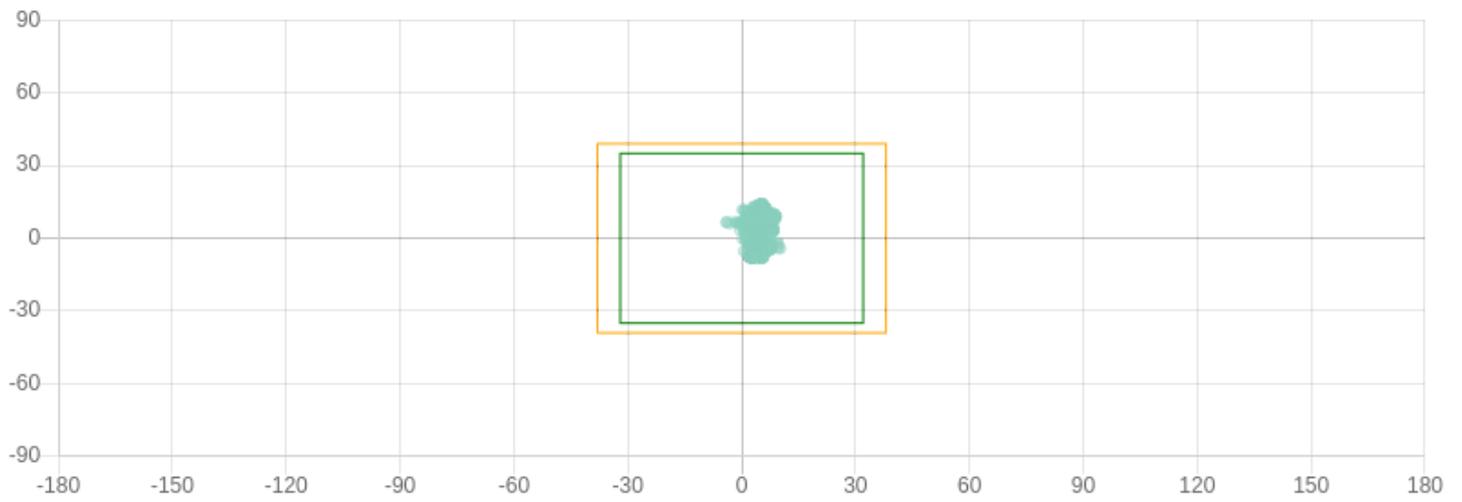
	DUAL performance			DUAL+I performance		
	Raw	Percentile	T score	Raw	Percentile	T score
Omissions	*11	93	65	4	74	57
Commissions	1	14	39	5	45	49

AUDITORY PERFORMANCE:

	DUAL performance			DUAL+I performance		
	Raw	Percentile	T score	Raw	Percentile	T score
Omissions	16	89	62	8	74	56
Commissions	3	79	58	3	54	51

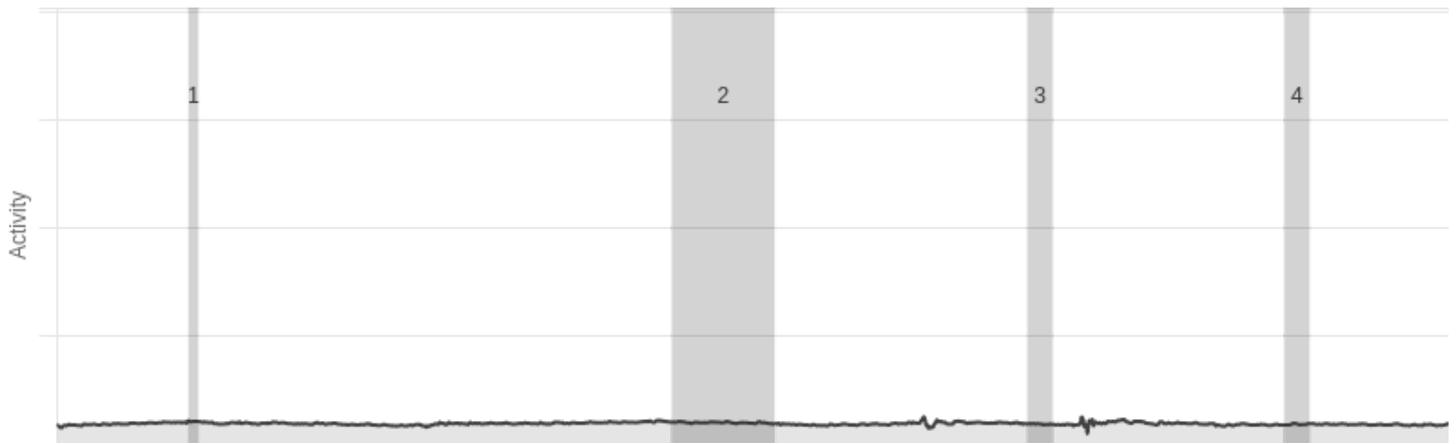
8. MOTOR ACTIVITY

The following graph shows Markel's movement throughout the test. The yellow frame represents those areas from which the visual stimuli can be seen. Outside of that frame it is impossible to see the visual stimuli to perform the task.

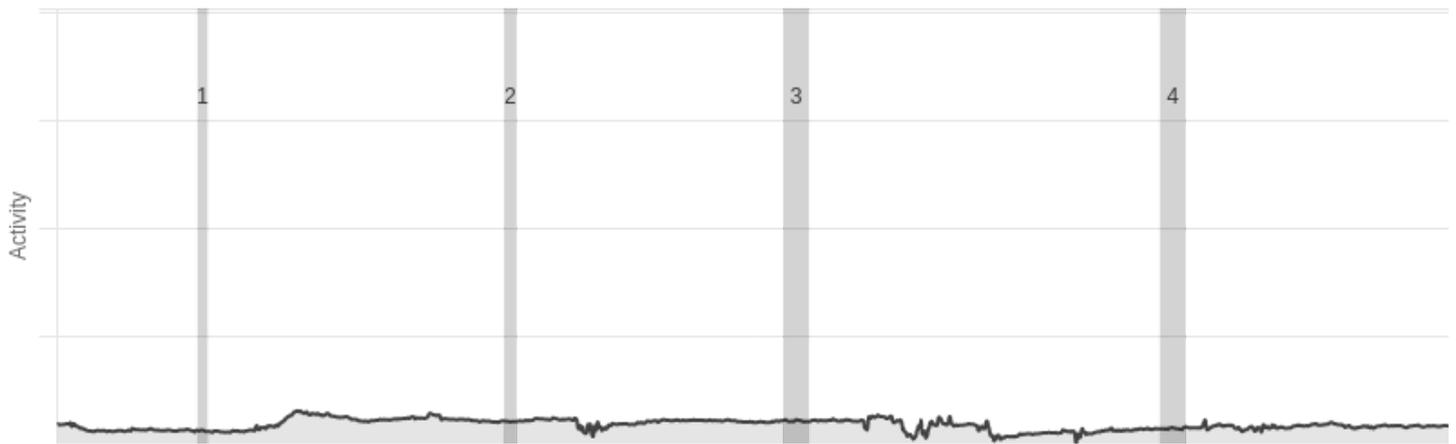


These graphs indicate Markel's activity longitudinally along the 2 tasks and in relation to the distractors presented during the task:

DUAL performance



DUAL+I performance



DUAL performance

- 1 Public address system - coffee
- 2 Child
- 3 Cough
- 4 Bubbles

DUAL+I performance

- 1 Telephone
- 2 Door
- 3 Baby
- 4 Public address system - photos

9. SUMMARY TABLE

