



## ASSESSMENT REPORT OF THE ATTENTION PROFILE

**Full name:** Markel Anonymous

**Gender:** Male

**Age:** 16

**Execution of the test:** 01/07/2021 19:19

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

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**Full name:** Markel Anonymous  
**Gender:** Male  
**Date of birth:** 12/02/2004  
**Age:** 16 years

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**Execution of the test:** 01/07/2021 19:19  
**Test duration:** 0:11:59  
**Scale used:** 16-40 Male

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### 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.



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# 1. NESPLORA AQUARIUM ASSESSMENT REPORT

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## 1.1. GENERAL DESCRIPTION

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

The virtual environment presented in the goggles is similar to a room of an aquarium and the subject is placed at the center of this room. The software updates the perspective depending on the head movements, providing the feeling of being into the virtual environment.

Between the two rocks of the main fish tank and through the headphones, different visual and auditory stimuli are presented. The subject should press the button or not depending on the instruction.

The test is composed by 3 tasks:

. Task 1 [Training] AX Paradigm The button should be pressed with certain visual and auditory stimulus as long as it is preceded by another determined auditory or visual stimulus.

Task 2 DualXno Paradigm: The button should be pressed with all visual and auditory stimuli except with certain visual stimulus and certain auditory stimulus (different from the visual one).

Task 3 DualXno Paradigm: The button should be pressed with all visual and auditory stimuli except with certain visual stimulus and certain auditory stimulus (different from the visual one). The stimulus that should not be pressed are reversed with respect to the previous task.

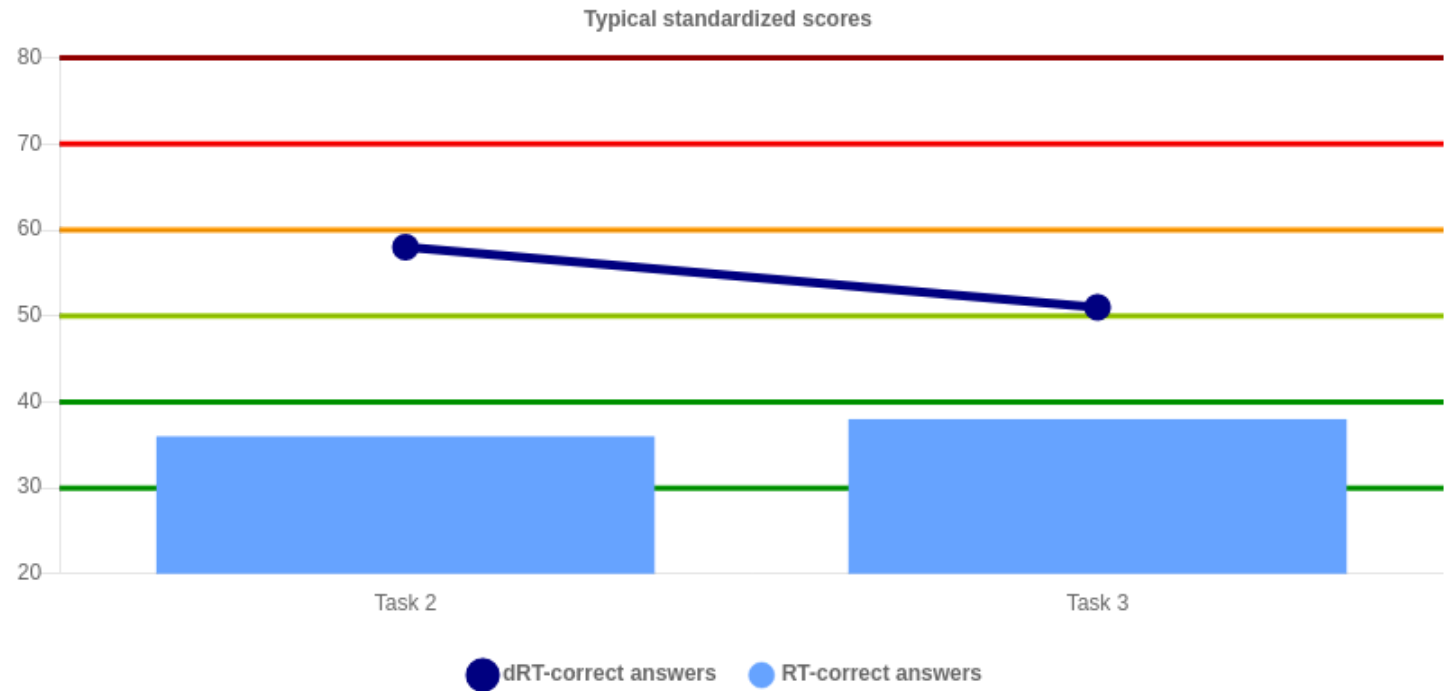
Data is shown in graphics and boards with text that explains the T scores obtained related to the performance.:



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. RESPONSE SPEED AND SUSTAINED ATTENTION

The following tables present the scores related to the reaction time and attentional vigilance during the test:



	Task 2			Task 3			Total		
	Raw	Percentile	T score	Raw	Percentile	T score	Raw	Percentile	T score
RT-correct answers	780.19	8	36	810.6	12	38	795.2	7	35
dRT-correct answers	317.3	80	58	306.67	55	51	312.46	71	55

### DESCRIPTION OF THE INDEXES:

**RT Mean (react time)-correct answers:** It indicates the average time from when the stimulus appears until the button is pressed at the correct answers. This measure represents the average response speed with which the stimulus is processed before responding. Markel obtained a **high performance** in this variable.

**Standard deviation of RT in correct answers:** It indicates the variability of RT in the correct answers throughout the test. It is considered a measure of answer consistency, and it can be a sign of fluctuation of the sustained attention or decrease in vigilance during the test. Markel obtained a **normal performance** in this variable.

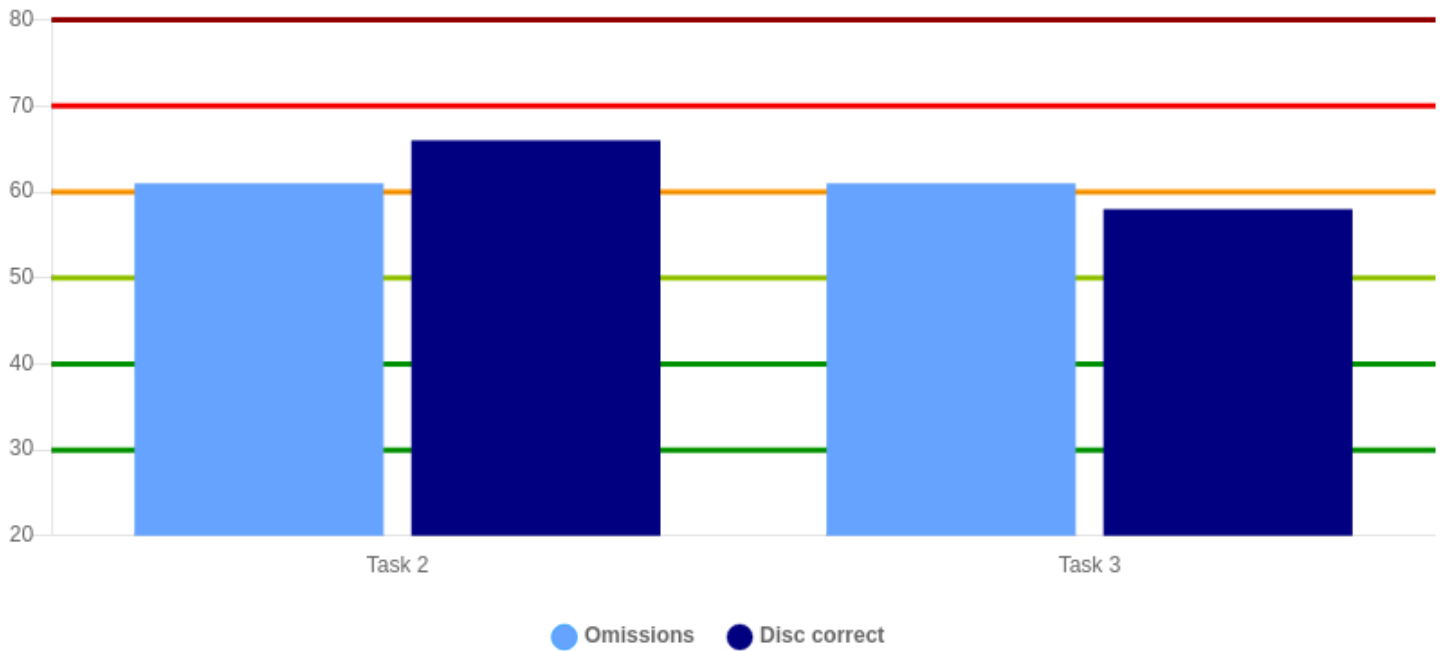
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### 3. ATTENTION AROUSAL AND CONSISTENCY IN THE RESPONSE

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

Typical standardized scores



	Task 2			Task 3			Total		
	Raw	Percentile	T score	Raw	Percentile	T score	Raw	Percentile	T score
Omissions	18	86	61	20	86	61	38	86	61
Disc correct	9	95	66	3	79	58	6	96	68

#### DESCRIPTION OF THE INDEXES:

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

**Correct answers discrepancy between blocks:** This score is obtained from the comparison between the correct answers in the first half of the task and the ones obtained in the second half of the task. This measure is considered an indicator of answer consistency and fatigue during the task. Markel obtained a **low performance** in this variable.

#### 4. INHIBITORY CONTROL

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

Typical standardized scores



	Task 2			Task 3			Total		
	Raw	Percentile	T score	Raw	Percentile	T score	Raw	Percentile	T score
Commissions	11	87	61	9	48	50	20	69	55
RT-commissions	748.09	72	56	562	12	38	664.35	40	47

#### DESCRIPTION OF THE INDEXES

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

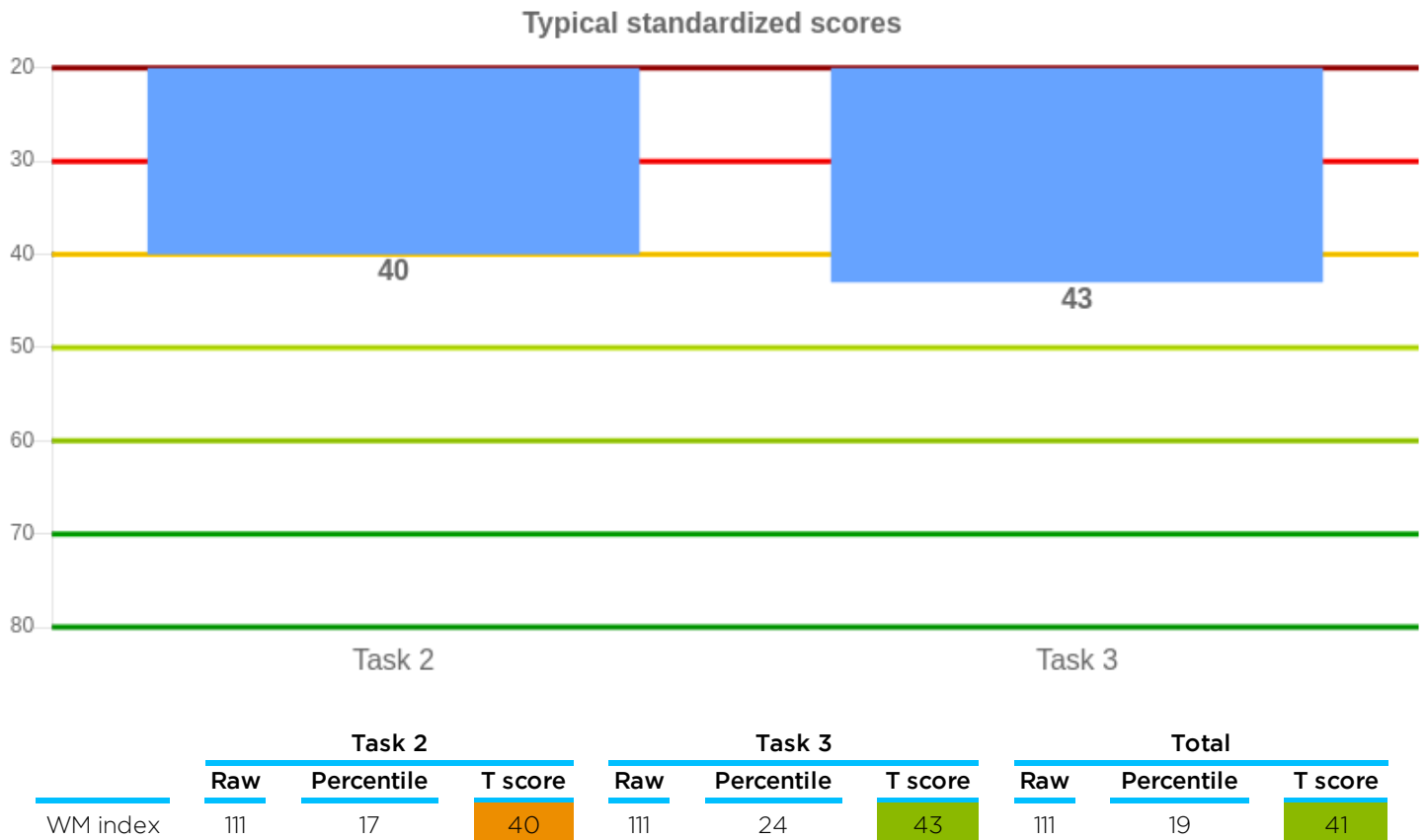
**RT Mean (Reaction Time)-commissions:** It indicates the average time from when the stimulus appears until the button is pressed at the wrong answers (commissions). This measure provides an explanatory and complementary nature to commission errors. Low reaction times are related to greater impulsivity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

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### 5. WORKING MEMORY (DUAL EXECUTION)

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



\*The scores must be interpreted in an inverse way, since they are based on the number of hits in the task.

### DESCRIPTION OF THE INDEXES

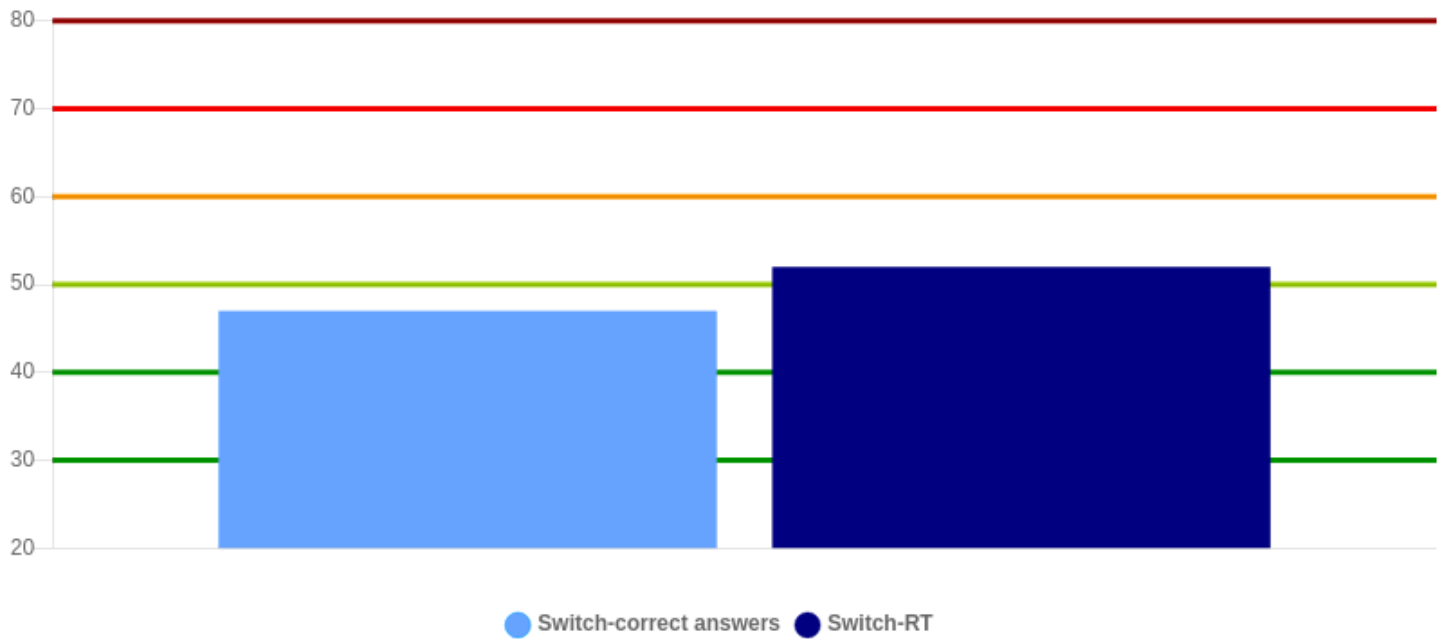
**Working memory indicator** It is defined by the overall performance of Markel in dual execution tasks. The parallel processing of both sensory modalities defines these exercises as dual execution tasks. This indicator measures the capacity of parallel processing during the completion of the task. Markel 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 “switch” capacity or change of the attentional resources. In the following graphic the indices corresponding to this capacity are presented.

Typical standardized scores



	Total		
	Raw	Percentile	T score
Switching	0	39	47
RT Switching -correct answers	706	57	52

### DESCRIPTION OF THE INDEXES

**Switching:** This index indicates the ability of to adapt to change between the tasks of the test, which reflects part of the cognitive flexibility of Markel. The score shows the difference between the correct answers in the last part of the task 2 and the correct answers at the beginning of the next task 3. Markel obtained a **normal performance** in this variable.

**RT Switching -correct answers:** This index measures the capacity of adaptation to change, which reflects part of the cognitive flexibility of Markel. The score shows the difference between the reaction time in the hits of the last part of task 2 and the number of hits in the beginning of task 3. Markel obtained a **normal performance** in this variable.

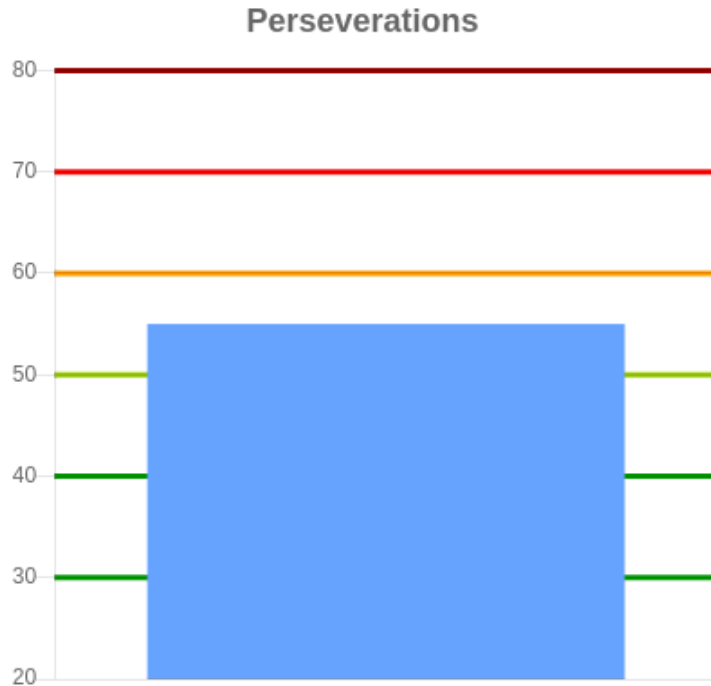


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### PERSEVERATIONS

The graphic and the table below present the index of perseverative errors of Markel. These are that errors in the task 3 (XnoDUAL) which are related to the target stimuli of the previous task:



	Raw	Percentile	T score
Perseverative errors	17	67	55

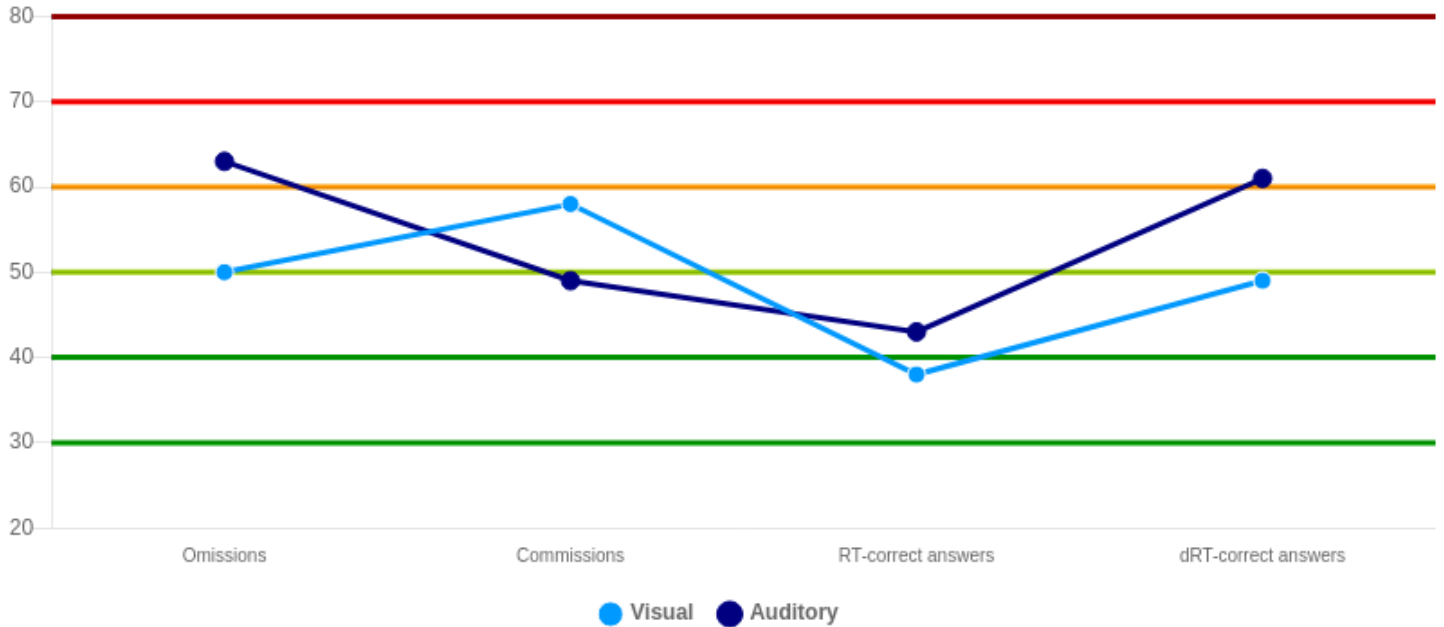
### DESCRIPTION OF THE INDEXES

**Perseverative errors:** This type of error occurs in the task 3 (DualXno) when Markel answers the task following the instructions of the previous task, in other words, when omitting pressing with the visual or auditory target stimulus of the previous task or when making commission errors. The score in this indicator shows the capacity of interference control of Markel, who 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.

**Typical standardized scores**



	Visual			Auditory		
	Raw	Percentile	T score	Raw	Percentile	T score
Omissions	2	49	50	*36	90	63
Commissions	*16	80	58	4	45	49
RT-correct answers	667.63	11	38	*992.74	26	43
dRT-correct answers	178.81	47	49	*367.53	86	61

**DESCRIPTION OF THE INDEXES:**

**Omission errors:** They occur when Markel has to press the button with the target stimulus but it does not. This variable is indicative of alertness (arousal) to respond to the target stimuli.

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

**RT Mean (react time)-correct answers:** It indicates the average time from when the stimulus appears until the button is pressed at the correct answers. This measure represents the average response speed with which the stimulus is processed before responding.

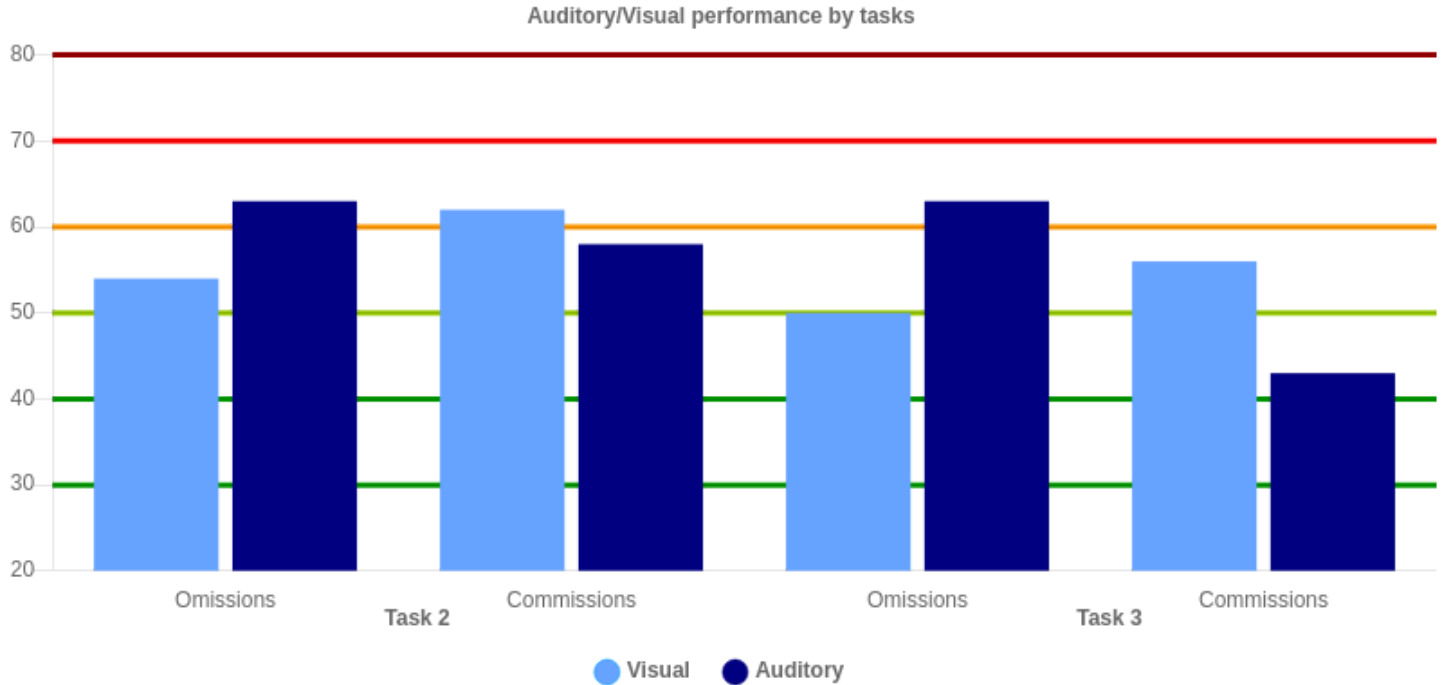
**Standard deviation of RT in correct answers:** It indicates the variability of RT in the correct answers throughout the test. It is considered a measure of answer consistency, and it can be a sign of fluctuation of the sustained attention or decrease in vigilance during the test.

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### 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:

	Task 2			Task 3		
	Raw	Percentile	T score	Raw	Percentile	T score
Omissions	1	66	54	1	49	50
Commissions	8	88	62	8	73	56

#### AUDITORY PERFORMANCE:

	Task 2			Task 3		
	Raw	Percentile	T score	Raw	Percentile	T score
Omissions	17	90	63	19	91	63
Commissions	3	79	58	1	24	43

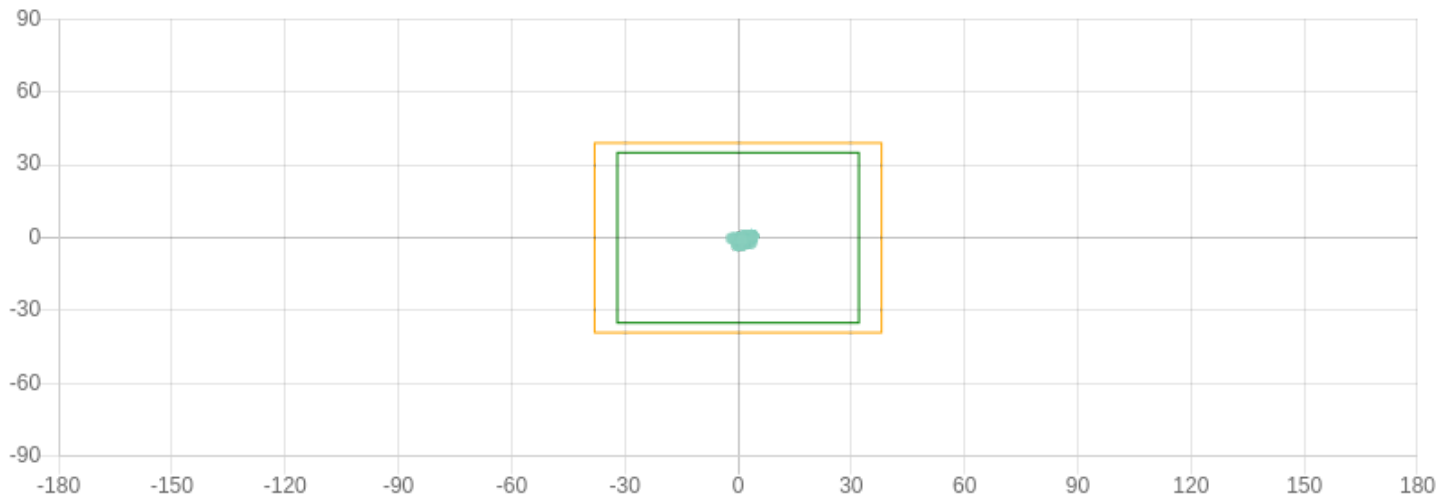
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### 8. MOTOR ACTIVITY

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The following graph shows the movement of Markel during the entire test. The yellow frame represents those areas from which the area of visual stimuli can be seen. Outside of that frame it is impossible to visualize the visual stimuli to perform the task.

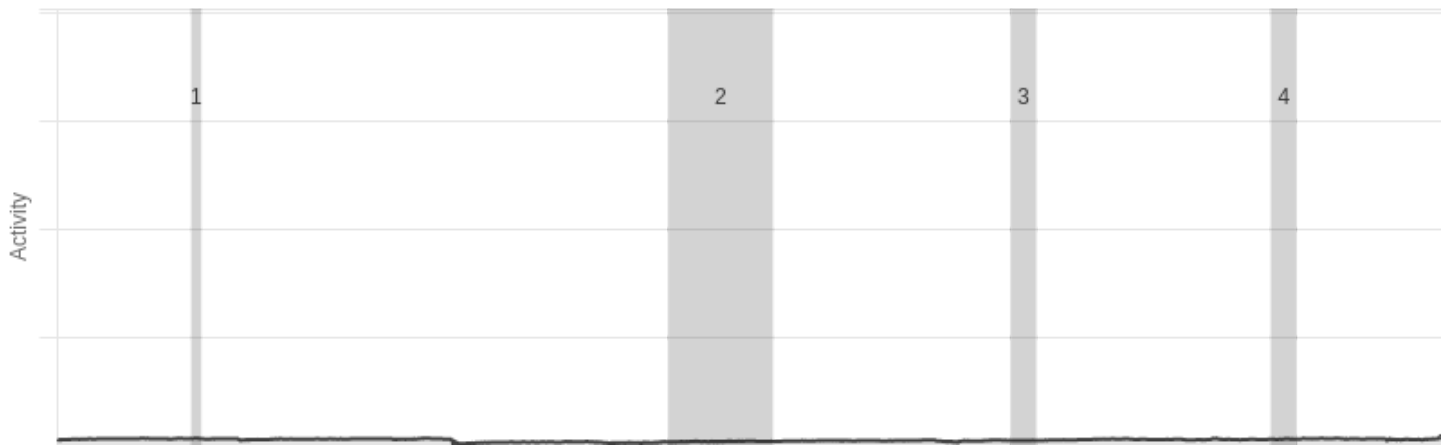


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These graphs indicate the activity of Markel longitudinally along the 2 tasks and in relation to the distractors presented during the same:

### Task 2



### Task 3



#### Task 2

1	Coffee megaphone
2	Boy
3	Cough
4	Bubbles

#### Task 3

1	telephone
2	Door
3	Baby
4	Photograph megaphone

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### 9. SUMMARY TABLE

