Experiment HP-25: Feature Integration Theory

Equipment Required

PC or Mac Computer

IXTA, USB cable, power supply

1 – RPD-320 4-Button Response Pad

Sensor Setup

1. Locate the RPD-320 4-Button Response Pad. Plug the connector in the RPD and into the Digital Input on the back of the IX-TA.

Figure HP-25-S2: The IXTA shown with the RPD-320.

Set the Viewing Distance

1. Click "Viewing Distance" on the Sequences list on the LabScribe toolbar.
2. Click Record and run the Viewing Distance sequence.
3. Follow the directions on the prompt for setting the proper viewing distance for your subjects for this lab. It is important to sit the correct distance away from the monitor.
4. One the viewing distance is set, continue to the Lab directions for completing the Feature Integration Theory test.

Lab
iWorx

Experiment HP-25: Feature Integration Theory

General Directions:

All Tests will follow the same general directions.

- Subjects will be shown a series of 128 images – they will have the letters X, T, and/or S.
- Each image will stay on the screen for 1 sec
  - After the image is shown:
    - the subject will press the letter "A" on the response pad for "YES" if a **green T**; or a **blue letter** or an **S** of any color
    - The subject will press the letter "D" on the response pad for "NO" if the symbols mentioned above are not shown

Exercise 1: Green T

Procedure

Warning: In this exercise, it is important to remember to quickly press the button A or D for answering YES or NO. The objective is to have as few errors as possible.

1. Click on the Record **button**.
2. Click the **GreenT** sequence on the toolbar and run the sequence to begin the sequence of images.
3. Follow the **General Directions** as outlined above.
4. After the image is shown make sure to press the A or D button on the response pad as fast as possible to answer Yes or No if a **green T** was visualized.
5. Click Stop to halt recording.
6. Click on the Save button to save the data file.

IworX Sample Lab

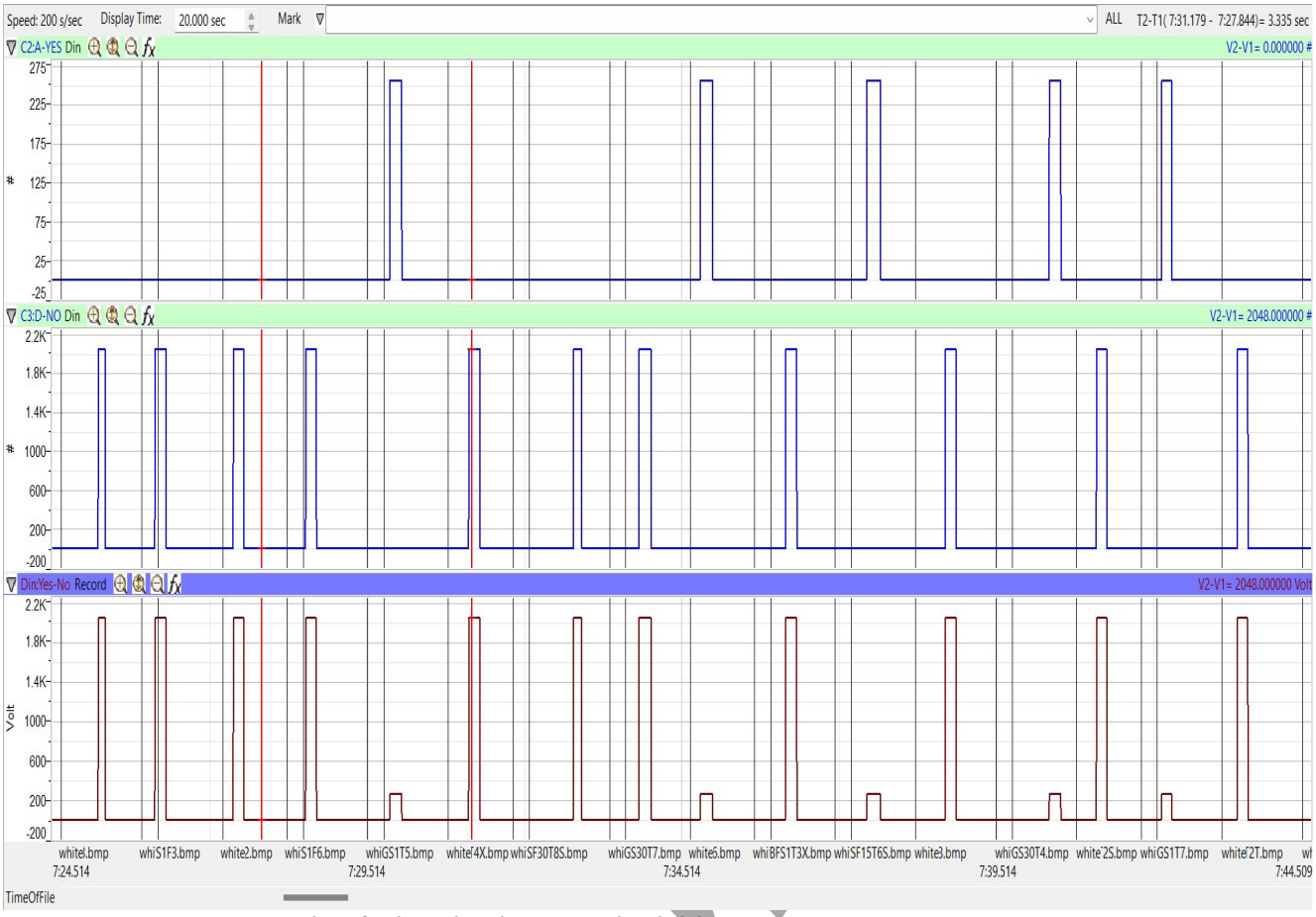


Figure HP-25-L1: Sample of what the data may look like.

Data Analysis

NOTE: The name of the images are such that they will be easy to analyze, but difficult for the subject to know what they are by name.

Images that start with the letter "G" - have a **green T**
Images that start with the letter "B" are **blue**
Images that start with the letter "**S**" include that letter in the image

Work Sample

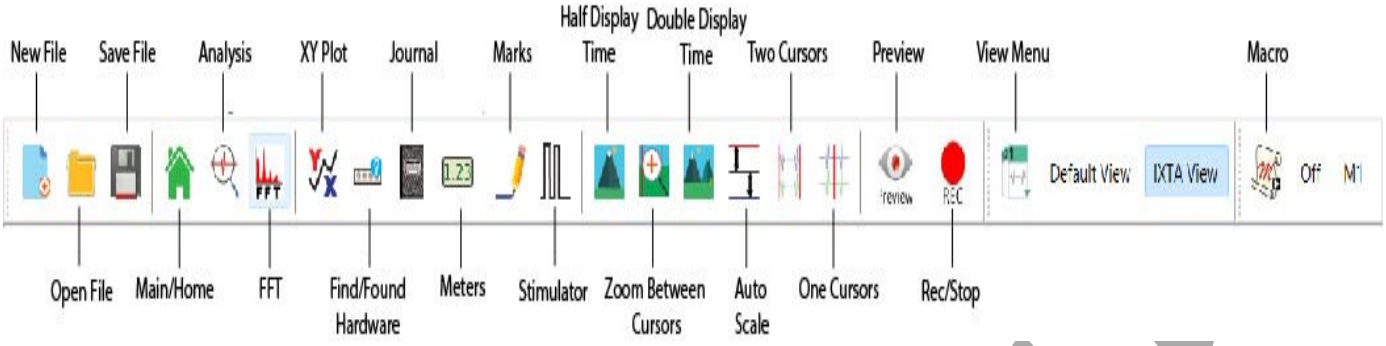


Figure HP-25-L2: LabScribe toolbar.

1. Move to the beginning of the recording and place both red cursors before the onset of the first image being shown, but after the directions.
2. Click the Double Display time button until approximately 10 responses show on the screen.
3. Click the Analysis Window button on the toolbar to move into the analysis screen.
4. Set up your AutoFind to make analyzing the data easier:
    - Click Tools
    - Click AutoFind
    - **Set up the AutoFind**
        - Find Mode – Advanced
        - NewCursor1 Position – Mark
            - Mark – G (for "Green" - in the name of the automated marks)
        - NewCursor2 Position – NextMax
            - Adjust the horizontal cursors so they go through the smaller peaks as shown in Figure HP-25-L3.
        - Put a check mark in "Add Mark to Cursor2 Position" and name the mark (in the example - "Answer")
        - Repeat Until – Block Limits
        - Make sure to Export to Journal
        - Click "Find"

IWorX Sample L

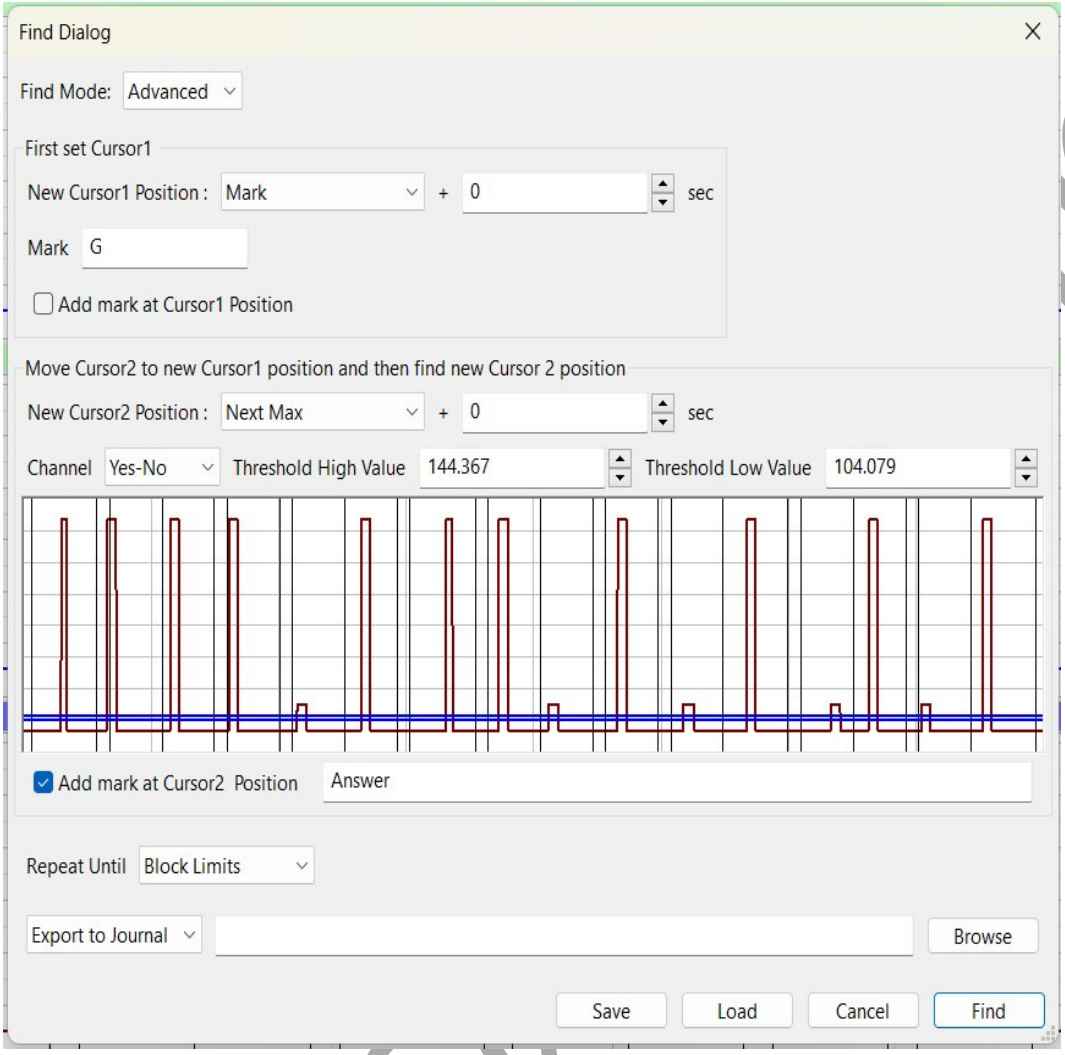
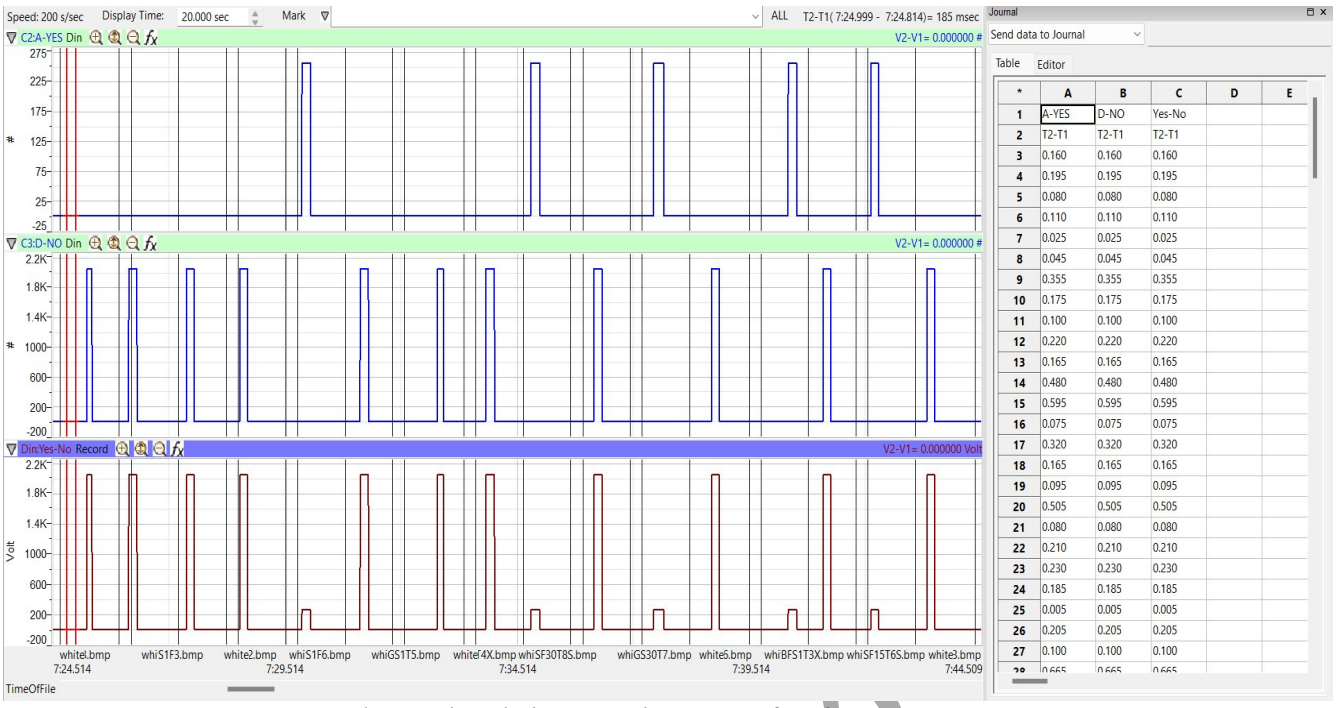


Figure HP-25-L3: AutoFind Settings for marks that begin with a "G".

5. The AutoFind will automatically find all the marks for the images that start with G (for **green T**) and the answer made by pressing the "A" button on the response pad.
6. The value T2-T1 will be exported to the Journal for all responses to the "G" images.
7. Click the Journal icon to open the Journal to see the timing for all answers to the G responses.
8. Save your file after performing the AutoFind.

IWorx Software



*	A	B	C	D	E
1	A-YES	D-NO	Yes-No		
2	T2-T1	T2-T1	T2-T1		
3	0.160	0.160	0.160		
4	0.195	0.195	0.195		
5	0.080	0.080	0.080		
6	0.110	0.110	0.110		
7	0.025	0.025	0.025		
8	0.045	0.045	0.045		
9	0.355	0.355	0.355		
10	0.175	0.175	0.175		
11	0.100	0.100	0.100		
12	0.220	0.220	0.220		
13	0.165	0.165	0.165		
14	0.480	0.480	0.480		
15	0.595	0.595	0.595		
16	0.075	0.075	0.075		
17	0.320	0.320	0.320		
18	0.165	0.165	0.165		
19	0.095	0.095	0.095		
20	0.505	0.505	0.505		
21	0.080	0.080	0.080		
22	0.210	0.210	0.210		
23	0.230	0.230	0.230		
24	0.185	0.185	0.185		
25	0.005	0.005	0.005		
26	0.205	0.205	0.205		
27	0.100	0.100	0.100		

Figure HP-25-L4: AutoFind completed showing the timing for the responses.

Questions:

1. What was the mean reaction time of the subject for responding the all the images?
2. What was the total percentage correct for all the images? Percent incorrect?
3. What was the reaction time for the correct answers? Incorrect answers?
4. What could be some of the reasons for the difference in reaction time as relating to Treisman and Gelade's study on Feature Integration of Attention?

Exercises 2 – Blue Letter or any S:

Procedure

1. Repeat the same directions from Exercise 1.
2. The subject will now be looking for any **blue letter** or an **S of any color**.
3. Click A for Yes to a blue letter or an S; click D for No.

Data Analysis

NOTE – The cursors have to be placed right before the mark made by the first image after completing the first autofind of this data analysis.

Iworx Sample

1. Repeat the same directions from Exercise 1.
2. When setting up the AutoFind, set it so that the Mark letter is a **B** or an **S**, instead of a G.
3. Analyze for both B and S individually.

Questions:

1. What was the mean reaction time of the subject responding to all the images?
2. What was the total percentage correct for the images? Percent incorrect?
3. What was the percentage of blue letters correctly identified? The letter S identified?
4. Was this more difficult than just looking for a green T? Why or why not?
5. Were the "distractors" actually a hindrance in identification?

It is important to keep track of the percentages between the different Exercises.

IworX Sample Lab