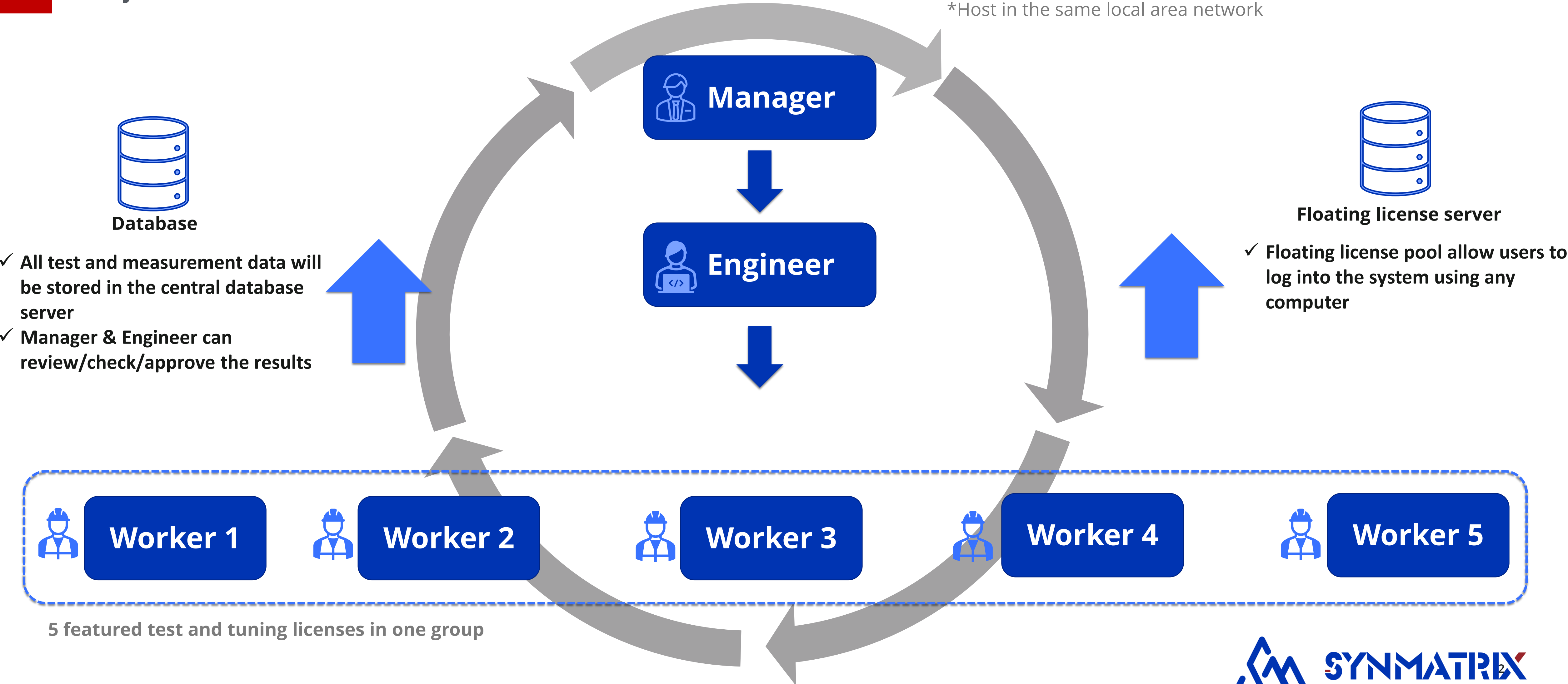




# Computer-Aided Manufacturing: Filter Tuning

# Introduction

## System Architecture



# Introduction

## Workflow

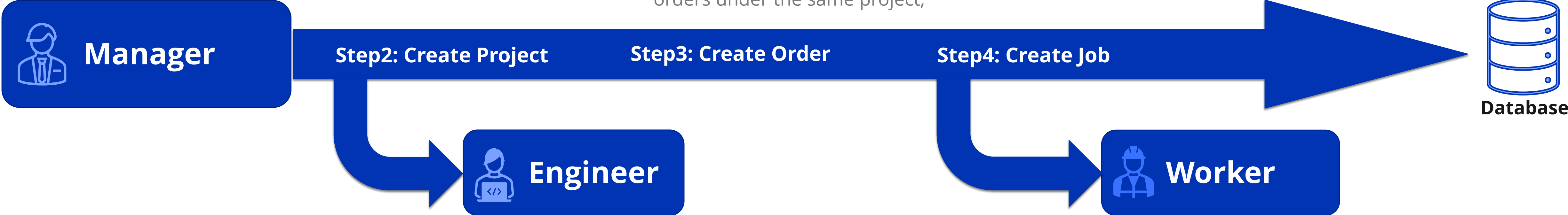
### Step1: Create the account for worker(see page 5)

- Initially, the system only has manger and engineer two roles;
- Manager needs to add workers to the platform;
- Manager can change the user name and password to each account;

### Step3: Create the Order

- The same project with the specific requirement can sale to different clients;
- Manager can create the multiple orders under the same project;

All tuning and measurement data will be upload to data server;



### Step2: Create the Project


- Manager can create the project based on client information;
- Once it has been created, engineer will be the first one to get the project information;
- Both manager and engineer is allow to do the design requirement analysis;

### Step4: Create the Job

- As long as the job is created, manager can create the job under the order and assign the test and tuning job to different workers;
- All project and order information will pass to worker system;

# Introduction

## Role Responsibilities Overview



Test & Tuning for Manufacture

### Sign In

You must sign in before using the application.

### Manager Role

- Team management: system administrator
- Create the project
- Manage and Assign jobs
- Review & approve measurement data

### Engineer Role

- Basic license: Analyze & design
- Diagnose & tune
- Review & approve measurement data

### Worker Role

- Test and tune per job request
- Upload data



# Working Principles

## Manager Role: Team Management System

The screenshot displays the SynMatrix Accounts Management interface. The left sidebar contains navigation options: Synthesis, Single, Dip/MUX, Toolbox, Monte-Carlo Anal..., Optimization, Project Management, e-Library, Admin, Accounts (highlighted), and Logout. The main content area shows 'Account Management (Refresh)' with a table of users and two modal windows.

User Name	Role	Operation	Operation	Remove
1 manager	manager	Change Name	Change Password	Remove
2 engineer	engineer	Change Name	Change Password	Remove

Two modal windows are open:

- Change Password:** Fields for Name (manager), Password, and Confirm Password (confirm your password). A green Submit button is at the bottom right.
- Add a New Worker:** Fields for Name (worker), Password, and Confirm Password. Green checkmarks are visible next to the Password and Confirm Password fields. A green Submit button is at the bottom right.

Labels below the modals indicate their functions: **Change Password** and **Add new team member**.

- Team member management system
  - ✓ Manage access and passwords
  - ✓ Add/delete team members

# Working Principles

## Manager Role: Project Management System—Create the Project

Project Management

Input project name to search

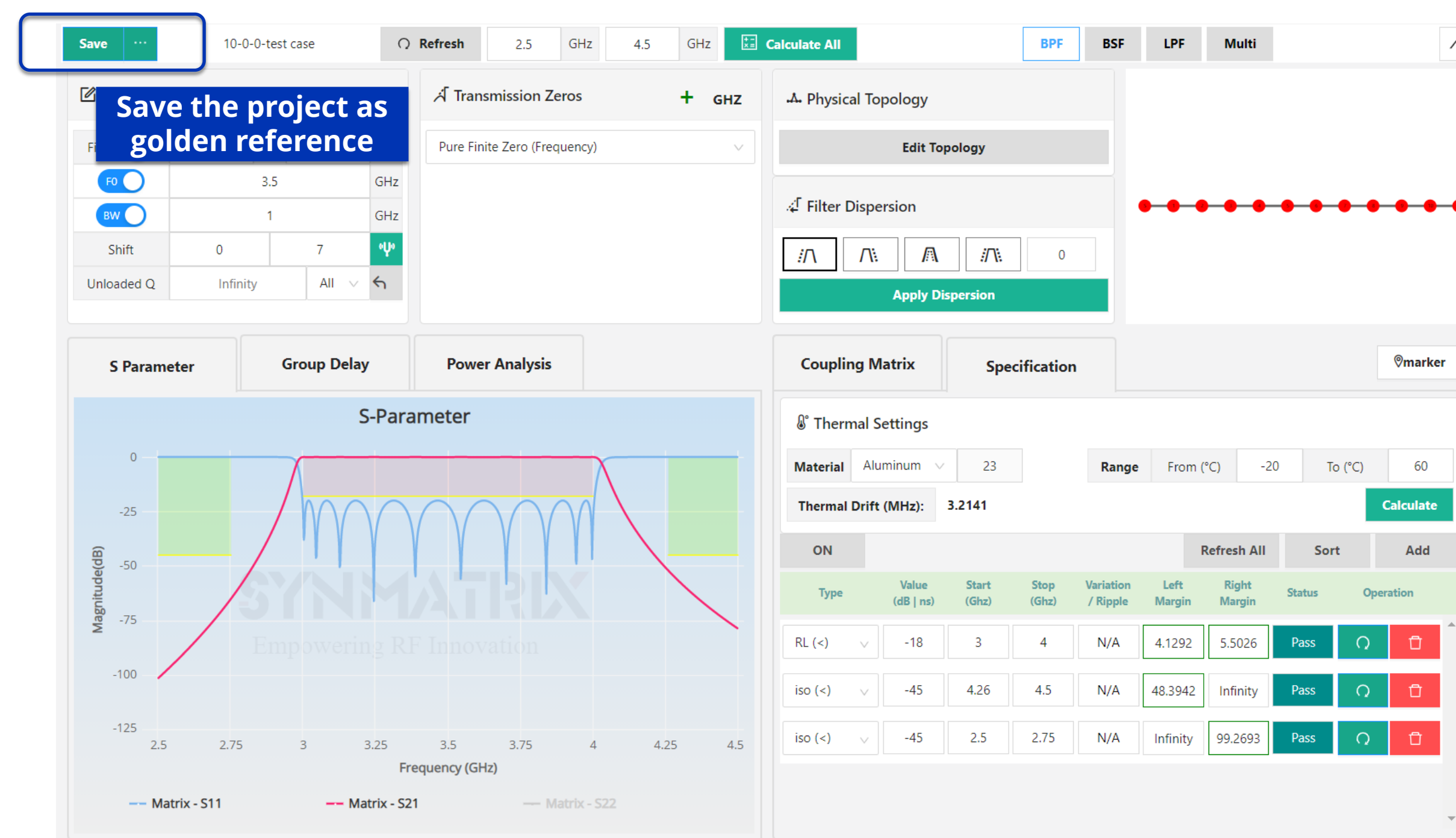
Project Name	Filter Type	Filter Order	Center Frequency	Bandwidth	Transmission Zeros	Created	Last Modified	Load	Delete
1 10-0-0-test case	BPF	10	3.5	1	0			<input type="button" value="Load"/>	<input type="button" value="Delete"/>
2 9-3-0	BPF	9	2.66	0.08	3			<input type="button" value="Load"/>	<input type="button" value="Delete"/>

< 1 / 1 >

Click the project name and step into the project task work

Once manager creates the project, it will pass directly to both engineer and worker. They both can see the requirement and start the project and jobs

- **Project Management System: Create project**
  - ✓ Create project request based on user's requirement
  - ✓ Save/delete and load projects into the management system
- **After the project has been created (for any role)**
  - ✓ Click "Load" to review project information
  - ✓ Click the project name and begin the order or jobs



# Working Principles

**Manager Role:** Project Management System – Create the new order

The screenshot shows the 'Project Dashboard - 10-0-0-Demo' with the 'Orders' tab selected. A 'New Order' modal is open, containing the following fields:

- \* Order Name: Order 1
- \* Customer Name: SynMatrix
- \* Start Date: 2022-07-01
- \* Due Date: 2022-07-10
- \* Quantity: 5

A 'Submit' button is located at the bottom right of the modal. In the background, an 'S-Parameter' plot is visible, showing Magnitude (dB) vs Frequency (GHz) for Golden - S11, Golden - S21, and Golden - S22.

The screenshot shows the 'Project Dashboard - 10-0-0-Demo' with the 'Orders' tab selected. A 'Job Detail' modal is open, displaying the following information:

- Job Name: Order1
- Quantity: 5
- Status: Ongoing
- Remarks: Please complete it with proper freq margins

Buttons for 'Close', 'Edit Job', and 'Mark as Completed' are at the bottom of the modal. In the background, an 'Order List' table is visible with the following data:

ID	Order Name	Start Date	Due Date	Options
5	Order1	2022-06-28	2022-06-28	Detail   Delete

- **Project Management System: create the new order**
  - ✓ Create the new order based on customer purchase requests
  - ✓ Define the order due date and quantity number

# Working Principles

## Manager Role: Project Management System – Assign a new job

Project Dashboard - 10-0-0-Demo

Overview Orders

Job List

Job ID	Order ID	Worker	Job Name	Quantity	Status	Options
1	1	3	Order 1	5	Ongoing	Details Delete

Assign New Job

\* Job Name: Order 1

\* Worker: 3 - James

\* Order: 1 - Order 1

\* Quantity: 5

Remarks: Please complete the tuning work with proper freq margins; Keep the RL level lower than 18dB

Submit

Test&Tuning Results Group Delay Phase VSWR

S-Parameter

Magnitude(dB)

Frequency (GHz)

Golden - S11 Golden - S21 Golden - S22

## Worker role side

Project Dashboard - 10-0-0-Demo

Overview

Jobs assigned to you under this project

Job ID	Job Name	Quantity	Status	Options
1	Order 1	5	Ongoing	View

Job Detail

Job Name: Order 1

Quantity: 5

Status: Ongoing

Remarks: Please complete the tuning work with proper freq margins; Keep the RL level lower than 18dB

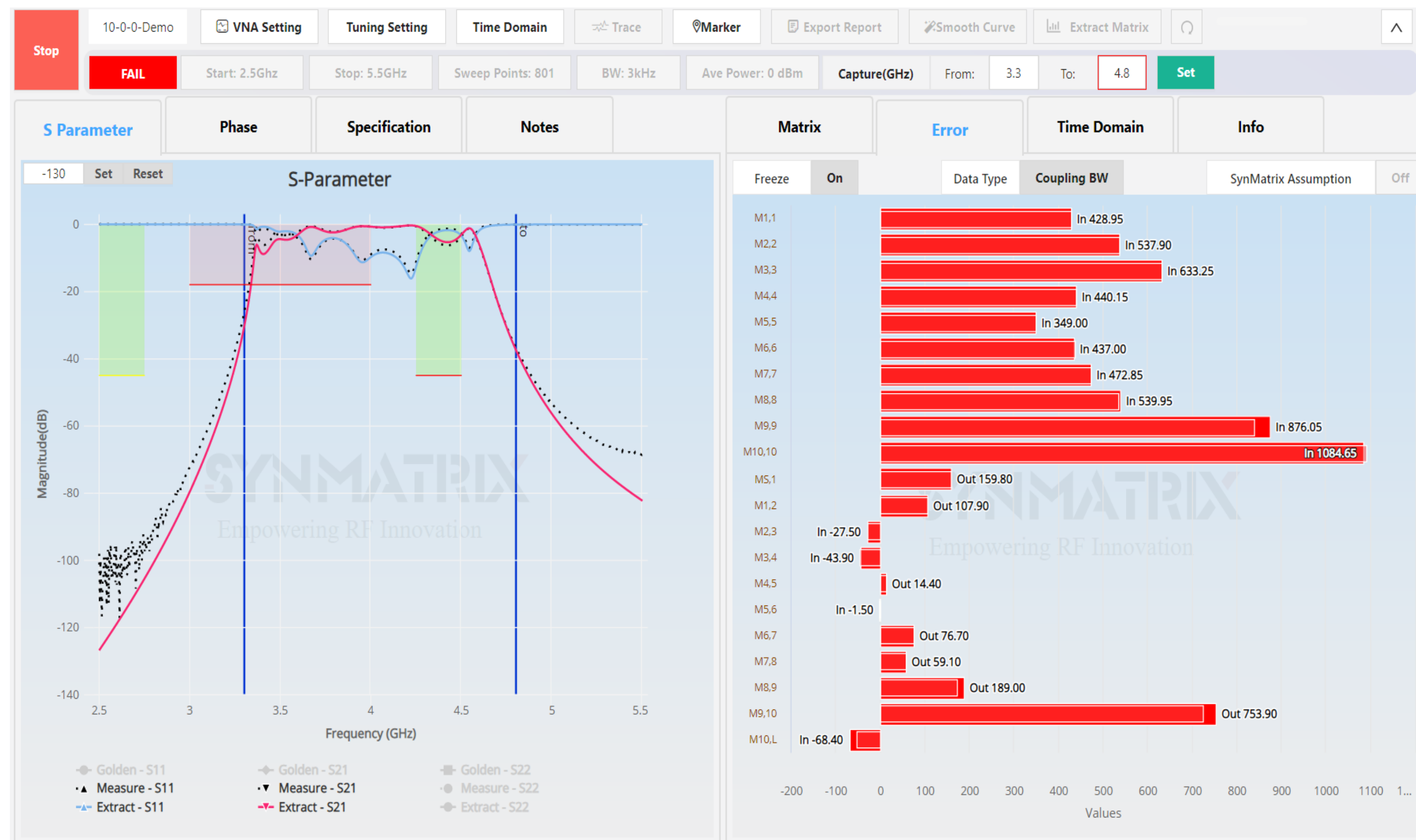
Close

### Project Management System: Assign a new job

- ✓ Assign a new job to a worker
- ✓ Define the job due date and job quantity

# Working Principles

Worker & Engineer Role: Start the tuning work



- ✓ Support Rohde & Schwarz, Copper Mountain and Keysight VNA
- ✓ VNA fully control
- ✓ Time domain tuning
- ✓ Manual tuning & In real time tuning
- ✓ Save the date and generate the test report



# Working Principles

**Worker Role:** Upload the data for approval

Project Dashboard - 10-0-0-Demo

Overview

Jobs assigned to you under this project

Job ID	Job Name	Quantity	Status	Options
1	Order 1	5	Ongoing	View

Tuning Data List

ID	Name	Job ID	Description	Status	Options
1	No.1.s2p	1	No.1 tuning data	Working	Detail   Delete
2	No.2.s2p	1	No.2 tuning data	Working	Detail   Delete
3	No.3.s2p	1	No.3 Tuning data	Working	Detail   Delete
4	No.4.s2p	1	No.4 Tuning data	Working	Detail   Delete
5	No.5.s2p	1	No.5 Tuning Data	Working	Detail   Delete

Filename: No.2.s2p  
Description: No.2 tuning data  
Update Data | **Turn in for Check**

Click "Detail" to upload the data to server for approval

once user click "Turn in for Check", the status will be changed to "Wait for Check"

S Parameter

Group Delay

Phase

VSWR

S-Parameter

Frequency (GHz)

Golden - S11, Golden - S21, Golden - S22, Measure - S21, Measure - S22

Project Dashboard - 10-0-0-Demo

Overview

Jobs assigned to you under this project

Job ID	Job Name	Quantity	Status	Options
1	Order 1	5	Ongoing	View

Tuning Data List

ID	Name	Job ID	Description	Status	Options
1	No.1.s2p	1	No.1 tuning data	Working	Detail   Delete
2	No.2.s2p	1	No.2 tuning data	Working	Detail   Delete
3	No.3.s2p	1	No.3 Tuning data	Working	Detail   Delete
4	No.4.s2p	1	No.4 Tuning data	Working	Detail   Delete
5	No.5.s2p	1	No.5 Tuning data	Working	Detail   Delete

Click "Add Tuning File" to add the measurement data to platform

Add Tuning File

New Tuning File

Upload File

File to Upload: No.2.s2p

Job: 1 - Order 1

Description: No.2 tuning data

Submit

## Worker Role—Data management

- ✓ Once the test and tuning task is over, user is able to save the S2P file to the platform
- ✓ Worker is able to upload the data to the server and wait for approval

# Working Principles

## Manager & Engineer Role: Data review & Approval

### Manager or Engineer role

The screenshot displays the SynMatrix software interface. On the left, there is a 'Job List' table with columns: Job ID, Order ID, Worker, Job Name, Quantity, Status, and Options. Below it is a 'Tuning Data List' table with columns: ID, Job ID, Worker, Name, Description, Status, and Options. The 'Status' column in the Tuning Data List shows 'Returned', 'Approved', 'Working', and 'Wait for Check'. In the center, an 'S-Parameter' plot shows Frequency (GHz) on the x-axis (3 to 4.5) and S(dB) on the y-axis (-40 to 0). The plot includes 'Golden - S21', 'Measure - S21', 'Golden - S22', and 'Measure - S22' data series. A modal window is open over the plot for 'No.2.s2p' with 'Download', 'Approve', and 'Reject' buttons. A large blue arrow points from the 'Approve' button to the 'Returned' status in the Tuning Data List.

Job ID	Order ID	Worker	Job Name	Quantity	Status	Options
1	1	3	Order 1	5	Ongoing	Detail   Delete

ID	Job ID	Worker	Name	Description	Status	Options
1	1	3	No.1.s2p	No.1 tuning data	Returned	Detail
2	1	3	No.2.s2p	No.2 tuning data	Approved	Detail
3	1	3	No.3.s2p	No.3 Tuning data	Working	Detail
4	1	3	No.4.s2p	No.4 Tuning data	Working	Detail
5	1	3	No.5.s2p	No.5 Tuning Data	Wait for Check	Detail

### Data Approval

- ✓ Both manager and engineer can review the data and approve the tuning work
- ✓ Manager/engineer can click "Detail" to approve the data or reject it and ask for tuning rework

The screenshot shows the SynMatrix user interface. The user is logged in as 'manager (Manager)'. There is a 'Message Center' button. A chat window is open, showing a list of users including 'engineer' and 'James'. A blue arrow points from the 'Message Center' button to the chat window. A blue box contains the text: 'Click "Message" to send the instruction to engineer or worker'.



# Contact for Demo

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**Thank  
you!**

