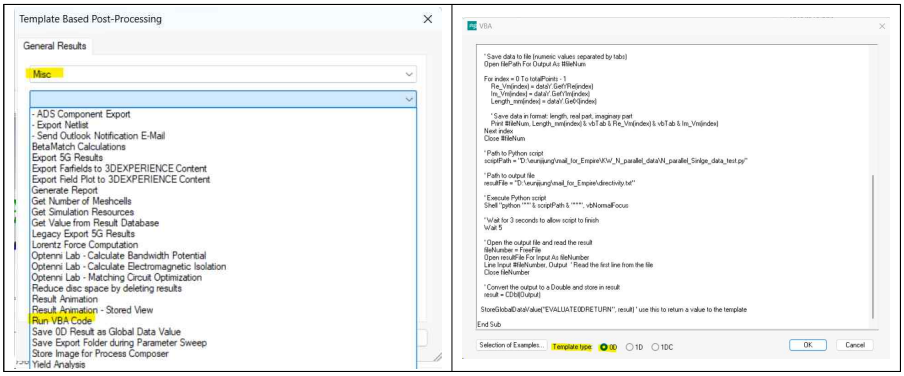
1. Result Templates image



2. VBA Code

```
Sub Main()

    Dim dataY As Variant
    Dim index As Integer
    Dim totalPoints As Integer
    Dim scriptPath As String
    Dim resultFile As String
    Dim Output As String
    Dim fileNumber As Integer
    Dim result As Double

    ' Extract E-Field data from result tree
    Set dataY = ResultTree.GetResultFromTreeItem("Tables\1D Results\curve1_e-field (f=0.476) (1)", "3D:RunID:0")

    ' Get total number of data points
    totalPoints = dataY.GetN()

    ' Initialize arrays for real part, imaginary part, and length
    Dim Re_Vm() As Double
    Dim Im_Vm() As Double
    Dim Length_mm() As Double
```

eunji 2025/02/23 16:33
Change the Tree address to fit your file.

```
    ReDim Re_Vm(totalPoints - 1)
    ReDim Im_Vm(totalPoints - 1)
    ReDim Length_mm(totalPoints - 1)

    ' File path for saving data
    Dim filePath As String
    filePath = "D:\eunjijung\mail_for_Empire\KW_N_parallel_data\test.txt"
    Dim fileNum As Integer
    fileNum = FreeFile()

    ' Save data to file (numeric values separated by tabs)
    Open filePath For Output As #fileNum

    For index = 0 To totalPoints - 1
        Re_Vm(index) = dataY.GetYRe(index)
        Im_Vm(index) = dataY.GetYIm(index)
        Length_mm(index) = dataY.GetX(index)

        ' Save data in format: length, real part, imaginary part
        Print #fileNum, Length_mm(index) & vbTab & Re_Vm(index) & vbTab & Im_Vm(index)
    Next index
    Close #fileNum

    ' Path to Python script
    scriptPath = "D:\eunjijung\mail_for_Empire\KW_N_parallel_data\N_parallel_Sinlge_data_result_template.py"

    ' Path to output file
    resultFile = "D:\eunjijung\mail_for_Empire\directivity.txt"

    ' Execute Python script
    Shell "python """ & scriptPath & """", vbNormalFocus

    ' Wait for 3 seconds to allow script to finish
    Wait 3

    ' Open the output file and read the result
    fileNumber = FreeFile
```

eunji 2025/02/23 16:35
Set the file address to store E-field information.

eunji 2025/02/23 16:37
Replace this with the address of the Python file on your computer.

eunji 2025/02/23 16:37
Set the file address to store directivity information.
When setting up a VBA code that outputs N_parallel, be careful that the address to store N_parallel information must be set separately.

eunji 2025/02/24 22:54
If the results after simulation are incorrect, try increasing this time.

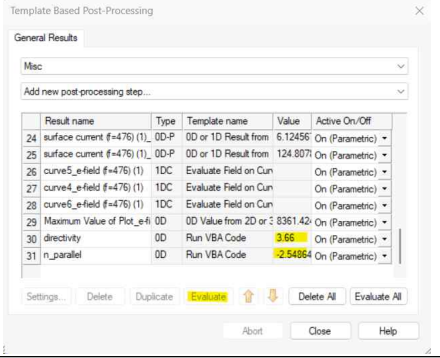
```
    Open resultFile For Input As fileNumber
    Line Input #fileNumber, Output   ' Read the first line from the file
    Close fileNumber

    ' Convert the output to a Double and store in result
    result = CDbl(Output)

    StoreGlobalDataValue("EVALUATE0DRETURN", result) ' use this to return a value to the template

End Sub
```

3. Result Templates image



* When applying this code for the first time, you should run a simulation(not just Evaluate at the Result Templates) with a file with known n_parallel and directivity values to check whether it operates correctly.

4. Python file

- Edit all parts where the address is written.