

## EXCEL macro code for Percentile Frequency Calculations

The following is macro code for calculating Percentile Frequencies from Specific Loudness Patterns imported into a Microsoft EXCEL spreadsheet.

```
Sub Perc_Freq_Row()
```

```
'Calculates Percentile Frequencies for Zwicker Specific Loudness Patterns
```

```
'INPUT: Expects one Pattern per Row (The User must select the Range containing the  
Patterns)
```

```
'Calculates total area under Pattern and Seven %-ile Frequencies (as line numbers)
```

```
'(Line numbers refer to the presentation of the Critical Bands)
```

```
'For example:
```

```
' Head Acoustics uses 10 lines per band for a total of 240 lines per pattern
```

```
' B&K uses 8 lines per band for a total of 192 lines per pattern
```

```
'OUTPUT: After skipping one column to the right of the Pattern data,
```

```
'the macro displays the results in seven (7) columns
```

```
Dim Msg
```

```
Dim Msg2
```

```
'Identify the Calculation Range
```

```
startcol = Selection.Column
```

```
numcols = Selection.Columns.Count
```

```
startrow = Selection.Row
```

```
numrows = Selection.Rows.Count
```

```
If numcols = 192 Or numcols = 240 Then
```

```
For rowind = startrow To startrow + numrows - 1
```

```
'Initialize Variables for each pattern (row)
```

```
Npatsum = 0
```

```
Pct10 = 0
```

```
Pct20 = 0
```

```
Pct30 = 0
```

```
Pct50 = 0
```

```
Pct70 = 0
```

```
Pct80 = 0
```

```
Pct90 = 0
```

```
Flag1 = 0
```

```
Flag2 = 0
```

```
Flag3 = 0
```

```
Flag5 = 0
```

```
Flag7 = 0
```

```
Flag8 = 0
```

```
Flag9 = 0
```

```
freqsum = 0
```

```
'Determine the Total Area under the Pattern (Npatsum)
For colind = startcol To startcol + numcols - 1
  Npatsum = Npatsum + ActiveSheet.Cells(rowind, colind).Value
Next colind
```

```
'Determine the Percentile Frequencies (line numbers) for the Pattern (Row)
'Incrementally add the cells (freqsum) and compare to the Total Pattern Area
'Flags are set after each Percentile Frequency is found
'Output the results in columns to the right of the Calculation Range
I = 0
```

```
For colind = startcol To startcol + numcols - 1
  I = I + 1
  freqsum = freqsum + ActiveSheet.Cells(rowind, colind).Value
  If Flag1 = 0 Then
    If freqsum >= Npatsum * 0.1 Then
      Pct10 = I
      Flag1 = 1
      ActiveSheet.Cells(rowind, startcol + numcols + 1).Value = Pct10
    End If
  End If
  If Flag2 = 0 Then
    If freqsum >= Npatsum * 0.2 Then
      Pct20 = I
      Flag2 = 1
      ActiveSheet.Cells(rowind, startcol + numcols + 2).Value = Pct20
    End If
  End If
  If Flag3 = 0 Then
    If freqsum >= Npatsum * 0.3 Then
      Pct30 = I
      Flag3 = 1
      ActiveSheet.Cells(rowind, startcol + numcols + 3).Value = Pct30
    End If
  End If
  If Flag5 = 0 Then
    If freqsum >= Npatsum * 0.5 Then
      Pct50 = I
      Flag5 = 1
      ActiveSheet.Cells(rowind, startcol + numcols + 4).Value = Pct50
    End If
  End If
  If Flag7 = 0 Then
    If freqsum >= Npatsum * 0.7 Then
      Pct70 = I
      Flag7 = 1
      ActiveSheet.Cells(rowind, startcol + numcols + 5).Value = Pct70
    End If
  End If
End For
```

```

End If
End If
If Flag8 = 0 Then
  If freqsum >= Npatsum * 0.8 Then
    Pct80 = I
    Flag8 = 1
    ActiveSheet.Cells(rowind, startcol + numcols + 6).Value = Pct80
  End If
End If
If Flag9 = 0 Then
  If freqsum >= Npatsum * 0.9 Then
    Pct90 = I
    Flag9 = 1
    ActiveSheet.Cells(rowind, startcol + numcols + 7).Value = Pct90
  End If
End If
Next colind
Next rowind

```

```

Msg2 = "Add %-ile Freq Labels above the data columns?"
Response = MsgBox(Msg2, vbYesNo, "%-ile Frequency Labels")
If Response = vbYes Then
  ActiveSheet.Cells(startrow - 1, startcol + numcols + 1).Value = "10% Freq"
  ActiveSheet.Cells(startrow - 1, startcol + numcols + 2).Value = "20% Freq"
  ActiveSheet.Cells(startrow - 1, startcol + numcols + 3).Value = "30% Freq"
  ActiveSheet.Cells(startrow - 1, startcol + numcols + 4).Value = "50% Freq"
  ActiveSheet.Cells(startrow - 1, startcol + numcols + 5).Value = "70% Freq"
  ActiveSheet.Cells(startrow - 1, startcol + numcols + 6).Value = "80% Freq"
  ActiveSheet.Cells(startrow - 1, startcol + numcols + 7).Value = "90% Freq"
End If
Else

```

```

Msg = "The Selected Range must contain EXACTLY either 192 or 240 columns."
Msg = Msg & Chr$(10) & "PLEASE RE-SELECT THE RANGE & TRY AGAIN"
MsgBox Msg, vbExclamation, "Range Selection Error"

```

```

End If
End Sub

```