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

            'Calculates total area under Pattern and Seven %-ile Frequencies (as line numbers)
            ' (Line numbers refer to the presentation of the Critical Bands)
            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

                Next rowind
            Next rowind
        Next rowind
    Next rowind
End Sub
'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
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."
    MsgBox(Msg & Chr$(10) & "PLEASE RE-SELECT THE RANGE & TRY AGAIN")
End If
End Sub