

IM-calc

En radiomodtagers udfordring er at være følsom for den ønskede frekvens, og immun for alle andre.

IM-calc kan kort fortalt beregne potentielt kritiske uønskede frekvenser, som kan finde vej ind i modtageren.

The screenshot shows the IM-calc software interface. At the top, it displays the date and time: "6. august 2019 16:01" and the test frequencies: "TA = 156,800, TB = 156,525, TC = 157,375, TD = 160,800, TE = 161,775". Below this, a list of 11 equations is shown, all resulting in 157,150. The equations are:

- + 1*TA - 1*TB + 2*TC - 4*TD + 3*TE = 157,150
- + 4*TA + 1*TB - 4*TC - 3*TD + 3*TE = 157,150
- + 1*TA - 5*TB + 5*TC + 4*TD - 4*TE = 157,150
- + 1*TA - 1*TB + 2*TC - 4*TD + 3*TE = 157,150
- + 1*TA - 1*TB + 2*TC - 4*TD + 3*TE = 157,150
- + 4*TA + 1*TB - 4*TC - 3*TD + 3*TE = 157,150
- + 4*TA + 1*TB - 4*TC - 3*TD + 3*TE = 157,150
- + 4*TA - 3*TB - 1*TC + 5*TD - 4*TE = 157,150
- + 1*TA - 5*TB + 5*TC + 4*TD - 4*TE = 157,150
- + 1*TA - 5*TB + 5*TC + 4*TD - 4*TE = 157,150
- + 4*TA - 3*TB - 1*TC + 5*TD - 4*TE = 157,150

Below the equations, the word "Done" is displayed. The interface includes several control panels:

- Loops:** Five input fields, each containing the number 5.
- Ham:** A dropdown menu set to 5.
- Hits:** A text box containing the number 11.
- TestFrekvenser (MHz):** A table with columns for frequency, step, and auto-off status. All frequencies (TA, TB, TC, TD, TE) are checked, and the step is set to 0.0250. The auto-off status is set to OFF.
- Forstyrret frekvens/range (MHz):** A section with a search frequency of 157.150, a center offset of 0.0250, and range limits of 155 and 163.
- Buttons:** CLS, ny ver.?, Fjern dubletter, Fjern 0*TA, TB..., Test, Load setup, Save setup, VHF frekvenser, -> Clipboard, and Exit.

In the center, there is a graph titled "Tegningen er kun til illustration. Der er ingen relation til viste frekvenser." The graph shows a frequency axis (F) with markers for TA, TB, Søg, TC, TD, and TE. A question mark is placed above the Søg marker, indicating the search frequency.

Fig.1 Frekvenserne TA – TE (og op til 5.harmoniske af disse) kan være en udfordring for modtageren på 157.150 MHz.

```

for (int a = 0; a <= Loop1; a++)
{
    if (StopNow) { break; }

    for (int b = 0; b <= Loop2; b++)
    {
        if (StopNow) { break; }

        string A = a.ToString();
        string B = b.ToString();

        X[1] = a * TA + b * TB;
        T[1] = "+" + A + "*"TA + " + B + "*"TB";

        X[2] = a * TA - b * TB;
        T[2] = "+" + A + "*"TA - " + B + "*"TB";

        X[3] = a * TB + b * TA;
        //T[3] = A + "*"TB + " + B + "*"TA";
        T[3] = "+" + B + "*"TA + " + A + "*"TB";

        X[4] = a * TB - b * TA;
        //T[4] = A + "*"TB - " + B + "*"TA";
        T[4] = "-" + B + "*"TA + " + A + "*"TB";

        for (int n = 1; n < 5; n++)
        {
            if (StopNow) { break; }

            if (X[n] > 0)
            {
                //-----//
                //-- Er resultatet = søgt frekvens? | Falder resultatet indenfor søge-range?--//
                //-----//
                if (radioButton1.Checked & (X[n] == Search) | radioButton2.Checked & (X[n] >= SearchLo & X[n] <= SearchHi))
                {
                    string Disp = T[n] + " = " + X[n].ToString("0000.000");

                    if (Disp.IndexOf("= 0000") != -1) { Disp = Disp.Replace("= 0000", "= 0"); }
                    else if (Disp.IndexOf("= 000") != -1) { Disp = Disp.Replace("= 000", "= "); }
                    else if (Disp.IndexOf("= 00") != -1) { Disp = Disp.Replace("= 00", "= "); }
                    else if (Disp.IndexOf("= 0") != -1) { Disp = Disp.Replace("= 0", "= "); }

                    if (checkBox7.Checked)
                    {
                        Disp = Disp.Replace("+ 0*TA", " ");
                        Disp = Disp.Replace("- 0*TA", " ");
                        Disp = Disp.Replace("+ 0*TB", " ");
                        Disp = Disp.Replace("- 0*TB", " ");
                    }

                    if (checkBox8.Checked) //-- Check for dubletter --//
                    {
                        Int32 i = restxt.IndexOf(Disp);
                        if (i == -1)
                        {
                            restxt += Disp + Environment.NewLine;
                            Hits++;
                        }
                    }
                    else
                    {
                        restxt += Disp + Environment.NewLine;
                        Hits++;
                    }
                }
            }
        }
    }
}

```

Fig.2 Eksempel på C#-koden

```

private void InstallUpdateSyncWithInfo()
{
    UpdateCheckInfo info = null;

    if (ApplicationDeployment.IsNetworkDeployed)
    {
        ApplicationDeployment ad = ApplicationDeployment.CurrentDeployment;

        try
        {
            info = ad.CheckForDetailedUpdate();
        }
        catch (DeploymentDownloadException dde)
        {
            MessageBox.Show("The new version of the application cannot be downloaded at this time. \n\nPlease check your network connection, or try again later. Error: " + dde.Message);
            return;
        }
        catch (InvalidDeploymentException ide)
        {
            MessageBox.Show("Cannot check for a new version of the application. The ClickOnce deployment is corrupt. Please redeploy the application and try again. Error: " + ide.Message);
            return;
        }
        catch (InvalidOperationException ioe)
        {
            MessageBox.Show("This application cannot be updated. It is likely not a ClickOnce application. Error: " + ioe.Message);
            return;
        }

        if (info.UpdateAvailable)
        {
            Boolean doUpdate = true;

            if (!info.IsUpdateRequired)
            {
                DialogResult dr = MessageBox.Show("An update is available. Would you like to update the application now?", "Update Available", MessageBoxButtons.OKCancel);
                if (!(DialogResult.OK == dr))
                {
                    doUpdate = false;
                }
            }
            else
            {
                // Display a message that the app MUST reboot. Display the minimum required version.
                MessageBox.Show("This application has detected a mandatory update from your current " +
                    "version to version " + info.MinimumRequiredVersion.ToString() +
                    ". The application will now install the update and restart.",
                    "Update Available", MessageBoxButtons.OK,
                    MessageBoxIcon.Information);
            }

            if (doUpdate)
            {
                try
                {
                    ad.Update();
                    MessageBox.Show("The application has been upgraded, and will now restart.");
                    Application.Restart();
                }
                catch (DeploymentDownloadException dde)
                {
                    MessageBox.Show("Cannot install the latest version of the application. \n\nPlease check your network connection, or try again later. Error: " + dde);
                    return;
                }
            }
        }
    }

    MessageBox.Show("Done");
}

```

Fig.3 Programmet kan søge efter, og lade sig opdatere over nettet (dvs. www.towertown.dk).