Antenna Radiation Pattern Generator

1 Database Setup

Step 1: Initializing a Database file

```
clear;
close all;
clc;
clf;
sympref('FloatingPointOutput',false);
sympref('AbbreviateOutput',true);
format LongEng;
warning('off','all');   % supressing all warnings.
```

Find .csv files

```
%csvfiles = dir('../*/**/*.csv');
csvfiles=dir('../input/*.csv');
csvfile =csvfiles(1);
csvfile_fullname = fullfile(csvfile.folder,csvfile.name);
disp(csvfile);
```

```
       name: 'L10_Dipole_v6.5ASYN_01VV_CFG-.csv'
     folder: 'D:\dev_github\antenna_radiation_chart\input'
       date: '07-Jan-2023 15:36:12'
      bytes: 41.9096240000000e+006
      isdir: 0
    datenum: 738.893650138889e+003
```

```
dir_output      = "../output";
%database_file   = "../output/CH1_S21_1_S21_MLOG.db";
%csv_file        = "../input/CH1_S21_1_S21_MLOG.csv";
%database_file   = "../output/TEST1.db";
database_file   = "../output/antmeas_L10_Dipole_v6.5ASYN.db";

csv_file        = ["../input/L10_Dipole_v6.5ASYN_04HH_CFG-.csv";"../input/L10_Dipole_v6.5ASYN_02VH_CFG-.csv"];
```

```
cmd_proc_import_sitedata(database_file,'Site19_KIT', '../input_cal/Measurement_Site_19_KIT/20221126_SiteCal_ETS3115_HornBothSide.s2p', 1.0
```

```
Error using sqlite
SQLite file exists.

Error in cmd_proc_import_sitedata (line 41)
    conn = sqlite(filename_db,"create");      % auto-commit mode
```

```
cmd_proc_import_antenna_ETS3115(database_file, '../input_cal/Datasheet_HornAnttena_ETS3115/', 1.0, false);
cmd_proc_generate_sitecalval(database_file);

cmd_proc_import_measured_csv(database_file, csv_file, "dut_meas");

cmd_proc_generate_dutgain(database_file, 'dut_gains', 'site_calval_TAR3115_dataset_Data3mV');
cmd_sql_getfiles(database_file)
```

2 Polar-chart generation

```
% === TYPE-1 ===
%filenames_to_pickup = ["pMag_Etheta_HH.csv";"pMag_Ephi_VH.csv"];
%alternate_filenames = ["pMag\_Etheta"; "pMag\_Ephi"];
%filenames_to_pickup = ["CH1_S21_1_S21_MLOG.csv";];
%chart_frequency = cmd_sql_get_frequencies(database_file,filenames_to_pickup(1));      % for 'all range' retrieved from sqldatabase.

% === TYPE-2 ===
filenames_to_pickup = ["L10_Dipole_v6.5ASYN_04HH_CFG-.csv";"L10_Dipole_v6.5ASYN_02VH_CFG-.csv";];
alternate_filenames = ["Proposed antenna #5-1"; "Proposed antenna #5-1"];
chart_frequency = [3604 3750 4000 4400 4500 5000 5500 6000 6500 7000 7100 7500 8000 8150 8279 8500];

savefile_types = [".png"; ".emf"; ".csv";];

cmdColorOrder = [0 0 1; 1 0 0;];          % https://jp.mathworks.com/help/matlab/creating_plots/defining-the-color-of-lines-for-plotting.h
cmdLineStyleOrder = ["-" "-"];
cmdLineWidthOrder = [1; 1;];

% Enabling GainTotal graph
% 1) Siggle frequency point
% cmd_genfig_polar_sql_comparison(database_file, dir_output, filenames_to_pickup, chart_frequency(3), savefile_types, alternate_filenames,
% 2) Multiple frequency point
cmd_genfig_polar_sql_comparison(database_file, dir_output, filenames_to_pickup, chart_frequency, savefile_types, alternate_filenames, cmdC
```

```
Starting parallel pool (parpool) using the 'Processes' profile ...
Connected to the parallel pool (number of workers: 8).
```