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c2_check_split.m

```
%{
Description:
    Reads .mat files and plots them to check if they were correctly
    split.

Input:
    - source_signal_1.mat
    - source_signal_2.mat
    - source_signal_3.mat
    - source_signal_complete.mat
}%
clear; clc; close all;
tic
```

Load complete baseband data

```
current_folder = fileparts(mfilename('fullpath'));
complete_file =
    fullfile(current_folder, 'source_signal_complete.mat');
load(complete_file)
```

Load source segments

```
num_segments = 3;
source_data = cell(1, num_segments);

for k = 1:num_segments
    segment_file = fullfile(current_folder, sprintf('source_signal_
%d.mat', k));
    tmp = load(segment_file);
    % Shift segment time to align with complete signal
    tmp.time_baseband = tmp.time_baseband +
    time_baseband_complete((k-1)*length(tmp.time_baseband)+1);
    source_data{k} = tmp;
end
```

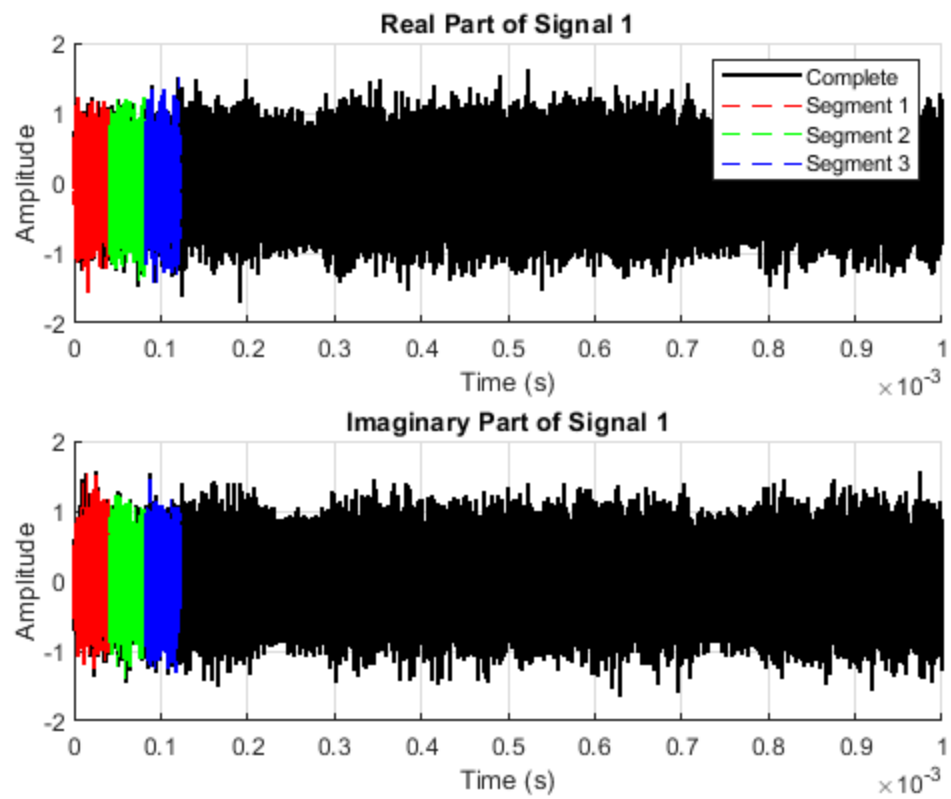
```
% Define colors for segments: red, green, blue
segment_colors = [1 0 0; 0 1 0; 0 0 1]; % RGB
```

Plot real and imaginary part of Signal 1

```
figure('Name','Signal 1 Real & Imag Part','Color','w');

% Real part
subplot(2,1,1); hold on;
plot(time_baseband_complete,
     real(s1_baseband_complete), 'k', 'LineWidth', 1.5);
for k = 1:num_segments
    plot(source_data{k}.time_baseband,
         real(source_data{k}.s1_baseband), '--', ...
         'Color', segment_colors(k,:), 'LineWidth', 1.2);
end
xlabel('Time (s)');
ylabel('Amplitude');
legend_entries = [{ 'Complete' } arrayfun(@(k) sprintf('Segment %d', k),
    1:num_segments, 'UniformOutput', false)];
legend(legend_entries);
grid on;
title('Real Part of Signal 1');

% Imaginary part
subplot(2,1,2); hold on;
plot(time_baseband_complete,
     imag(s1_baseband_complete), 'k', 'LineWidth', 1.5);
for k = 1:num_segments
    plot(source_data{k}.time_baseband,
         imag(source_data{k}.s1_baseband), '--', ...
         'Color', segment_colors(k,:), 'LineWidth', 1.2);
end
xlabel('Time (s)');
ylabel('Amplitude');
grid on;
title('Imaginary Part of Signal 1');
```

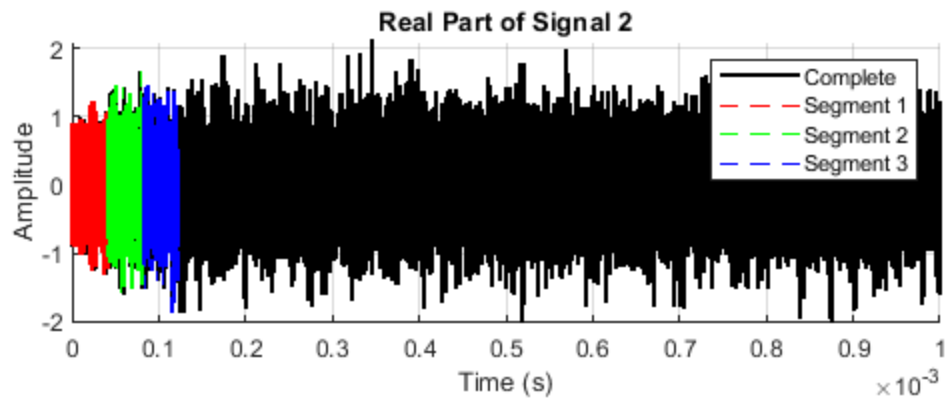


Plot real and imaginary part of Signal 2

```
figure('Name','Signal 2 Real & Imag Part','Color','w');
```

Real part

```
subplot(2,1,1); hold on;
plot(time_baseband_complete,
     real(s2_baseband_complete), 'k', 'LineWidth', 1.5);
for k = 1:num_segments
    plot(source_data{k}.time_baseband,
         real(source_data{k}.s2_baseband), '--', ...
          'Color', segment_colors(k,:), 'LineWidth', 1.2);
end
xlabel('Time (s)');
ylabel('Amplitude');
legend_entries = [{ 'Complete' } arrayfun(@(k) sprintf('Segment %d', k),
     1:num_segments, 'UniformOutput', false)];
legend(legend_entries);
grid on;
title('Real Part of Signal 2');
```

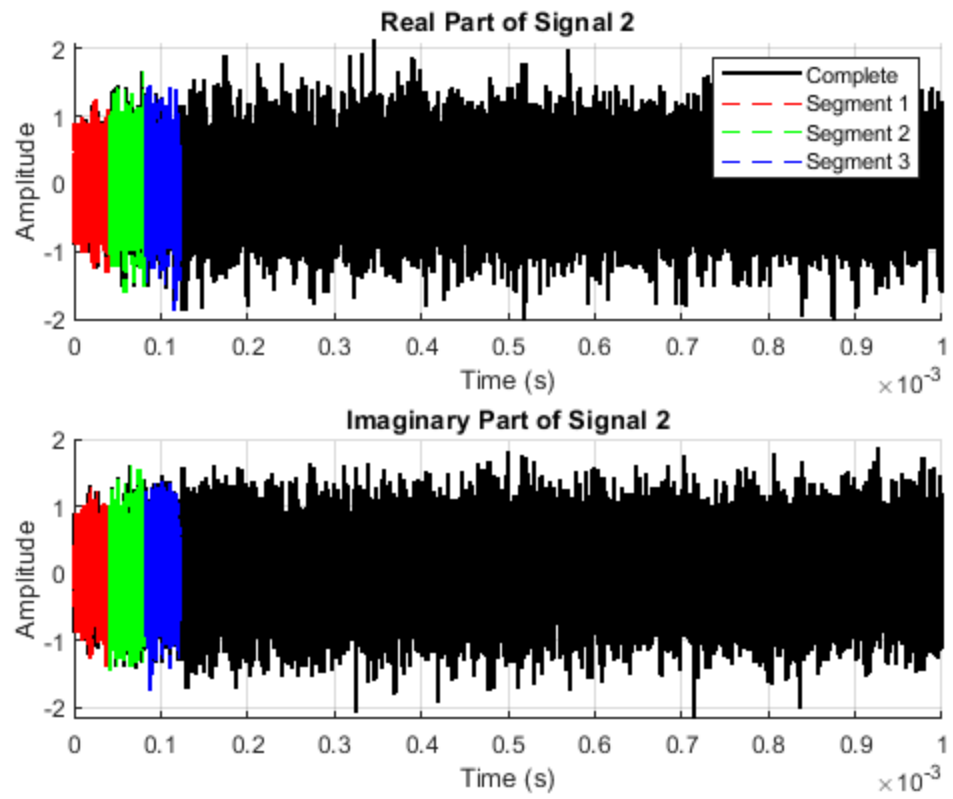


Imaginary part

```
subplot(2,1,2); hold on;
plot(time_baseband_complete,
      imag(s2_baseband_complete), 'k', 'LineWidth', 1.5);
for k = 1:num_segments
    plot(source_data{k}.time_baseband,
          imag(source_data{k}.s2_baseband), '--', ...
            'Color', segment_colors(k,:), 'LineWidth', 1.2);
end
xlabel('Time (s)');
ylabel('Amplitude');
grid on;
title('Imaginary Part of Signal 2');

toc

Elapsed time is 4.420869 seconds.
```



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