1. **Fig. 1.: Angle estimation at BSs**

1.1: The simulation results of “Main\_Code\_BSAngle\_vs\_CRB\_1\_noBD.m” are the simulation curves labeled as “Conventional scheme, ideal TTDU module” and “CRLB”;

1.2: The simulation results of “Main\_Code\_BSAngle\_vs\_CRB\_2\_BD.m” are the simulation curves labeled as “Proposed Algorithm 1, ”, “Proposed Algorithm 1, ” and “Conventional scheme, no TTDU module”;

1.3: The simulation results of “Main\_Code\_BSAngle\_Sweep\_BD.m” are the simulation curves labeled as “Beam sweeping method [56]”.

1. **Fig. 2. : Angle estimation at AirCraft**

2.1: The simulation results of “Main\_Code\_ACAngle\_vs\_CRB\_1\_noBD\_ Method1.m” and “…\_Method2.m” are the two kinds of methods named “method 1” and “method 2” for the simulation curves labeled as “Conventional scheme, ideal TTDU module” and “CRLB”;

2.2: The simulation results of “Main\_Code\_ACAngle\_vs\_CRB\_2\_BD\_ Method1.m” and “…\_Method2.m” are the two kinds of methods named “method 1” and “method 2” for the simulation curves labeled as “Proposed Algorithm 1, ”, “Proposed Algorithm 1, ” and “Conventional scheme, no TTDU module”;

2.3: The simulation results of “Main\_Code\_ACAngle\_Sweep\_BD\_Method1.m” and “…\_Method2.m” are the two kinds of methods named “method 1” and “method 2” for the simulation curves labeled as “Beam sweeping method [56]”.

1. **Fig. 3.: Doppler shift estimaiton**

The simulation results of “Main\_Code\_Doppler\_vs\_CRB\_BD\_DSS.m” are the all of simulation curves.

1. **Fig. 4.: Delay estimation**

The simulation results of “Main\_Code\_Delay\_vs\_CRB.m” are the all of simula-tion curves.

1. **Fig. 5. : Average spectral efficiency**

The simulation results of “Main\_Code\_ASE\_vs\_SNRs.m” are the all of simula-tion curves.

1. **Fig. 6. : Data transmission and channel tracking**

6.1: The simulation results of “Main\_Code\_Data\_Track\_vs\_CCT\_V1\_Amp.m” are the all of simulation curves for “Amplitude of Effective Channels”;

6.2: The simulation results of “Main\_Code\_Data\_Track\_vs\_CCT\_V2\_NMSE.m” are the all of simulation curves for “Number of TI”at SNR = -20 dB.

1. **Fig. 7. : Angle tracking at BSs and aircraft**

7.1: The simulation results of “Main\_Code\_1\_BS\_Angle\_track\_4.m” are the all of simulation curves corresponding to  of “azimuth angle at BS”;

7.2: The simulation results of “Main\_Code\_2\_AC\_Angle\_track\_4.m” are the all of simulation curves corresponding to  of “azimuth angle at aircraft”;