Correlation software of differential VLBI in SELENE project

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The differential VLBI measures angular distance between two radio transmitters on each lunar orbiters and quasars in order to estimate the orbits and the gravity field of the moon in SELENE project of Japan. The radio transmitters emit four carrier waves. Three S-band signals of them are used for resolving the cycle ambiguity of another X-band signal. We demonstrate the method to correlate the signals by a narrow bandwidth receiving system and to resolve the cycle ambiguity by combining fringe phases of four waves including the effects of the ionosphere and others. Possible error sources that will affect the measurement of the phase are also discussed.

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