Development of observational system for Jovian synchrotron radiation -Establishment of phase and gain calibration system

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We have developed the observational system to detect short-term variations of Jupiter's synchrotron radiation and completed four of nine antenna systems. The output signals from each antenna system must be combined with in-phase relation each other. The components of phase difference at the signal combination point are divided into three, that is, (i) different optical paths, (ii) individual phase characteristics of the front receivers and (iii) the residual phase difference which is unknown. We could evaluate all of these phase differences within +-5 degrees. And four output signals are added with in-phase. From the test observation of the sun, the synthesized level went up by 6dB and half power beam width was 2.15 degrees using four antennas, which satisfies the designed specifications.