

KVN Station Report (2017 May)

Taehyun Jung
thjung@kasi.re.kr

EVN Sessions

KVN participated in three and sixteen experiments during 2016 Session III and 2017 Session I, respectively, including one OoS in 2017.

KVN Antenna Beam Pattern

The optics of KVN antenna is a shaped Cassegrain type of which the main reflector and subreflector are shaped to have a uniform illumination pattern on an aperture plane. Because of the uniform illumination, KVN antennas can get higher aperture efficiency than value of typical Cassegrain type antenna. However, higher side-lobe level is inevitable. Following figures are OTF images of Jupiter at 22 and 43GHz, measured at Yonsei antenna. The map size is 12'x10' for 22 and 43GHz. The first sidelobe pattern is clearly visible. Typical sidelobe levels of KVN antennas are 13-14dB.

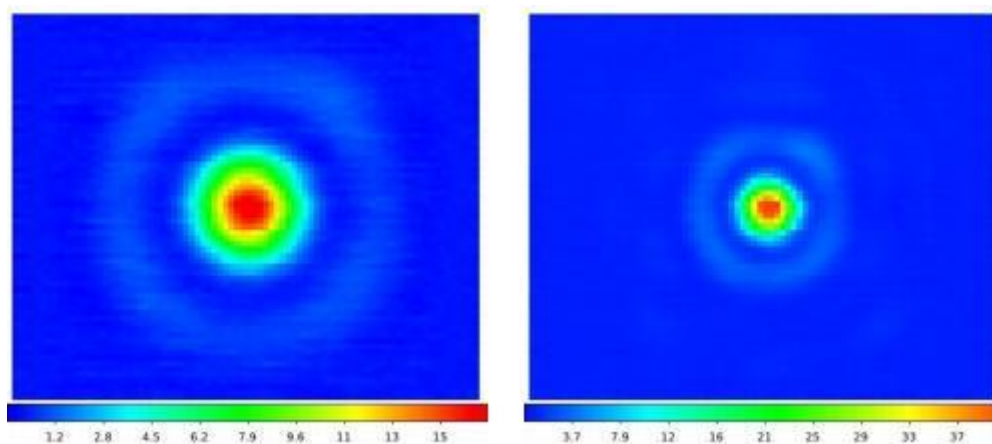


Figure 1. KVN antenna beam patterns at 22GHz (left) and 43GHz (right).

KVN FS and Recorder Firmware

- The KVN FS is developed by Do-Young Byun.
- Current MK5B Software Version:
Squeeze, SDK 9.2 & jive5ab-2.6.0, mark5_2.2.0 & mk5bio_2.0.1

System Updates and Technical Developments

Currently, the KVN recording rate for EVN sessions are limited to 1Gbps with Mark5B systems. In 2015, we installed FILA10G and Mark6 systems in order to support recording rate up to 8Gbps (e.g. 2Gbps per 22/43/86/130GHz). In case of 2Gbps operation, we directly record the data via FILA10G from the sampler, which has a single 512MHz bandwidth (no filtering is available).



Figure 2. KVN data acquisition system with newly installed FILA10G and Mark6 systems.