

22 July 1976

MEMORANDUM TO: VLA Optical Processor File
FROM: R. J. Dallaire *RJD*
SUBJECT: Description of Simulated Data for VLA
Processor Testing

Two important tests for the VLA processor are the accuracy and dynamic range gedanken tests. The accuracy tests require a (u v) plane input signal which will generate visibility data corresponding to a point source. The dynamic range tests require a point source plus an extended source, and several sets of the set are required with differing spatial relationships between the point and the extended sources.

The (u v) plane test data can be provided to the processor by use of an existing set of hardware consisting of a PDP-11/10 computer, a Data Perturber/Offset Generator (DP/OC), and a CRT film recorder. The limitations on this set-up are:

- a) the data must be supplied on a 2-dimensional rectangular grid
- b) the maximum size of the grid is 2391 complex pairs by 16,000 records
- c) the test data must be supplied on a computer compatible mag tape (7-track-NRZI or 9-track-PE or NRZI) with 9-track-PE preferred.

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With the above in mind, it is requested that NRAO supplies us, if possible, with the following computer mag tape data sets:

- 1) the (u v) plane tracks only
- 2) the (u v) plane tracks containing a point source
- 3) the (u v) plane tracks containing a point source plus an extended source

The data sets should consist of a raster-like scan of the (u v) plane, one tape record corresponding to one-scan line. The data may be real or complex (if complex, the DP/OC will add a frequency offset to convert it to real prior to recording on film). It is desirable that the data be 8-bit bytes for each real element or a pair of 8-bit bytes if complex. The DP/OC operates with only 6 bits maximum. If the data is smaller than 4782 bytes record it will be padded with zeros and if larger, it will be truncated. Although the gedanken tests will not be formally made until October or November, it is desirable to get the test data as soon as possible for computer compatibility tests, reformatting, and scheduling the use of the DP/OC on a minimum interference basis.

RJD:sd

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