

NATIONAL RADIO ASTRONOMY OBSERVATORY  
Charlottesville, Virginia

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M E M O R A N D U M

To: Single-Dish Spectral Line Observers  
From: H. S. Liszt  
Subj: Spectral Line Data Reduction on the PC

I have recently completed development of a single-dish spectral-line data reduction analysis package for the IBM PC. The programs included are fully-powered, flexible tools for performing the many tasks necessary to extract astronomical information from emission- and absorption-line data. If there is sufficient demand, the NRAO will, starting in the Fall, support general distribution of this software and implement an export capability at its telescopes. The requirements and abilities of this package are summarized on the succeeding page.

In the meantime, beta-testers are needed to help refine the software and its documentation. If you are more than casually interested in this effort, have some familiarity with the PC/MS-DOS operating system, and have access to a suitable computer, I would appreciate hearing from you. Beta-testers will be sent a copy of the manual and runtime code in the expectation that detailed comments on both will be forthcoming. Clearly, this is reasonable and worthwhile only if the testers may process their own spectra. To this end, I will endeavor to convert pre-existing databases for anyone supplying either NRAO datatapes, non-NRAO datatapes accompanied by a sample tape-reading program, or other accessible formats.

I may be reached via: phone: 804-296-0344  
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Hardware Supported/Required

Required: IBM/Clone PC running under PC/MS-DOS 2.x or 3.x  
Hard disk + 1-2 floppy drives  
> = 512 K memory  
80x87 math co-processor  
Graphics board - CGA, Hercules, AT&T, EGA, MCGA, or VGA

Highly desirable: Microsoft-compatible mouse  
Epson-compatible 9-pin dot-matrix printer

Used if present: UM-standard Expanded Memory

Software Capabilities

Ancillary routines: Sorting, logging, listing, tidying, archiving databases  
Output in FITS or REFLEX formats

Main program: Scans with  $\leq 1024$  channels  
Unlimited input database size  
Performs smoothing, baselining, re-gridding of spectra  
(etc.)  
Fits gaussian, parabolic, and sinusoidal components  
Assembles/contours position-velocity, position-  
position maps  
Assembles/slices datacubes  
Driven by menus/mouse selection if desired  
All input prompted if desired  
Macro capabilities  
Undo of previous operations  
Batch and interactive processing modes  
Flexible I/O  
Toggle to DOS  
No memorization required for operation  
User-configured screen, color-scheme, keyboard