



## NATIONAL RADIO ASTRONOMY OBSERVATORY

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## MEMORANDUM

H. HUATUM

December 13, 1983

To: A. R. Thompson, VLA  
 K. Kellermann, GB  
 V. Pankonin, NSF

From: W. Brundage

Subj: NTIA RFI Evaluation for VLBA Sites

In May 1983 Thompson, Pankonin and I met with representatives of NTIA to determine what help NTIA could provide to evaluate potential RFI at the VLBA sites. By letter to NSF dated 10 June, Thompson requested that NTIA provide total flux density ( $W m^{-2}$ ) at the sites in increments of a few MHz across each band in order to avoid the classification problems. NSF forwarded the request to NTIA where it "fell through the cracks" until last week.

At Pankonin's suggestion, I visited, on 5 December, the NTIA/ITS Radio Spectrum Measurement System (RSMS) van in Washington, DC. On 6 December I met in Annapolis with Gordon (Bill) Crandall of NTIA, who is responsible for the evaluation. The NTIA staff apologized for the long delay and stated they now give it "a high priority".

After much discussion about what could be extracted from the Government Master File (GMF) in a form useful to NRAO, after slight modification to existing software, we decided the Graphics Display Model (GDM) would be best. Within this month, NTIA will modify and run GDM for Kitt Peak only. This will be a second evaluation run only. The first evaluation run will be the unmodified GDM. Thompson and I will review the results, arrange further modifications, if any, through Crandall, and then request complete runs for all sites. After further review, we may request more detailed information for some or all of the sites.

An NTIA division chief will explore with Pankonin a possible exemption to the classification of unclassified frequency assignment records. If successful, NRAO could have the complete GDM output without requiring the NSF to excise location data from the GDM printout before forwarding to NRAO. Classified frequency assignments will be a separate printout from which Pankonin will determine potentially harmful RFI.

Apparently the FCC license database will require separate runs after the FCC files are converted into the GMF format. That will take time and programming effort.

For the initial Kitt Peak run, the DGM will search a radius of 200 miles for all Government fixed transmitters (those having a specific latitude and longitude) for all frequencies and write a permanent file. Using a simple smooth-earth propagation model, the modified GDM will write to another file all those transmitters whose isotropic (receive antenna) power at Kitt Peak exceeds a threshold equalling the harmful power level  $P_I$  (dBW). Modified printout includes 1) a map showing geographical distribution of transmitters exceeding the threshold, 2) a list of parameters for each transmitter exceeding the threshold, and 3) plots of total  $P_I$  in dB above the threshold vs. frequency.

I enclose for Thompson and Pankonin a copy of portions of the NTIA manual on the GDM. I have marked it in places (incompletely) to show the intended modifications.

WDB/cjd

Enclosure

NTIA Graphic Display Model