VLBA Electronics Memo No. 140

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Monitoring Power Supplies etc.

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At present we are not monitoring various power supplies in the C and D racks. and also in the recorders. Brian Martin discussed possible ways of monitoring the power supplies in VLBA Acquisition Memo. No. 366. Ron Weimer, Wayne Koski, Jim Oty and I discussed this problem and have following suggestions:

(1) Monitor the power supplies in the C- rack in the Round Trip Phase monitor (L103) module. Ron Weimer is going to look into additions/ modifications needed for this.

(2) Add a two wide monitor module in the D-rack with design capability of monitoring only a few analog and digital words for present, and with a capability for future expansion. We propose to have only a simple module (without RFI shielding), consisting of the standard interface card and a Shalloway type card for buffering and interface circuitry. In addition, I have proposed that we consider possibility of adding in this module capability of monitoring the total powers and switch powers in the IF Distributors with an accuracy of atleast 1 part in several thousands. The reason for this request is following. At present measurements of total powers and switch powers in the IF Distributors are used only for indication that the system is working. These values are not needed with great accuracy as they are not used for any accurate estimate. The accuracy of the switch power values is seriously limited by quantization accuracy. For possible application of using the system temperature variations to estimate the atmospheric phase changes using IF Disributor total powers and switch powers, we need these measurements with an accuracy of atleast 1 part in several thousands. There is a possibility of improving the quantization accuracy of the total powers and switch powers monitored in the IF Distributors, but if that turns out to require a lot of changes, then using this module for achieving the needed accuracy for the total power and the switch power monitoring may be desirable. Ron Weimer is organizing investigation of this problem and ordering the parts required for building the module.

(3) Investigate possibility of monitoring the recorder power supplies using existing analog monitoring capability in the recoreders. This is desirable because we have to also monitor power supplies in the play back devices (PBDs). Wayne Koski is looking into using an A/D converter existing in the recorder, and see if the monitoring of the power supplies can be added to it.