

Power and Heat Management of New Era Electronic Systems (GMRT)

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Authors : Mr. Irappa M. Halagali, irappa@gmrt.ncra.tifr.res.in , Mr. Ajith Kumar B. , ajit@ncra.tifr.res.in , and Prof. Yashwant Gupta, ygupta@ncra.tifr.res.in

Abstract for Poster :

“Heat and Power Management of new era Electronic Systems”

With the developments in Electronics device technology and software based modern design tools, signal pro

During the development of the upgraded GMRT Backend systems, we also faced the task of supporting continued observations using the legacy backend systems and develop and install the new systems without affecting the old receivers. It is also challenging to meet the electric power requirements of these systems in safe, secure and disciplined way. In the GMRT receivers sytem, the legacy 32MHz bandwidth digital backend and the new 400 Mhz digital backend consume about 15 KWatts of power each generating a heat of 4,30,000 calories/minute. We have modified the standard 19”racks to make them suitable for handling this heat generated within the racks. We have developed a cost effective solution to provide a cool air supply through the circuits and maintain the temperature.

Here we present the details of the system developed, analysis and test results. As part of this activity an automatic calculator is also developed to calculate the heat genetated in calories/minute and the amount of cooling needed to maintain the temperature.