Objective: Realization of Hybrid PCB for space use through indigenous vendors.

Introduction: A Hybrid Printed Circuit Board (PCB) multilayer is a PCB that uses dissimilar materials with the intent of optimizing electrical performance, improved system reliability and focused towards high-frequency RF application. It uses materials with significantly different critical properties then those associated with a traditional multilayer PCB. It could use a mix of FR-4 materials with high frequency PTFE materials, or a mix of different high-frequency materials with different di-electric constant in one multilayer board.

Hybrid PCB enables designers to integrate wide range of electronic circuits. This proposal is for indigenous vendor development for Realization of Space-grade Hybrid Multilayer PCB.

Salient features of Hybrid PCB:

1. Combining the RF and high digital electronic designs on a single PCB
2. Reduction of overall electronics package size
3. Reduction or elimination of cables and wiring harnesses
5. Provides additional thermal path
6. Use of FR4 increases rigidity and eases assembly of components on PCB
7. Improved reliability
8. The cost of hybrid PCB is lower than the cost associated with two or more conventional PCBs and related hardware

Scope of Work: The vendor shall fabricate and supply Multi-Layer boards having high Tg FR4 layers combined with other layers of different RF PTFE/high frequency hydrocarbon laminates.

For space qualification, vendor need to fabricate test samples for qualification as per ISRO-PAX-304. The pattern for qualification samples and test coupon will be provided by SAC/ISRO.

SAC/ISRO will conduct qualification testing and on successful completion of qualification, vendor is declared as qualified vendor to supply Hybrid MLBs for space use.

Typical Hybrid MLBs figures:

Four layer Construction: Rogers 4003C & Rogers 2929 Bondply

Ten layer Construction: Rogers 4003C & Isola 370HR