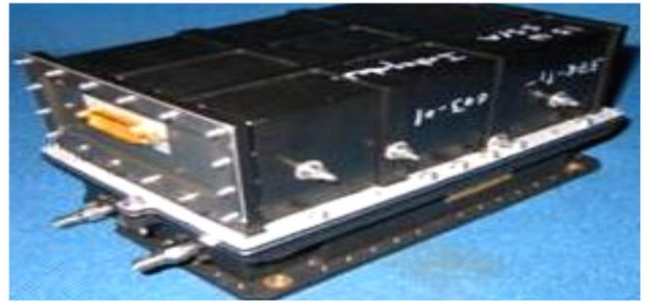
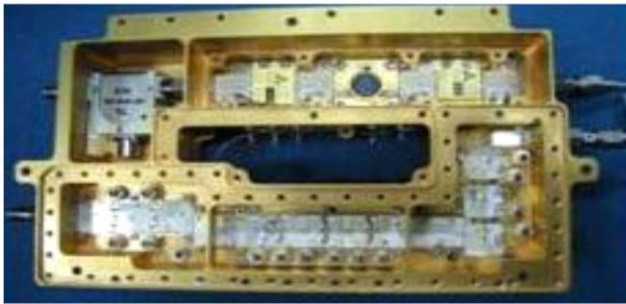


15W C-BAND

SOLID STATE POWER AMPLIFIER

Space Applications Centre has developed a 15W C Band SSPA that can handle from twelve to twenty-four numbers of Normal C-Band SSPAs. The growing demand for bandwidth to support such applications is calling for a large number of transponders to be deployed in the coming years. The GEOSAT program of ISRO is conceived to address the nation's growing need for satellite based connectivity for broadcast, communications and networking applications. The scope of the proposed technology transfer is to consist of fabrication, optimization, testing and delivery of the RF Assembly.

The SSPA consists of RF Assembly and an Electronic Power Conditioner [EPC] Assembly.



Attenuators

The SSPA has two PIN attenuator circuits. One is a two-section commandable attenuator providing up to 24 dB of attenuation for on-board gain control. The second attenuator is used for compensation of gain variation against temperature. Each attenuator section employs 3 dB Lange couplers with two PIN diodes.

The commandable attenuator is externally controlled through serial commands. These commands are processed within the SSPA using a decoder comprising integrated circuits CD4050, CD40174, CD4015, CD40106 and CD4051. This decoder, along with biasing arrangements for all devices, is implemented on a PCB which is housed in a separate section of the RF assembly. The temperature compensation network is also included on this card.

15W C-BAND

SOLID STATE POWER AMPLIFIER

RF Amplifier

The RF Assembly consists of low, medium and high power amplifier stages along with two attenuators. The nominal RF output power of the SSPA is 15 Watts (41.8 dBm) in the specified operating frequency band. Nine amplifier stages provide the required 86 dB gain. The small signal stages employ five CFY25-20 devices in a 3 + 2 chain. These small signal stages will drive the medium power stages based on MGF2407 & MGF2430. All these stages are housed in one section of the RF package. The output of this section (i.e. small and medium power stages) is fed to the Power Amplifier section of the same housing, via co-axial cable. The Power Section houses the MGF38V and MGF44V devices, the latter being a 25 Watt output device from Ms Melco. The space between the low power and high power sections is occupied by interconnections and harnessing.

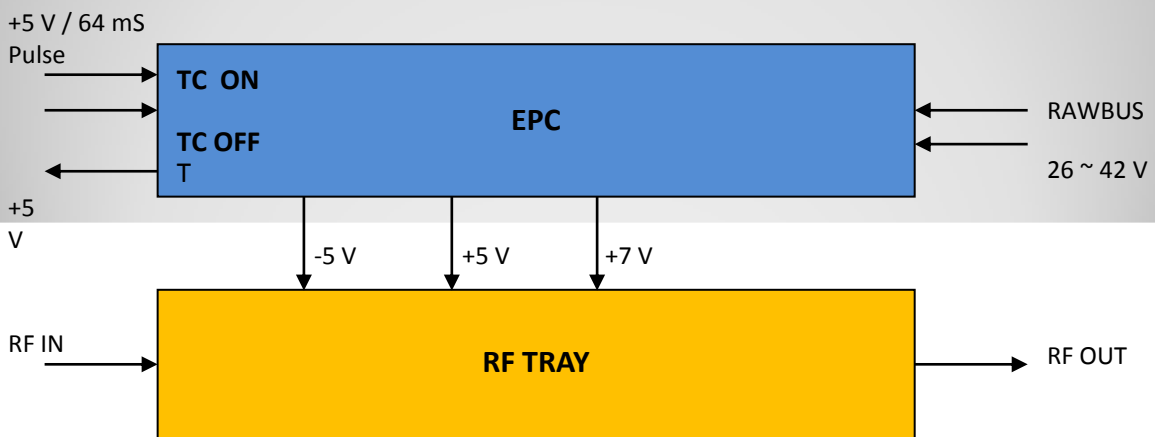


Fig.1 Overall Block Diagram of SSPA

Technology Transfer

ISRO offers to transfer the technology of 15W C band SSPA to industries with adequate experience and facilities. Enterprises interested in obtaining know how may write giving details of their present activities, infrastructure and facilities to the following address.

Contact Us

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