

C band OMT

The C band OMT configuration comprises of a common circular waveguide with different diameters at both ends which communicates both C and Ku band signals. The signals of vertical and horizontal polarization are coupled through a pair of axial slots placed around the periphery of the common circular waveguide at an angular interval of 90° between the slots. The slots are uniquely profiled for effecting coupling of the C band signals, and not degrading the Ku band signals. The symmetrical configuration and unique profile of the slot ensures that no higher order modes are generated at such discontinuities which may degrade the Ku band signals. The branching waveguide network then communicates the coupled signals from each pair of slots to suitable power combining components such as Magic T, one each for the respective polarization.

Frequency Bands

- C – Band : 3.7 GHz - 4.2 GHz
- Ku – Band: 10.95 GHz - 12.75 GHz

Polarization

- Dual - Linear [Lin- V/ Lin- H]

VSWR

- C -Band : 1.65 @3.7 GHz - 4.2 GHz
- Ku- Band : 1.4 @10.95 GHz - 12.75 GHz

Insertion Loss

- C -Band: 0.5dB [Typ] @ 3.7 - 4.2 GHz
- Ku- Band: 0.7dB [Typ] @10.95 - 12.75 GHz

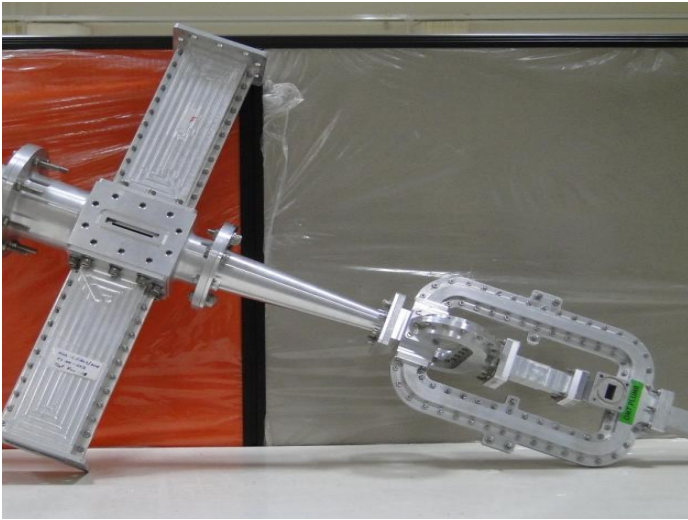
C/ Ku ORTHO MODE TRANSDUCER FOR COMBINED C/Ku RECEIVE FEED SYSTEMS

Space Applications Centre (SAC) of Indian Space Research Organisation (ISRO) has developed a C/Ku ortho-mode transducer for combined C/Ku receive feed systems. This transducer permits combination of separate C and Ku terminals into a single system, thereby effecting infrastructure and cost savings.

Salient Technical Aspects

The polarization and frequency diplexing for combined C/ Ku feed system is carried out by two distinct OMTs on each for the respective bands. These transducers serve to separate the incoming signals depending on the polarization and the frequency, and make them available at distinct ports for further processing.

The configuration for OMTs in the respective bands differ as considerations for realizing requisite in-band performance are different. The OMTs are connected by appropriate waveguide transitions.



Ku Band OMT

The Ku band OMT consists of a central circular waveguide closed at one end with four branching rectangular waveguides arranged symmetrically around it. A pair of such collinear rectangular waveguides communicate signals of the same polarization to the power combining network. The central circular waveguide consists of a unique matching element, which serves to affect a good match for the incoming signals. The symmetrical configuration chosen is to ensure that no higher order modes are generated at the common junctions. The power combining network can either be affected with Magic T or simple E plane bifurcated waveguide power combiners.

Isolation

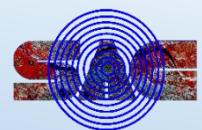
- C -Band Lin-V to Lin-H : 35 dB min
- C -Band to Ku-Band : 70 dB min
- Ku -Band Lin-V to Lin-H 35 dB
- Ku-Band to C-Band 70 dB

Technology Transfer

SAC/ISRO offers to transfer this technology of **the C/ Ku Ortho Mode Transducer for combined C / Ku Receive Feed Systems** developed by SAC to industries in India with adequate experience and facilities. Enterprises interested in obtaining knowhow may register and submit their proposal to IN-SPACE, Ahmedabad at www.inspace.gov.in

For more details, Contact:

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SAC Technologies

