



Feeds and RF Technology

At TCS, we design and build everything for our telemetry systems from the feed down to the controller. Each part of the overall system is carefully designed to meet or exceed our customers' specifications.

We manufacture autotracking feeds with multiple configurations in L-Band, S-Band, and C-Band. By using a Cassegrain configuration we can also build single antenna systems that can provide simultaneous autotracking in all 3 bands.

The Conical Scan Feed is at the heart of our feed design line. This achieves both a small and a lightweight design, while its simplicity provides not only for a cost-effective solution, but one that is easy to maintain. To achieve a higher reliability, we also minimized the part count.

Keeping up with the ever-changing world of available RF spectrum, we have redesigned and upgraded our feed line to keep up with new requirements. We now offer standard a filter with cell phone rejection to prevent interference with any cell tower that was placed in close proximity to your system. Our feeds provide simultaneous Left Hand Circular Polarization (LHCP) and Right Hand Circular Polarization (RHCP) or as another option simultaneous Vertical and Horizontal Polarizations. When both circular and linear polarizations are needed, we can provide a feed with the capability to switch the polarization type directly from the ACU. RF Test inject ports are available on request.

Our ACU comes standard with an automatic digital phasing of the feed, which is calibrated at the initial install of the system. This way the ACU selects the correct phasing at each band and polarization, allowing for an optimal autotracking performance. The phasing calibrations need only be redone upon changing the receiver or feed.

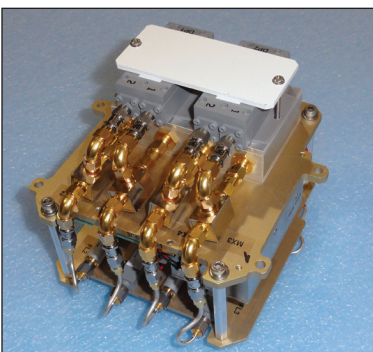
Not all applications call for autotracking feeds. With a good timing source and good ephemeris, satellite tracking can be done without the need for an autotracking feed. Systems that can rely on good radar data are also good candidates for non-autotracking feeds.



For program tracking only, TCS offers feeds in many frequency ranges from UHF & VHF through the Ku Bands. We have one design that operates in L-, S-, and X-Band as a single unit. This feed makes our Model 2400M Systems easier to deploy and maintain.

TCS offers boresights, as well, to allow the testing and verification of your system right before a mission. These boresights range from simple cup/dipole combinations to boresights with reflectors for a more focused beam. Our boresights also can be customized in both polarization and frequency range.

C-Band LNA & Down Converter Assembly Typical Performance



Noise Figure @ 25°C	0.75 dB
Total Gain	36 dB
Output 1 dB Compression	7 dBm
Output IP3 Point	24 dBm
SFDR	75 dB
Input Frequency	4400 - 4940 MHz 5090 - 5250 MHz
Local Oscillator	5550 MHz
Output Frequency	300-460 MHz 610 - 1150 MHz

Standard L/S or C-Band Prime Focus Conical Scan Feeds



Minimum G/T (dB/K)		Freq (MHz)	6' (1.8m)	8' (2.4m)	10' (3.0m)	16.4' (5m)
	L/S Band		1500	2.6	5.1	7.1
		1750	3.9	6.4	8.3	12.6
		2250	5.8	8.3	10.3	14.6
		2350	6.1	8.6	10.5	14.8
C-Band		4450	11.0	13.5	15.4	19.7
		4900	11.7	14.2	16.2	20.5
		5120	12.0	14.5	16.5	20.8
Scan Speed	20 to 40 Hz, User Selectable					
Polarization	Simultaneous RHCP and LHCP, Cell Phone Rejection					
Options	20 dB Attenuator, Test Injection, Transmit Capability Up to 300W, RF over Fiber, iNet Feed Option, Vertical and Horizontal, or Switched Linear and Circular					

Standard Cassegrain Systems with L/S and C-Band Conical Scan Feeds



Minimum G/T (dB/K)		Freq (MHz)	6' (1.8m)	8' (2.4m)	10' (3.0m)	16.4' (5m)
	L/S Band		1500	0.7	3.2	5.1
		1750	3.5	6.0	7.9	12.2
		2250	5.0	7.5	9.4	13.7
		2350	5.7	8.2	10.1	14.4
C-Band		4450	10.3	12.8	14.8	19.1
		4900	11.1	13.6	15.6	19.9
		5120	11.2	13.7	15.8	20.1
Scan Speed	20 to 40 Hz, User Selectable					
Polarization	Simultaneous RHCP and LHCP, Cell Phone Rejection					
Options	20 dB Attenuator, Test Injection, Transmit Capability Up to 300W, RF over Fiber, iNet Feed Option, Vertical and Horizontal, or Switched Linear and Circular					

Special Feeds



- Acquisition Aid (L/S-Band, C-Band)
- L/S-Band iNet Feed
- C-Band iNet Feed
- USB / SGLS Feed
- Up to 300W Tx/Rx L/S-Band Feed
- L/S/X Program Track Feed



Telemetry & Communications Systems, Inc.

10020 Remmet Avenue
Chatsworth, California 91311-3854
www.tcs.la +1-818-718-6248