

## F-550 DUCK Transportable Earth Station





## Dual Uplink C or Ku

The DUCK truck is an acronym for **D**ual **U**plink, **C** and **Ku**, and was designed by Satcom Scientific for the customer that may have a satellite uplink requirement in both C and Ku-band frequencies. It is capable of transmitting and receiving C and Ku-band signals to and from the satellite using a single antenna system and a minimal amount of electronics. This unit is also available in a Ku-band only or C-band only truck.

The DUCK truck is built on a Ford F-550, 2-wheel drive diesel truck that features a 6.0-liter turbo-diesel engine. The F-550 has proven to be a very reliable and stable vehicle for other transportable earth stations built and delivered by Satcom Scientific. The truck features an automatic transmission and a heavy-duty cooling package that provides a low maintenance, high life vehicle for this type of transportable.

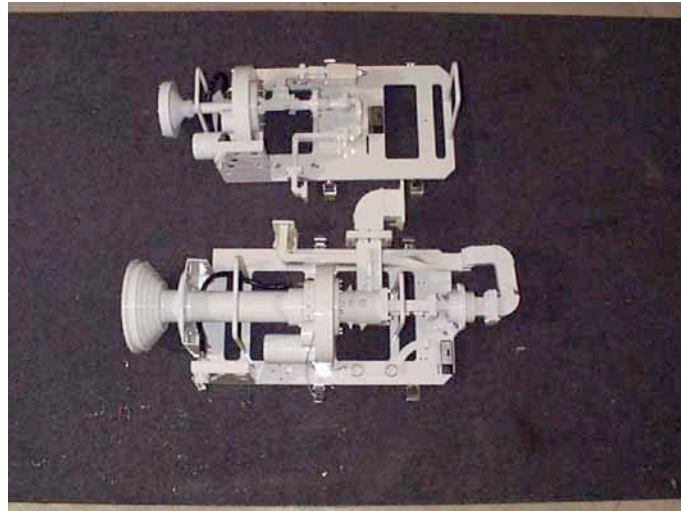
An all-aluminum, fully insulated equipment shelter is mounted to the frame rails of the F-550 vehicle. The equipment shelter houses four EIA-19 equipment racks. Access to the rear of the equipment racks is made from the rear storage area. The truck features factory in-dash air conditioning, but is also equipped with two *Bard* 12,000 BTU wall-mounted air conditioners for extra cooling capacity in hotter locations. The air conditioners feature 5KW electric heat when configured for operation in colder climates. The DUCK truck also features four lighted, watertight, underbody compartments that house tools and interconnect cables. The electrical compartment is housed in one of the underbody boxes; the other three are for customer use.

The truck features a 15 Kw on-board generator that provides electrical power to the unit when utility power is not available. The electrical system also includes a 40 amp DC Converter that will recharge the vehicle batteries when the truck is used in a fixed location for an extended period of time. A multi-tap isolation transformer allows the vehicle to be operated from a 195-250 VAC single-phase utility supply if that power is available. A selectable utility power selector switch allows the vehicle to be operated from either the local utility grid or the generator.

Vertex Communications Corporation builds the 2.4-meter antenna system. The antenna can be delivered as a C-band antenna, a Ku-band antenna, or it can be configured to operate as a multiband antenna (both C and Ku-band frequencies). The multiband antenna requires that the feed pallet be changed for the specific band of operation (a 15-minute operator task). The LNA/LNB and transmit-reject filter for each frequency band is part of the specific feed pallet assembly. This feed pallet change can be accomplished by a single engineer in less than 15 minutes. The antenna control unit features an optional built-in flux gate compass and GPS, which allows for auto-acquire and step-tracking capability.

The fully redundant electronics on board the DUCK truck operate in both frequency bands as well. The amplifiers are capable of operation from 5.85 GHz to 14.5 GHz in a single 3 RU package. The upconverters and downconverters operate in both frequency bands as well. The DUCK truck can also be delivered with frequency specific (C or Ku-band only) amplifiers, upconverters, and downconverters.

Depending on the model selected, the DUCK truck can be configured with analog and/or digital video modulators, data modems and other communications devices such as Orderwire and Voice-over-IP equipment. Full multi-channel audio monitoring and color video monitoring is standard within the rack-mounted electronics package. A waveform monitor and vectorscope as well as a compact spectrum monitor are also part of the monitoring package that, as a minimum, is included with the standard DUCK truck.



The above photo shows both the C-band and the Ku-band feed pallets. For picture clarity, LNAs and Transmit Reject Filters are not shown. The photo below shows a typical I/O panel for audio and video trucks.



The DUCK transportable can be configured as a quick-response satellite and production vehicle. It is ideal for news gathering, industrial or training film applications and other special events where a 2-camera shoot is sufficient.

The production package consists of two Sony broadcast wireless cameras, two Beta SX videotape recorder/players, a 16-channel audio mixer, and a powerful small video switcher that includes frame synchronization. Intercom and IFB is also standard equipment with this DUCK design.



Satcom Scientific has built and delivered twelve such units since 1998. The DUCK transport vehicle (Ford F-550) was also used to build the “Bloom Mobile” for NBC news that was used in the coverage of “Operation Iraqi Freedom”, proving that this transport vehicle is rugged enough to survive operation in a war zone environment. Satcom Scientific has also built and delivered six units to *Mobile Satellite Connection* of Mobile, Alabama whose entire fleet is comprised of multi-band DUCK trucks.

