



35.4" W

ZipPhaser - Ku Band Phase Array system

5.9" H

45.3" L

P&L Confidential - New Phase Array Satcom Antenna
In-Motion Satellite Communications

PRODUCT DESCRIPTION:

The ZipPhaser is a breakthrough in two-way satellite communication. The ZipPhaser's™ low profile (5.9"), array antenna system is designed to provide communications for vehicles on-the-move. The innovative antenna system automatically searches for and acquires the designated satellite signal and maintains pointing via automatic tracking and control of the azimuth, elevation and polarization angles while the vehicle is in motion.

The ZipPhaser™ offers valuable utility across a wide range of applications, including emergency communications, since it can provide public safety authorities and first responders with a high-speed satellite communications link to moving vehicles independent of terrestrial infrastructures that are susceptible to local service interruptions, natural disasters and sabotage. Since it does not rely on terrestrial networks, it also offers applications for industries typically operating across remote geographic areas unserved by wireless carriers as well as military operations. Those industries most notably include energy, natural resources, transportation and conservation.

SYSTEM COMPONENTS:

The ZipPhaser™ consists of a low-profile, vehicle roof-mounted array antenna connected to a controller and a satellite modem inside the vehicle.

The roof mounted antenna includes the BUC (Block Up Converter) and the LNB. The controller supplies the power to the antenna and controls the antenna movements.

Additional networking equipment such as a router, Wi-Fi access point, as well as encryption systems are optional for creating a mobile, secure, in-motion hotspot.

SYSTEM OPERATION:

✍✍ No manual pointing is required

Using GPS signals to determine its location, the ZipPhaser™™ automatically acquires and tracks the satellite.

✂✂ On-the-move automatic re-peaking

Built-in gyros allow fast recovery from line-of-sight blockages. The antenna uses a hybrid mechanical and electronic scanning process to maintain pointing accuracy.

✂✂ Adjacent satellite interference protection

In the event the antenna pointing is off by more than 0.5 degrees, the return link transmission is automatically muted until the pointing error is corrected by the antenna's sophisticated tracking system.

✂✂ Modem compatibility

The ZipPhaser™ system is **modem agnostic** and will support all PLI authorized SCPC satellite modems and VSATs.

CABLING:

The roof mounted antenna is connected with three cables to the controller and modem within the vehicle:

- ✂✂ Two RJ-58 cables using F-type connectors connect the antenna to the satellite modem (transmit signal and receive signal).
- ✂✂ One RJ-58 control cable using TNC connectors connects the antenna to the controller (for DC power and control data).

APPLICATIONS:

- ✂✂ High-speed Com-on-the-Move (COTM) for military vehicles and operations
- ✂✂ Emergency communications for federal, state and local first responders
- ✂✂ High-speed communications for trains and other commercial enterprise customers
- ✂✂ High-speed Internet access for moving vehicles such as motor-homes, buses, vans and SUV's



KEY FEATURES

- Low profile 5.9" height - blends into the vehicle and can include matching color options
- Simple installation on any luggage rack, flat roof or under the roof with a false ceiling; only the radome is visible
- Stand alone unit, complete with all required RF hardware including Block Up Converter (BUC)
- Operates off a vehicle's standard 12V DC power supply with minimal power consumption
- Auto satellite tracking / in-motion operation / hands free operation
- Compatible with any Ku-band satellite and is modem agnostic

ANTENNA PERFORMANCE AND DATA RATES *

Receive (forward link) Up to 15Mbps

Transmit (return link) 64 Kbps - 384 Kbps (internal 3 watt BUC)

512 Kbps - 2Mbps (external BUC)

* System performance varies as a function of the satellite link (beam EIRP and G/T) and the satellite modem parameters.

ANTENNA PHYSICAL CHARACTERISTICS

Dimensions 45.3" x 35.4" x 5.9"

Weight 66 lbs total (antenna - 62lbs, controller - 4lbs)

Electrical interfaces

Power supply 30V DC provided by the antenna controller

Output/Input impedance 50 ohms

Environmental

Ambient temperature range Operational: -13° F to 122° F ambient

Relative Humidity 0-100% condensing

Mobile Platform Ground Speed Operational up to 220 mph

ANTENNA CHARACTERISTICS

Frequency range

Receive 11.7 - 12.75 GHz

Transmit 14.0 - 14.5 GHz

Polarization Orthogonal linear (auto polarization control)

Uplink EIRP 32 dBW

Gain TX: 27 dBi RX: 29.3 dBi

G/T 7.6 dB/K @ 30°

Sidelobe level -12 dB

TX Cross polarization > 30 dB

Azimuth / elevation beam coverage 360° continuous Az 25° - 70° EI

IF input / output L-Band 950 - 2150 MHz

SIGNAL ACQUISITION AND TRACKING

Signal acquisition & lock Automatic <60° sec

Polarization angle adjustment Automatic

Tracking speed 60°/sec

Re-acquisition < 1 sec for blockage length up to 3 min

Azimuth tracking accuracy < 0.3° nominal

Elevation tracking accuracy < 0.35°

Polarization adjustment accuracy < 1°

ANTENNA CONTROL UNIT (ACU)

Power supply 12V DC

Power consumption 5A (ACU & antenna w/ internal BUC)

System interface CLI over RS-232

Modem interface Proprietary over RS-232

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