

PRODUCT SERIES DATA SHEET

L-Band Satellite Transmit Antenna with Integrated SSPA

OMP designs and builds a wide range of RF & Microwave Subsystems and Antennas.

This product series data sheet is one in a number of publications where we present general specifications of product series that we have developed.

These documents are intended to give an overview of the type of work we do and they will help in determining your requirements for a specific application.



Application

This antenna is one in a series of L-Band patch antennas. This design is optimized to yield a simple, relatively low cost product with excellent reproducibility in medium volumes.

The radiating element is a planar structure that is optimized for best possible hemispheric coverage.

This antenna is part of an L-Band, satellite, asset tracking modem.

Configurations

The board material used is a thick (3 mm) low loss yet low cost RF substrate. Right hand circular polarization is excited inside the patch itself (nearly square topology). While this method is relatively narrow band, it yields the 3% bandwidth needed for this specific requirement while saving cost since no external power splitter and phase shifter are needed. Additionally, losses in any external circuitry are avoided.

A 5 Watt linear amplifier is mounted to the back of this antenna: this eliminates coax losses. The radiating element provides sufficient heat radiation and no additional heat sink is required at the duty cycles of the modem of which this antenna is part.

A highly efficient switched mode power supply is integrated. Power is supplied through the coax cable.

The radiating element is grounded for protection against static discharges and EMC compliance.

KEY FEATURES

- Covers L-Band space uplink
- Hemispheric coverage
- Low cost
- Planar structure
- Excellent axial ratio
- Integrated SSPA
- Integrated power supply
- Antenna provides cooling for SSPA
- Radiating element grounded for EMC compliance
- Circular polarization generated inside element

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The radiating element is grounded for protection against static discharges and EMC compliance.

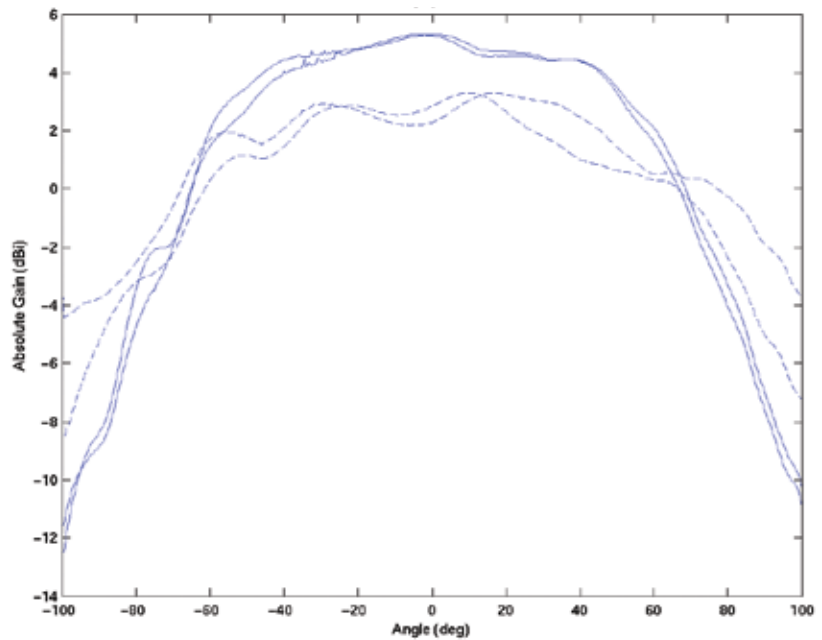
Options

This antenna can be optimized for different frequency bands, with different polarizations or with higher gains.

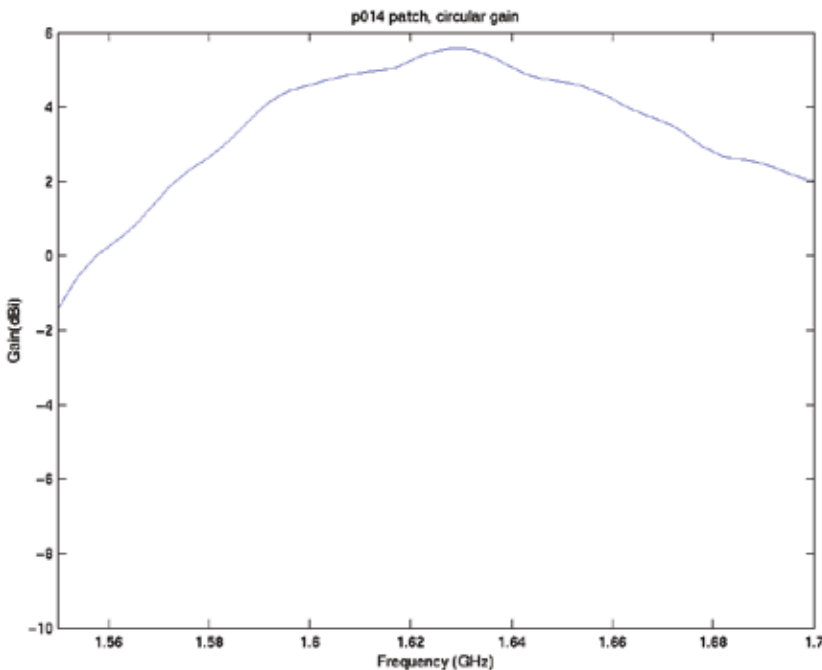
Transmit and receive antennas can be integrated in a single enclosure or in a single antenna element.

SSPA's with higher output powers are available.

Additional filtering can be integrated.



Comparison of radiation pattern of this antenna (solid blue line) with that of a lower gain version (dashed line)



Gain versus frequency plot of this antenna

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Specifications

Parameter	Value
Antenna Specifications	
Frequency range	1.626 to 1.660 GHz GPS L1
Gain	> 3 dBi
Return Loss	< 10 dB
LNA gain	-40°C to +70°C -40°F to +158°F
Operating temperature range	SMA female
Power supply	7 to 20 V @ 2.5 A Power supplied via coax cable
Dimensions	8 cm by 8 cm 3" by 3"

Optional Custom Modifications:

Custom frequency ranges

SSPA's with different output powers

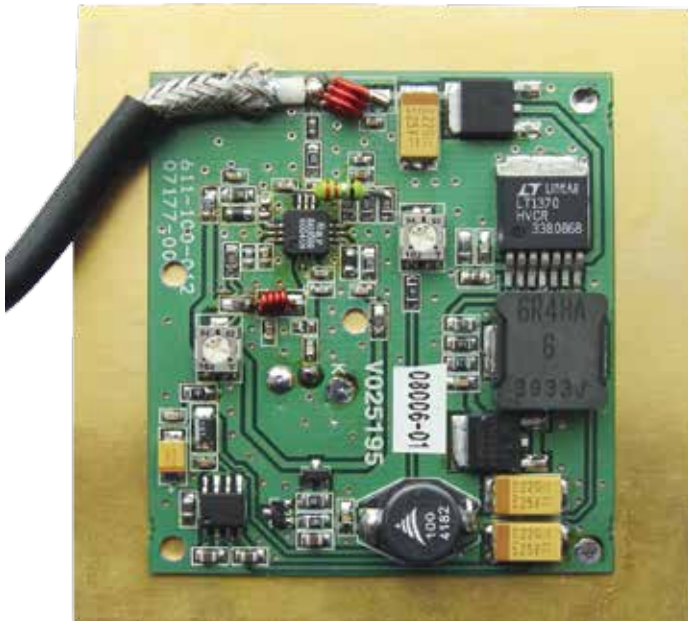
Passive antenna

Additional filtering

Custom enclosures

Custom marking

If you have different requirements for a similar design or a completely new set of requirements, please contact us at the numbers listed below or via mail or refer to the sales page on our website for a representative in your area.



Antenna with cover removed

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OMP was established in 1996 and specializes in the design, manufacture and support of a wide range of RF & Microwave and Antenna Subsystems.

Our products are integrated in a wide range of applications serving various markets.

Our typical customer is unable to locate a standard product to fit his requirements or may not have an in house design and build capability.

We are an economic, complete and quick answer to this need.

Since we are not a catalog manufacturer who depends on high volume production, your custom requirement is our only priority. We have been exclusively making specials for years, we have produced numerous variations and we draw on that experience to reduce design cost and lead times.

- OMP designs and builds to customer's specifications
- We support products through their entire product lifecycle
- An extensive library of designs is used to create custom products
- OMP uses state-of-the-art circuit and 3D electromagnetic simulations tools
- OMP uses rapid prototyping for fast turnaround
- We will work with our customers on the integration of products designed
- We work with selected partners for agency approval.

Our Contact Info

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