



# TAOGLAS®



# Datasheet

**Part No:**  
TU.60.3H31

**Description**

Terminal Mount 3.5-8GHz 3dBi Ultra-wideband Antenna with N-Type Connector  
For European and USA UWB Applications In Channels 2-7

**Features:**

Frequency: 3.5-8GHz  
Covering USA and European UWB Channels 2-7  
Dipole Antenna – No Ground Plane Required  
Rugged ABS, IP67 Rated Enclosure  
N Type Male Connector  
Dimensions: Length 123.5mm, Ø22.8mm  
CE Certified  
RoHS & Reach Compliant

|                                |    |
|--------------------------------|----|
| 1. Introduction                | 2  |
| 2. Specification               | 3  |
| 3. Antenna Characteristics     | 5  |
| 4. Radiation Patterns          | 8  |
| 5. Mechanical Drawing          | 33 |
| 6. Installation Recommendation | 34 |
| 7. Packaging                   | 35 |
| <hr/>                          |    |
| Changelog                      | 36 |

Taoglas makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Taoglas reserves all rights to this document and the information contained herein. Reproduction, use or disclosure to third parties without express permission is strictly prohibited.



## 1. Introduction



The Taoglas TU.60.3H31 is a unique dipole terminal ultra-wideband (known as UWB) antenna designed to cover all worldwide UWB frequencies between 3.5 and 8 GHz. With excellent efficiency and an omnidirectional radiation pattern with 3 dBi gain, it provides strong, homogeneous coverage in all directions from the sensor. The TU.60 also shows excellent fidelity factor numbers and low group delay variation to preserve maximum signal integrity.

The potential of UWB is enabling a wave of applications that use highly accurate, ultra-reliable location and distance sensing to deliver new experiences and capabilities. It operates with low power for transmitting large amounts of digital data over a wide spectrum of frequency bands typically spanning more than 500MHz with very low power for short distances up to 250m with latency speeds as low as 1ms. The low power requirements of UWB results in increased battery life of sensors and tags which in turn reduces overall operational costs. The TU.60 exhibits exceptional efficiencies of up to 91% on specific bands.

Typical Applications Include:

- Indoor position location and tracking applications
- Smart home device control and entertainment systems
- Keyless entry systems
- Precision surveying

The TU.60 is a powerful antenna packaged in a small IP67 rated enclosure that is manufactured from ABS which makes it an ideal ruggedized solution for both indoor and outdoor environments. It comes with an N-Type connector as standard for robust and easy installation. The connector can be customized subject to NRE.

The TU.60 is one of several Taoglas-developed antennas designed for seamless integration and compatibility with any UWB sensor module on the market. Contact your regional Taoglas customer support team for further information.

## 2. Specification

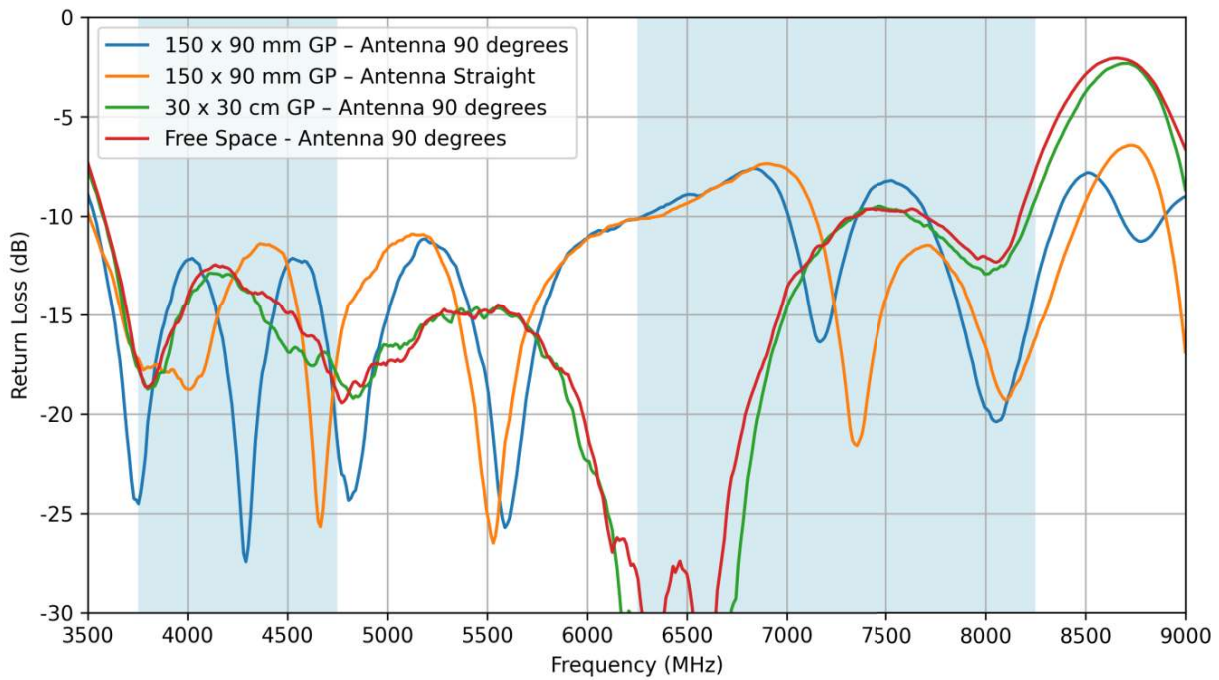
| Electrical    |                 |                                     |                |                   |                 |             |              |                   |                  |
|---------------|-----------------|-------------------------------------|----------------|-------------------|-----------------|-------------|--------------|-------------------|------------------|
| Band          | Frequency (MHz) | Measurement                         | Efficiency (%) | Average Gain (dB) | Peak Gain (dBi) | Impedance   | Polarization | Radiation Pattern | Max. input power |
| UWB Channel 2 | 3750-4250       | 150 x 90 mm GP – Antenna 90 degrees | 67.8           | -1.69             | 1.56            | 50 $\Omega$ | Linear       | Omni              | 50W              |
|               |                 | 150 x 90 mm GP – Antenna Straight   | 66.8           | -1.75             | 2.27            |             |              |                   |                  |
|               |                 | 30 x 30 cm GP – Antenna 90 degrees  | 85.1           | -0.70             | 5.46            |             |              |                   |                  |
|               |                 | Free Space - Antenna 90 degrees     | 86.1           | -0.65             | 1.87            |             |              |                   |                  |
| UWB Channel 3 | 4250-4750       | 150 x 90 mm GP – Antenna 90 degrees | 65.1           | -1.87             | 4.19            |             |              |                   |                  |
|               |                 | 150 x 90 mm GP – Antenna Straight   | 60.4           | -2.19             | 3.47            |             |              |                   |                  |
|               |                 | 30 x 30 cm GP – Antenna 90 degrees  | 84.3           | -0.74             | 6.23            |             |              |                   |                  |
|               |                 | Free Space - Antenna 90 degrees     | 85.5           | -0.68             | 3.92            |             |              |                   |                  |
| UWB Channel 4 | 6250-6750       | 150 x 90 mm GP – Antenna 90 degrees | 49.5           | -3.06             | 1.53            |             |              |                   |                  |
|               |                 | 150 x 90 mm GP – Antenna Straight   | 45.8           | -3.39             | 2.69            |             |              |                   |                  |
|               |                 | 30 x 30 cm GP – Antenna 90 degrees  | 87.0           | -0.60             | 5.59            |             |              |                   |                  |
|               |                 | Free Space - Antenna 90 degrees     | 85.9           | -0.66             | 3.17            |             |              |                   |                  |
| UWB Channel 5 | 6750-7250       | 150 x 90 mm GP – Antenna 90 degrees | 46.4           | -3.34             | 3.11            |             |              |                   |                  |
|               |                 | 150 x 90 mm GP – Antenna Straight   | 43.5           | -3.62             | 1.92            |             |              |                   |                  |
|               |                 | 30 x 30 cm GP – Antenna 90 degrees  | 82.7           | -0.83             | 6.09            |             |              |                   |                  |
|               |                 | Free Space - Antenna 90 degrees     | 82.1           | -0.86             | 3.75            |             |              |                   |                  |
| UWB Channel 6 | 7250-7750       | 150 x 90 mm GP – Antenna 90 degrees | 50.3           | -2.98             | 2.36            |             |              |                   |                  |
|               |                 | 150 x 90 mm GP – Antenna Straight   | 55.2           | -2.58             | 2.51            |             |              |                   |                  |
|               |                 | 30 x 30 cm GP – Antenna 90 degrees  | 70.4           | -1.53             | 4.86            |             |              |                   |                  |
|               |                 | Free Space - Antenna 90 degrees     | 69.6           | -1.58             | 2.86            |             |              |                   |                  |
| UWB Channel 7 | 7750-8250       | 150 x 90 mm GP – Antenna 90 degrees | 48.4           | -3.15             | 1.96            |             |              |                   |                  |
|               |                 | 150 x 90 mm GP – Antenna Straight   | 52.0           | -2.84             | 2.92            |             |              |                   |                  |
|               |                 | 30 x 30 cm GP – Antenna 90 degrees  | 74.8           | -1.26             | 4.86            |             |              |                   |                  |
|               |                 | Free Space - Antenna 90 degrees     | 73.8           | -1.32             | 2.58            |             |              |                   |                  |

| Mechanical                |                         |
|---------------------------|-------------------------|
| Dimensions                | Length 123.5mm, Ø22.8mm |
| Ingress Protection Rating | IP67                    |
| Casing                    | ABS                     |
| Connector                 | N-Type (M)              |
| Weight                    | 52g                     |

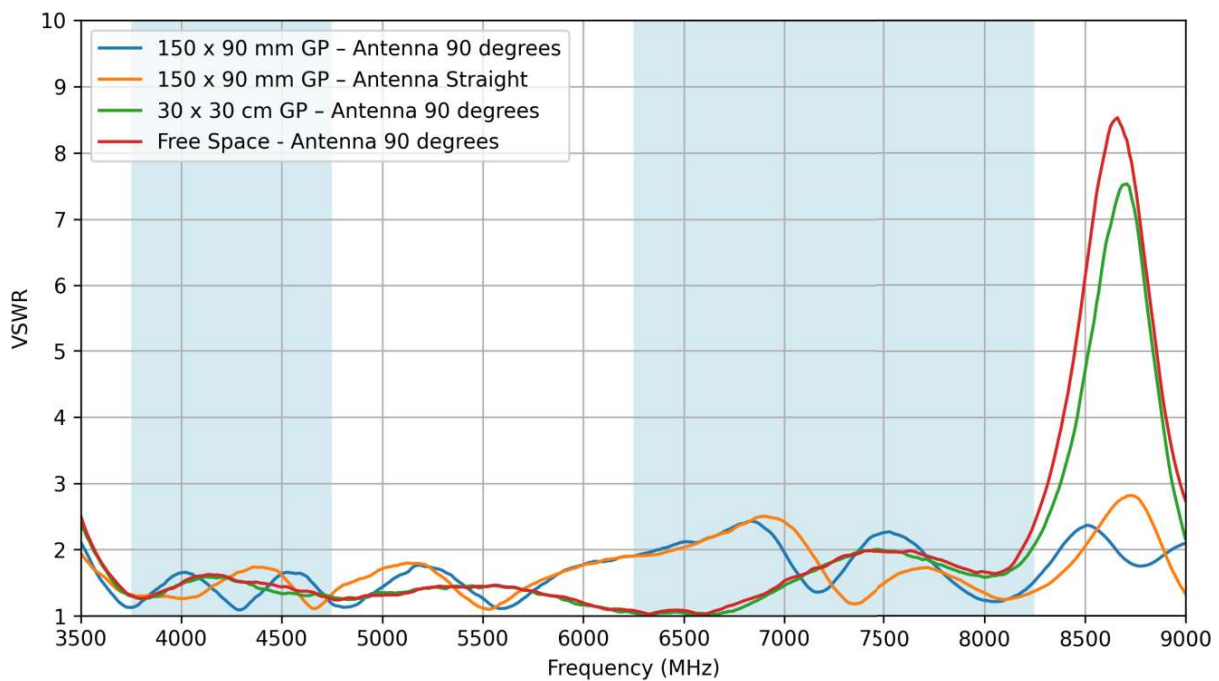
| Environmental          |                            |
|------------------------|----------------------------|
| Operational Temp Range | -40°C to 85°C              |
| Humidity               | Non-condensing 65°C 95% RH |
| RoHS Compliant         | Yes                        |
| REACH Compliant        | Yes                        |

## 3. Antenna Characteristics

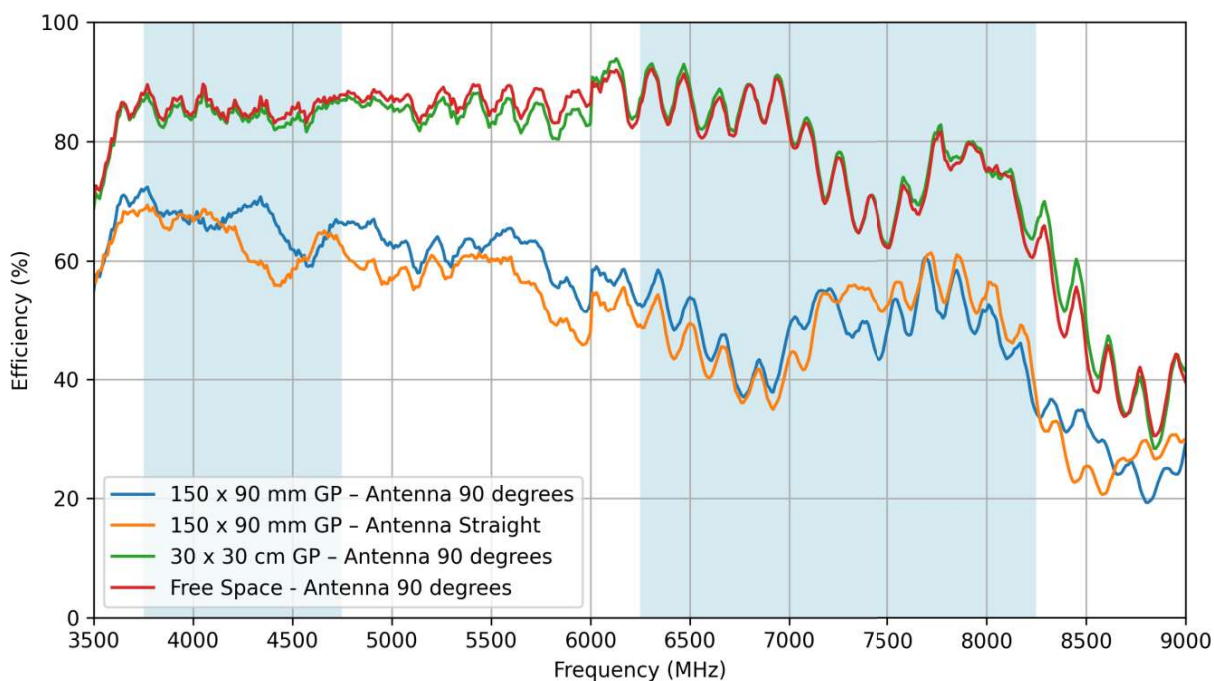
### 3.1 Return Loss



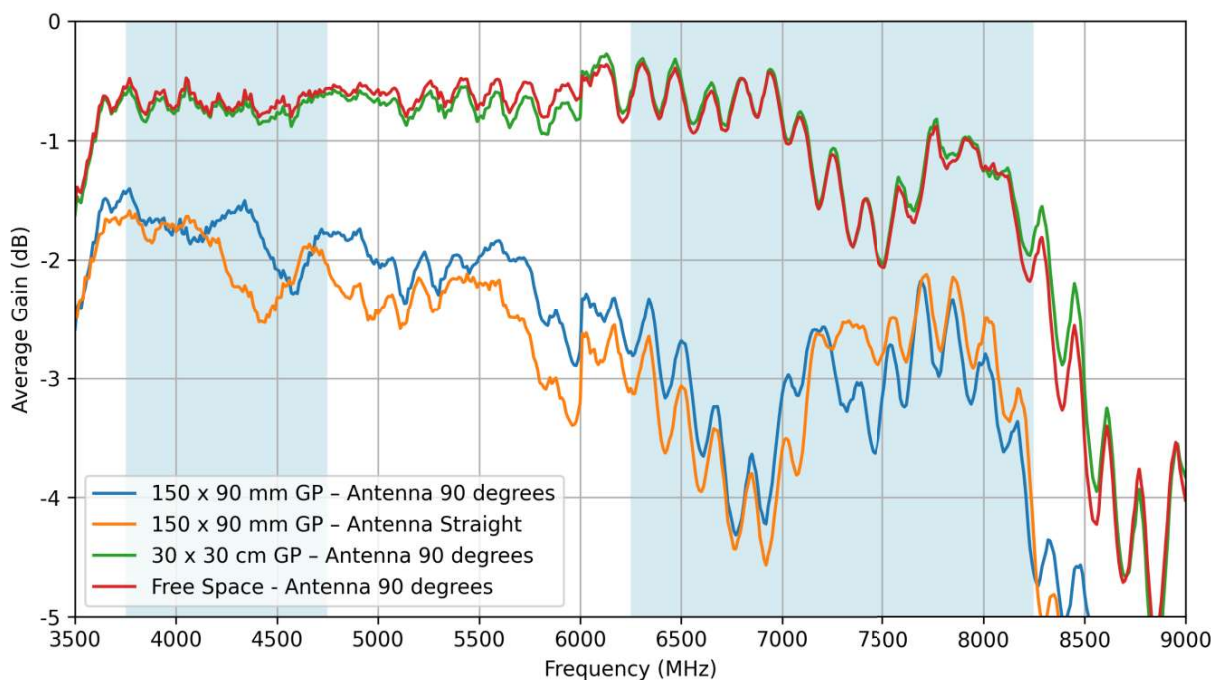
### 3.2 VSWR



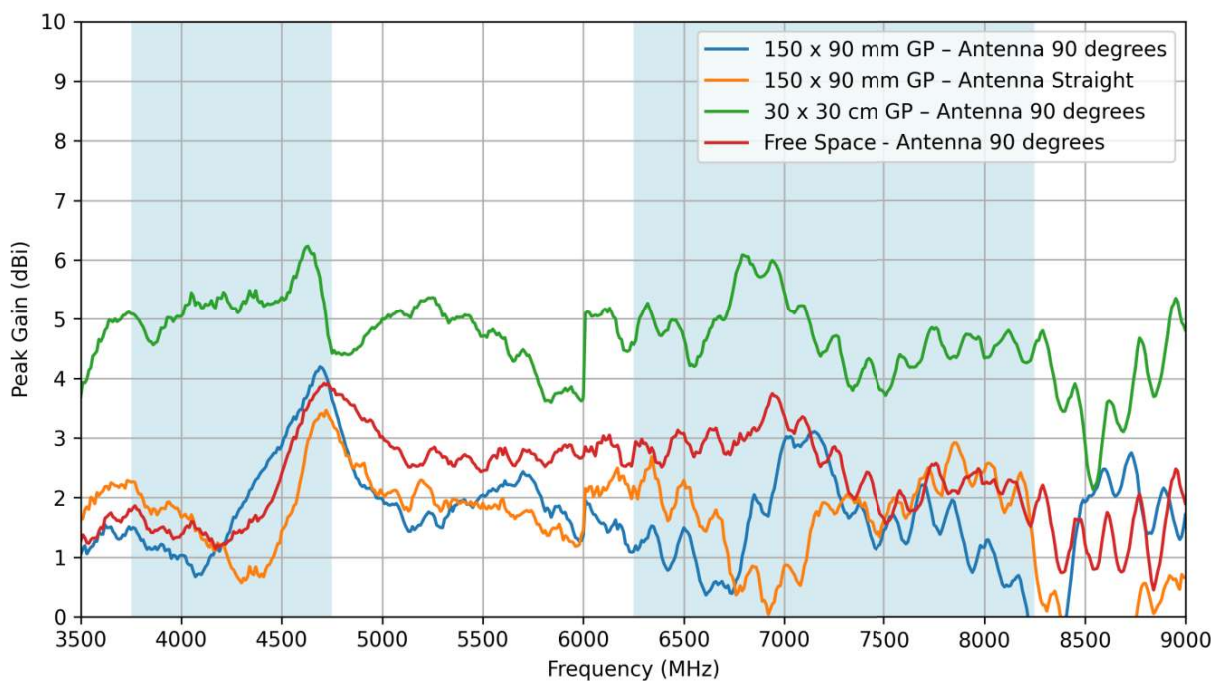
### 3.3 Efficiency



### 3.4 Average Gain



### 3.5 Peak Gain



### 3.6 Group Delay

