



GPS L1 & L5 External Antenna  
Model: HB70DF  
GPS L1 & L5  
Product Number: H2MA003D100100

Preliminary Engineering Specification

## Table of Contents

1	Introduction .....	3
2	Electrical Specifications .....	4
3	GPS L1 Band Characteristics .....	6
3.1	Return Loss .....	6
3.2	VSWR .....	6
3.3	Radiation Gain Pattern (Unit: dBi) .....	7
4	GPS L5 Band Characteristics .....	8
4.1	Return Loss .....	8
4.2	VSWR .....	9
4.3	Radiation Gain Pattern (Unit: dBi) .....	9
5	Antenna Dimensions(Unit:mm) .....	10

# 1 Introduction

The HB70DF External antenna is a high performance solution for high accuracy centimeter level tracking in telematics applications. The HB70DF is especially designed for precision dual frequency positioning GPS L1/L5, provides superior multi-path rejection and axial ratio.

## Features

- \*High Accuracy
- \*Covering GPS L1/L5 band.
- \*DC power input 3V to 24V
- \*RoHS compliant.

## Applications

- \* Automotive telematics
- \* Safety of life transportation
- \* Marine
- \* Navigation

## 2 Electrical Specifications

GNSS NAVIGATION ANTENNA		
Navigation	GPS L5	GPS L1
Center Frequency(MHz)	1176.45	1575.42
Peak Gain(dBiC)	2.3 Typ.	3.0 Typ.
VSWR	< 2.0	
Impedance( $\Omega$ )	50	
Polarization	RHCP	
LNA ELECTRICAL PROPERTIES		
Gain(dB)	30 Typ.	
Noise Figure(dB)	1.1 Typ.	1.6 Typ.
Output VSWR	< 2.0	
DC Input Voltage(V)	3~24	
Current consumption	17 mA Typ. @ 3V	

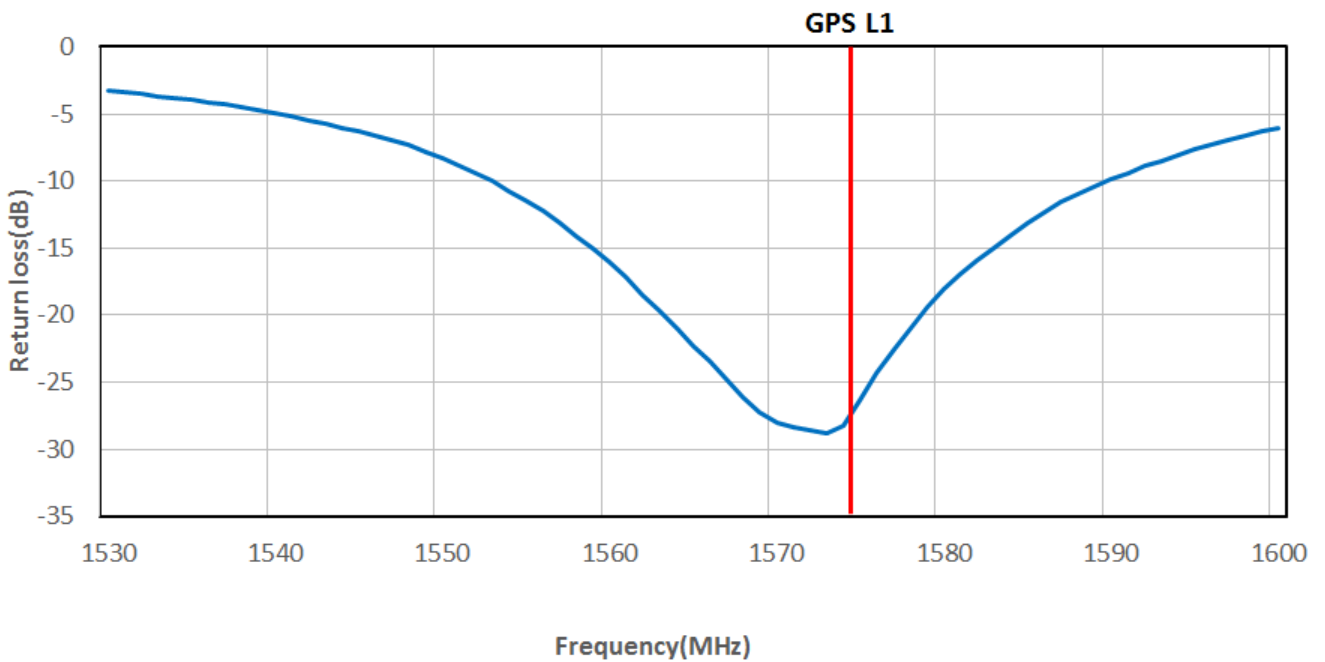
MECHANICAL	
Antenna Dimensions	70 * 70 * 17 mm
Waterproof	IP67
Cable type*	RG-174
Cable Length*	2M
Connector*	SMA(M) ST
Mounting Type	Adhesive mount

\*The connector, cable length, and cable type can be tailor made upon request.

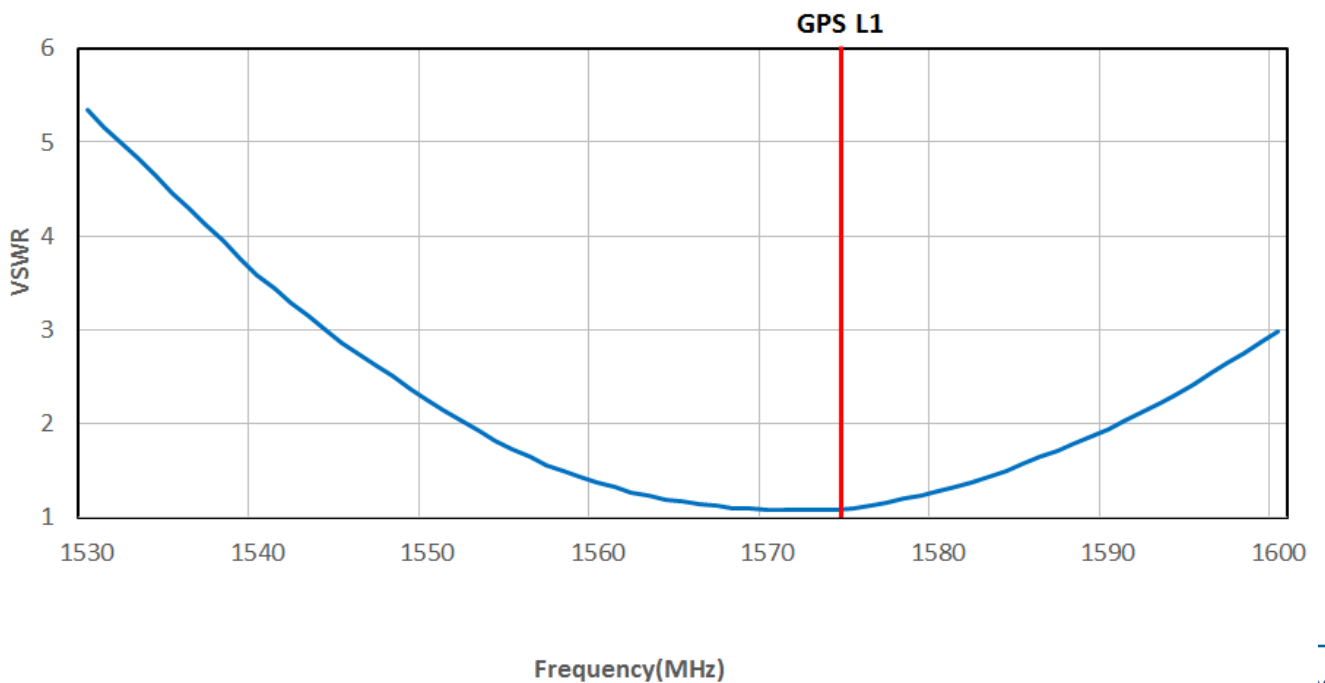
ENVIRONMENTAL	
Operation Temperature	-40~+85 °C
Storage Temperature	-40~+85 °C

## 3 GPS L1 Band Characteristics.

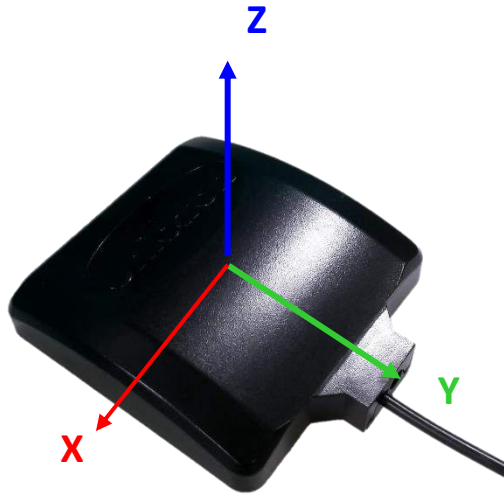
### 3.1 Return Loss



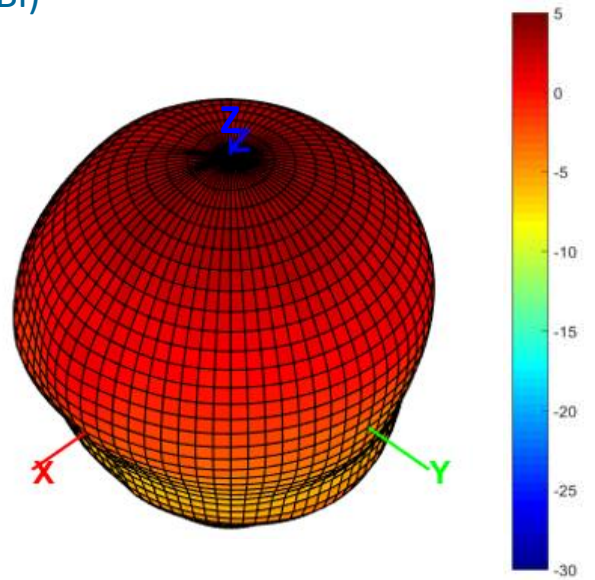
### 3.2 VSWR



### 3.3 Radiation Gain Pattern (Unit: dBi)

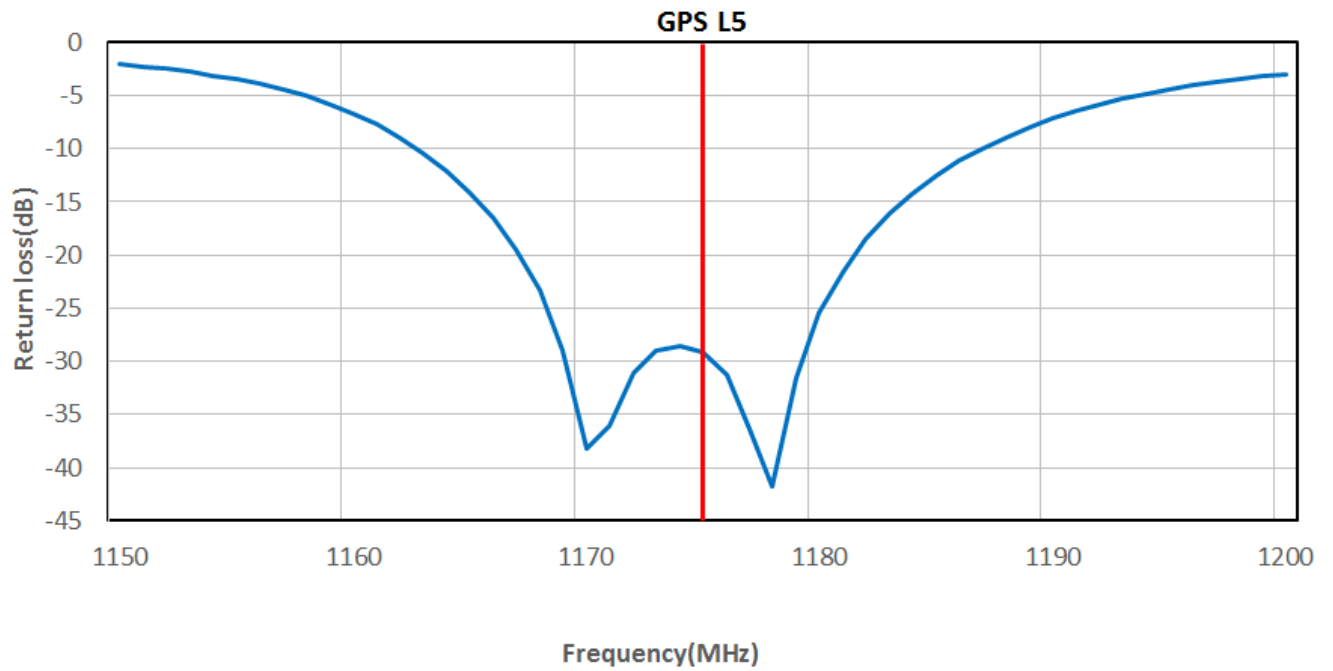


1575MHz



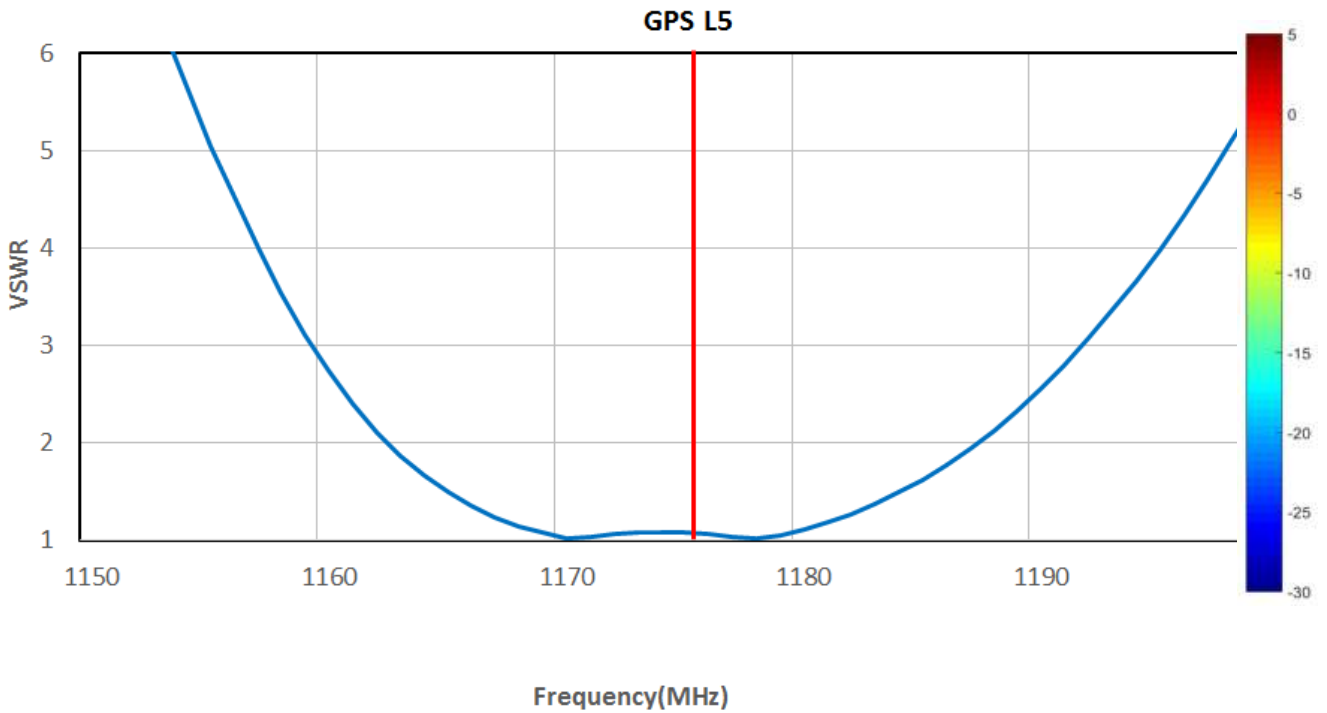
## 4 GPS L5 Band Characteristics.

### 4.1 Return Loss

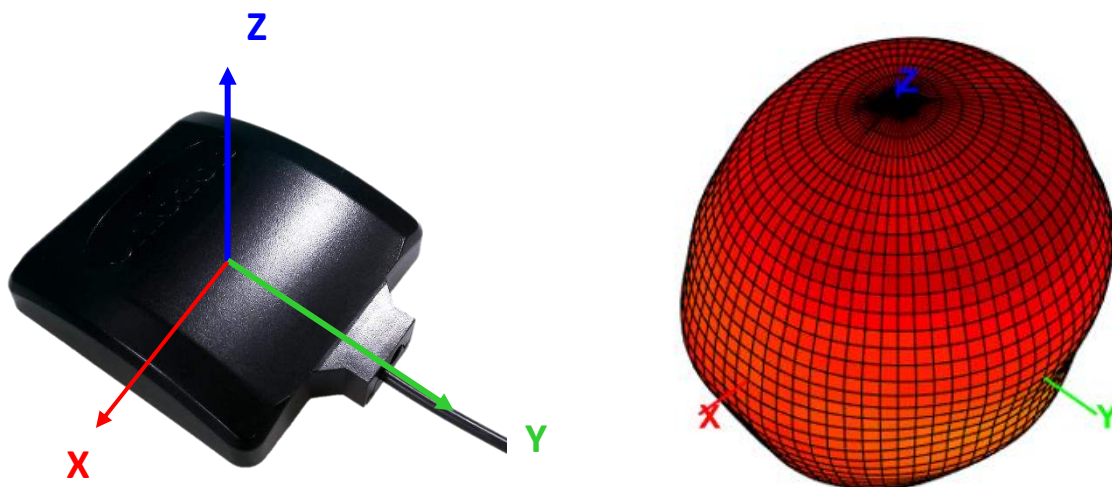




### 4.2 VSWR

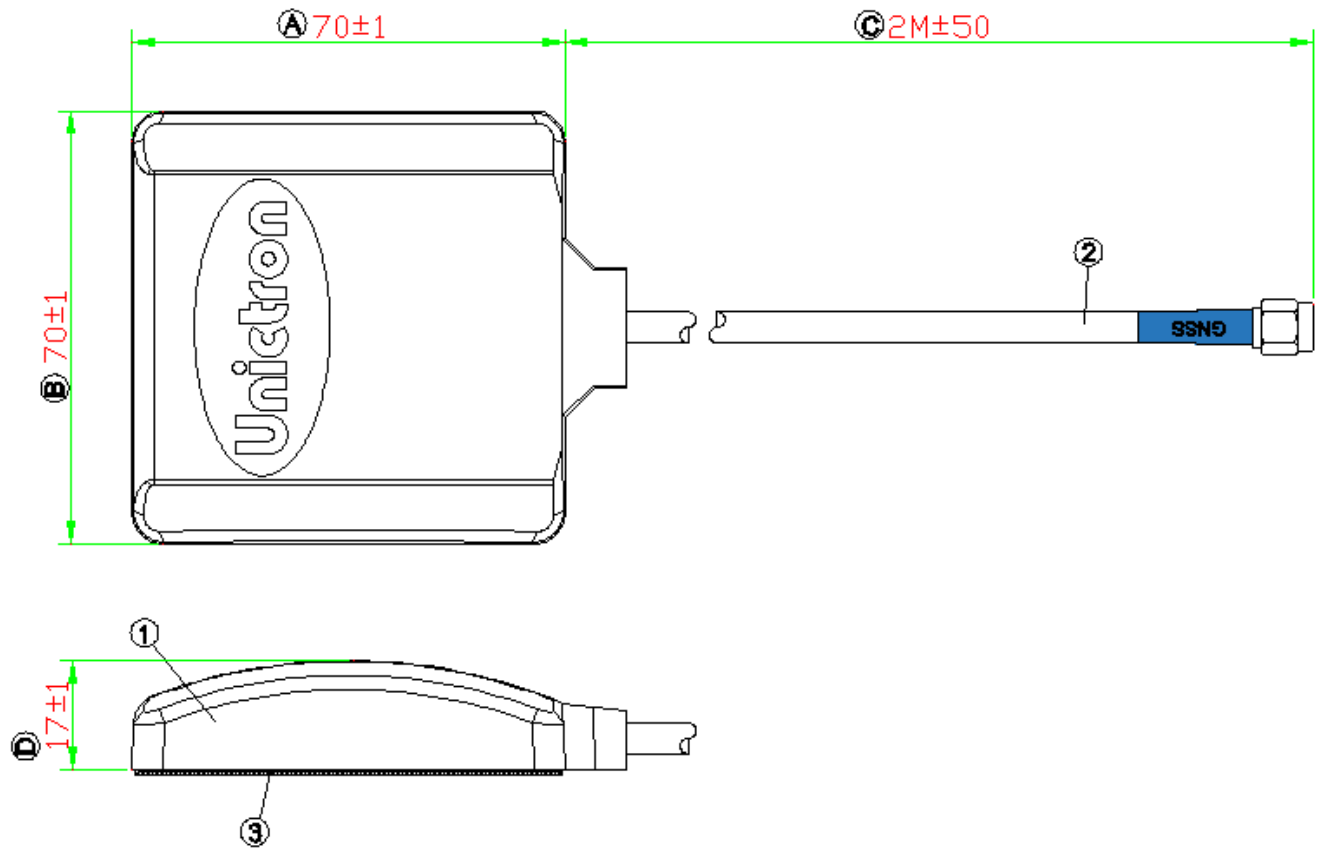


### 4.3 Radiation Gain Pattern (Unit: dBi)



1176MHz

## 5 Antenna Dimensions(Unit:mm)



Item	Name	Material	Color	Q'ty
1	Plastic cover	PC	Black	1
2	Connector cable $\varnothing$ 2.7mm	PVC	Black	1
3	Adhesive tape(3M_VHB5952_t:1.1mm)	-	Black	1