GNSS Vehicle Locating & Marine Small L1 / L5 Antenna

MODEL: GA-65R

Small size and ruggedness, demand of vehicle locating and marine navigation GNSS antenna that will sustain harsh environment.

- Low noise figure
- Fully weather proof.
- Ultra-high Sensitivity
- Compact construction
- Excellent temperature stability

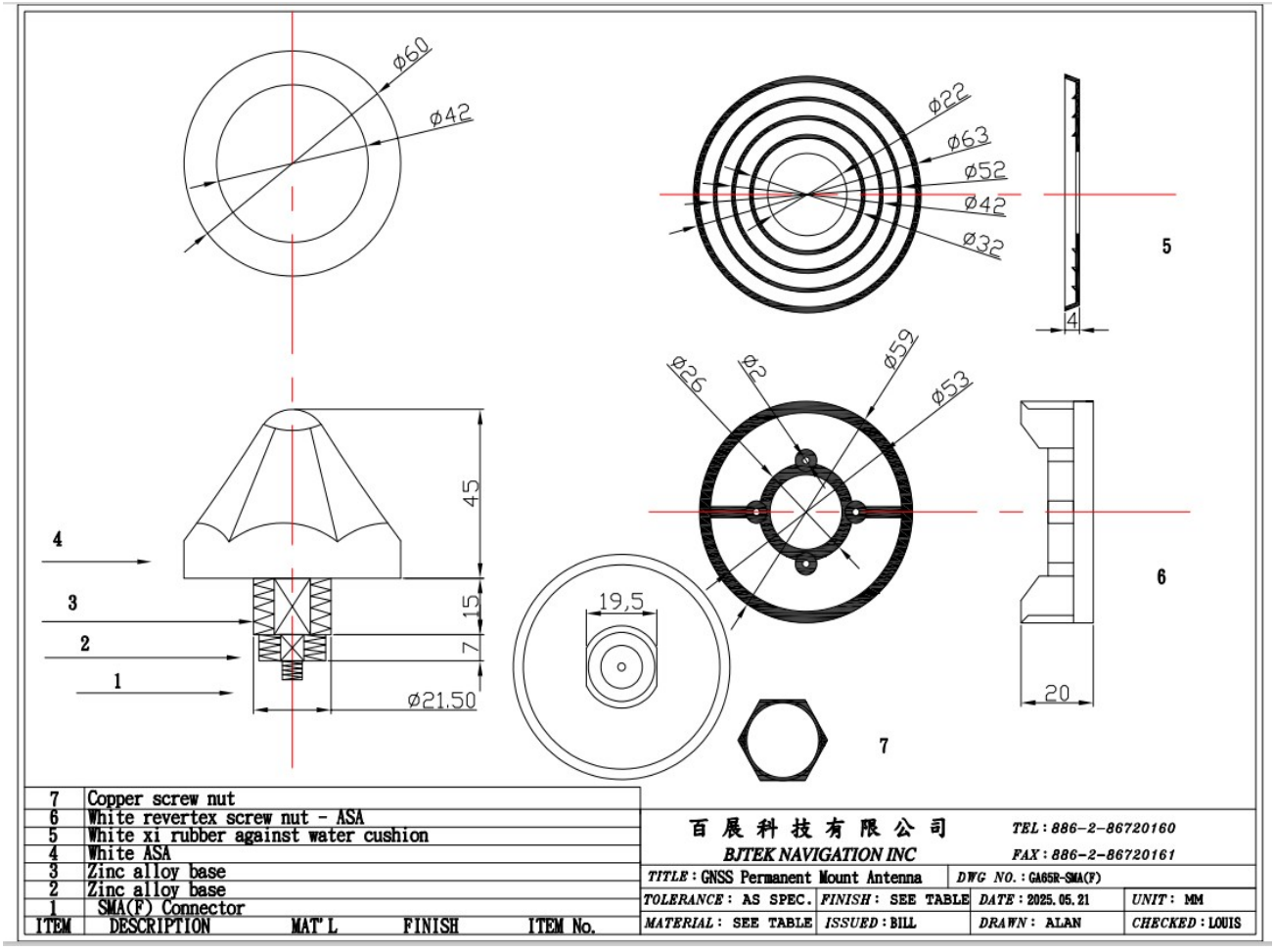
Specifications:

PHYSICAL CONDITION	
Constructions:	ASA + Zinc Alloy
Dimensions:	60mm(Dia.) x 45mm(H)
Weight:	65grams (w/o cable & connector).
Color:	white
Mounting:	Bulkhead mount with 0.8 inch threaded wing nut (standard accessory).
Cable & Connector	
RF cable:	SMA(M) +10 meter +TNC(M) (standard) other length (optional)
Pulling strength:	6 Kg @ 5sec. molded plastic on connector end for strain relief.
Connector	TNC(F) or SMA(F)
Antenna Element	
Center Frequency:	1582.5±23.5MHz(L1),and1176±12MHz(L5)
Polarization:	R.H.C.P. (Right Handed Circular Polarization).
Bandwidth	±23.5MHz(L1), ±12MHz(L5)
Gain @ 10° Elevation:	-4dBic typical @ L1; -0.5dBic typical @ L5

Gain at Zenith	0 dBic typical @ L1; 1.5 dBic typical @ L5
Output VSWR:	1.5 max
Output Impedance:	50 Ω
Low Noise Amplifier	
Power Gain:	30±2 dB typical at 3V (L1 and L5) 30±2 dB typical at 5V (L1 and L5)
ESD (TVS)	±8kv (contact)
Noise Figure:	1.5 dB typical at 3V (L1,L2 and L5)
Filter	Saw filter 30dB typical fo±50MHz 40dB typical fo±100MHz (fo=L1,L2 and L5 band)
Supply Voltages:	DC = 3~5V
Current Consumption:	DC = 10±2.5mA at 3V / 27±2.5mA at 5V
Output Impedance:	50 Ω
Overall Performance: (antenna element, LNA & coax cable)	
Center Frequency:	1582.5±23.5MHz(L1), and 1176±12MHz(L5)
Gain:	30±2 dB typical at 3V (L1 and L5) 30±2 dB typical at 5V (L1 and L5)
Noise Figure:	2.0 max.
Bandwidth:	±23.5MHz(L1), ±12MHz(L5)
VSWR:	2.0 max.
Output Impedance:	50 Ω
Environmental	
Operating Temperature:	-40°C~ +85°C.
Storage Temperature:	-40°C~ +85°C.
Relative Humidity:	95% non-condensing.
Water Resistance:	100% waterproof.

* This specification is subject to change without prior notice **Data Updated:** AUG.06, 2025

GA65R-TNC(F)



ITEM	DESCRIPTION	MAT'L	FINISH	ITEM No.
7	Copper screw nut			
6	White revertex screw nut - ASA			
5	White xi rubber against water cushion			
4	White ASA			
3	Zinc alloy base			
2	Zinc alloy base			
1	SMA(F) Connector			

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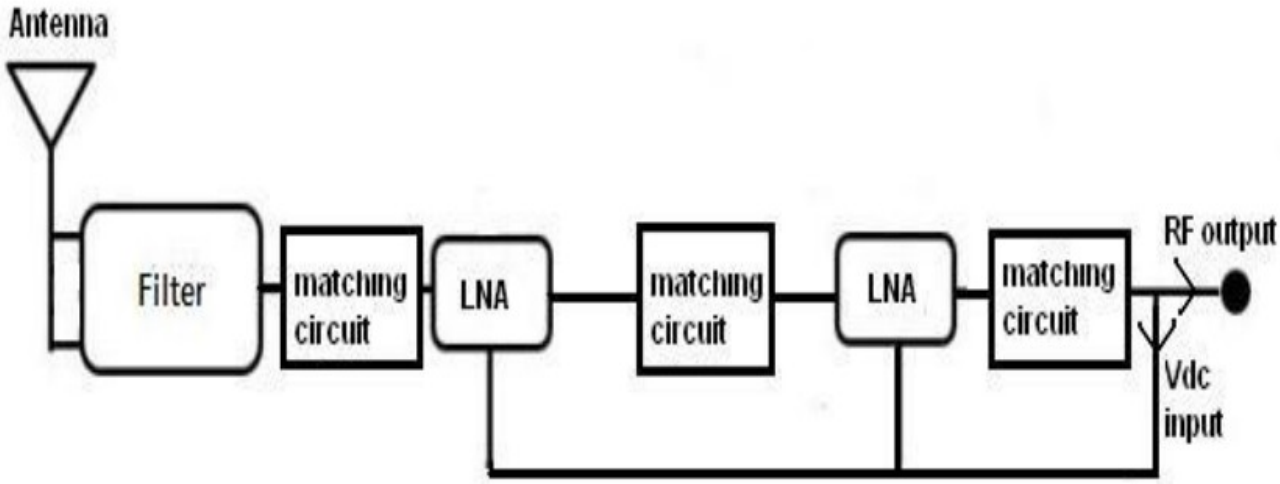
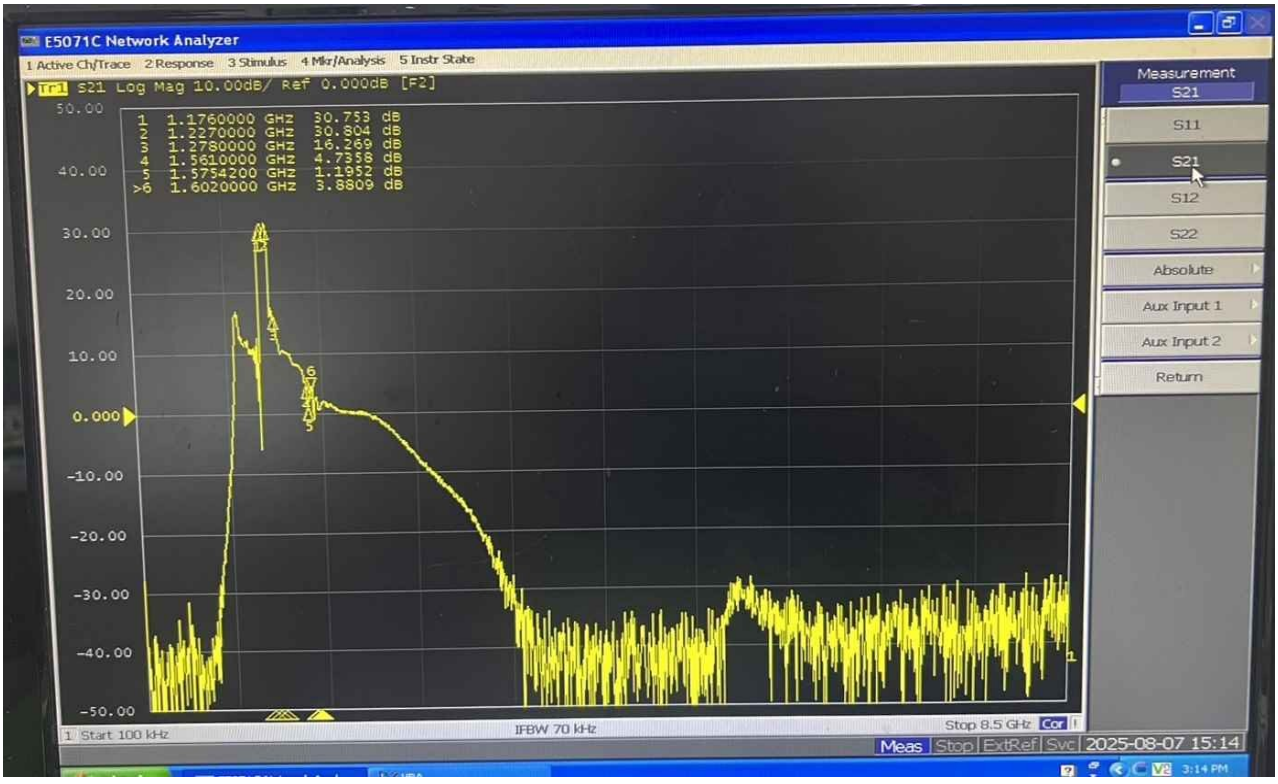
TITLE：GNSS Permanent Mount Antenna		DWG NO.：GA65R-SMA(F)	
TOLERANCE：AS SPEC.	FINISH：SEE TABLE	DATE：2025.05.21	UNIT：MM
MATERIAL：SEE TABLE	ISSUED：BILL	DRAWN：ALAN	CHECKED：LOUIS

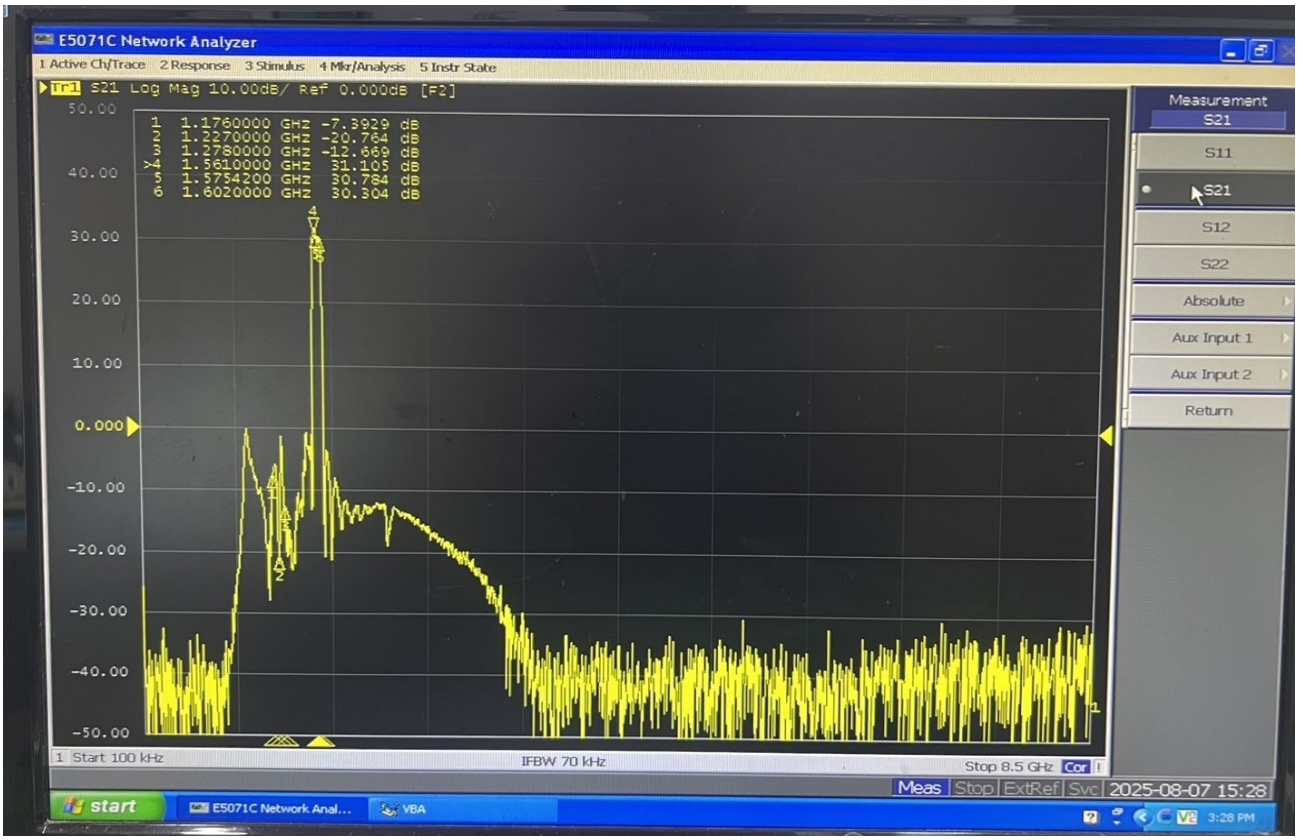
Block diagram:

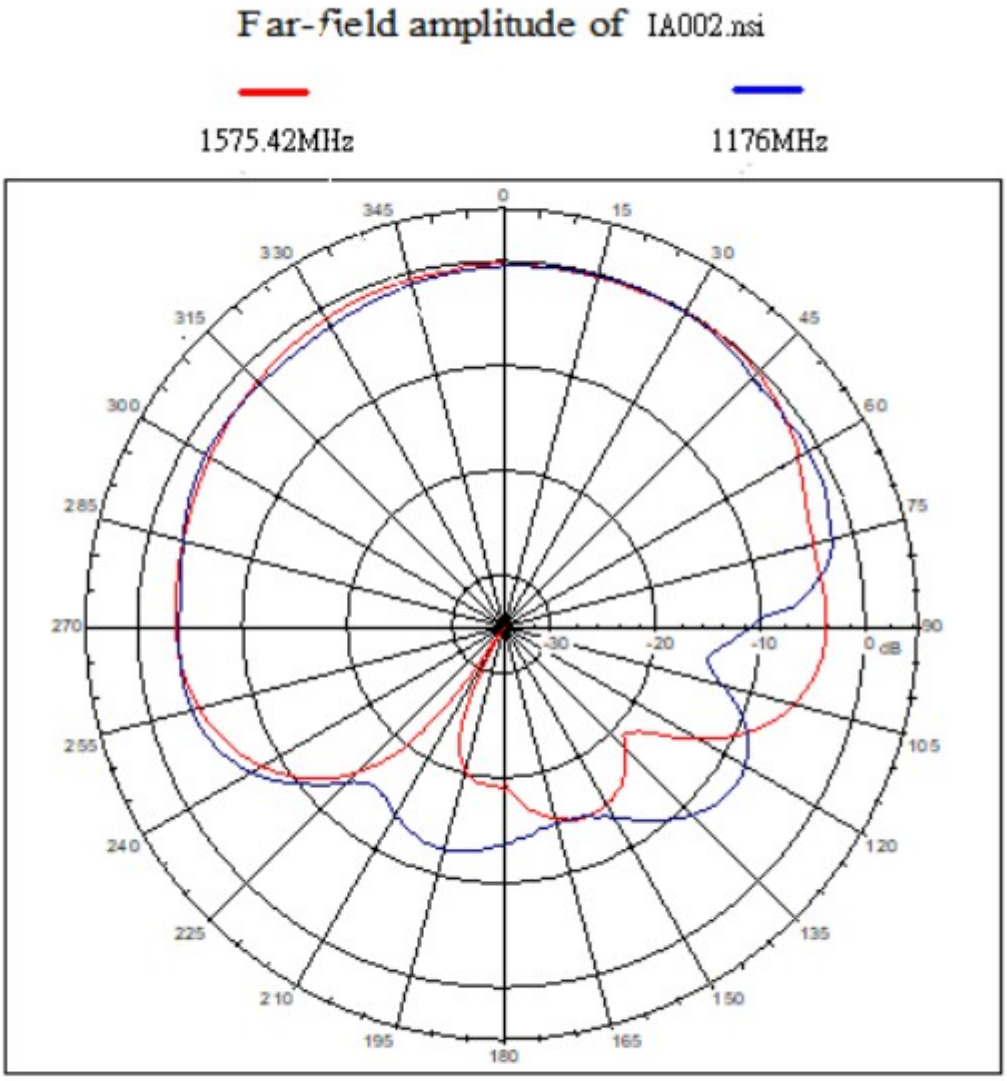


L5 S21:



L1 S21:


E5071C Network Analyzer
1 Active Ch/Trace
2 Response
3 Stimulus
4 Mkr/Analysis
5 Instr State
Tr1 S21 Log Mag 10.00dB/ Ref 0.000dB [F2]
1 1.1760000 GHz -7.3929 dB
2 1.2270000 GHz -20.764 dB
3 1.2780000 GHz -12.669 dB
>4 1.5610000 GHz 31.105 dB
5 1.5754200 GHz 30.784 dB
6 1.6020000 GHz 30.304 dB
50.00
40.00
30.00
20.00
10.00
0.000
-10.00
-20.00
-30.00
-40.00
-50.00
1 Start 100 kHz
IFBW 70 kHz
Stop 8.5 GHz
Cor
Measurement
S21
S11
S21
S12
S22
Absolute
Aux Input 1
Aux Input 2
Return
Meas
Stop
ExtRef
Svc
2025-08-07 15:28
start
E5071C Network Anal...
VBA
3:28 PM



PS: Total Gain = Passive Pattern Gain + LNA Gain - cable loss (1.1dB/m)