

GNSS L1/L5 Indoor Signal Amplifier Antenna Kit

MODEL: RA-650B

Use GNSS L1/L5 Indoor production line & Project research and development test----



- Fully waterproof at IPX8 rating
- Cable length as long as 30m RF cable
- Re-radiating range as long as 5m

Features :

- **Excellent Signal Reception:** Re-radiating distance is around 3-5 meters from the Reradiator. In addition, full receiver visibility of GNSS L1/L5 satellites outdoor comes along with an amplified re-radiated signal indoor.
- **Highly Integrated System:** Designed to operate as a whole, the system kits are composed of a high-gain external GNSS L1/L5 antenna, a precisely calibrated amplifier circuit with a Patch type indoor Reradiator and a built-in power supply regulator that provides systems with power. The unit is designed as plug-n-play hardware and it can be installed either permanently to a secured location or quickly at users' convenience by using either screw mounting or glass suction cup, respectively, for the indoor reradiating active patch antenna.
- **Efficiency & Convenience:** The Reradiator transmits real time data throughout the vehicle directly to an unlimited number of users. Multiple GNSS L1/L5 receivers or hand-helds can share just one reradiating to receive timely data.
- **Power Saving:** Thanks to its GNSS L1/L5 Power Saver design, the system uses an independent power supply source, saving users from the need of other power source for their GNSS L1/L5 unit.
- **Easy-to-Setup:** No additional cables are required and no external GNSS L1/L5 antennas are needed to be plugged and unplugged when using a GNSS L1/L5 receiver inside the vehicle.

Applications :

- LABORATORY
- OFFICES
- VARIOUS KINDS OF TRANSPORTATION MEANS, SUCH AS TRUCKS, TRAINS, SHIPS, SAILING BOATS & BUSES

Features:

1. Extra-high Gain and Low Noise
2. All Voltage (3.0V~5.5 V) can be available in one.
3. Extra-low current consumption in low voltage.

6. Various accessories are available.

Configuration:

Two Ports: RF input port and DC input port. a. RF input is connected to the active antenna(for GNSS L1 and L5 band). b. DC input is fed by USB DC voltage(typical is 5 voltage). c. RF input is amplified by at least 30 dB gain and then the amplified signal is radiated from patch antenna. d. The patch antenna is GNSS dual system for L1 and L5 band.

Specifications: Outdoor Antenna

PHYSICAL CONDITION	
Constructions:	ASA-UV radome for 100% waterproof
Dimensions:	90.5mm(Dia.) × 108.5mm(H)
Weight:	150grams (w/o cable & connector).
Color:	Standard in ivory white, other colours available upon request.
Base mounting	FB1 1"-14 UNS (optional)
Cable & Connector	
RF cable:	45CM-N(F) or other
Pulling strength:	6 Kg @ 5sec. molded plastic on connector end for strain relief.
Connector	SMA(M) or TNC(M) or BNC(M) -----
Antenna Element	
Center Frequency:	1582.5±23.5MHz(L1), and 1176±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 (L1and L5)
ESD (TVS)	±8kv (contact)
Noise Figure:	1.5 dB typical at 3V (L1and 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 (L1and 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.

Re-radiating antenna Specification: INDOOR Antenna

PHYSICAL CONDITION	
Constructions:	Polycarbonate radome,detachable cable/connector for easy mount, rubber-O-ring between top radome and screw base for waterproof
Dimensions:	60mm(Dia.) x 95mm(H)
Weight:	200grams (w/o cable & connector).
Color:	Standard in ivory white, other colours available upon request.
Mounting:	Bulkhead mount with 0.8 inch threaded wing nut (standard accessory).
Mounting Adapters	Pole mount to 1"-14 UNS threaded mast
Base mounting	FB1 1"-14 UNS
Cable & Connector	
RF cable:	RG174-30CM & UL1185-1M
Pulling strength:	6 Kg @ 5sec. molded plastic on connector end for strain relief.
Connector	SMA(F) & USB(M)
Antenna Element	
Center Frequency:	1582.5±23.5MHz(L1) and 1176±12MHz(L5)
Polarization:	R.H.C.P. (Right Handed Circular Polarization).
Bandwidth	10 MHz min. @S11≤-10 dB, 24MHz typ. @S11<-8dB
Gain @ 10° Elevation:	-4dBic typical @ L1 ; -2.5dBic typical @ L5
Axial Ratio:	3 dB max.
Output VSWR:	1.5 max
Output Impedance:	50 ohm
Low Noise Amplifier	
Power Gain:	1582.5±23.5MHz(L1) and 1176±12MHz(L5)
Bandwidth:	50 MHz min.
Noise Figure:	1.5 dB typical at 3V (L1 and L5 band)

Filter	Saw filter 30dB typical fo±50MHz 40dB typical fo±100MHz (fo=L1 and L5)
Supply Voltages:	2.3~5.5V DC.
Current Consumption:	DC = 9 ±2.5mA at 3V / 10±2.5mA at 5V
Output Impedance:	50 ohm
Overall Performance: (antenna element, LNA & coax cable)	
Center Frequency:	1582.5±23.5MHz(L1) and 1176±12MHz(L5)
Gain:	At 90° vertical to sky 30 ± 4.5dBi (cable loss) Note:1 Mounted on the 60mm x 60mm square ground plane
Noise Figure:	2.0 max.
Axial Ratio:	3 dB max.
ESD	±8kv (contact)
VSWR:	2.0 max.
Output Impedance:	50 ohm
Environmental	
Operating Temperature:	-40°C~ +85°C.
Storage Temperature:	-40°C~ +85°C.
Relative Humidity:	95% non-condensing.
Water Resistance:	100% waterproof.
accessories	AC-DC 100-240 TO 5V USB(F) ADAPTOR N(M)-CFD200-30M-SMA(M)

* This specification is subject to change without prior notice

RA-650 Interconnection Diagram

