

Portable Operation FT-818 Go Kit

Portable & Emergency Operation
9V1KG

Overview

1. Background and Objectives
2. Hardware
3. Selection of Components
 - DC Connectors
 - Batteries & Charger
 - Coax
 - Digital modes: CAT & Laptop supply
4. Antennas
5. Solar
6. Go Bag
7. Operation – Coron, Palawan

Ilo Ilo (4E1ADW/6)





AT 130

TS-50





Hardware

Old Equipment

Item	Weight
TS-50	3 kg
AT-130	1 kg
Power supply	1 kg
Whip, coil, tripod	3 kg
Cables, accessories	+ ...
Total	> 10 kg

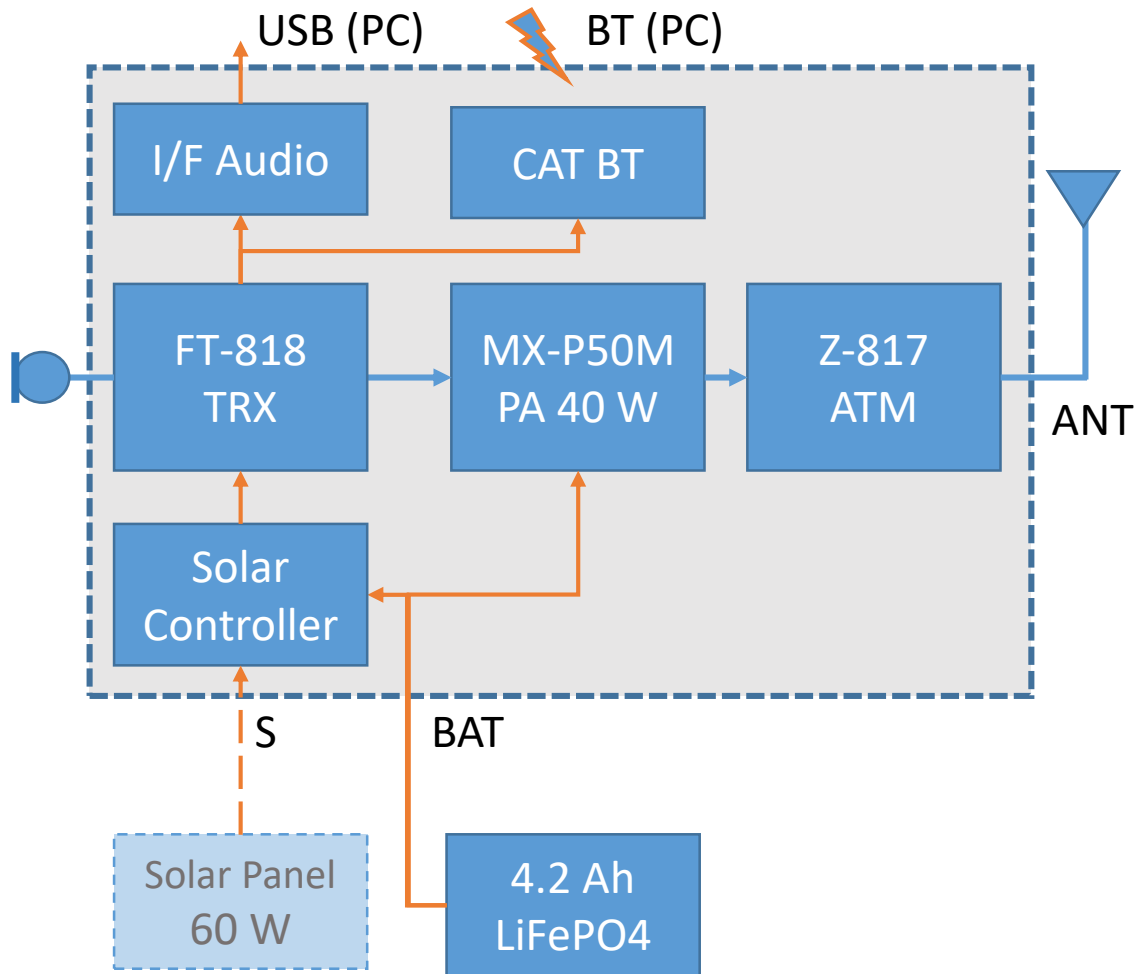
New Equipment



Objectives

1. As **light** and as **compact** as possible
2. More than 5 W qrp – **ideal ≥ 25 W**
3. Allmode incl. **data mode capability** (PSK31, FT-8, JS-8)
4. **Three hours** holiday style battery **operation time**
5. Batteries suitable for flights (< 100 Wh, < 160 Wh)
6. Option for **solar powered setup**
7. **Flexibility** in antenna setup

Hardware



New Equipment

Yaesu FT-818

MX-P50M PA 40 W

Z-817 ATM

Bluetooth CAT control

Soundcard I/F

Batteries + Charger

Solar Controller 6A

60 W Solar panel foldable

Hardware

FT-818ND + LDG Z817

- HF + VHF + UHF
- QRP 6 W PEP
- All mode
- Internal battery
NiMH 1.9 Ah
- Tuner 20 W max



Hardware

Linear Amplifier MX-P50M

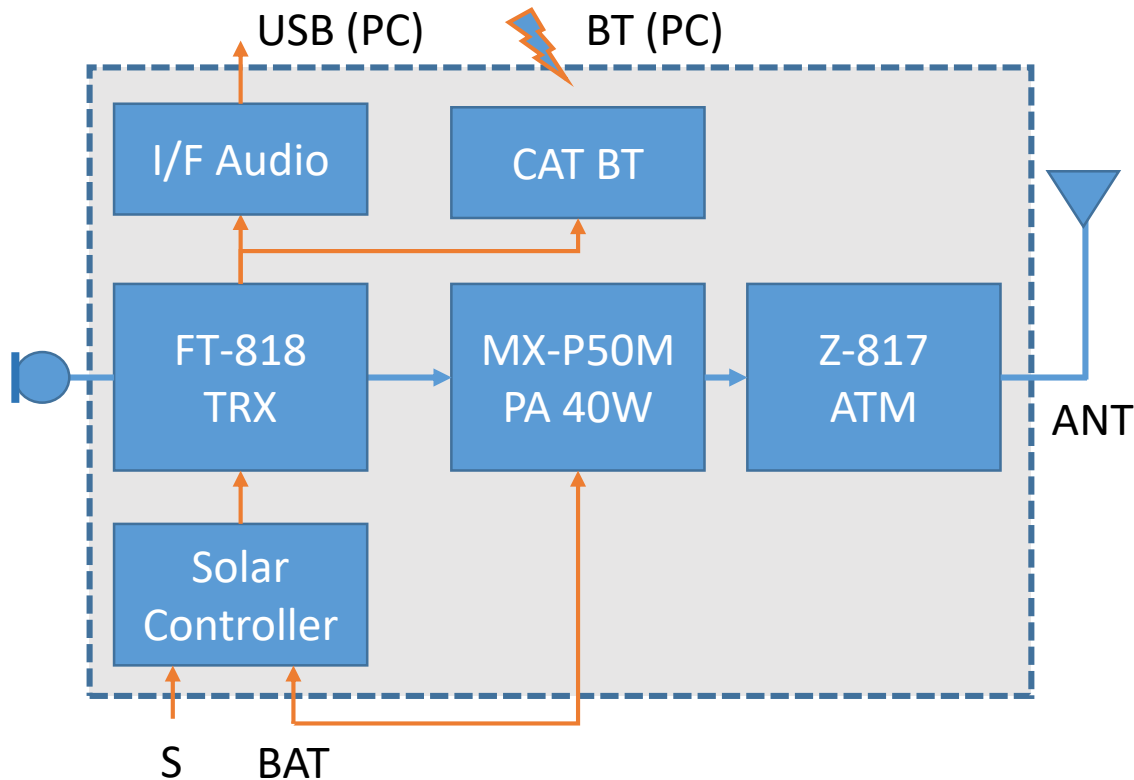
- 45 W PEP @ 5 W input
- 25 W PEP @ 2.5 W input
- 7.1 A @ 25 W output
- 185 SGD

Power FET MRF 186

- 120 W PEP @ 28V (960 MHz)
- Tested for load mismatch with 5:1 VSWR @ 120 W CW



Hardware



New Equipment

Yaesu FT-818

MX-P50M PA 40 W

Z-817 ATM

Bluetooth CAT control

Soundcard I/F

Batteries + Charger

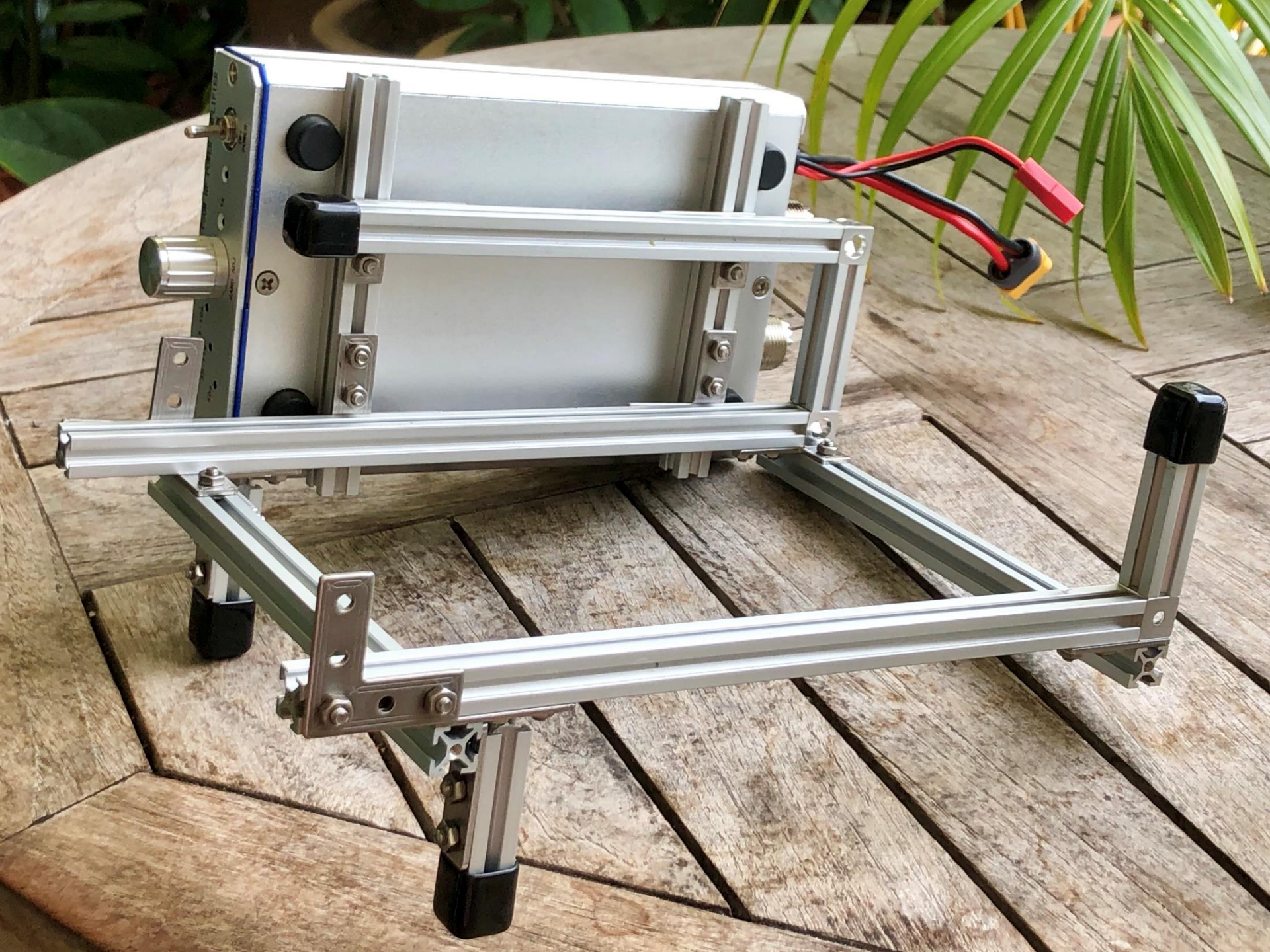
Solar Controller 6A

60 W Solar panel foldable

Hardware (Frame)

MakerBeam





ATM

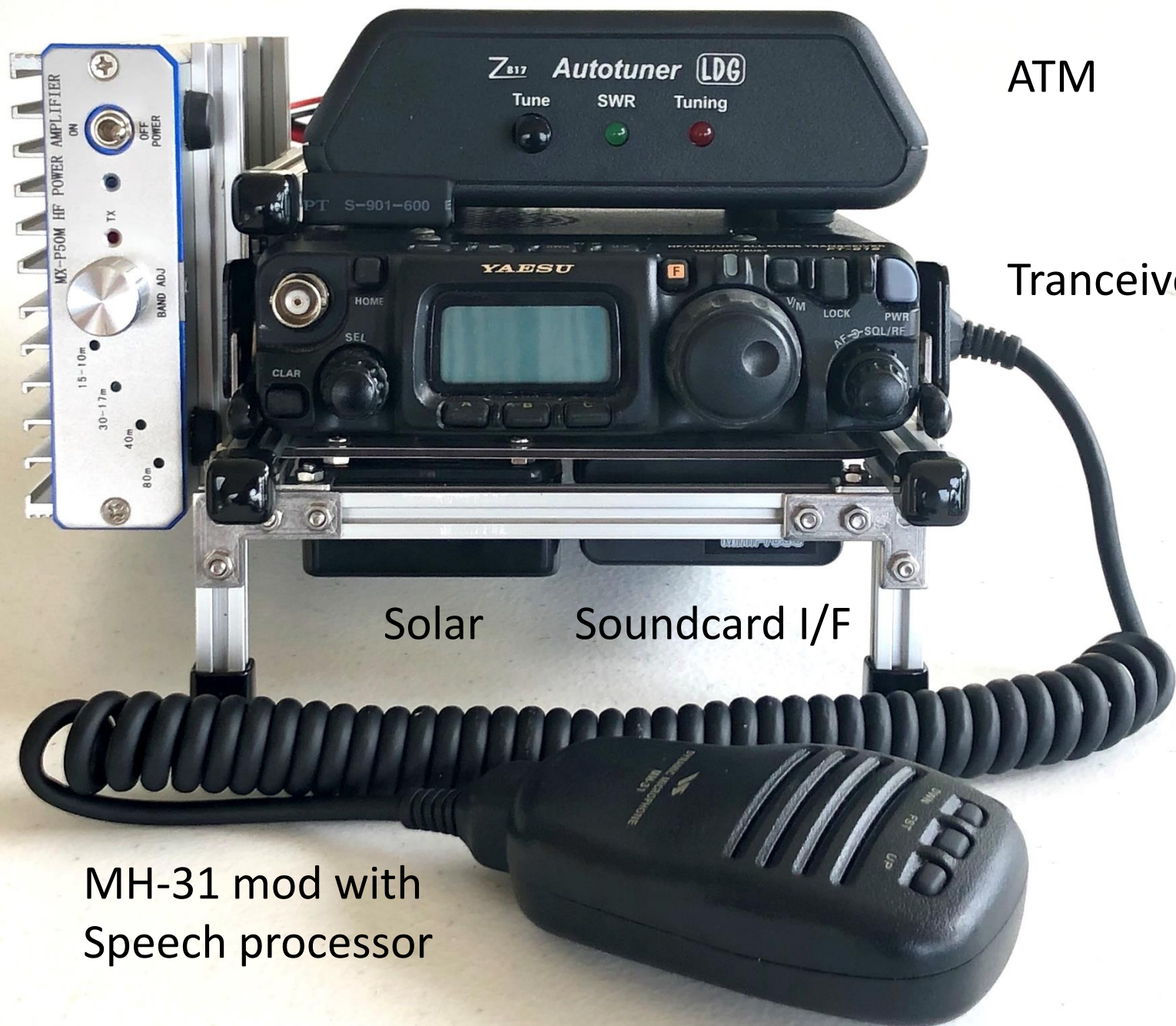
Tranceiver

PA

Solar

Soundcard I/F

MH-31 mod with
Speech processor

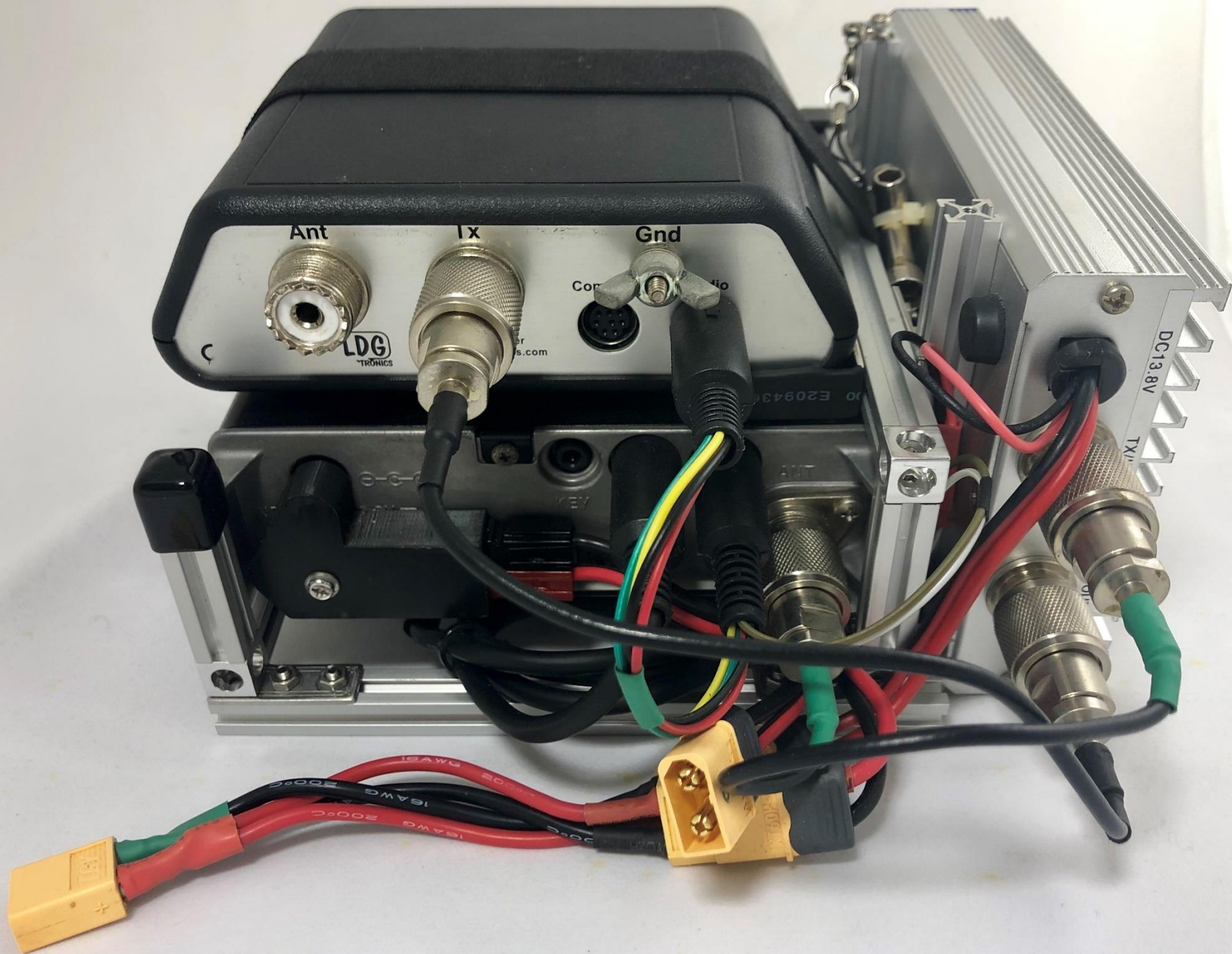




GENASUN GV-5 lithium
MPPT SOLAR CHARGE CONTROLLER
12V LiFePO4 (4S) / 5A
STANDBY
CHARGING
FULL
RED LED + ERROR
USA
SN: 96403

27V
MAX
PANEL +
14.2V
CC/CV
BATT +
5A
MAX
LOAD +

Max PV Voltage Range (Open-circuit) 0-27V Max Input Open-circuit I_{sc}
Max Battery Charge Voltage Range 12.1-14.7V Max Input Current 5A
Termination Resistor 3.0 ohm 0.25W 1% Min. Use wire-wound termination
*consult manual for complete specifications





Battery Connectors

Andrew Power Pole

- 15 A, 30 A, 45 A
- Crimp
- No gender
- Standard for HAM radio



XT-60 (RC models)

- 60 A
- Solder
- Male & female
- Standard for RC models/batteries



Batteries

Chemistry: LiPo (4S)

- 14.8 V nom **16.8 V** max
- 60 Wh (4 Ah) < 100 Wh
- 330 g: 180 Wh/kg
- 500 charging cycles
- 45 ct/Wh
- Lifetime: 30 kWh, **90 ct/kWh**



Chemistry: LiFePo4 (4S)

- 13.2 V nom, **14.6 V** max
- 55 Wh (4.2 Ah) < 100 Wh
- 500 g: 110 Wh/kg
- 2000 charging cycles
- 82 ct/Wh
- Lifetime: 110 kWh, **41 ct/kWh**



Batteries

LiFePo4

8.4 Ah – 110 Wh



Battery Charger

Option 1: Wall power adapter + BMS

- 15 V **45 W** – 1.5 h



Option 2: LiPo/LiFePo4 Charger

- **20 W** – 3.5 h



Digital modes – CAT and Laptop supply

Bluetooth I/F (CAT)



USB + USB-C (PD)



Power Consumption

SSB

Mode	I	P
RX	0.4 A	5 W
TX SSB 25 W	7.1 A peak	95 W peak 30 W avg
TX/RX		15 W
3 - 4 h SSB operation with 55 Wh		

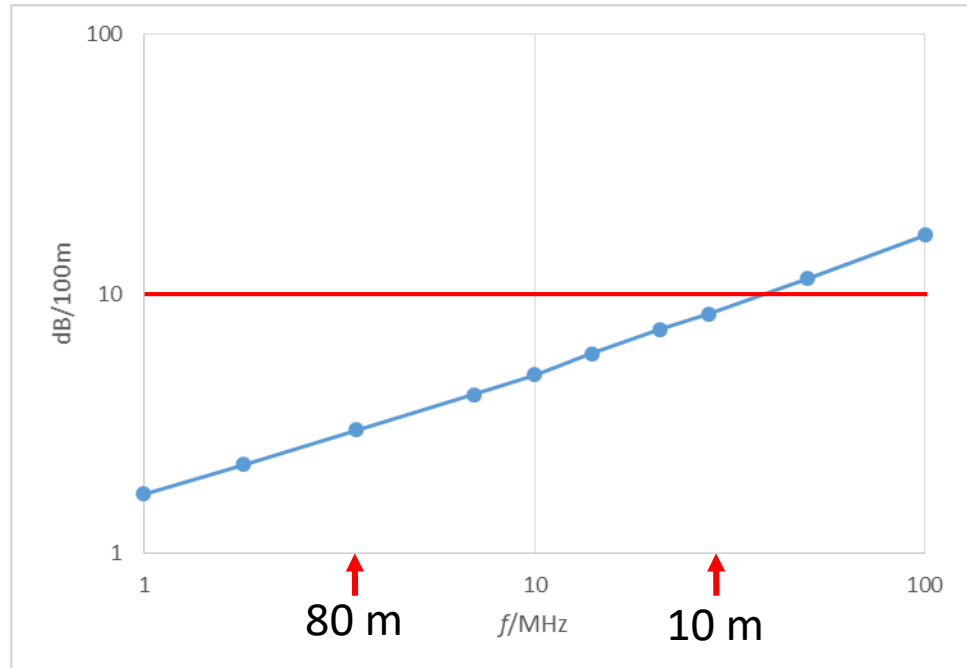
TX/RX $\approx$ 0.4/0.6

Digital

Mode	I	P
RX	0.4 A	5 W
TX Dig 25 W	7.1 A peak	95 W peak 95 W avg
TX/RX		40 W
1 – 1.5 h digital operation with 55 Wh		

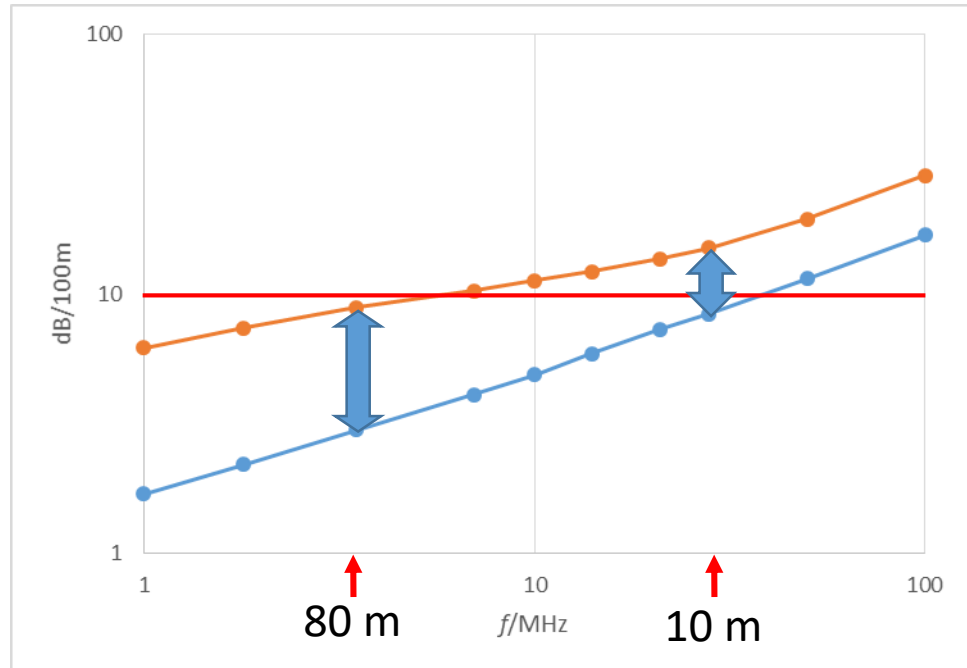
Coax Cables

- 25m RG58C/U: 1 kg



Coax Cables

- 25m RG58C/U: 1 kg
- 25 m RG 174: **300 g**



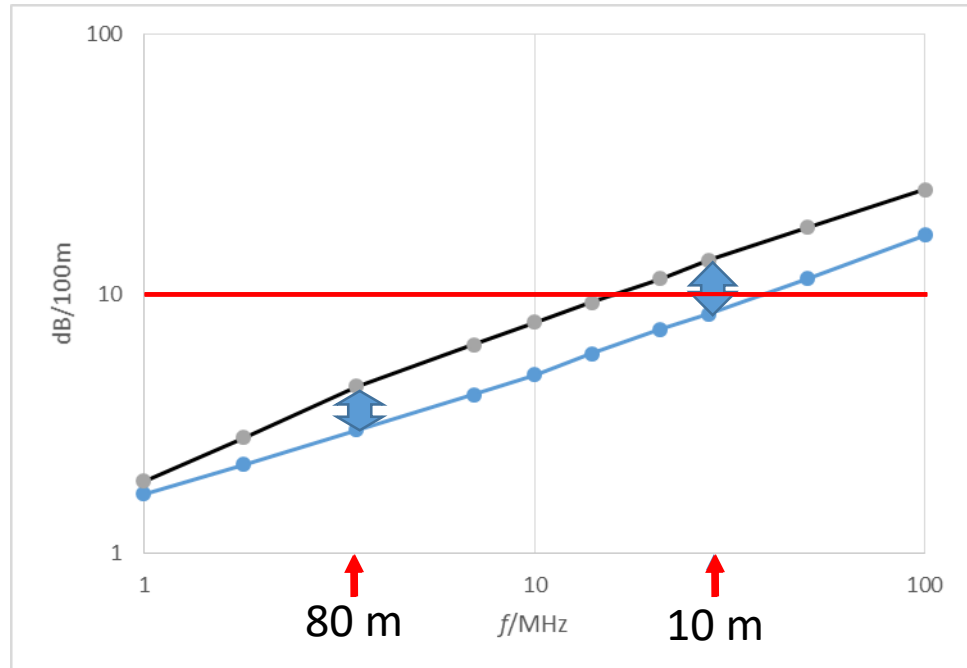
Inner conductor: **Copper Clad Steel, 7 Strands**

Shield: Tinned Copper Braid

Power rating: 640 W @ 10 MHz

Coax Cables

- 25m RG58C/U: 1 kg
- 25 m DXW 174: **350 g**



Inner conductor: **Solid copper**

Shield: Tinned Copper Braid

Power rating: 640 W @ 10 MHz

Solar Power





Balancer



Antennas

Antenna 1 – Buddistick

- Vertical with loading coil
- Total length:
 - Standard telescope: 2.8 m
 - Long telescope: 4.0 m
- One elevated radial
- 40 m and higher
- Tripod or clamp fixing

+ Fast deployment
+ No other support structure needed

Antenna 2 – Endfed dipole

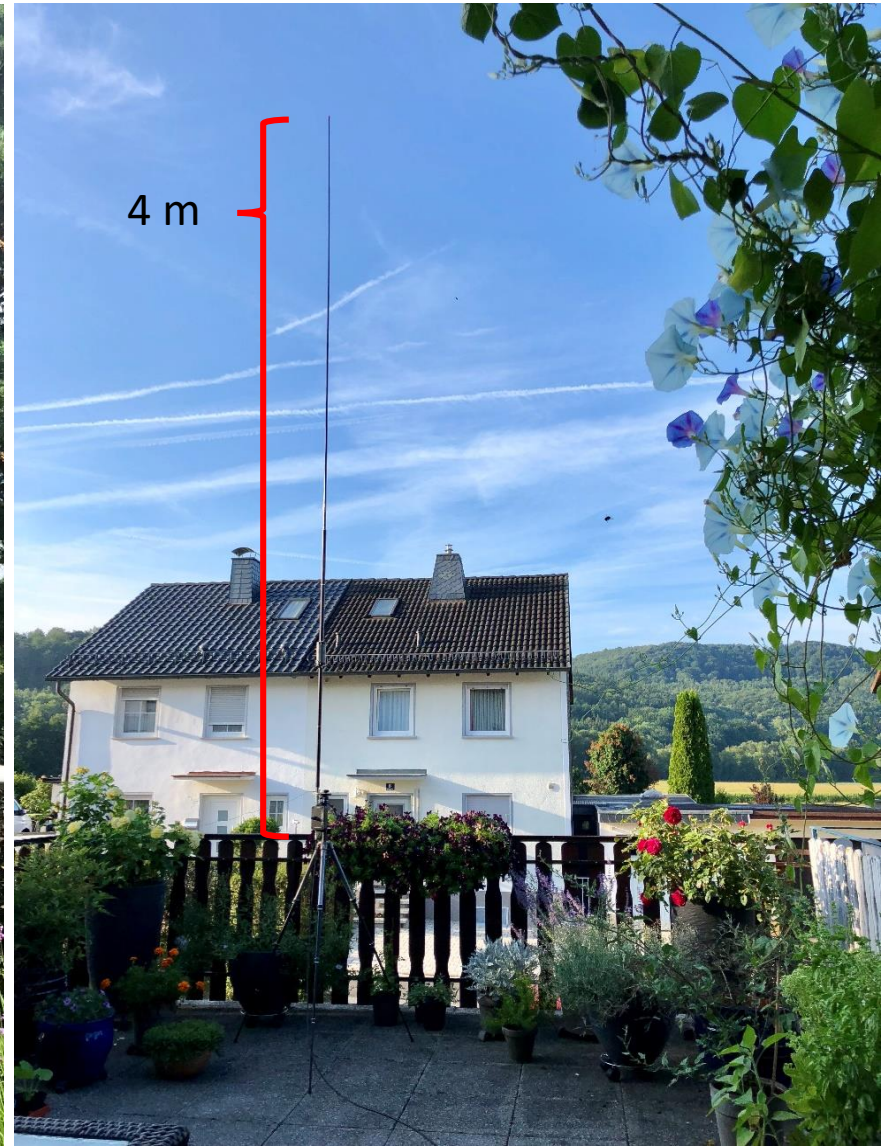
- 6 m fiberglass pole
- Balun 1:49
- Coil
- 40 m & 20 m or 60 m & 20 m

+ Higher efficiency @ low bands
+ NVIS local & regional traffic

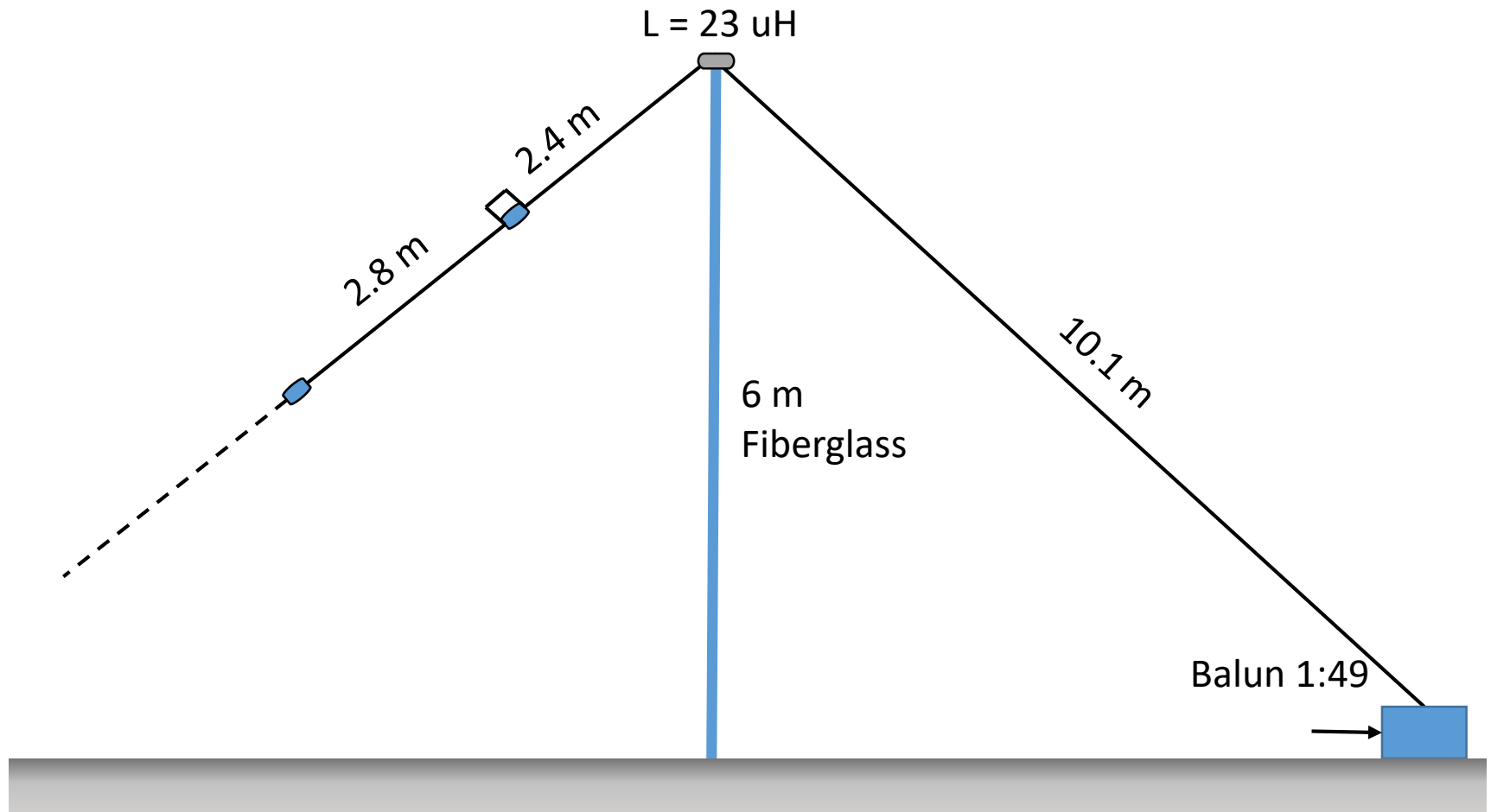
Buddistick



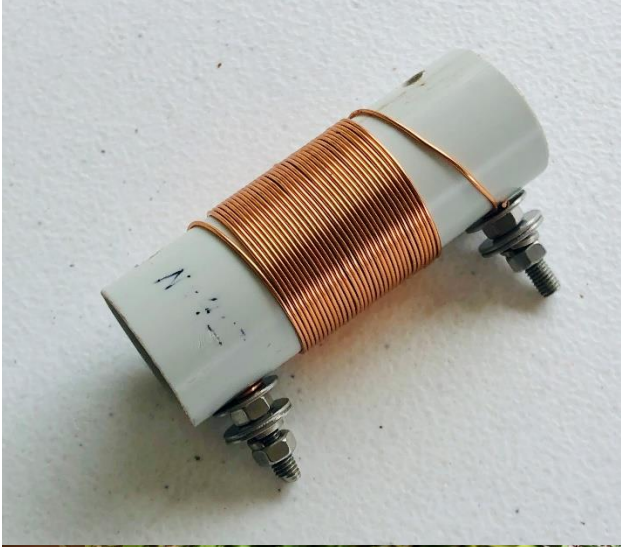
Antenna 1: Vertical (DL/9V1KG)

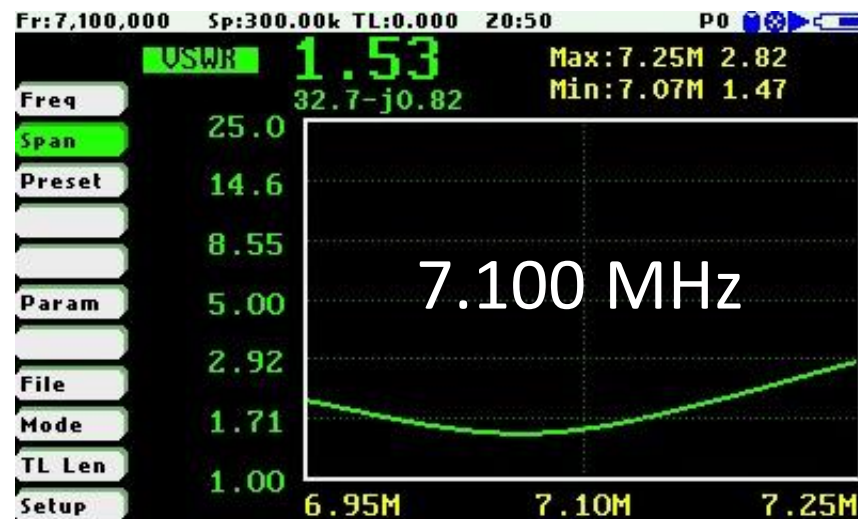


Antenna 2: End fed for 20 m - 40 m - 60 m









Either
20 m and 40 m
or
20 m and 60 m



Go-bag



Go-bag

Hand Luggage

Total	4.4 kg
FT818 incl. accu	1250 g
Frame TRX, PA, ATM, I/F, Solar	1460 g
Keyer, Microphone, cables	260 g
Battery 4.2 Ah	500 g



Check-in Luggage

Total	2.7 – 5.5 kg
Buddistick w Balun, cables or	1500 g
Endfed w 6 m Mast, Guy lines	1670 g
Charger, Tripod	1250 g
Solar Panel	1200 g













el rio y mar
RESORT
CORON PALAWAN





















Thank You!

9V1KG

4E1ADW

4E1A

AJ6HA