

7L.8 On-board Modules Installation and Connections

— Flight instruments, mounting requirements (emergency landing conditions as per CS-22)

[CS22 → Emergency landing](#) :

→ Constructeur dient aan hele reeks technische 'emergency' parameters te voldoen

- Uitrusting
 - Stoel, bevestigingen, instelbare delen (vb [LS8-s Maintenance manual §4, p 57/117](#)) [BGA-019-06](#)
 - Gordels en hun bevestigingen (vb [BGA-AMP 4-8](#))
 - Sleep/Lier haak en hun bevestigingen (vb Tost hook E85 operating manual – Maintenance and service)
 - De canopy, de vergrendeling, de noodontkoppeling (vb [LS8-S Maintenance manual p 48/117](#))
 - Bevestigingen van instrumenten, instrumentpaneel, baggageluisen, batterijen,...
 - Aanwezigheid van uitstekende / scherpe delen die piloot kunnen verwonden

- Waar vind ik de informatie :
 - Handleiding van het toestel, specifiek in onderhoudsgedeelte
 - [Vb LS8](#)

7L.8 On-board Modules Installation and Connections

- Electric wiring, Power sources, Types of storage batteries, Electrical parameters, Electric generator, Circuit breaker, Energy balance, Earth/ground, Connectors, Terminals, Warnings, Fuses, Lamps, Lightings, Switches, Voltmeters, Ampere meters, Electrical gauges.

Ref [http://aviation.derosaweb.net/presentations/documents/Soaring Electrical Wiring Made Easy.pdf](http://aviation.derosaweb.net/presentations/documents/Soaring_Electrical_Wiring_Made_Easy.pdf)

Wat onthouden we hieruit :

- Electric wiring, Connectors, Terminals, Switches
 - Circuit checken op diameter/vermogen kabels, type van de kabel
 - Aansluitingen en afscherming van aansluitingen checken
 - Orde en netheid bij het leggen van kabels
 - Check vermogen switches
 - Check schakeling in geval van meerdere batterijen

- Power sources, types of storage batteries
 - Meestal nog Lood-gel accu, in opmars de Lithium-ijzer-fosfaat accu
 - Bevestigingen (elektrische als mechanisch) verifiëren
 - Vermogen test uitvoeren (betrouwbaarheid lange duur)
<https://www.batterystuff.com/kb/articles/battery-articles/battery-basics.html>
https://www.gliderpilotshop.com/lfp_vs_lead_acid

7L.8 On-board Modules Installation and Connections

- Electrical parameters
 - U, I, R en P → zie module 1L3
- Electric generator
 - Verifieer de montage (geen breuken)
 - Check aansluitingen/vermogen
 - Verifieer controles als specifiek voorgeschreven in maintenance manual
Vb. [Alternator ES1031-Alt-Owners-Man-Rev-New § Maintenance p 55/68](#)
- Circuit breaker, fuses
 - Check benodigd vermogen (instrument informatie)
 - Check geïnstalleerde vermogen, aansluitingen
- Energy balance
- Earth/ground
 - Earth : equipotentiaal verbinding van een frame naar de aarde
 - Ground = referentiepotaiaal
 - Min-pool van de batterij nooit met chassis verbinden !
 - Instrumenten behoeven soms scheiding van –pool en GND (vb microfoon van radio)
[Ref Sailplane electrical inspection.pdf](#) en [Aircraft wiring for smart people.pdf](#)

7L.8 On-board Modules Installation and Connections

- Warnings, Lamps, Lightings
 - Check functionaliteit




- Voltmeters, Ampere meters, Electrical gauges
 - Check functionaliteit
 - Verifieer onderhoudsinstructie manual



7L.2 Airframe

— Protections: lightning strike, bonding, dischargers.

http://www.pas.rochester.edu/~cline/ASK%20lightning%20strike/ASK%20accident%20report.htm#LinkTarget_1115



Lightning: Risk for Aircraft

- A commercial aircraft is struck by lightning on an average once every 1500 flight hours
- The risk of strikes by lightning is increased in rainy zones, at approximately 4000 meters and between -5°C and $+5^{\circ}\text{C}$
- During a strike by lightning, the lightning does not stop on the plane but sweeps it to continue its way in the atmosphere with a point of initial entrance and a point of final exit

Flight Manual LS8-s and LS8-sb Emergency Procedures

3.7 OTHER EMERGENCIES (continued)

3.7.8 EMERGENCY LANDING ON WATER

During a water landing test with landing gear retracted, the sailplane used submarined completely. As submarining may be possible also with gear extended, the following procedure is recommended:

- (a) in downwind leg of your landing pattern
 - (1) extend landing gear
 - (2) open parachute harness (not the seat harness)
 - (3) tighten seat belt harness
- (b) Touch down with gear extended and speed as low as possible.
- (c) At touch-down point use left arm to protect face against possible canopy fracture.
- (d) After touch down undo parachute and seat belt harnesses.
- (e) Leaving the cockpit under water, when the canopy has not fractured, is perhaps possible only after the forward fuselage is almost completely full of water.

3.7.9 FLIGHT IN THE VICINITY OF THUNDER STORMS

Due to lightning flash, carbon fibre structures have been destroyed again and again.

Therefore, flights and especially winch launches in the vicinity of thunder storms should be avoided, as in important structures of the LS8-s and LS8-sb carbon fibres are used.

- Verifieer in de flight manual wat de constructeur schrijft over de lightning protection
- BGA geeft richtlijnen na mogelijke bliksem inslag ([BGA AMP 4-3](#))

12L.1 Radio Com/ELT

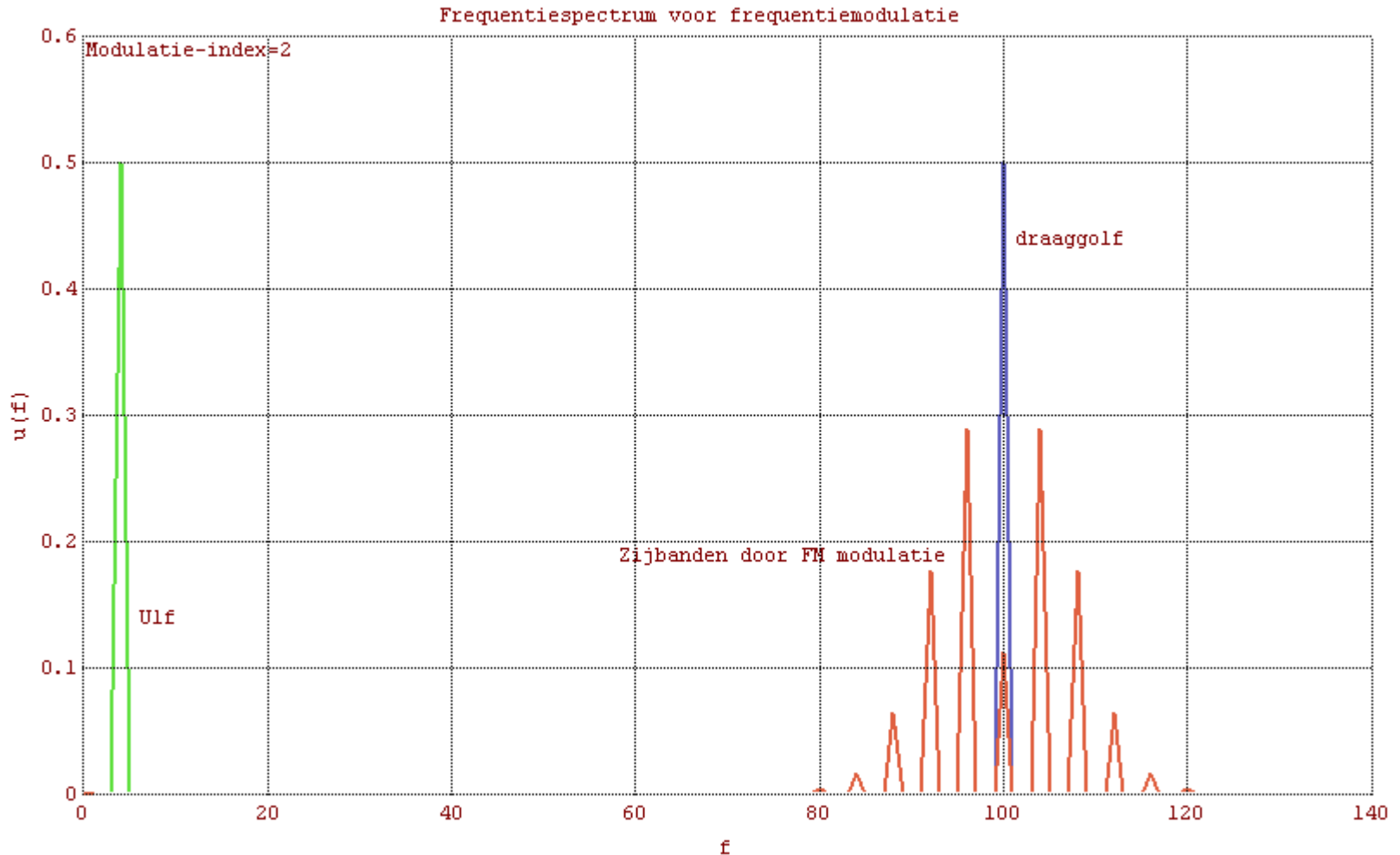
- Channel spacing;

<https://mobilit.belgium.be/nl/luchtvaart/luchtruim/luchtvaartfrequenties>

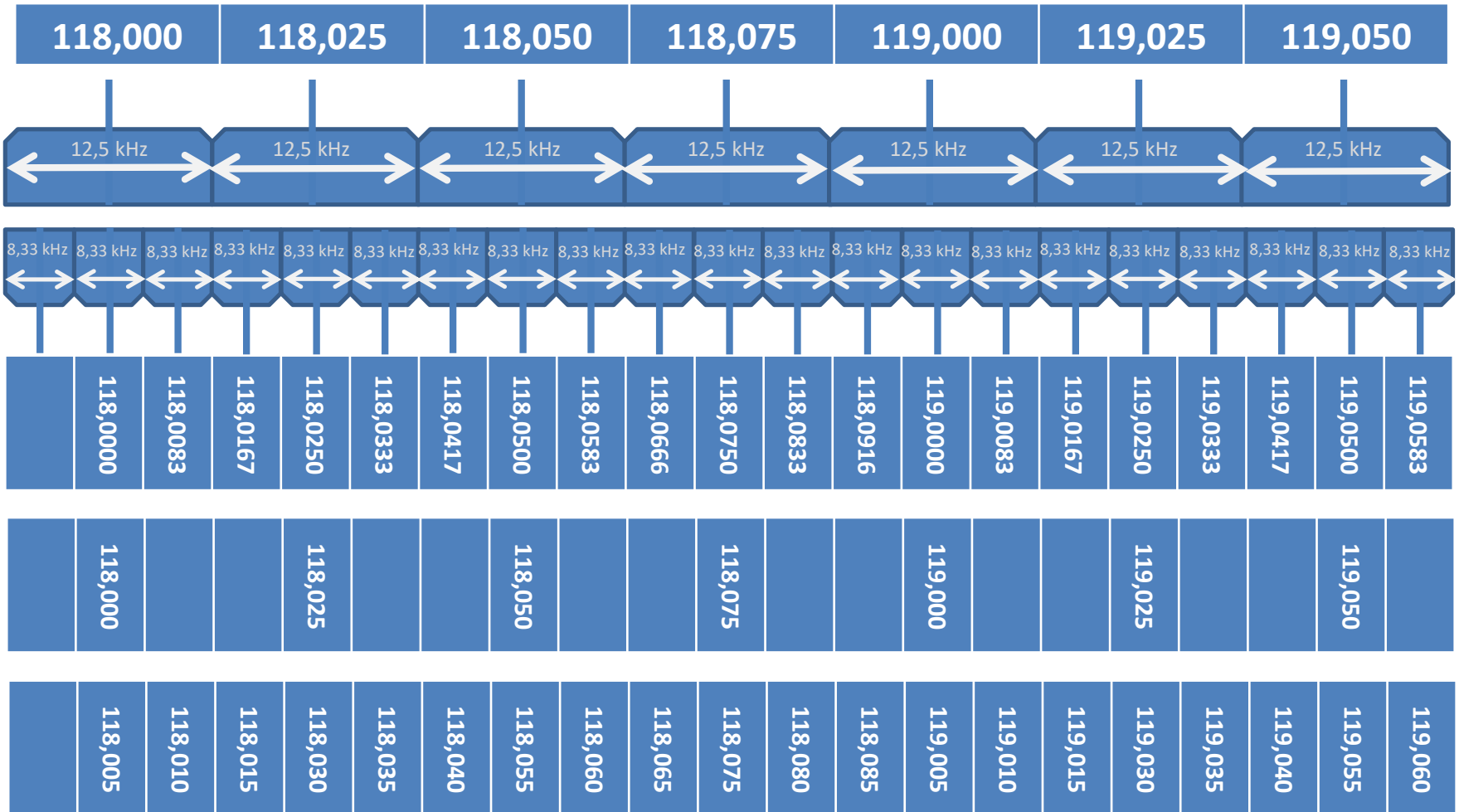
<https://wilcoair.nl/833.html>

- FM modulatie
- Indeling van de kanalen
- Combinatie gebruik 25khz en 8,33khz spacing

Frequentie modulatie



Kanaal indeling (25/8,33 kHz)



Kanaal aanduiding (25/8,33 kHz)

ATR833-II / P/N 833-II (Cxxx)-(Cxxx)
Operation and Installation

f.u.n.k.e.
AVIONICS GMBH

5 APPENDIX

5.1 Frequency/Channel-Plan

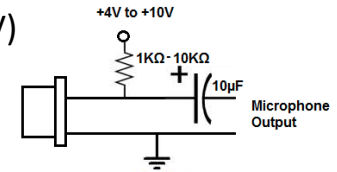
In the following table examples for operating and displayed frequencies in the range between 118.000 ... 118.100 MHz are given. This table can be continued to 136.975 MHz following the same scheme.

Operating Frequency (MHz)	Channel Width (kHz)	Displayed Frequency in 8.33/25 kHz Mode	Displayed Frequency in 25 kHz Mode
118.0000	25	118.000	118.000
118.0000	8.33		118.005
118.0083	8.33		118.010
118.0166	8.33		118.015
118.0250	25	118.025	118.025
118.0250	8.33		118.030
118.0333	8.33		118.035
118.0416	8.33		118.040
118.0500	25	118.050	118.050
118.0500	8.33		118.055
118.0583	8.33		118.060
118.0666	8.33		118.065
118.0750	25	118.075	118.075
118.0750	8.33		118.080

12L.1 Radio Com/ELT

— Basic functional test; (ref [Funke ATR833-II.pdf](#))

- Montage op een veilige manier gedaan
 - Bevestiging
 - Kompass afstand
- Spanning : check manual om het bereik te kennen (12 – 14 V, soms 11 – 40 V)
- Microfoon :
 - [Verschil tussen Dynamic en electret types](#)
 - [Stroomvoorziening](#) voor electret types
 - GND microphone is meestal NIET batterij – (min) !
- Zenden :
 - PTT switch
 - VOX (voice activated transmission)
- Ontvangen
 - Speaker impedantie
- Vermogen
 - Uitgezonden antenne vermogen in Watt
 - Spanningsafhankelijk, BAT indicator : gereduceerd vermogen
- Antenne signaal (SWR)
 - Antenne : type, plaatsing
 - Antenne kabel : impedantie, BNC connectoren
 - Voorwaarts vermogen, gereflecteerd vermogen, (V)SWR



12L.1 Radio Com/ELT

- Batteries;
 - Ref batterij types
 - Batterij vermogen bepaald zend vermogen
- Testing and maintenance requirements.
 - Vermogen
 - [SWR-meter gebruiken](#)
 - Geluid
 - Microfoon test (periodiek controle)

12L.1 Radio Com/ELT

- [ELT](#)

An ELT is a battery-powered electronic device which is fitted to the aircraft, usually in the rear of the fuselage, with an external antenna. Modern ELTs have an in-built GPS unit.

