

PPL exam theory

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- Session 1
 - BAK Knowledge Review
 - Aeroplane AGK Aerodynamics
 - Air Law
- Session 2
 - PPL Navigation
 - GNSS
 - Human Factors
- Session 3
 - Meteorology
 - Performance
 - Summary & Revision

Ammeter

- **Load type** alternator output only (never goes below zero)
 - **Centre zero type** Indicates total charge, including battery & alternator
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20171004 Session 3 layers of the atmosphere

- troposphere
- tropopause
 - starts at 36080ft (ISA)
 - -56C (ISA)
 - ~8km at poles
 - ~18km at equator
- stratosphere
 - 66000ft

precipitation

- shower
- rain
- virga

cloud types (todo: get pic on phone)

- cloud base (x1000ft) = (temp - dewpoint)/2.5C

- convective ascent
- orographic ascent
- widespread ascent
- turbulent mixing
- conductive cooling
- clouds, factors & considerations (todo: get pic on phone)
- wind shear

forecasts

- TAF
 - 12 hour validity
 - 3nm from aerodrome
- ARFOR
 - CB or TCU clouds
 - cloud base < 10000ft AMSL
 - cloud associated with precipitation
- METAR

Atmospheric Stability

- Adiabatic Process
 - Dry Lapse Rate 3C/1000ft (ISA)
 - Saturated Lapse Rate 1.5C/1000ft (ISA)
- Environmental Lapse Rate
 - actual change not theoretical or ISA
 - inversion layers affect ELR
- (todo: get pic on phone)
- Fog
 - Mist: visibility \geq 1000 metres, < 95% humidity
 - Fog: visibility < 1000 metres, ~ 100% humidity
 - Radiation Fog
 - * moist air cools below dew point by contact with cold surface that is losing its heat by radiation
 - * high humidity
 - * cloudless
 - * light winds
 - * anticyclones
 - Advection Fog
 - * warm moist air moves over cooler surface. Requires some turbulence (6-15kt)

- Sea Fog
 - * type of advection fog
 - * persistent
- Steam Fog
 - * evaporates from water into overlying cool air
- Frontal Fog
 - * boundary of two air masses within a single air mass
- Upslope Fog
 - * moist air forced up a terrain slope and cools to saturation

Maximum endurance and range

- endurance: time
- range: distance
- Maximum endurance
 - ~75% of maximum range
 - Equal to V_y
- Maximum range
 - TAS for minimum total drag
 - Best ratio of speed to fuel
 - Ground range
 - Air range
- Maximum (specific air) range
 - ~ 20% < cruise speed
- CAO 20.7.0
- CAO 20.7.4
- Declared Density Height