

Queensland Flight Test Range (FTR)

Information Booklet



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Image courtesy of the Cloncurry Mustering Company


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1. Overview

The Queensland Flight Test Range (FTR) is a commercially operated Unmanned Aerial Systems (UAS) Facility available for both civilian and military use.

Located at Cloncurry Aerodrome in North West Queensland, the FTR will enable the drone industry to Test and Evaluate (T&E) UAS platforms and payloads in a safe and managed environment.

The FTR facilities include:

- 2,000 metre commercial grade runway
- 1,150 metre secondary runway
- 20 x 20 x 7.5 metre hangar
- Air-conditioned Workshop and Secure storage
- Range Control Centre/System
- ADS-B and Primary Radar Surveillance
- VHF and UHF Communications

The FTR provides for:

- Operational flying of all weight classes of UAS for routine flying operations, Test and Evaluation (T&E) and demonstration activities for varying levels of operational complexity.
- Flight operations by approved and licensed operators (by day or night) in a safe and controlled environment.
- Safe conduct of trials through with proven Range Control System (RCS) equipment and processes.
- Complex operational approvals within the existing regulatory frameworks.

2. Introduction

The FTR at Cloncurry Aerodrome is a Queensland Government initiated and sponsored Facility operated by QinetiQ Australia Pty Ltd. Cloncurry Aerodrome is located 5km (2NM) to the north of the Cloncurry township. The Aerodrome provides an ideal location from which to base UAS T&E operations, with relatively low levels of conventional aircraft traffic, an excellent primary runway and a graded secondary runway. The surrounding airspace is 'uncontrolled' Class G airspace with low traffic levels and large areas of unpopulated land below.

The FTR facilitates the drone industry's T&E of UAS platforms and payloads in a safe, controlled environment.

This booklet describes the FTR capability and operations, and outlines the following components

- Overview
- Introduction
- Cloncurry location and geography
- FTR capability
- Facilities infrastructure
- FTR services
- Range Operator responsibilities
- Range Operational processes
- Airspace



Figure 1 – Cloncurry Aerodrome and FTR Facility

3. Cloncurry Location and Township

Cloncurry is located 1,400km northwest of Brisbane and 670km west of Townsville.



Figure 2 – Location of Cloncurry

Cloncurry is a township of some 3,000 people and has several accommodation options of differing price and comfort levels. There are five hotels in town as well as a supermarket, hardware store, and various other shops and facilities.

Cloncurry also has several comprehensive engineering, electronics, air conditioning and plant equipment service businesses. QinetiQ has established good relationships with several local business and can provide introductions, if required. There is also a daily courier service available from Mt Isa.

The Cloncurry Aerodrome supports regular commercial airline and Fly In-Fly Out (FIFO) services five days a week.

Weather and Environmental

The annual mean temperature in Cloncurry is a maximum of 33.3°C and a minimum of 25.0°C. The month with the highest mean maximum temperature is December with 38.7°C, while June has the lowest mean maximum temperature with 26.3°C. Annual average rainfall is 462mm, however the majority of rain falls between December and March, whilst from May through to October there is an average of <10mm per month. Mean wind speed does not vary greatly throughout the year with the Bureau of Meteorology average data showing 15.2km/h at 9am and 14.2km/h at 3pm.

Aerodrome Infrastructure

The main runway (RWY12/30) is well maintained and has a length of 2km, is 30m wide with a Runway Strip (RWS) 150m wide with 90m graded. Aerodrome and approach lighting is provided through Low Intensity Runway Lights (LIRL), Pilot Activated Lighting (PAL) and Aerodrome Frequency Response Unit (AFRU). There is also a Precision Approach Path Indicator (PAPI), an aerodrome beacon, taxiway and runway edge lighting, and a local Non-Directional Beacon (NDB). The cross runway (RWY06/24) has a length of 1157m and is 18m wide with a RWS of 90m.

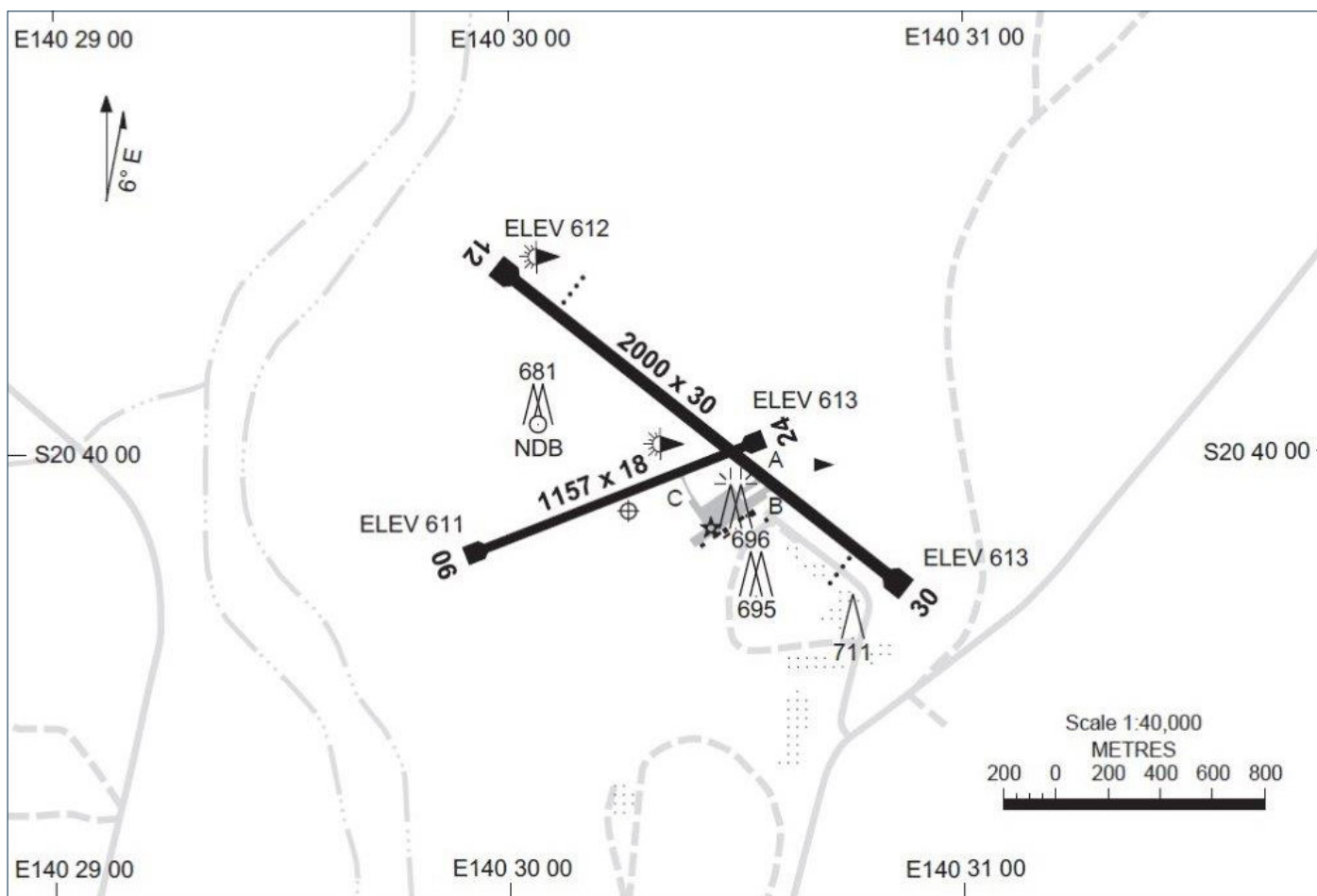


Figure 3 – Cloncurry Aerodrome Chart: Source AIP

Meteorological information is provided at Cloncurry via Terminal Area Forecast (TAF) and Automated Weather Information Service (AWIS) on a frequency of 128.05MHz and via telephone (07) 3007 4161. Fuel facilities are available for the supply of AVGAS and JET A1; other fuels can be arranged.

Both Telstra and Optus provide mobile cellular coverage of the area. 4G service is generally available within the township, Aerodrome and local area, with 3G coverage extending beyond this.

Fire and emergency services for the Cloncurry Aerodrome are provided through extant services in the Cloncurry township aligned with local Aerodrome Emergency Plan (AEP) procedures. The QinetiQ FTR Operations team has procedures for engaging these services, as required.

Procedures will also be in place to allow for emergency service training and to provide emergency responders familiarisation with the FTR Facility.

4. Flight Test Range Capability

The FTR provides for:

- Operational flying of all weight classes of UAS for routine flying operations, Test and Evaluation (T&E) and demonstration activities for varying levels of operational complexity.
- Flight operations by approved and licensed operators in a safe and controlled environment.
- Safe conduct of trials through with proven Range Control System (RCS) equipment and processes.
- Complex operational approvals within the existing regulatory frameworks.

Range Services

The QinetiQ FTR Operations team can provide a variety of service offerings to clients of the Range. Some of these will be included in the Range daily rate and some will be on a fee for service basis.

The FTR services include:

- Airspace definitions to meet the needs of the client trials and manage ground/air risk
- Trials Safety Case (Specific Operational Risk Assessment [SORA] based) creation and lodgment
- Liaison with relevant stakeholders on behalf of clients
- Range surveillance safety services (tactical identification of air risk)
- Provision of aeronautical information and Briefings
- Oversight of FTR operations to assure that safety practices and procedures are actively managed
- Emergency Response Service and coordination
- Use of QinetiQ's Remotely Piloted Aircraft Operator's Certificate (ReOC) service, if required

The Facility infrastructure comprises:

- A hardstand adjacent to the General Aviation apron (built to accommodate a maximum load of 5700kg) for parking, preparing and conducting UAS maintenance
- A Colorbond hangar with storage and maintenance space, wash facilities and an enclosed air-conditioned workshop
- Hardstands for:
 - Client containers/equipment
 - Ground Support Equipment (GSE)
- Sealed road access and parking area with Facility access for loading and unloading client equipment
- Storage areas for fuel, lubricants and separable/repairable items
- Separate amenities block
- An Uninterrupted Power Supply (UPS) for RCS equipment
- A rapid change-over generator set for power to the site
- Fenced security to segregate Airside and Landside areas
- A Range Control Centre (RCC) serving as the operations hub for the FTR with interfaces to the voice communications and surveillance systems. The RCC includes:
 - Desks for up to 14 workstations
 - Private office space
 - A kitchenette
 - 3 phase electricity
 - Air-conditioning throughout

The RCS includes:

- A PSR capable of detecting small airborne platforms
- ADS-B receiver and processor
- Surveillance information operator displays
- UHF and VHF radio communications



Figure 4 - FTR Facility

Flight Operations Hangar

The flight operations hangar is a lockable and insulated facility with 20 metre x 20 metre lateral and 7.5 metres vertically at its apex. Pre and post Unmanned Aircraft (UA) flight preparation and maintenance activities can be carried out within the hangar, which includes storage, three-phase power, work facilities and an air-conditioned workshop.



Figure 5 – Hangar Workshop

Range Control Centre (RCC)

The RCC is the operations hub for the FTR and provides Range Operator interfaces to the voice and surveillance systems. The RCC is able to host QinetiQ and client personnel and comprises a 12 metre x 12 metre modular demountable air conditioned building in which personnel, facilities, and surveillance and communication equipment required to control and monitor UAS operations are housed. The RCC building is also equipped with a fire detection system with localised alarms, fire extinguishers at exits and a fire blanket in the kitchen.

Workstations are provided with power (and back-up), fixed network Ethernet ports and patch panel connectivity for client communications equipment.



Figure 6 – Range Control Centre (external view)



Figure 7 - Range Control Centre (internal view)

Range Control System (RCS)

The RCS will enable safe UAS testing through surveillance monitoring of test aircraft and flight operations in adjacent airspace.

- Areas over relatively flat terrain with consideration to ground accessibility

A volume of airspace around the Cloncurry Aerodrome to facilitate launch and recovery and circuit operations for UAS platforms has been established.

5. Airspace

The FTR will utilise airspace volumes of varying dimensions to meet various client UAS trial requirements, including:

- First flight testing
- Sensor and payload testing
- Handling and manoeuvring tests
- Beyond Visual Line of Sight (BVLOS) and Extended Visual Line of Sight (EVLOS) testing
- High speed, high altitude performance testing

As depicted in Figure 8, QinetiQ plans to establish airspace agreements for three or more separate, inter-linked primary volumes of airspace, which feature:

- Areas of minimal ground population
- Areas of minimal aviation activity
- Areas clear of high level published Instrument Flight Rules (IFR) air routes
- Significant areas outside controlled airspace

6. Range Operations Team

QinetiQ Range Operations personnel staff the FTR when trials are in operation with three primary operational positions:

1. Range Flight Test Director (RFTD)
2. Range Control Safety Manager (RCSM)
3. Range Flight Line Supervisor (RFLS)

These roles are responsible for day-to-day safe operations at the FTR. Maintenance personnel, including a Range Control Technical Manager (RCTM) and Facilities Maintenance subcontractors support these primary positions.

The FTR will be operated in accordance with a comprehensive suite of operational and safety manuals and procedures developed specifically for UAS operations at the FTR.

QinetiQ have engaged the services of a third party maintenance contractor to ensure that the Facility meets condition standards in line with those set by Government agencies.

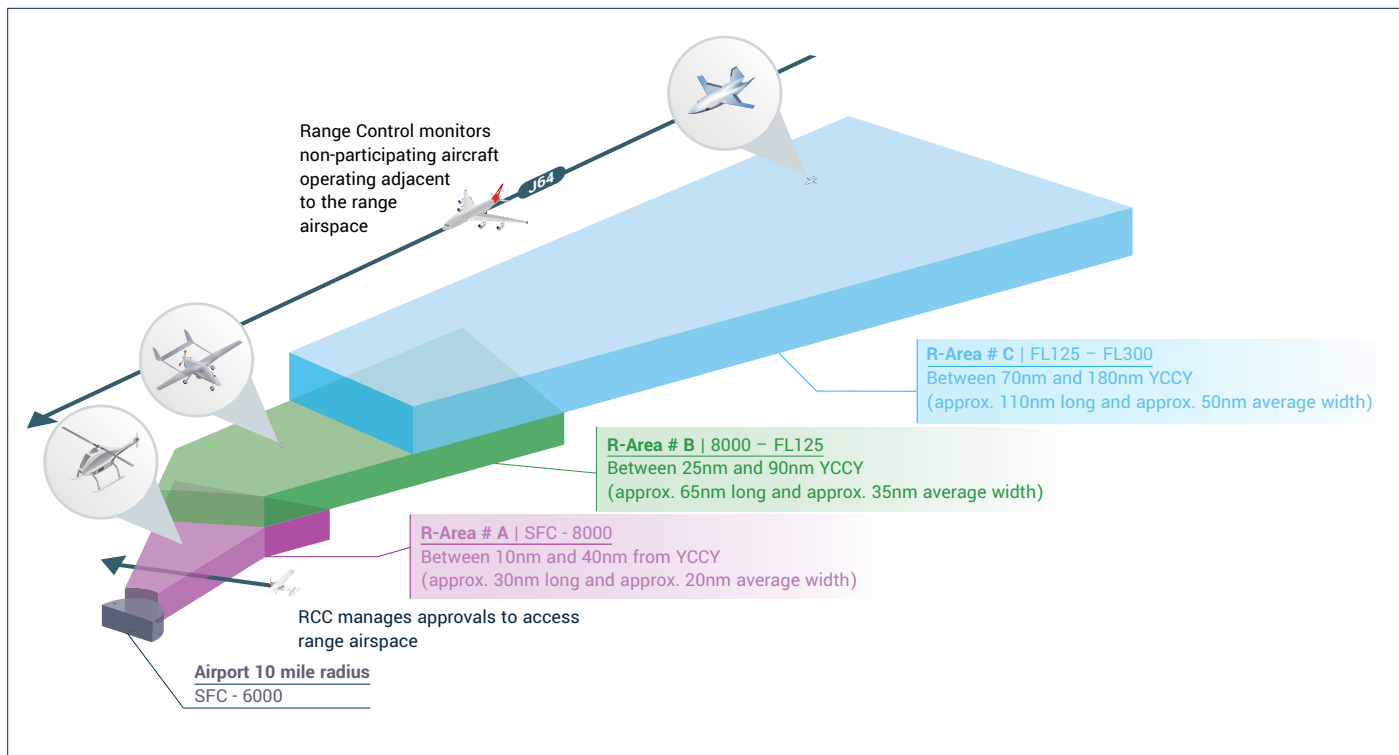


Figure 8 – Indicative Range Airspace

7. FTR Booking Process

The FTR booking process is a series of steps and decision points for prospective clients to ensure that the desired services can be delivered to the level required by all parties.

The Range booking process is listed below:

1. The prospective client receives email, fact sheet, web site or social media etc. information regarding the Range
2. An Initial QinetiQ/prospective client meeting is arranged (face to face, telephone, online) to discuss user requirements, including test time windows, and current FTR capability/availability
3. Prospective client completes/supplies FTR Questionnaire Requirement Form
4. **Verification Point 1.** The QinetiQ FTR team analyses the supplied information and proposed schedule to determine whether the prospective client's flight test objectives/schedule are likely to be met
5. If the proposed flight test activity can be supported the prospective client is advised. The QinetiQ FTR team then provides the FTR Information Pack, which contains:
 - a. Client Information Manual
 - b. Range Standing Orders
 - c. Trials Safety Case information
 - d. Required details for subsequent meetings
6. **End User Decision Point.** After considering the supplied Client Information Pack, the prospective client decides whether to proceed or not
7. If required a Non-Disclosure Agreement (NDA) between both parties will be established (unless one is already in place)
8. A subsequent meeting will be held to ensure that the client requirements and schedule can be fully supported. A QinetiQ FTR briefing will be provided to outline any further process requirements and activities
9. **Verification Point 2.** All tabled information is reviewed and a final decision for the activity to proceed is confirmed
10. Other associated operational documents and the commercial User Agreement (UA) provided to the client
11. QinetiQ FTR staff will work with the client to:
 - a. Develop the Safety Case/Trials Plan
 - b. Develop/assist with development of the client's SORA application
 - c. Refine scheduling
 - d. Develop and submit a ReOC variation, if required
 - e. Determine any further operational and logistical requirements.
12. A post-trial wash-up/debrief will be carried out and appropriate learnings will be applied to refine FTR processes.



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