

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: **DEV2017/830**

Date: **22 March 2017**



GenII

RDU-T Specification Sheet



Revision	Details	Date	Amended By
01	Original	01.06.15	Andrew Price

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Submission date: 01.06.15

Approved distribution: ART, Public distribution

Submitted via: Email



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Section 1 - Overview

1. General description

The RDU-T is a trailer mounted temporary communications unit that has been designed around AS 1170 and AS 3995 and is suitable for general communication, lighting or surveillance purposes.

Under the design assumptions, the unit is suitable for deployment periods of up to 12 months in a single deployment cycle. Completion of a cycle is deemed to have occurred once the telescopic mast has been lowered into a retracted state for a period of 12 hours.

The RDU-T can be coupled with other ART stand alone units such as communication rooms, autonomous and hybrid power supplies etc.

The RDU-T is transportable with the use of a light truck or heavy 4 x 4, although compliance with state base road rules must be observed with regard to allowable ATM for towing.

The unit is suitable in wind regions A through C however allowable ESA (head loads) vary within each wind region. Allowable ESA limits are provided with the engineering certification provided with each unit and must be calculated on a case-by-case basis.

Although deployment of the unit is relatively straightforward to set up, taking between one and two hours for two to three men, it is essential that only trained and qualified personnel perform the set up operation. Although the main part of the unit is a skid based building which can be set up by any competent person, the telescopic mast part of the unit is essential a guyed structure and it is important that you comply with any local legislation regarding required qualifications, which in many instances will require an advanced licensed rigger to carry out or supervise the set up. It is also essential that the responsible person has been trained and is fully aware of the set up procedure; failure to set this unit up correctly can cause serious injury or death.

RDU-S Specification Sheet

2. Specifications

2.1 General

Unit name	RDU-T (Rapid Deployment Unit – Trailer)
Trailer weight	3500 - 4500kg ATM depending on configuration (ATM = aggregated trailer mass)
Trailer unit breaking	Dual axle with electric breaking system
Unit height in transportable state	2000mm
Unit width	2450mm
Unit length	7650mm
Unit weight	4,000 kg
Deployed radius	7500mm from base of mast connection point
Deployed height	27m or 30m AGL to top of mast
Allowable deployment cycle	12 months
Allowable deployment wind regions	A, B & C depending on ESA (head load sail area)
Required ground bearing pressure	100 KPA
Required set up time (unit only, does not include antennas or additional equipment)	3 to 4 hours x 2 men depending on site location and access
Recommended service intervals	Minor service; at the end of each deployment cycle Major service; every 12 months

2.2 Levelling system (required)

General	3 x manually operated jack legs
Lifting travel	300mm

2.3 Mast details (required)

Mast type	2nd generation self actuated telescopic guyed lattice mast
Protective coating	Painted (optional galvanising)
Section locking system	Sliding self actuating locking system
Telescoping system	Hydraulic cable & winch system with automatic dead man braking
Vertical to horizontal lifting system	Single acting hydraulic lifting ram
Climbable	Yes, single person only
Deployed height	27m AGL to top of mast or 30m with fixed extension

2.4 Hydraulic system (required)

Pump unit	6000 PSI 3 phase pump unit
Oil capacity	50l
Supplies operational capacity to	Mast raising, telescoping winch

2.5 Power system (optional and configurable)

General	Separate power supply required
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2.6 Communications hut (optional and configurable)

General	Separate unit required
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2.7 Electrical system (optional and configurable)

General	POA
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2.8 Wind speed alarm system (optional but recommended)

General	Autonomously power wind speed logging system
Power	10 watt solar
Communication	3G modem with remote access
Sensors	1 x wind speed, 1 x wind direction



3. Allowable antenna loading

3.1 Antenna loading

3.1.1 General

The following information is a guide for working out the allowable antenna loads that can be placed on the RDU-T mast at any one time. Please be aware that dead weight is NOT the driving force behind what loading a tower can handle, it is actually the sail area that is the important factor, this is calculated in ESA, which calculates the wind area and or wind loading for a particular antenna.

With that in mind we have listed some common antenna in the table below, along with a loading table that shows allowable ESA's in given wind speeds. To determine the allowable antenna loading, the total ESA for the desired antenna (table 1) must be calculated and then compared to the allowable ESA for the particular wind speed (table 2). If in doubt, please ensure you contact ART for assistance, exceeding the allowable ESA will void any warranty for the unit.

Please note that the wind speeds provided have been pre calculated to take into consideration terrain categories, wind regions and other relevant engineering factors. The given wind speeds are ACTUAL wind speed measurements at the site where the RDU is located, if wind speeds exceed the deployed configuration of the unit, the mast MUST be retracted immediately.

RDU-S Specification Sheet

3.1.2 Calculation tables

Table 1; Antenna ESA's

Reference #	Antenna description	ESA
1	1.2m microwave dish (VHLPX)	1.8
2	0.6m microwave dish (VHLPX)	0.45
3	ODU's for above dishes	0.1
4	Wimax panel antenna (SSPX310F-2)	0.28
5	Wimax radio	0.2
6	DA80-67 stacked array	0.31

Table 2; Wind speed and ESA loading

Actual real time wind speed measured onsite against allowable ESA loading	38 m/s	45 m/s	59 m/s
Up to 1.0 sqm ESA	No ballast required	No ballast required	700kg ballast required per outrigger
Up to 1.5 sqm ESA	No ballast required	No ballast required	1000kg ballast required per outrigger
Up to 2.9 sqm ESA	No ballast required	1000kg ballast required per outrigger	2000kg ballast required per outrigger
Up to 3.2 sqm ESA	500kg ballast required per outrigger	1000kg ballast required per outrigger	2500kg ballast required per outrigger
Up to 4.0 sqm ESA	1000kg ballast required per outrigger	1500kg ballast required per outrigger	2800kg ballast required per outrigger

Ballast blocks can be purchased from ART upon request.