3UK RFC Bowler Cabinet Operation & Maintenance Manual

ASD774-D

Contents

Table of Figures

1 Introduction

1.1 Authorship

Original Author – Dipen Rai	19/05/2020
Original Approver – David Streets	19/05/2020

1.2 Amendment Record

Date	Document Reference	Issue Raised	Revision Details	Amended By
19/05/2020	Full Document	A	Original Issue	D Rai
26/05/2020	Section 6, 11, & 13	B	Cabinet Configuration Added	D Rai
17/06/2020	Section 2, 6 & 12	C	Electrical Schedule Added	D Rai
24/11/2020	Full Document	D	Ericsson Configuration Added	T Petch

1.3 Health and Safety

The Health and Safety at Work Act 1974 places a duty upon employers to provide such information, instruction, training and supervision as is necessary to ensure, as far as is reasonably practicable, the health and safety at work of their employees.

We have ensured that the CommScope equipment has been designed and constructed to be safe and without risk to health, providing that statutory health and safety regulations are adhered to and that the equipment is handled and maintained in accordance with the supplier instructions.

Correct maintenance procedures and all necessary safety precautions must always be used.

It is important that the personnel, using this document, are aware of both their employers' safety procedures and the specific regulations to be observed when working with equipment and materials covered by this manual.

1.4 Introduction and Scope

This manual provides information on the operation of the CommScope 3UK RFC Bowler Cabinet manufactured to a specification laid out by Mobile Broadband Network Limited (MBNL) for Hutchinson 3G UK (H3G).

CommScope reserves the right to modify, add or delete any part of this manual in accordance with product changes or improvement. Every effort has been made to ensure that all information in this manual is correct, however CommScope cannot be held responsible for errors or omissions. Should alterations be required within the scope of the manual, the manual will be reissued as appropriate.

Operatives including mechanical and electrical engineers must be familiar with all relevant site procedures, codes of practice and Health and Safety regulations related to the operation and maintenance of the cabinet.

2 General Description

2.1 Overview

The Bowler is a single-compartment cabinet designed for use in the UK on cell site locations.

The cabinet provides a secure enclosure (IP33) for the safe housing of Radios and Combiners.

All the equipment inside the cabinet is IP rated, including the fan units which are outdoor rated. The non-IP rated items such as fan controller are placed inside an IP 68 rated enclosure. The cabinet can house up to 12 RRUs, 6 pairs of filters and 6 diplexers.

The cabinet life expectancy under normal atmospheric conditions is 20 years, subject to regular routine maintenance.

2.2 Quality Assurance

CommScope aims to provide defect free goods and services to its customers, on time and to budget. The organisation operates a quality management system that has gained BS EN ISO 9001: 2000 certification.

2.3 Mechanical Information

The cabinet is made to a sheet metal design, fabricated to create a single piece rigid carcass with one compartment and two doors. The door is lockable using a bespoke locking mechanism and a standard lock.

2.4 Dimensions

The cabinet footprint is 1900mm wide and 600mm deep.

The overall height of the cabinet is 1752mm.

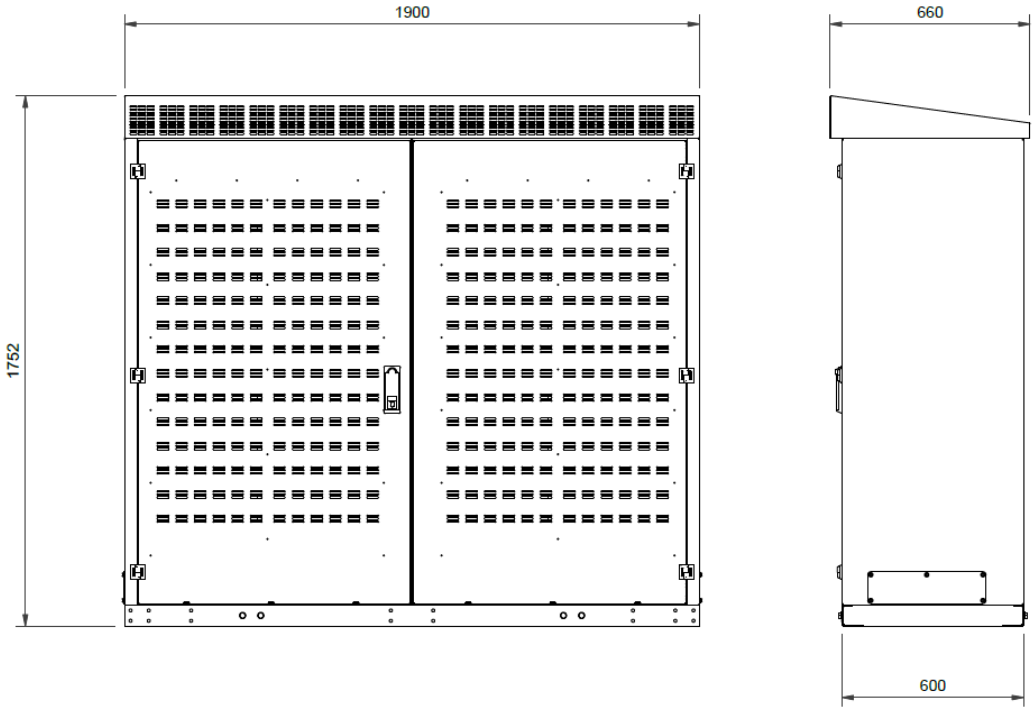


Figure 1: Cabinet Dimensions

2.5 Finish

All metallic parts will be finished with polyester powder coat paint except where components are made from corrosion resistant self-colour materials. Refer to Appendix B – Paint Specifications for further details.

2.6 Ingress Protection

The cabinet has been designed and tested to meet the standards of IP33 IEC 60529.

2.7 Lifting

The cabinet has been designed to be lifted by four detachable lifting lugs fitted to the front and rear of the cabinet, at low level. The cabinet has been designed to withstand the loads applied under lifting conditions using the two lifting brackets (Not supplied) attached to the cabinet. The all up lifting load should not exceed 300Kg. Lifting details are provided on a label adhered to the inside of the doors. Refer to Appendix E – Lift Diagram for lifting information.

2.8 Mounting

The cabinet can be mounted to a pre-installed in-ground root or a plinth for fitting to either a concrete base or grillage. If the cabinet is fitted to a grillage then it would need to be mounted to a plinth as the base of the cabinet is open.

Refer to Appendix F – or Appendix G – for installation information.

2.9 Electrical

The electrical installation which forms an integral part of the cabinet is designed and constructed in full accordance with the latest requirements of the IEE Wiring Regulations, (BS 7671).

Each installation is factory assembled and tested by a competent person certified to issue a NIC EIC certificate. A completed copy of this certificate is to be dispatched within each cabinet.

As standard the cabinet is supplied as a DC only solution. This power is to be supplied from a separate power cabinet. This may be a Huawei APM or Ericsson 6130 depending on site type.

2.10 Cable and Feeder Identification

All pre-installed cables will be labelled, and an electrical schematic provided. The feeders are part assembled to the correct location in the factory and identified with correct feeder tags according to MBNL document RD10010.

2.11 Cable Entry

The cables entering the cabinet are routed through the side of the cabinet, where the power cabinet is located. The feeders are routed through the base of the cabinet.

2.12 Earthing

The cabinet is fully bonded to a Main Earth Terminal 'MET'. The cabinet is not earthed until it is installed and bonded to the earthing arrangement of the installation as required by BS7671.

2.13 Thermal Management

The cabinet is fitted with a thermal management system to regulate air movement through the cabinet so that installed equipment remains within its operating temperature. The cabinet has been tested through the use a temperature-controlled chamber to verify this system.

2.14 Order Part Numbers

Mounting Options:

Part Number	Description	Remarks
A-100381	Huawei APM Root	To mount Huawei APM Cabinet
A-101382	Bowler Root	To mount Cabinet on new build sites
A-101391	Bowler Transfer Plinth	To mount Cabinet to existing Huawei Root
A-101410	Ericsson 6130 Plinth	To mount Ericsson 6130 on existing Huawei APM Root

Huawei Cabinet Options:

Part Number	Description	Remarks
A-101377	Bowler RFC Cabinet	Empty Cabinet without equipment
A-101386	Bowler RFC Bilateral Cabinet	Cabinet Configured for Bilateral Sites
A-101387	Bowler RFC Unilateral Cabinet	Cabinet Configured for Unilateral Sites
A-101388	Bowler RFC Bilateral Kit	Electrical and Feeder kit for Bilateral Sites
A-101389	Bowler RFC Unilateral Kit	Electrical and Feeder kit for Unilateral Sites
A-101399	Bowler RFC Cabinet with Combiners	Cabinet for Bilateral Sites with Combiners

Ericsson Cabinet Options:

Part Number	Description	Remarks
A-101422	Bowler RFC Cabinet	Empty Cabinet without equipment
A-101423	Bowler RFC Cabinet (Templates and Combiners)	Empty Cabinet with RRU templates and combiners
A-101430	Bowler RFC Cabinet (Templates Only)	Empty Cabinet with RRU templates and without combiners

Conversion Kits:

Part Number	Description	Remarks
A-101406	Huawei to Ericsson Mechanical Kit (with Combiners)	To convert Huawei cabinet to Ericsson (with Combiners). Requires Electrical Kit.
A-101407	Huawei to Ericsson Electrical Kit (with Combiners)	Electrical and Feeder Kit for Huawei to Ericsson conversions (with Combiners)
A-101408	Bowler Retrofit Kit (with Combiners)	To convert empty cabinet to Ericsson (with Combiners). Includes Electrical Kit.
A-101409	Bowler Retrofit Kit (without Combiners)	To convert empty cabinet to Ericsson (without Combiners). Includes Electrical Kit.
A-101411	Huawei to Ericsson Mechanical Kit (without Combiners)	To convert Huawei cabinet to Ericsson (without Combiners). Requires Electrical Kit.
A-101412	Huawei to Ericsson Electrical Kit (without Combiners)	Electrical and Feeder Kit for Huawei to Ericsson conversions (without Combiners)

3 Logistics

3.1 Handling Information

The completed cabinet mass as shipped (empty) is 110Kg. Not exceeding 220Kg when fully fitted. HSE guidance on moving such a mass should be observed.

3.2 Dimensions

Refer to Section 2.4 for dimension information.

3.3 Lifting Slings

Four lifting slings of minimum length 3m should be used meeting at a single point over the centre of the cabinet. The included angle should be less than 60 degrees. These are not supplied with the cabinet.

3.4 Lifting Lugs

Lifting lugs are not supplied with the cabinet. A number will have been issued to each installer. Please contact CommScope on 01653 602890 if additional lugs are required. Each bracket is rated for a safe working load of 225kg and is identified with a serial number stamped into the part. These may be re-used. It is recommended that the bracket be re-tested every 6 months to ensure compliance with the Lifting Operations and Lifting Equipment 1998 (LOLER) regulations.

3.5 Assessment for Lifting

Lifting operations should be planned and carried out by qualified and competent persons in accordance with LOLER regulations. All lifting equipment should be visually examined before each lift.

3.6 Details for Forklift Handling

The cabinet may be moved by means of a forklift truck (FLT).

3.7 Transportation

The cabinet should be transported in an enclosed flatbed van or lorry. Restraints will be required to prevent in transit damage, care must be taken not to damage cabinets with over tight restraints.

4 Alarms Information

All alarms are normally closed. There alarms provided within the cabinet are routed to a Krone connection block. The alarms are in a standard configuration as follows:

Krone Terminal	CommScope Pair Colour	From
1	Black/Red	Temperature Stage 1 (Major)
2	Black/White	Temperature Stage 2 (Critical)
3	Not Used	Not Used
4	Not Used	Not Used
5	Not Used	Not Used
6	Not Used	Not Used
7	Not Used	Not Used
8	Not Used	Not Used
9	Not Used	Not Used
0	Blue/White	Intruder (Door Loop)

The Bowler cabinet will contain an alarm block only when in Ericsson configuration. When deployed in Huawei configuration all alarms are routed back to the APM alarm block.

When fitted, the Krone block is located in the centre of the rear of the cabinet (Figure 2). Note that terminals 1b and 2b share a common connection.

Figure 2: Krone Connections

4.1 Thermal Management Alarms

Alarms are given for fan failure, sensor failure and over temperature (60°C).

Fan Failure Alarm:

If the speed of any fan drops below 70% of the speed of the other fans, the speed demand will increase to maximum speed (approx. 4100RPM dependent on supply voltage and load). A General Alarm will be indicated by de-energizing the Alarm 1 General Alarm relay and changing the LED to RED.

Open / Short Circuit Temperature Sensor Alarm:

If the thermistor connected to the input Temp 1 is detected as either being open or short circuit, then the fans will operate at the normal high-speed of 4100 RPM and general alarm will be indicated by de-energizing the General Alarm 1 Relay and changing the colour of the LED to flashing RED.

High Temperature Alarm:

If the temperature detected by the sensor connected to input Temp 1 reaches 60°C the controller will indicate a High Temperature Alarm by opening the Normally Closed contacts of the Alarm 2 Relay and the LED will flash RED/GREEN. The High Temperature alarm will be turned off if the temperature drops to 57°C.

In the event of multiple alarms, the controller will prioritise them as follows:

1. Fan Failure as indicated by a continuous RED LED.
2. Temperature sensor failure as indicated by a flashing RED LED.
3. Filter alarm as indicated by a flashing AMBER LED.
4. Over temperature as indicated by a RED/GREEN flashing LED.

In the event of a controller failure such that there is no output from the microcontroller the fans will operate at maximum speed (approx. 4100RPM) and the General Alarm relay will be de-energized. There will typically be no LED indication. In this unlikely situation, the over temperature and under temperature alarms will not give an alarm indication.

5 Operating Information

5.1 Cabinet Overview

Cabinet layouts show for both Huawei (Figure 3) and Ericsson (Figure 4) configurations.

Figure 3: Huawei Bowler Overview

Figure 4: Ericsson Bowler Overview

5.2 Door Locks

All doors have a locking mechanism requiring a key for security. The front and rear doors are fitted with a swing handle lock (Figure 5), this contains 3UK standard cylinder **Ruko 5CA22**. Refer to the Spare Parts List.

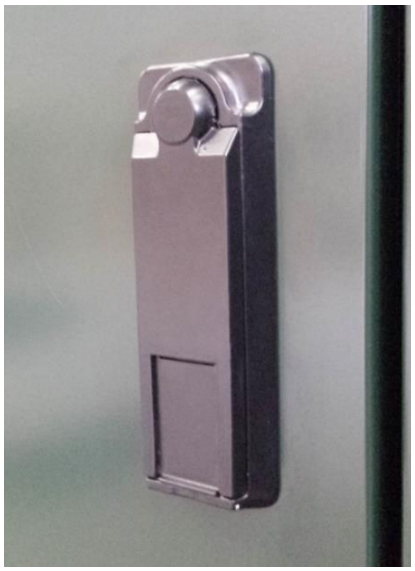


Figure 5: Swing Handle Lock

5.3 Door Stays

The doors are fitted with stays to restrain them open at 110°. When opening the door, the stay will drop and lock into place to restrain the door when it reaches its maximum opening angle (Figure 6).

The release the door, push the stay upwards into the slot while closing the door (Figure 7). The stay will then slide backwards to its starting position as the door is closed.

Figure 6: Stay in Open Position

Figure 7: Closing Door Stay

5.4 Lightning Protection

Located at the bottom of the left-hand side of the base there is an M10 bolt provided for lightning protection (Figure 8).

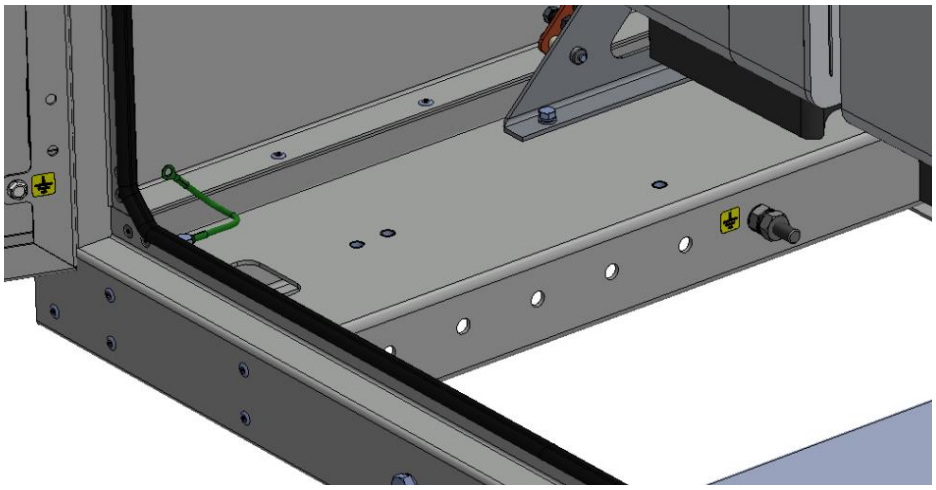


Figure 8: Lightning Protection Point

5.5 Equipment Earth Bar

The cabinet also contains two earth bars in the main section of the cabinet, located on both vertical supports (Figure 9). Equipment fitted within this compartment should be connected to this point in accordance with the manufacturer's guidance.

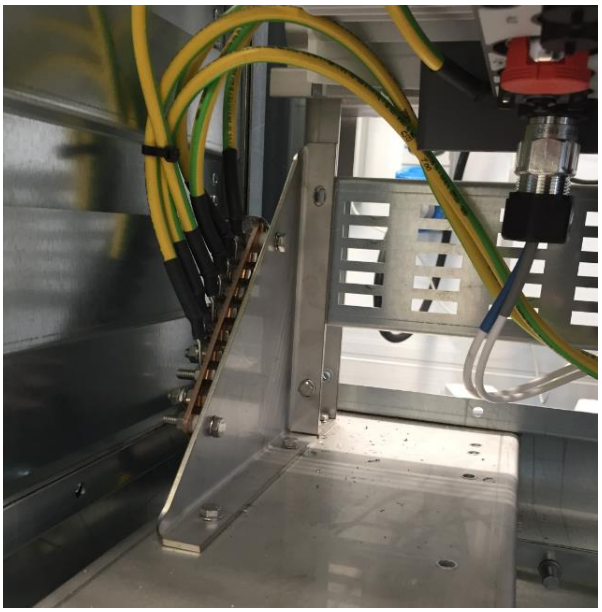


Figure 9: Equipment Earth Bar

5.6 Thermal Management System

The fan controller is mounted in the centre of the cabinet roof, in an IP rated enclosure (Figure 10).

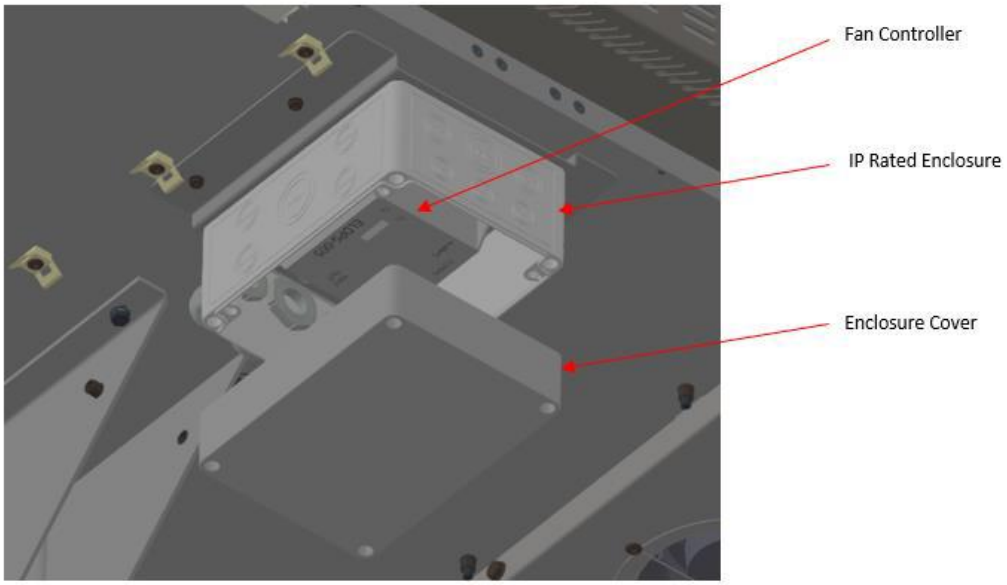


Figure 10: Fan Controller Position

The thermal management system is self-managing and requires no manual input. During normal operation the controller should show a GREEN LED. Refer to Section 4.1 for alarms information.

The fan controller is not designed for 'hot pluggable' operation. Isolate power to the controller before adding or removing any connection.

6 Maintenance Information

6.1 Mechanical Schedule

An annual check should be made to ensure the cabinet is in good condition. An exterior check should be made for mechanical damage. Any damage which could affect the life expectancy of the cabinet should receive corrective attention as soon as is practicable. The exterior surface of the cabinet should be wiped to remove dust and dirt; this will help to keep the paint in good condition.

6.2 Door Hinges

The hinges used on the cabinet are stainless steel and do not require any maintenance during normal use.

6.3 Door Seals

The door seals should not require any attention during normal use. If they become damaged, they must be removed and replaced with new seal, otherwise the weather protection of the cabinet may be compromised.

6.4 Paintwork

A thorough check of the condition of the external paint work should be made annually. Any damage which could affect the life expectancy of the cabinet should receive immediate corrective attention.

Damage such as chips and scratches to paint work should be repaired using a colour matched synthetic paint. Cellulose based paint should not be used.

6.4.1 Preparation

The damaged area and immediate surroundings should be sanded lightly with a fine sandpaper, ensuring that there is no loose material on the affected areas.

6.4.2 Priming

A synthetic primer of appropriate colour should be applied to any bare metal in the prepared area.

6.4.3 Finish

Colour matched synthetic topcoat paint should be applied to the prepared area. When dry the area should be buffed.

6.5 Fan Controller

The Fan controller is replaceable if required. Before proceeding turn off power to the thermal management system, PSU Breaker F1. Locate the fan controller in the top of the cabinet (Figure 11).

First open the enclosure to gain access to the fan controller. Remove any connections to the controller and the four M4 fixings to release the fan controller.

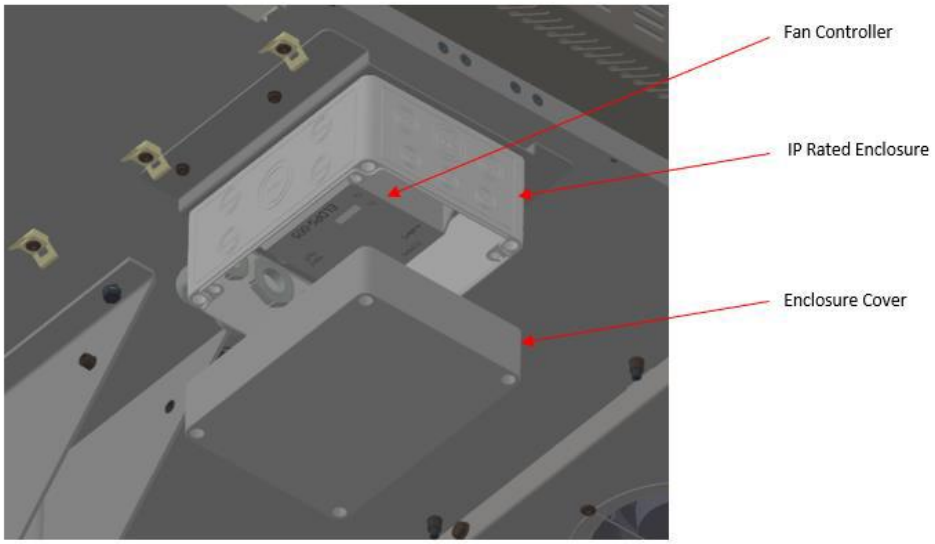


Figure 11: Fan Controller

The new controller is fitted by re-using the same fixings. Ensure all cables are reconnected to their original position. Only after all connections have been made can power be restored to the controller. Ensure that the waterproof enclosure is fitted.

6.6 Fan Module

The Fan module is replaceable if required. Before proceeding turn off power to the thermal management system.

Figure 12: Fan Connections

Locate both the fan controller and the fan module. Trace the fan cable back to the controller and disconnect it (Figure 12).

The fan module can now be removed be removing the four screws (Figure 13) and carefully lowering the module (Figure 14). Take are the module does not fall after its fixings have been removed.

Figure 13: Removing Fan Module 1

Figure 14: Removing Fan Module 2

Fit the module by replacing the 4 screws that were removed earlier. Re-fit the power and earth connections to the points they were removed from earlier.

To re-fit the roof; lift the roof panel back into position and re-fit the bolts that were removed earlier.

Only after all connections have been made can power be restored to the thermal management system.

7 Installation Information

7.1 RRU Installation

Mounting brackets are supplied with the cabinet, attached to the mounting rails (Figure 15), remove these and attach the radio to the mounting bracket using the OEM fixing supplied with the radio (Figure 16)

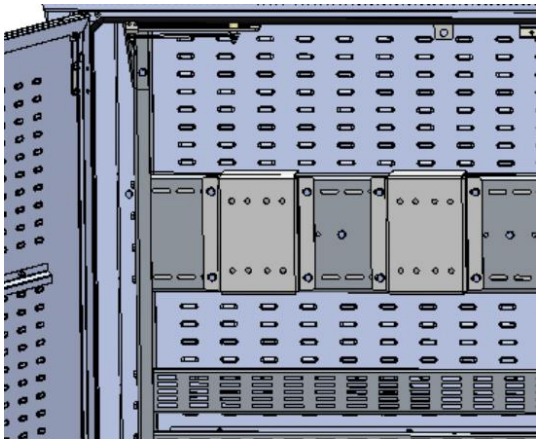


Figure 15: Radio Mounting Brackets

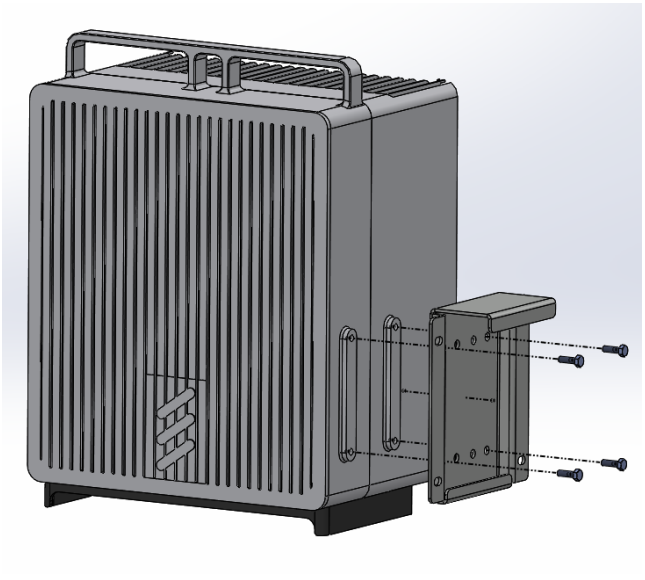


Figure 16: Radio Bracket Fitting

Mount the complete assembly back to the mounting rail by using one fixing per bracket only.

Mounts on the left side of the cabinet use upper left fixing position (Figure 18). Mounts on the right side of the cabinet use the upper right fixing position (Figure 19).

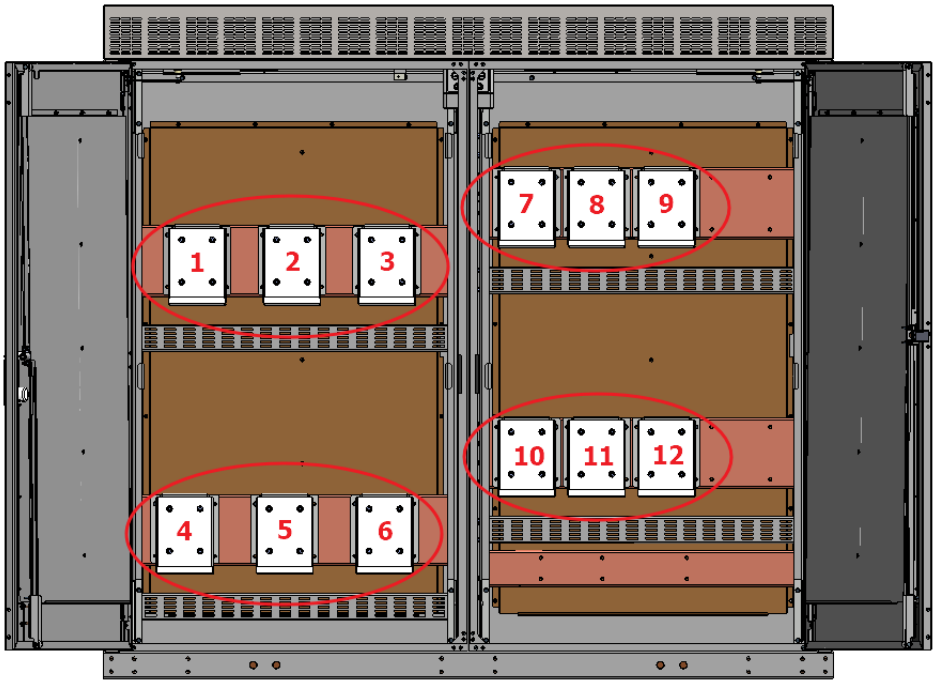


Figure 17: Radio Mount Positions

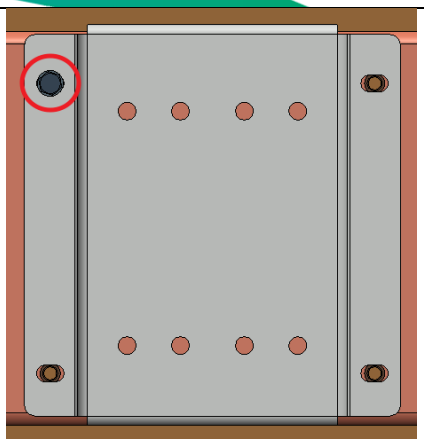


Figure 18: Location on LH Radio Mounts

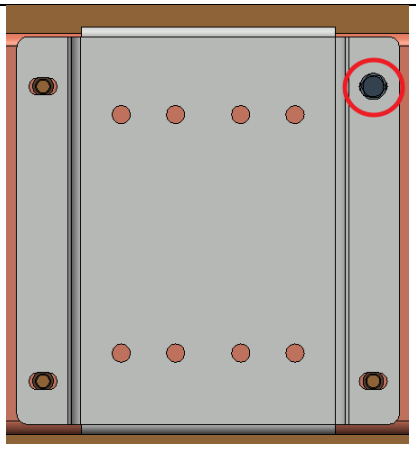


Figure 19: Location on RH Radio Mounts

Repeat this process for all radios (Figure 20). Connect DC feeds and Earths in accordance with the Radio manufacturers guidance.

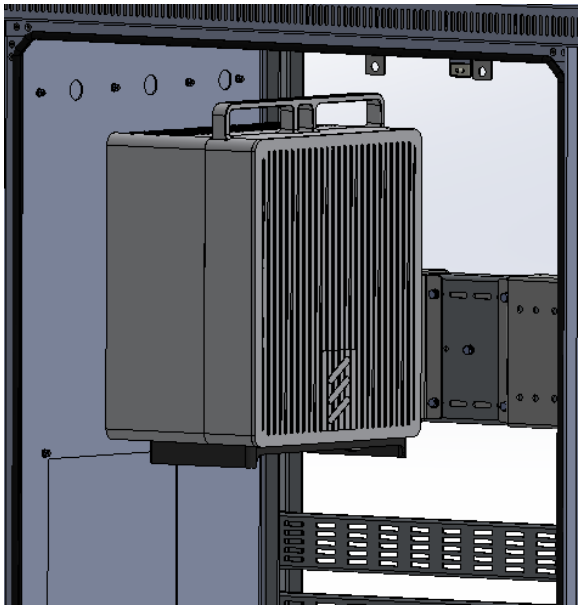


Figure 20: Radio Final Position

7.2 Template Installation

Where the cabinet does not yet contain radios, but feeder and power cable must be routed, templates will be provided to secure the connections in their relevant places. (Figure 21).

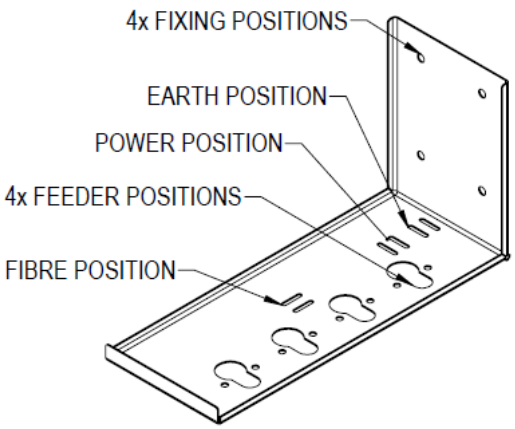


Figure 21: Radio Template

Fit the bracket in the same way as a radio. Secure the cables to the positions shown.

If Combiners are not pre-fitted but are required at a later date, templates will be provided to terminate the feeder cables in the correct position (Figure 22).

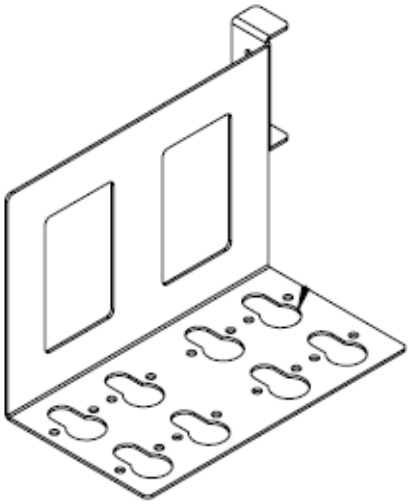


Figure 22: Combiner Template

Route the feeder cables to the plates and secure in place.

7.3 Combiner Installation

The following combiner types are supported:

- Radio Design RD0840
- CommScope E14F05P63
- Kathrein 78211533

When using either CommScope (Figure 23) or Kathrein (Figure 24) combiners; these will retain their original bracket and bolt onto the mounting plate using M8 fixings.

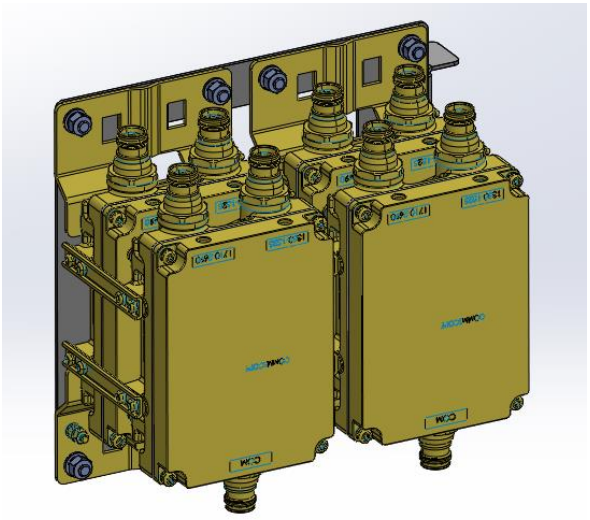


Figure 23: CommScope Combiners

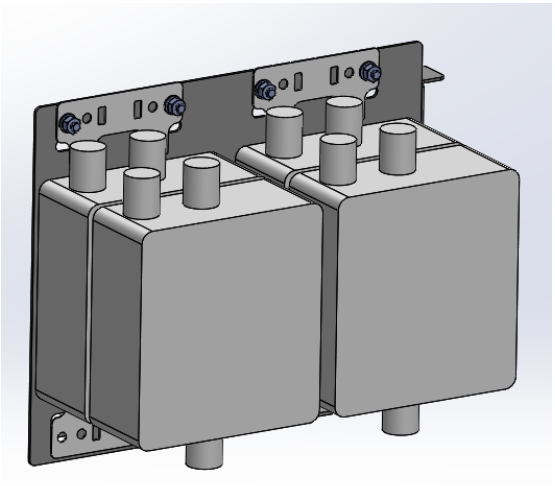


Figure 24: Kathrein Combiners

When Using Radio Design combiners; remove the OEM bracket and re-use these same fixings to attach to the Bowler bracket (Figure 25).

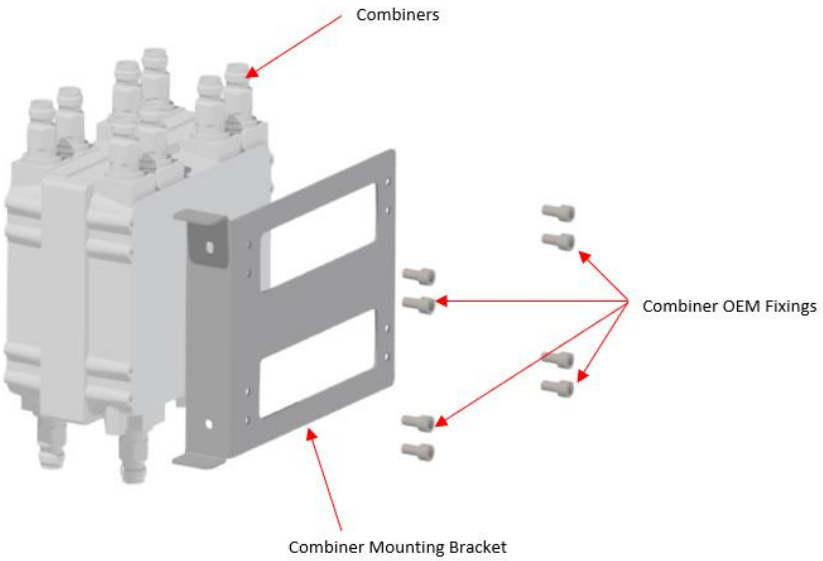


Figure 25: Radio Design Combiners

Finally mount the completed combiner and mount assembly to the mounting rail in the lower right-hand side of the cabinet (Figure 26).

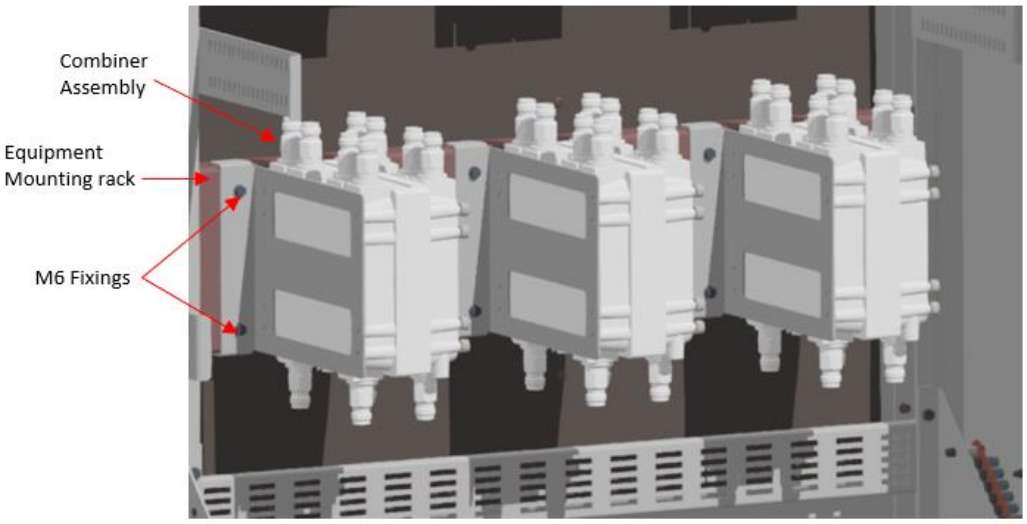


Figure 26: Combiners in Position

After Combiners are secured, feeders and earth cables can be connected.

8 Huawei Version

The Huawei cabinet provides mounting for a total of 6 Huawei RRUs, as well as combiner space if required.

The standard radio positions are:

- Upper Left-Hand – 3x Huawei RRU 5301 providing 4G L800
- Upper Right-Hand – 3x Huawei RRU 5501 providing 4G L1800 & L2100
- Lower Left-Hand – 3x Huawei RRU 5301 4G L1400
- Lower Right-Hand – 3x combiner brackets (if required)

Figure 27: Huawei Configuration

8.1 DC Distribution

The Bowler cabinet is provided with the following DC feeds. Feeds to be taken from the Huawei APM cabinet and connected to its designated position.

Source	Label	Rating	Destination
APM D04/D05	FC	10A	Bowler Fan Controller
APM D03	RRU1	25A	RRU 5301 L08 Sector 1
APM D06	RRU2	25A	RRU 5301 L08 Sector 2
APM D07	RRU3	25A	RRU 5301 L08 Sector 3
APM D09	RRU4	25A	RRU 5501 L18/21 Sector 1
APM D10	RRU5	25A	RRU 5501 L18/21 Sector 2
APM D11	RRU6	25A	RRU 5501 L18/21 Sector 3
APM D12	RRU7	25A	RRU 5301 L14 Sector 1
APM D13	RRU8	25A	RRU 5301 L14 Sector 2
APM D15	RRU9	25A	RRU 5301 L14 Sector 3

All power and fibre cable should be routed out of the cabinet through the side entry panels.

9 Ericsson Version

The Huawei cabinet provides mounting for a total of 6 Huawei RRUs, as well as combiner space if required.

The standard radio positions are:

- Upper Left-Hand – 3x Ericsson 4480 providing 4G L1800/L2100
- Upper Right-Hand – 6x Ericsson 2012 providing 4G L1400 with 6x Ericsson 1400 Filter
- Lower Left-Hand – 3x Ericsson 2460 providing 4G L800
- Lower Right-Hand – 3x combiner (If Combiners are not fitted a template is provided to terminate feeders from pole).

Figure 28: Ericsson Configuration

9.1 DC Distribution

The Bowler cabinet is provided with the following DC feeds. Feeds to be taken from the Ericsson 6130 cabinet and connected to its designated position.

Source	Label	Rating	Destination
Ericsson 6130	FC	10A	Bowler Fan Controller
	ERS1	25A	Ericsson 4480 (1800/2100) 1
	ERS2	25A	Ericsson 4480 (1800/2100) 2
	ERS3	25A	Ericsson 4480 (1800/2100) 3
	ERS4	25A	Ericsson 2012 (1400) 1
	ERS5	25A	Ericsson 2012 (1400) 2
	ERS6	25A	Ericsson 2012 (1400) 3
	ERS7	25A	Ericsson 2460 (800) 1
	ERS8	25A	Ericsson 2460 (800) 2
	ERS9	25A	Ericsson 2460 (800) 3
	ERS10	25A	Ericsson 2012 (1400) 4
	ERS11	25A	Ericsson 2012 (1400) 5
	ERS12	25A	Ericsson 2012 (1400) 6

All power and fibre cable should be routed out of the cabinet through the side entry panel located at the left-hand base of the cabinet.

10 Appendix A – Additional Reference Documents

Refer to the following Documents for additional information about the cabinet:

General Arrangement Drawings

Document Reference	Description
G-100875	3UK RFM Bowler Cabinet – Huawei Fit Out
G-100878	3UK RFM Bowler Cabinet with Huawei APM
G-100903	3UK RFM Bowler Cabinet – Ericsson Fit Out
G-100921	3UK RFM Bowler Huawei to Ericsson Conversion Kit
G-100922	3UK RFM Bowler Empty Cabinet to Ericsson Conversion Kit
G-100925	3UK RFM Bowler Cabinet with Ericsson 6130

Electrical Schematics

Document Reference	Description
F-100477	3UK RFC Bowler Base Cable Kit
F-100478	3UK RFC Bowler Huawei Radio Feeds
F-100484	3UK RFC Bowler Ericsson Radio Feeds

Testing Information

Document Reference	Description
ASD770	3UK RFC Bowler Huawei Thermal Test Report
ASD794	3UK RFC Bowler Ericsson Thermal Test Report
ASD780	3UK RFC Bowler IP33 Test Report
ASD775	3UK RFC Bowler Noise Test Report (2 Fan)
ASD796	3UK RFC Bowler Noise Test Report (4 Fan)

Additional Components

Document Reference	Description
I-100350	Bowler Cabinet Feeder Schematics (Huawei)
I-100353	Bowler/APM Root Transfer Install Guide
I-100360	Bowler Cabinet Feeder Schematics (Ericsson)
I-100363	Ericsson 6130 Cabinet and Transfer Plinth Install Guide
I-100364	Ericsson Retrofit Kit Installation Guide

To request a document; please contact:

Telephone: 01653 602890

Email: MaltonSales@CommScope.com

11 Appendix B – Paint Specifications

ASD002-F

SUMMARY: Specification of paint process and paint finish excluding colour. Leatherette finish 80 Microns.

The components and assemblies are to be coated by powder coating on all faces.

The powder coating process must be approved by CommScope Design and Integration UK.

The powder must be polyester based and approved by CommScope Design and Integration UK.

Unless otherwise stated the powder coat finish after baking will always be a minimum thickness of 80 microns. This applies to all components and assemblies.

Colours will be specified at point of order and are listed on enclosure painting lists.

The finish must meet the following specification:

1. Impact resistance – ASTMP 2794 to 60lbs
2. Scratch resistance – BS 3900 PART E2. The cabinet finish shall resist a sharp point weighted to 4.5 kg
3. Coating adhesion – BS 3900 Part E6, Cross hatch
4. Light resistance – QUV O metal to 200 hours
5. Salt spray - Pass ASTMB 177
6. Sulphur Dioxide – BS 3900 Part F8 exposed for 250 hours. There shall be no colour change, softening, blistering or loss of adhesion of the coating.

The gloss level for external surfaces is 60%, Leatherette

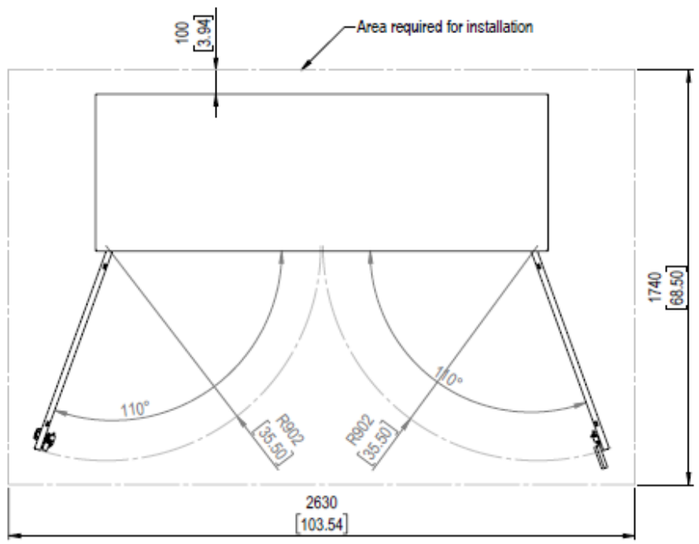
The bare component's base material will be pre-galvanized mild steel, aluminium or Stainless Steel, according to drawings.

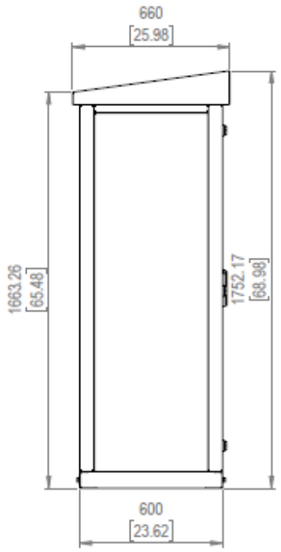
Ink used by steel suppliers to identify sheet should have been removed when the parts are supplied for painting, any remaining ink must be removed before coating.

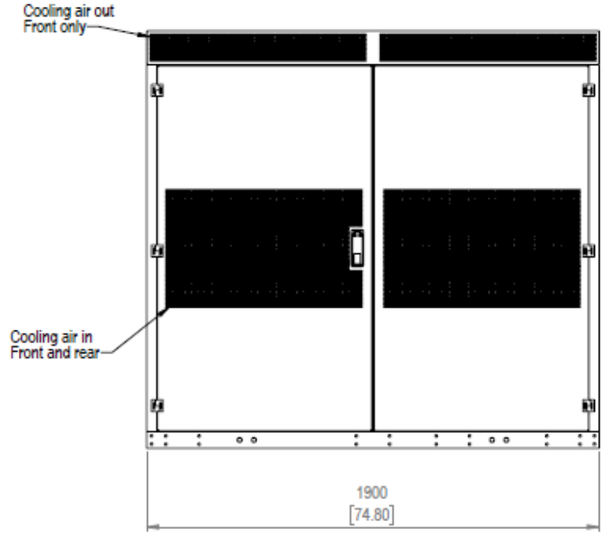
It is expected that the coater will be able to paint parts to the agreed standard all over without modifying the parts, i.e. no additional holes will be included to hang the parts unless a written concession to do so is given to the coater from CommScope Design and Integration UK.

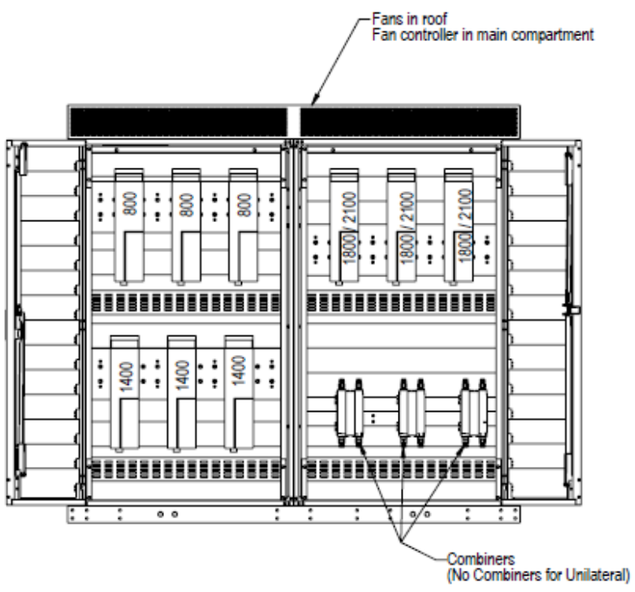
Where Rivnuts, PEM's or threaded studs are present, the threads must be masked off before coating.

12 Appendix C – Layout Drawing G-100875









ISSUE	INITIAL	DATE	REVISION NOTE
B	DR	18/5/2020	RRU LOCATION UPDATED

REVISIONS

COMMSCOPE, INC. OF NORTH CAROLINA

TOLERANCES
0 PLACE X ± SEE NOTE 1 2 PLACE .XX ±
1 PLACE .X ± ANGLES ±

SAP MATERIAL MASTER

FINISH: POWDER COATED

MATERIAL: Z275 Sheet Steel

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5M-1994 VOLUMES 1 & 2, THIRD ANGLE PROJECTION

	NAME	DATE
CE	RJS	06/03/2020
RW		
RV		
AD		
RE		
ECN		

TITLE: 123c-3UK RFC Cabinet

SCALE: 1:15

DOCUMENT NO.: G-100875

DENSITY	g/mm³
MASS	grams
VOLUME	mm³
SURFACE AREA	mm²
HEIGHT	
LENGTH	
WIDTH	

SIZE: A2

WORK AREA

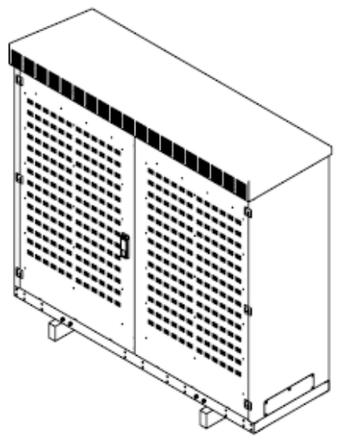
MODEL			DRAWING			SHEET
VERSION	STATUS	REVISION	VERSION	STATUS	REVISION	
		B			A	1 OF 1

13 Appendix D – Layout Drawing G-100903

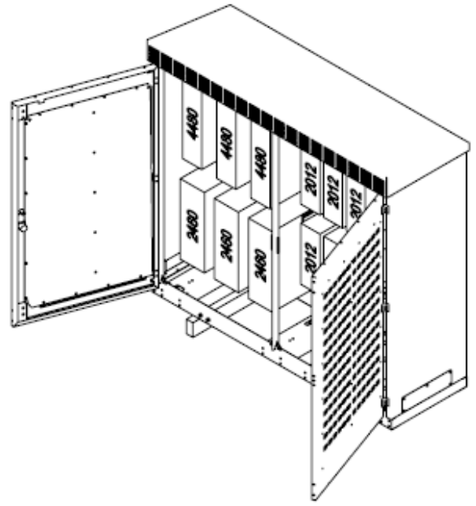
NOTES:

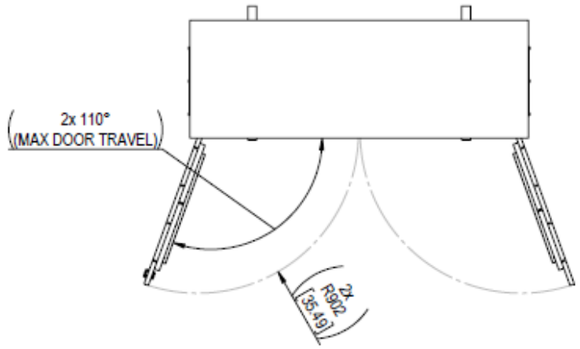
1. UNLESS OTHERWISE SPECIFIED: UNITS ARE MILLIMETERS [INCH].
2. TOLERANCES: BEND ±0.5°, PUNCH LINEAR ±0.2, PUNCH ANGULAR ±0.5° HOLE ∅ +0.10 -0.00
3. ALL BASE MATERIALS, COMPONENTS AND PROCESS MUST BE RoHS-COMPLIANT.
4. REMOVE BURRS AND SHARP CORNERS.
5. NO SANDING OR GRINDING ON MATERIAL FACE.
6. ERICSSON RADIOS TO MOUNT TO BESPOKE COMMSCOPE RAIL SYSTEM.
7. CONSTRUCTION: 1.5mm GALVANISED STEEL
   FINISH: POLYESTER POWDER COAT PAINT
   (RAL7035 OR RAL6009 AS STANDARD)

ISOMETRIC VIEW(A)
(DOORS CLOSED)

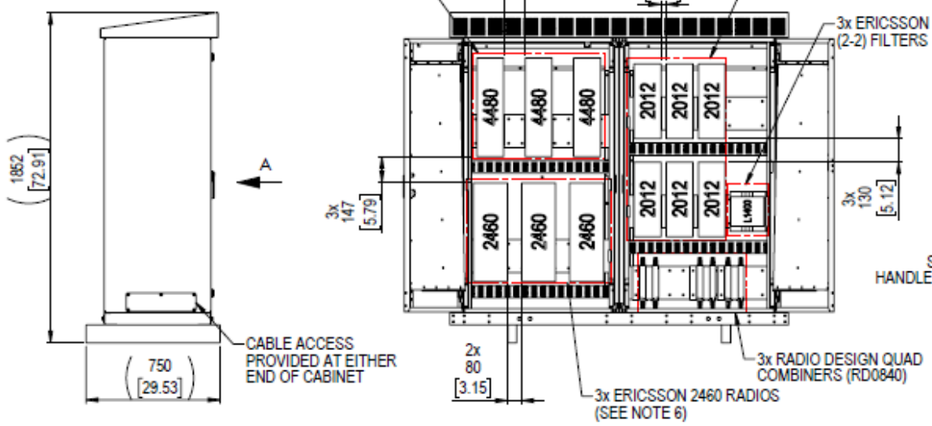


ISOMETRIC VIEW(B)
(DOORS OPEN)

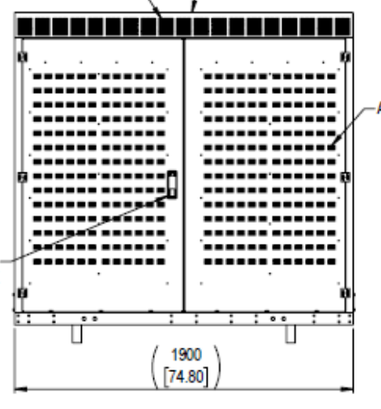




INTERNAL LAYOUT
(DOORS OPEN FOR CLARITY)



VIEW A



ISSUE	INITIAL	DATE	REVISION NOTE
A	CA	16/07/2020	FIRST ISSUE

REVISIONS

COMMSCOPE, INC. OF NORTH CAROLINA

TOLERANCES: 0 PLACE X ± SEE NOTE 1; 2 PLACE .XX ±; 1 PLACE .X ±; ANGLES ±

SAP MATERIAL MASTER

FINISH: AS MATERIAL

MATERIAL: Z275 Sheet Steel T=1.5mm

	NAME	DATE
CE	CHRIS ASHURST	17/07/2020
RW	MATT LEWRY	22/07/2020
RV		
AD		
RE		
ECN		

TITLE: BOWLER CABINET - ERICSSON FIT OUT GA

DENSITY		g/mm³
MASS	537.7	kg
VOLUME		mm³
SURFACE AREA		mm²
HEIGHT		
LENGTH		
WIDTH		

SIZE: A2 | WORK AREA | SCALE: 1:20 | DOCUMENT NO.: G-100903

MODEL VERSION	MODEL STATUS	MODEL REVISION	DRAWING VERSION	DRAWING STATUS	DRAWING REVISION	SHEET
					A	1 OF 1

14 Appendix E – Lift Diagram

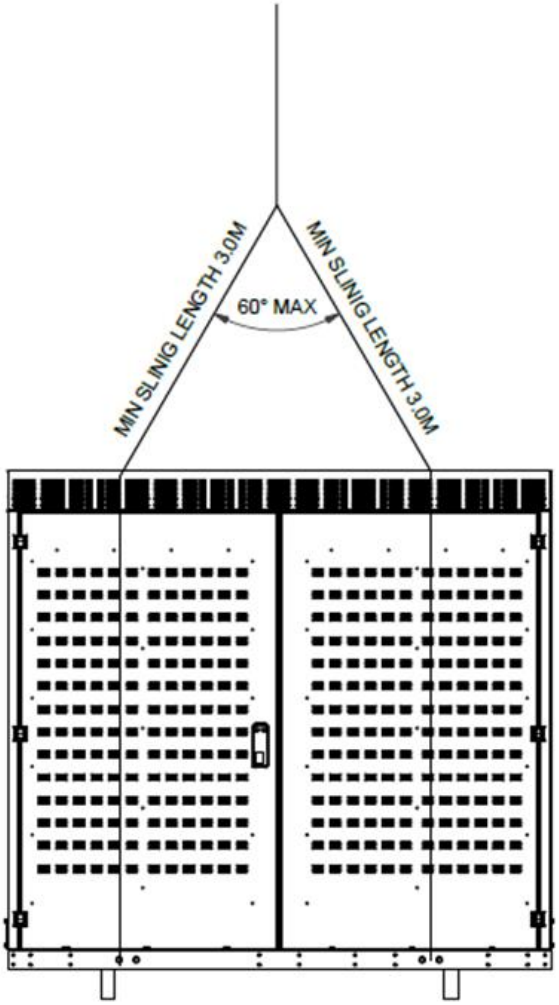


Figure 29: Lifting Diagram

Lifting label details:

Lifting information. Min sling length: 3m. Max all up lift: 220Kg Included angle max: 60°. Use 0.5T D shackle on lugs.

15 Appendix F – Fitting to Existing Huawei Root

THIS INSTALLATION DOCUMENT IS FOR GUIDANCE ONLY, SITE SPECIFIC CONDITIONS OR BUILD GUIDANCE IS TO TAKE PRECEDENCE

Refer to I-100353 for additional guidance.

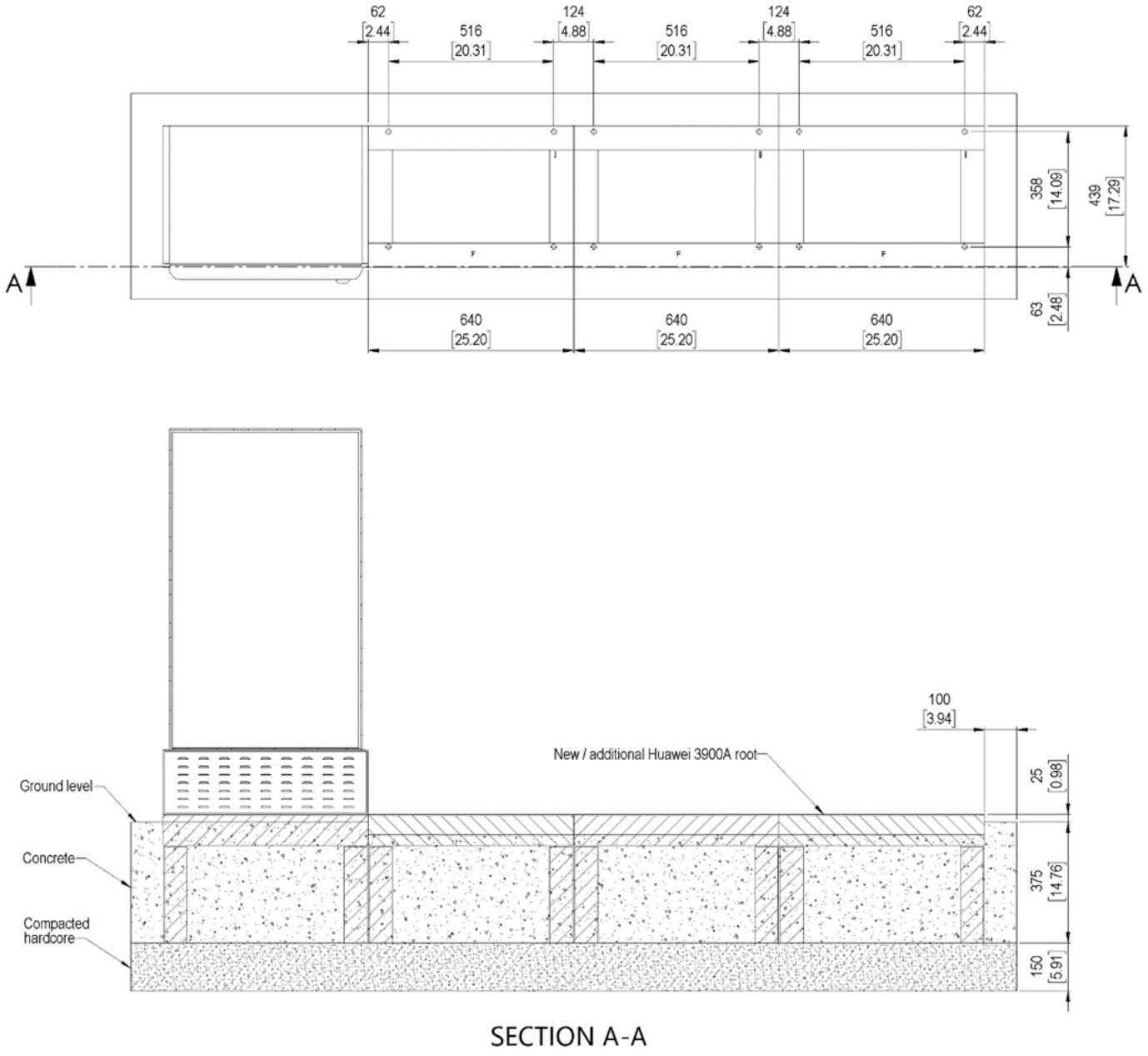


Figure 30: Transfer Plinth Installation

An additional Huawei 3900A root must be installed aligned with existing roots both vertically and horizontally and butted up to existing roots with no gap or ground materials between. It is strongly recommended that the transfer plinth is fastened to all three Huawei 3900A roots before concrete is poured and cured to ensure alignment of the roots.

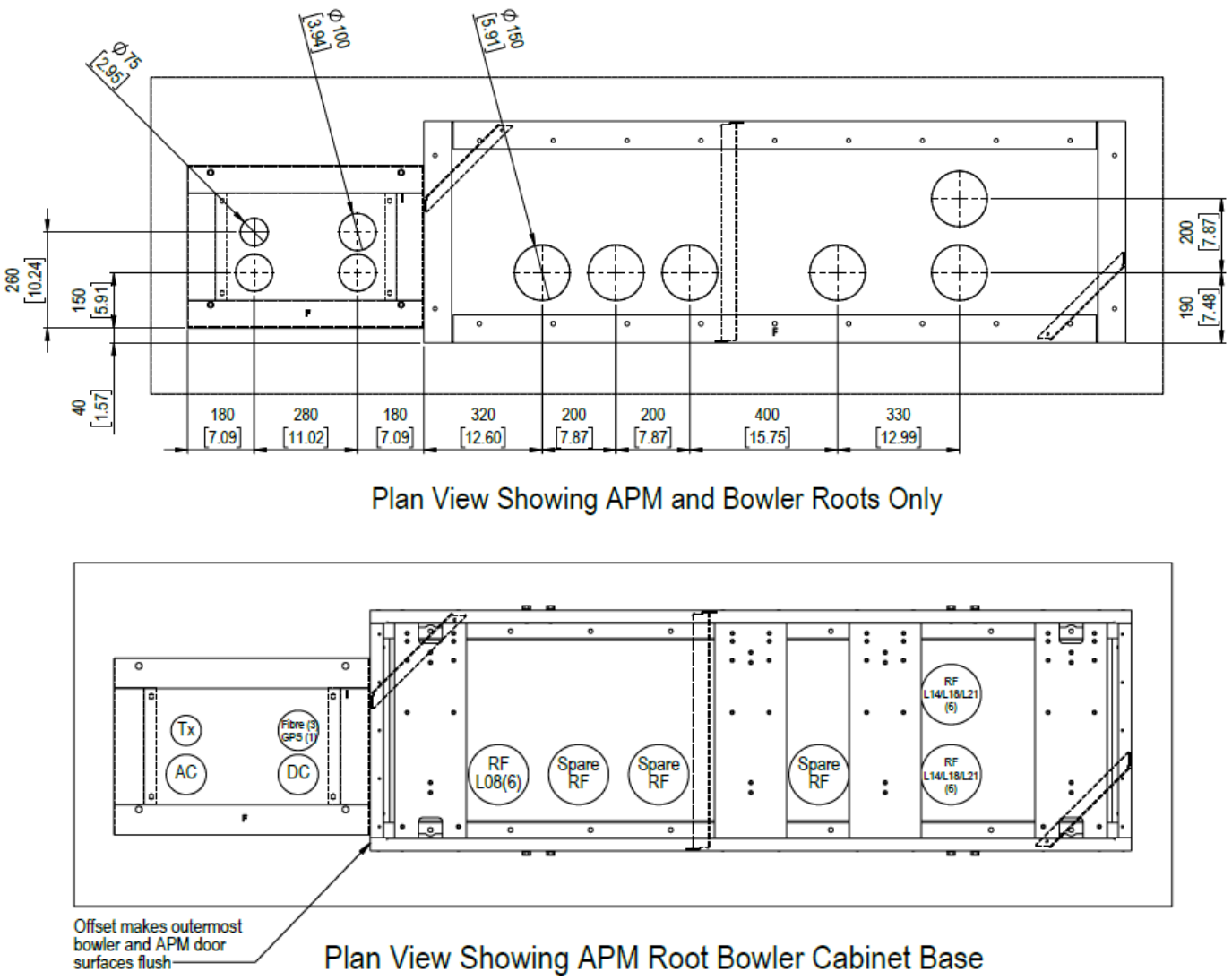


Figure 31: Duct Positions (Huawei)

Installing Root:

1. Align the transfer plinth on the roots with the slanted profile at the back. The transfer plinth should be butted up against the existing Huawei cabinet or as close to it as possible. The transfer plinth is 20 mm narrower than the three roots so expect to see a small amount of spare root visible at the right of the CommScope Bowler cabinet. Align the slots at the rear of the transfer plinth with the holes in the top surface of the Huawei 3900A roots.
2. Place rectangular washers provided in the fixing kit over each slot at the rear of the transfer plinth and insert a bolt through the special washer, transfer plinth and root.
3. Where the bolt emerges from the underside of the root top, add a flat washer, followed by spring washer and thread the nut on to retain. Do this for all the rear fixing points and hand tighten only.
4. Repeat the process on the front slots of the transfer plate then tighten all the bolts another ½ turn with a pair of 24 mm spanners.
5. Pour concrete and allow to cure for a minimum of 24 hours. The concrete inside the cabinet base should be a minimum of 60 mm below the top of the root and sealed with a 2mm bitumen coating.

Installing Transfer Plinth

1. Remove the transfer plinth.
2. Apply a liberal bead of silicone sealant (supplied with the CommScope Bowler cabinet) to the perimeter of the roots' top surface.
3. Align the transfer plinth as described earlier.
4. Fasten the transfer plinth down to the roots as described earlier. Tighten the fasteners to 200 Nm.
5. Apply a neat bead of sealant round the outside of the transfer plinth at the joint with the root.

Installing Cabinet:

1. Place a liberal bead of sealant supplied on the top face of the transfer plinth.
2. Lift cabinet into final position.
3. The cabinet is to be secured to the transfer plinth using the 18 off M10 set screws supplied. These are fitted with a large OD washer inside the cabinet (upward facing face) and a lock washer on the underside to the face of the transfer plinth. Tighten M10 nuts and set screws to approximately 50 Nm.
4. Apply a neat bead of sealant round the outside of the cabinet at the joint with the transfer plinth.
5. Check that door opens and closes correctly. Shim the cabinet if required using the shims provided in the fixing kit.
6. Following installation of all cables through the ducts, seal the ducts
7. Close and lock the cabinet door.

16 Appendix G – Fitting to Bowler Root

THIS INSTALLATION DOCUMENT IS FOR GUIDANCE ONLY, SITE SPECIFIC CONDITIONS OR BUILD GUIDANCE IS TO TAKE PRECEDENCE

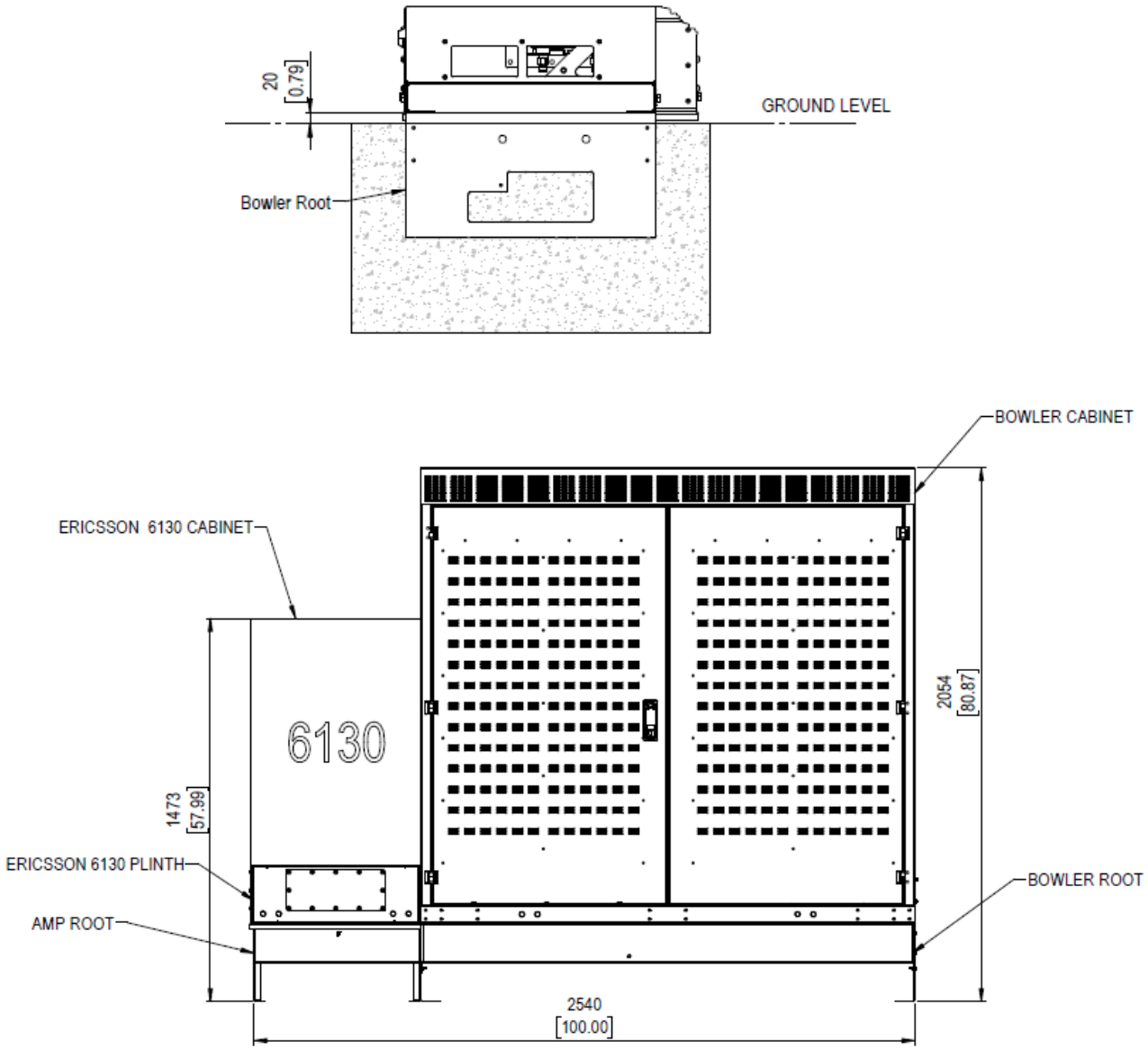
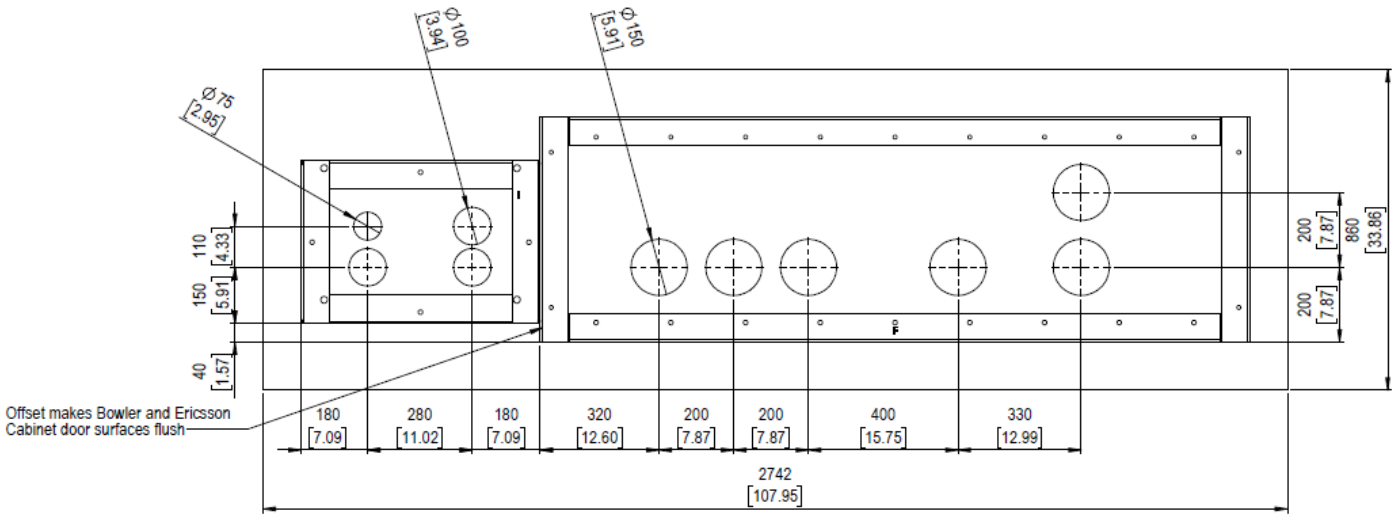
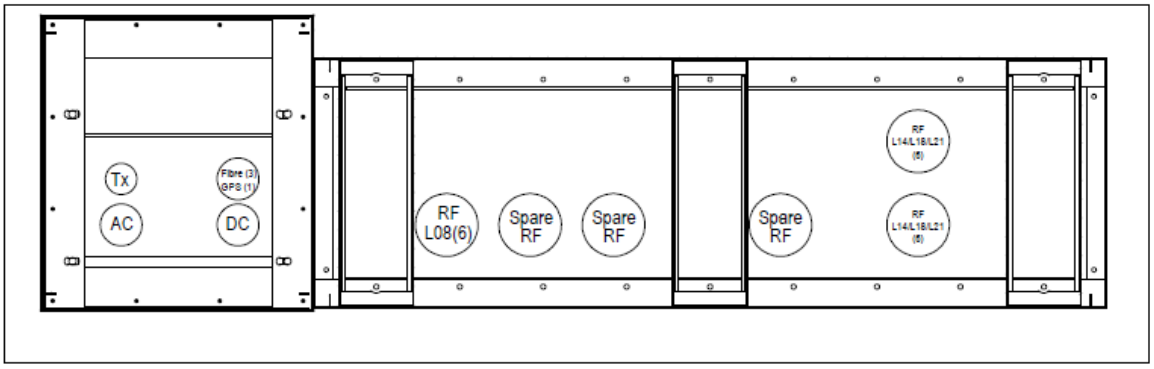


Figure 32: Bowler Root Installation



Plan View Showing APM and Bowler Roots



Plan View Showing Ericsson Plinth & Bowler Cabinet Base

Figure 33: Duct Positions (Ericsson)

Installing Root:

1. Check clearances when positioning near existing structures, 100mm gap must be provided at rear.
2. Excavate hole size of 2742 x 800 to accommodate both roots. Depth to suit local ground conditions.
3. Position ducts in approximate positions as indicated.
4. Infill the hole with compacted hardcore at least 150mm deep.
5. Place each end of the root on sand and position so approximately 20mm of the root protrudes above ground level.
6. Top surface of the root must be level ±2mm in all directions. Pack under ends if required.
7. Infill with concrete inside and outside of the root.
8. Concrete to be left to set a minimum of 24 hours before fitting the cabinet.

Installing Cabinet:

1. Place a liberal bead of sealant supplied on the top face of the transfer plinth.
2. Lift cabinet into final position.
3. The cabinet is to be secured to the transfer plinth using the 18 off M10 set screws supplied. These are fitted with a large OD washer inside the cabinet (upward facing face) and a lock washer on the underside to the face of the transfer plinth. Tighten M10 nuts and set screws to approximately 50 Nm.
4. Apply a neat bead of sealant round the outside of the cabinet at the joint with the transfer plinth.
5. Check that door opens and closes correctly. Shim the cabinet if required using the shims provided in the fixing kit.
6. Following installation of all cables through the ducts, seal the ducts
7. Close and lock the cabinet door.

For guidance on installing the Ericsson 6130 Cabinet and Plinth, Refer to I-100363.

17 Appendix H – Fan Specification

Nominal Voltage	48v
Operating Voltage	38v ~ 56v
Starting Voltage	36v
Fan Speed	4100 ±200 rpm
Max Air Flow	787 m^3/hour
Max Pressure	686 Pa
Nominal Current	1.6A
Nominal Input Power	83.2W
Acoustic Noise	73dBA
Weight	1.2kg

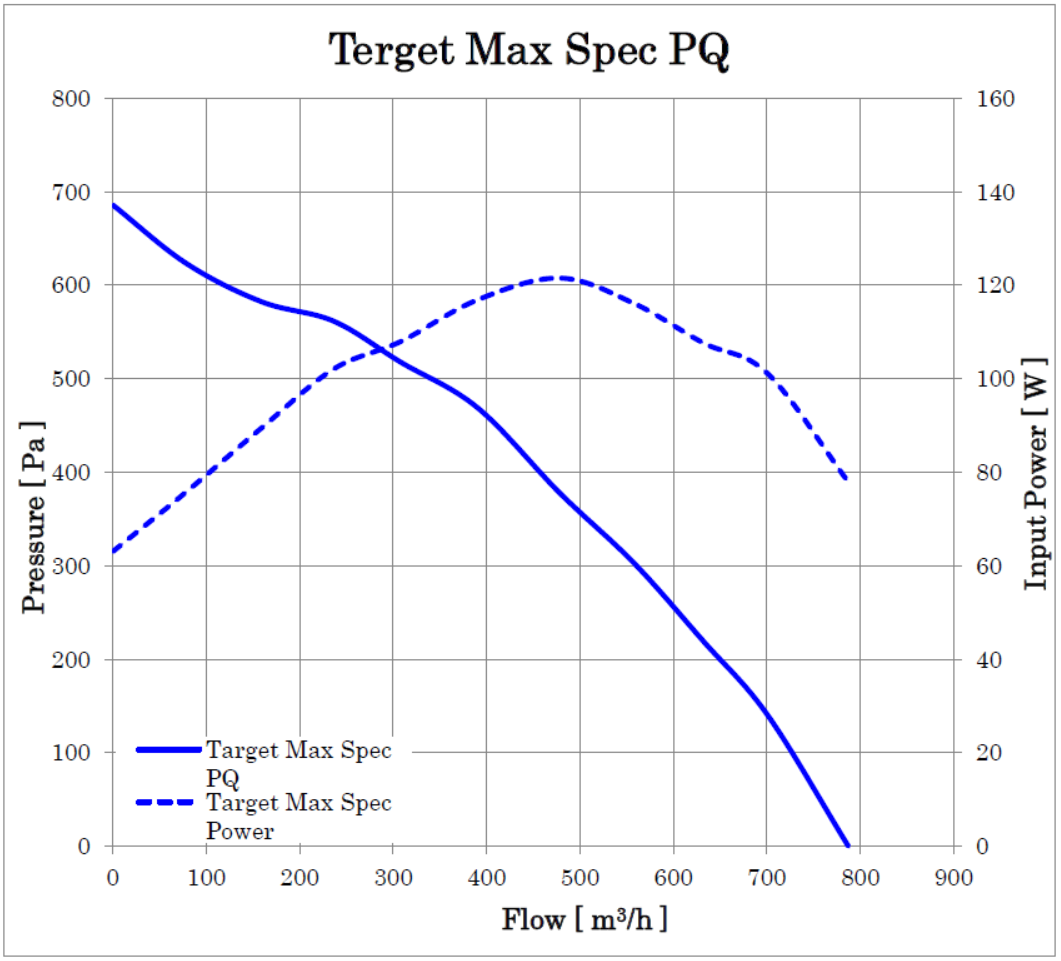


Figure 34: Fan Performance

18 Appendix I – Noise Data

Tested to meet the requirements of "Telcordia GR-487-CORE, Generic Requirements for Electrical Equipment Cabinets. Section 3.34". The noise level must be less than 65dBA at 1.5m from the cabinet.

Test 1 Fans High (4000RPM)

Test No 1 (35 °C /4000 rpm)				
Ambient 44.9 dB A - 46.7 dB A				
	Position from Cabinet			
	1.5 m	2.5 m	3.5 m	4.5 m
Front	62.8 dB A	61.4 dB A	57.9 dB A	56.3 dB A
Front Right	61.7 dB A	56.3 dB A	55.2 dB A	51.9 dB A
Front Left	57.6 dB A	57.2 dB A	56.6 dB A	54.7 dB A
Rear	54.8 dB A	52.6 dB A	49.1 dB A	49.7 dB A
Rear Right	53.3 dB A	52.7 dB A	50.6 dB A	49.7 dB A
Rear Left	54.7 dB A	52.9 dB A	52.3 dB A	49.7 dB A
Left	53.6 dB A	52.1 dB A	49.3 dB A	49.5 dB A
Right	56.9 dB A	55.6 dB A	54.5 dB A	53.7 dB A
Average	56.9 dB A	55.1 dB A	53.2 dB A	51.9 dB A

Test 2 Fans Medium (2400RPM)

Test No 2 (25 °C /2400 rpm)				
Ambient 44.8 dB A - 46.7 dB A				
	Position from Cabinet			
	1.5 m	2.5 m	3.5 m	4.5 m
Front	53.7 dB A	52.7 dB A	50.6 dB A	49.2 dB A
Front Right	51.6 dB A	51.9 dB A	51.6 dB A	50.6 dB A
Front Left	52.6 dB A	50.1 dB A	48.3 dB A	49.2 dB A
Rear	44.5 dB A	42.4 dB A	46.8 dB A	45.6 dB A
Rear Right	49.6 dB A	49.5 dB A	49.3 dB A	48.7 dB A
Rear Left	48.7 dB A	45.8 dB A	46.5 dB A	48.8 dB A
Left	49.2 dB A	47.9 dB A	46.8 dB A	46.7 dB A
Right	46.5 dB A	48.6 dB A	48.4 dB A	47.9 dB A
Average	49.6 dB A	48.6 dB A	48.5 dB A	48.3 dB A

Test 3 Fans Low (800RPM)

Test No 3 (15 °C /800 rpm)				
Ambient 44.9 dB A - 50.2 dB A				
	Position from Cabinet			
	1.5 m	2.5 m	3.5 m	4.5 m
Front	48.2 dB A	47.5 dB A	45.6 dB A	45.4 dB A
Front Right	51.4 dB A	50.2 dB A	50.5 dB A	50.6 dB A
Front Left	50.5 dB A	49.7 dB A	49.9 dB A	49.9 dB A
Rear	49.9 dB A	49.5 dB A	48.8 dB A	49.3 dB A
Rear Right	50.6 dB A	50.4 dB A	50.1 dB A	49.6 dB A
Rear Left	50.9 dB A	50.9 dB A	50.5 dB A	50.4 dB A
Left	47.5 dB A	48.8 dB A	48.8 dB A	48.4 dB A
Right	50.1 dB A	50.2 dB A	49.9 dB A	49.1 dB A
Average	49.9 dB A	49.7 dB A	49.3 dB A	49.1 dB A

Refer to ASD775 and ASD796 for full details of the noise testing.

19 Appendix J – Spare Parts List

Description	Part Number
Swing Handle Lock	B-101078
Europrofile Single Side Lock Ruko 5CA22	B-102424
LH Lock Cam	B-102607
Shoot Bolt Assembly	S-100676
LH Upper Lock Rod	860653229
LH Lower Lock Rod	860653228
RH Lock Cam	C-101436
RH Upper Lock Rod	860653230
RH Lower Lock Rod	860653234
Door Stay	860656195
LH Door Filter	860656194
RH Door Filter	860656197
Fan Controller	B-104485
Fan Cartridge	S-100340
Temp Sensor	B-103707
Door Contact Switch	B-100646
Lifting Bracket	S-100649

For all spare parts enquiries:

Telephone: 01653 602890

Email: MaltonSales@CommScope.com

COMMSCOPE®

www.commscope.com

Visit our Web site or contact your local CommScope representative for more information.