Author's name	Sub-business unit / Group	Issue number
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Business unit		**Telstra ID**
Global Networks & Technology	**Issue date**	AABAQ-744472851-37 CIP0038
	25 February 2025	
Process owner		
Tony Johnston		

Summary

The purpose of this document is to outline Telstra's policy and list Telstra approved components for use in In-Building Coverage (IBC) Distributed Antenna Systems (DAS). Designers must request the latest copy from Telstra before commencing activities on Telstra lead DAS.

Contents

1. Scope

Only main components are listed. No consumables or installation materials are included (e.g. hangers, labels, cable trays etc).

2. Business Rules

A controlled list of usable components has been developed to ensure that Telstra has the capability to manage and support Distributed Antenna Systems (DAS) where it is connecting. Telstra will not be able to support a DAS that is built with items that are not on this list.

Only the listed equipment in this document can be specified in IBC DAS designs. If a decision is made to allow use of additional equipment this document should be updated to reflect this decision before the equipment is deployed.

This document will be updated from time to time in order to capture changes in

- The IBC DAS technology
- To reflect additional approvals
- Removal of obsolete equipment
- To correct any unintended errors; and
- To supply any missing information when it becomes available

Where there is a need for further clarification or additional approvals please refer to the process owner for review of the issue and any necessary updates to the document.

3. Approved Components Requirements

All passive RF components must meet the minimum requirements of the published MCF DAS Design Specifications.

3.1. DAS designed by or on behalf of Telstra

Components must be selected from those listed in Section 4 of this document. Telstra will provide support for systems using these components as they have been tested, approved and have supply agreements or alternative arrangements in place.

Telstra is not able to support DAS that are built with components that are not on this list. Refer to the process owner for review as per Section 2 Business Rules for any additional approvals necessary for designs.

3.2. DAS built by a third party and Telstra is the 'lead operator'

All passive RF components must meet the minimum requirements of the current published MCF DAS Design Specification and must be approved by Telstra as the 'lead operator'.

A DAS built with foreign components will require an audit to determine the components that have been used or proposed in that system. The results of that audit will be compared with the DAS approved items list identified in Section 4 of this document.

Any item without an equivalent on the list may not be supportable and may need to be exchanged or have alternative arrangements put in place. If components are being exchanged in a foreign system, then it shall be confirmed that the DAS performance meets MCF DAS Design Specifications after the exchange.

All active DAS hardware must be Telstra approved and be covered by a Product Supply Agreement or have alternative support arrangements in place. Approved active systems are identified in Section 4 of this document.

Refer to the process owner for review as per Section 2 Business Rules for any additional approvals necessary for designs.

3.1. DAS is shared with other mobile operators, but Telstra is not the 'lead operator'

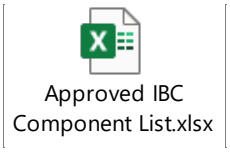
All passive RF components must meet the minimum requirements of the current published MCF DAS Design Specification and must be approved by the 'lead operator' of the DAS.

All active DAS hardware must have been assessed by Telstra for compliance with Telstra technical standards and must be approved by the ‘lead operator’ of the DAS. It is not necessary that the equipment be covered by any Telstra Product Supply Agreements. Approved active systems are listed in Section 4 of this document.

Refer to the process owner for review as per Section 2 Business Rules for any additional approvals necessary for designs.

4. Approved Components

The following approved components have been tested for compliance with Telstra's requirements. They are covered by Product Supply Agreements (PSA) or have an alternative arrangement implemented.



Components are marked with their status for usage in Telstra lead DAS.

Current	Approved hardware
Replaced	Approved hardware that may be used, but has been superseded by a preferred compo
Legacy	Not the current approved hardware but may be left in service.
Replace	No longer part of the approved RF design and should be replaced if faulty
Special	Approved hardware, by special order with Supplier

4.1. CommScope to Andrew Rebrand

Parts listed with CommScope as the manufacturer will soon be supplied by Andrew due to the purchase of the Outdoor Wireless Networks & DAS business units by Amphenol. Products listed as CommScope manufacturer in this document with the same part number can be supplied by Andrew. Over time this document will be updated to show Andrew as the manufacturer, with historical allowances for CommScope branded parts.

4.2. Radiating Cables

Radiating cables are available from Telstra's preferred Suppliers. Cable types are to be selected and designed on a site-by-site basis in consultation with Telstra and the Supplier.

4.3. Lens Antennas

Lens antennas are available from Telstra's preferred Suppliers. Antenna types and configurations are to be selected and designed on a site-by-site basis in consultation with Telstra and the Supplier.

4.4. Coaxial Cables and Connectors

1) Only corrugated coaxial cables should be used for structured cabling of In-Building Systems.
2) Extensive testing by Telstra has shown that the following structured cable and connector combinations give the best PIM performance. They are the only combinations approved by Telstra for IBC projects.
    a) RFS cables with RFS connectors from the approved list (7-16 and 4.3-10)
    b) RFS Cables with JMA connectors from the approved list (7-16 and 4.3-10)
    c) Legacy/pre-existing Commscope cables with JMA connectors from the approved list (7-16 and 4.3-10)
    d) Legacy/ pre-existing Huber and Suhner cables with JMA connectors from the approved list (7-16 and 4.3-10)
3) Only approved connectors listed in Section Approved Components may be used.
4) JMA CXP type connectors are approved for **IBC DAS Indoor Usage Only**. This connector type is not suitable for areas at risk of water ingress or dynamic mechanical loading (i.e outdoor areas).
5) JMA UXP type connectors are approved for **Indoor and Outdoor Usage.**
6) Please note that N type connectors are no longer supported by Telstra in IBC projects. 4.3-10 connectors are the preferred alternative.
7) Where equipment is supplied with N connectors, the connecting jumper cable shall be fitted with an approved N connector (field-fitted JMA or factory fitted no longer than 5m) on one end and 7-16 or 4.3-10 on the other.
8) Only factory fitted tail types or alternative lengths of the same variant listed in Section 4 Approved Components may be used.
9) Only approved structured cables listed in Section 4 Approved Components may be used in DAS designed by or on behalf of Telstra.

4.4.1. Custom Tails

Supply of custom tails is available through Rojone Pty Ltd for short lead time and site-specific applications. Specific cable types, connector series, termination type and accessory code are approved by Telstra and may be ordered as per the Rojone Cable Assembly Catalogue in custom lengths.

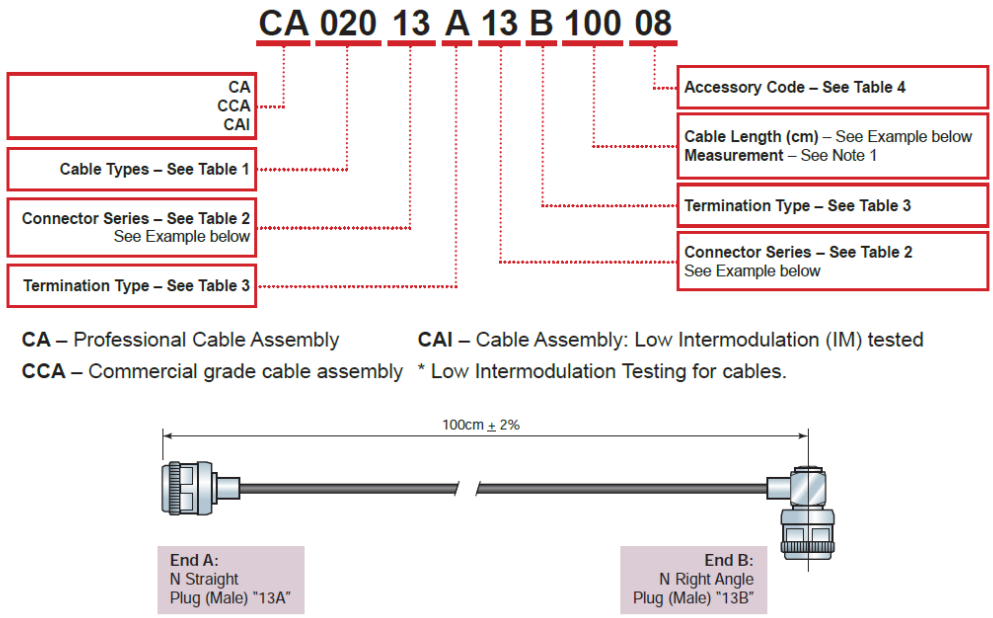


Figure 1: Rojone Cable Assembly

Approved codes are as per the following table:

Tail Assembly	Cable Types	Connector Series	Termination Type	Tail Length	Accessory Code

CAI – Low Intermodulation (IM) tested	021 – RG223 110 – SCF14-50J 111 – SCF14-50JFN 120 – SCF38-50J 140 – SCF12-50J 141 – SCF12-50JN 240 – LCF12-50J 241 – LCF12-50JFN 036F – FSJ1-50/SF14-50J 036L – LDF1-50 037F – FSJ4-50B/SCF12-50 037L – LDF4-50/LCF12-50J	18 – SMA 46 – QMA 30 – DIN 7/16 45 – 4.3-10 NEX10	A – Crimp straight male plug B – Crimp right angle male plug C – Crimp straight female jack D – Crimp right angle female jack	Any length	08 - Glue Heatshrink for Excellent Strain relief and twist tolerance

Note 1: RG223, SMA and QMA components only approved for low power interconnect into DAS head ends.

Note 2: Tails for micro radios with NEX10 connectors must use ¼ inch cable.

4.5. Active Components

The listed components have been tested for compliance with Telstra's technical requirements and are supported by Telstra as lead carrier or when Telstra is not the lead carrier as per the status below.

Manufacturer	Solution	Description	Status
Commscope	ION-B		Legacy
Commscope	ION-M	High power, multi-band, multi-technology, multi-Operator optical RF distribution system supporting 700, 850, 900, 1800, 2100, 2300 and 2600 MHz bands. Tested and approved for Telstra's 700, 850, 900, 1800, 2100 and 2600 MHz bands only.	Replaced
Andrew (formerly Commscope)	ERA	High power, multi-band, multi-technology, multi-Operator optical RF distribution system supporting 700, 850, 900, 1800, 2100, 2300, 2600, 3400-3800MHz bands. Tested and approved for Telstra's 700, 850, 900, 1800, 2100, 2600, 3400-3800MHz bands only on CAP-H. Only software V5.50 will be supported for Greenfield DAS. Manual channel configuration is required for all bands to work around known issue with ERA's lack of automatic NR channel scanning and compatibility with source radio MIMO sleep features.	Current
Ericsson	Radio Dot System	The Ericsson Radio Dot System (RDS) is a high-performance Digital DAS solution. Only the following RDS parts are approved for usage: • **IRU 8846:** RD 4479 B78L • **IRU 8848:** Dot 4453 B3 B7 B78K Legacy RDS parts: • **IRU 2242**: RD 4442 B3+B7 or RD 4442 B1+B7	Current
Mavenir	Crossfire	Multi-band, multi-technology, multi-Operator optical RF distribution system supporting 1800, 2100, 3600 MHz bands. Tested and approved for Telstra's 1800, 2100 and 3600MHz bands on the A3+E3-O+N3RU (integrated antenna variant). Mavenir Crossfire v1.4 software for A3+E3-O+N3RU to be used with Mavenir Crossfire hardware.	Current

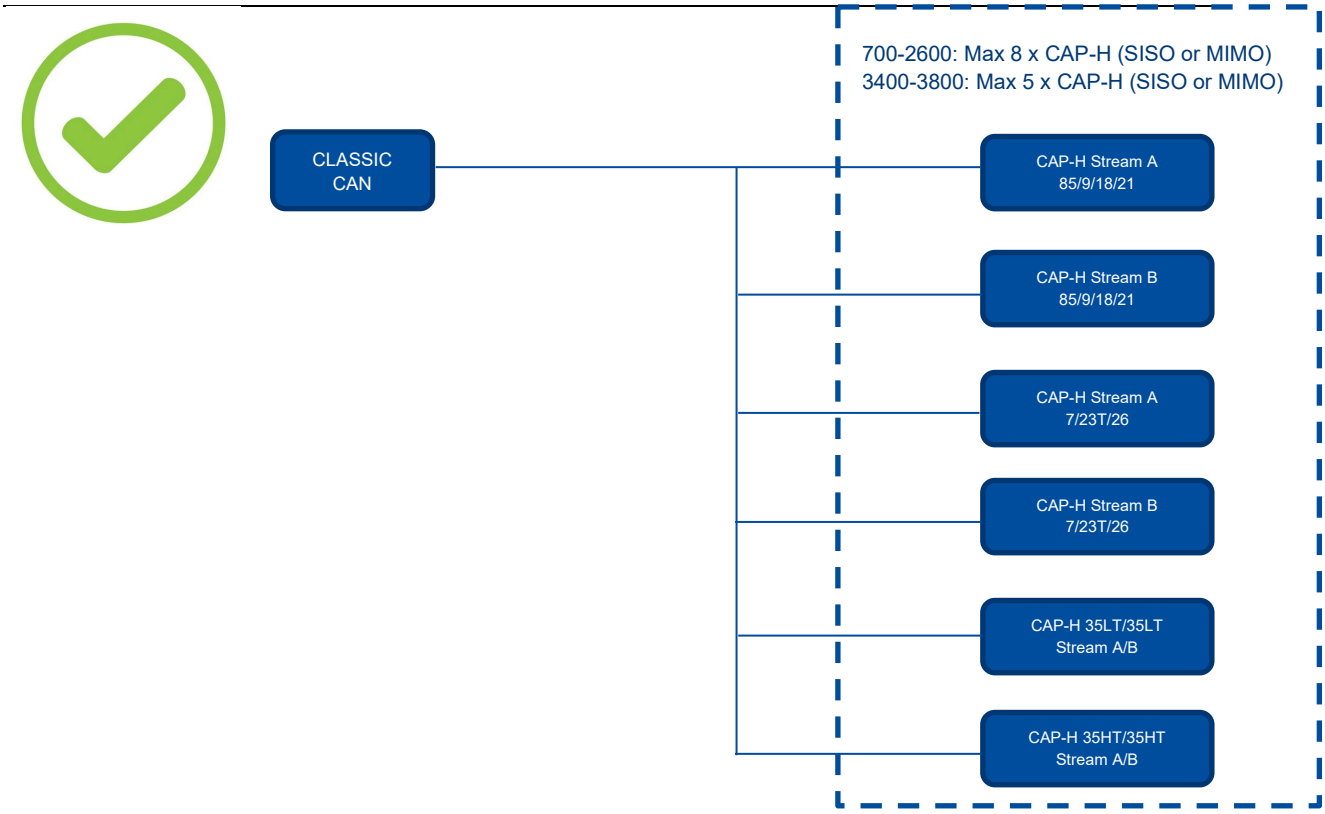
Mavenir	Crossfire	Tested and approved for Telstra's 700, 850, 900, 1800, 2100 and 2600 MHz bands only on the HPRU+AU. Mavenir Crossfire v3.2 software for HPRU+AU to be supplied with new Mavenir Crossfire supplied hardware. Greenfields and augmentations to supply through Mavenir.	Legacy
Sunwave	Crossfire	Mavenir Crossfire v3.2 software for HPRU+AU to be used for new builds of ex-Sunwave supplied hardware	Legacy

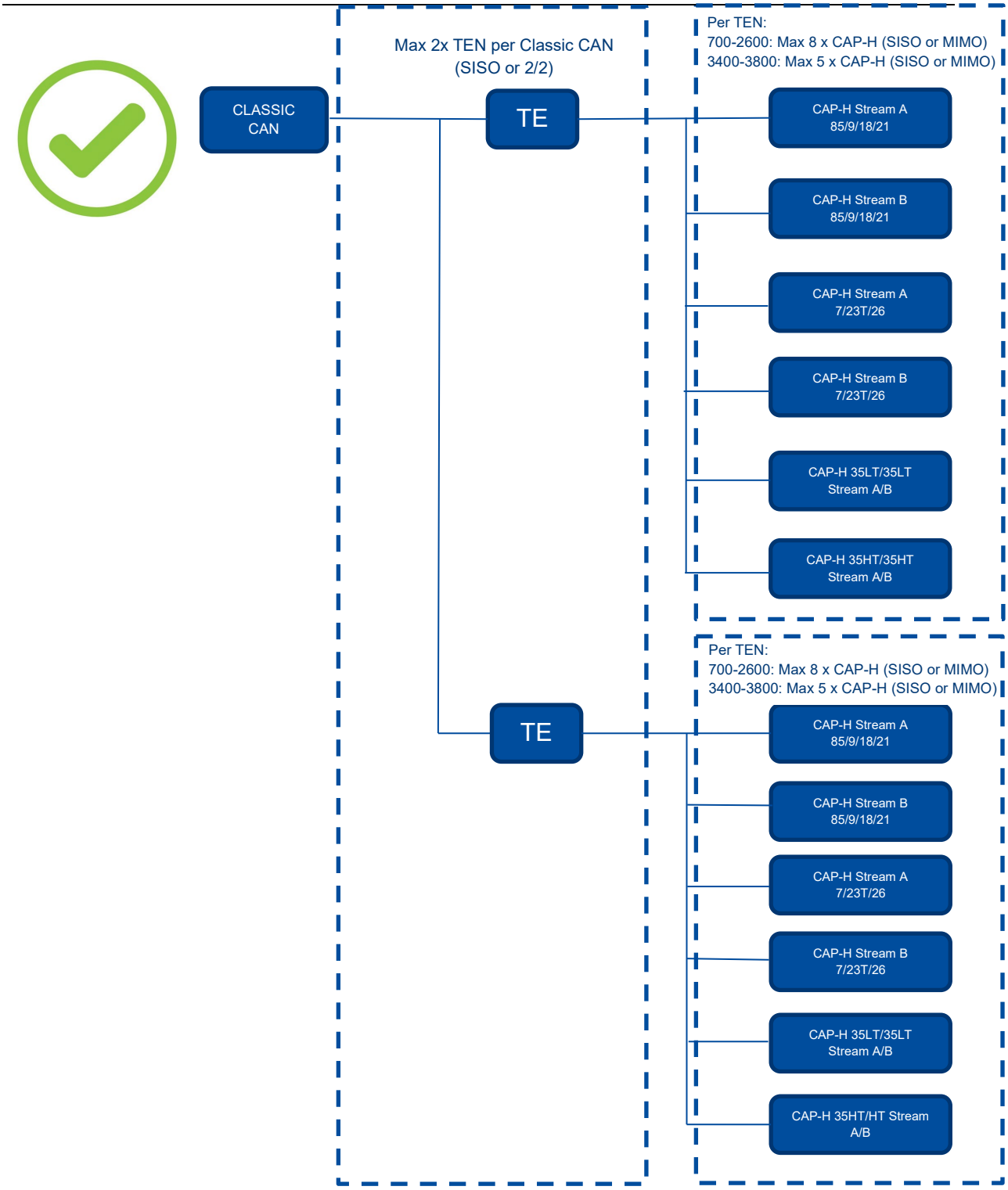
4.5.1. Telstra Supported ERA CAP-H Configurations

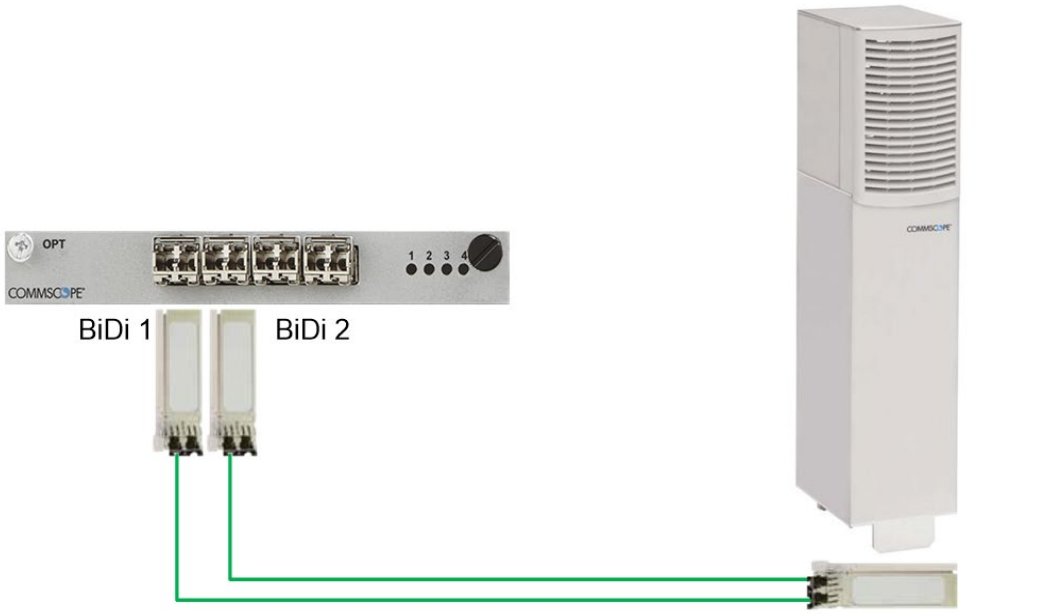
Telstra will only support the Commscope ERA CAP-H solution with the following conditions:

- Only the CLASSIC CAN, TEN and CAP-H building blocks may be deployed
- Telstra doesn't currently support WIN and SWITCHING CAN building blocks
- RFD input pre-combining is not supported for greenfield sites
- Maximum of 8 x CAP-H sets per signal source sector under the following conditions
    - Uplink Gain Offset parameter in ERA S/W should be adjusted sufficiently to achieve <5 dB noise rise to Carrier radio interfacing with ERA RFD card
    - UE signal power to Carrier radio > -87 dBm
- Rojone CAI-021<Radio Connector><Radio Termination>46A<Length>-08 to interface 4.3-10 cables to RFD input
- The new WCS-4 DC (7844068-02) and WCS-2 DC (7844067-02) with integrated DCDC converter approved and will operate on SW version 5.50 or higher.
- Single Mode fibre and SFPs only.
- 3400-3800 MHz band is approved.
- For 3400 – 3800 MHz a CSFP+ kit (A7846858) is required from CommScope. This will provide two fibre links from two CAN/TEN OPT ports, to a single SFP on the CAP-H LT/HT. For maximum flexibility ensure 2 fibres per CAP H 35LT/35LT or 35HT/35HT radio is provisioned. Where Telstra is nominated as lead, consult with Telstra PM for head end rack layouts.
- Kerem KT-PDP-A100 must be used
    - Where dual power planes are available, interleave planes between devices Where single plane power is available, a single plane kit is available from Kerem to service more than 8 x devices from PDP.

The basic supported building blocks are summarised in the following figures and detailed in Appendix 5.1. No other combinations are currently supported by Telstra.


700-2600: Max 8 x CAP-H (SISO or MIMO)
3400-3800: Max 5 x CAP-H (SISO or MIMO)
CLASSIC CAN
CAP-H Stream A 85/9/18/21
CAP-H Stream B 85/9/18/21
CAP-H Stream A 7/23T/26
CAP-H Stream B 7/23T/26
CAP-H 35LT/35LT Stream A/B
CAP-H 35HT/35HT Stream A/B


Max 2x TEN per Classic CAN
(SISO or 2/2)
CLASSIC CAN
TE
TE
Per TEN:
700-2600: Max 8 x CAP-H (SISO or MIMO)
3400-3800: Max 5 x CAP-H (SISO or MIMO)
CAP-H Stream A 85/9/18/21
CAP-H Stream B 85/9/18/21
CAP-H Stream A 7/23T/26
CAP-H Stream B 7/23T/26
CAP-H 35LT/35LT Stream A/B
CAP-H 35HT/35HT Stream A/B
Per TEN:
700-2600: Max 8 x CAP-H (SISO or MIMO)
3400-3800: Max 5 x CAP-H (SISO or MIMO)
CAP-H Stream A 85/9/18/21
CAP-H Stream B 85/9/18/21
CAP-H Stream A 7/23T/26
CAP-H Stream B 7/23T/26
CAP-H 35LT/35LT Stream A/B
CAP-H 35HT/HT Stream A/B



CSFP+ for Dual link

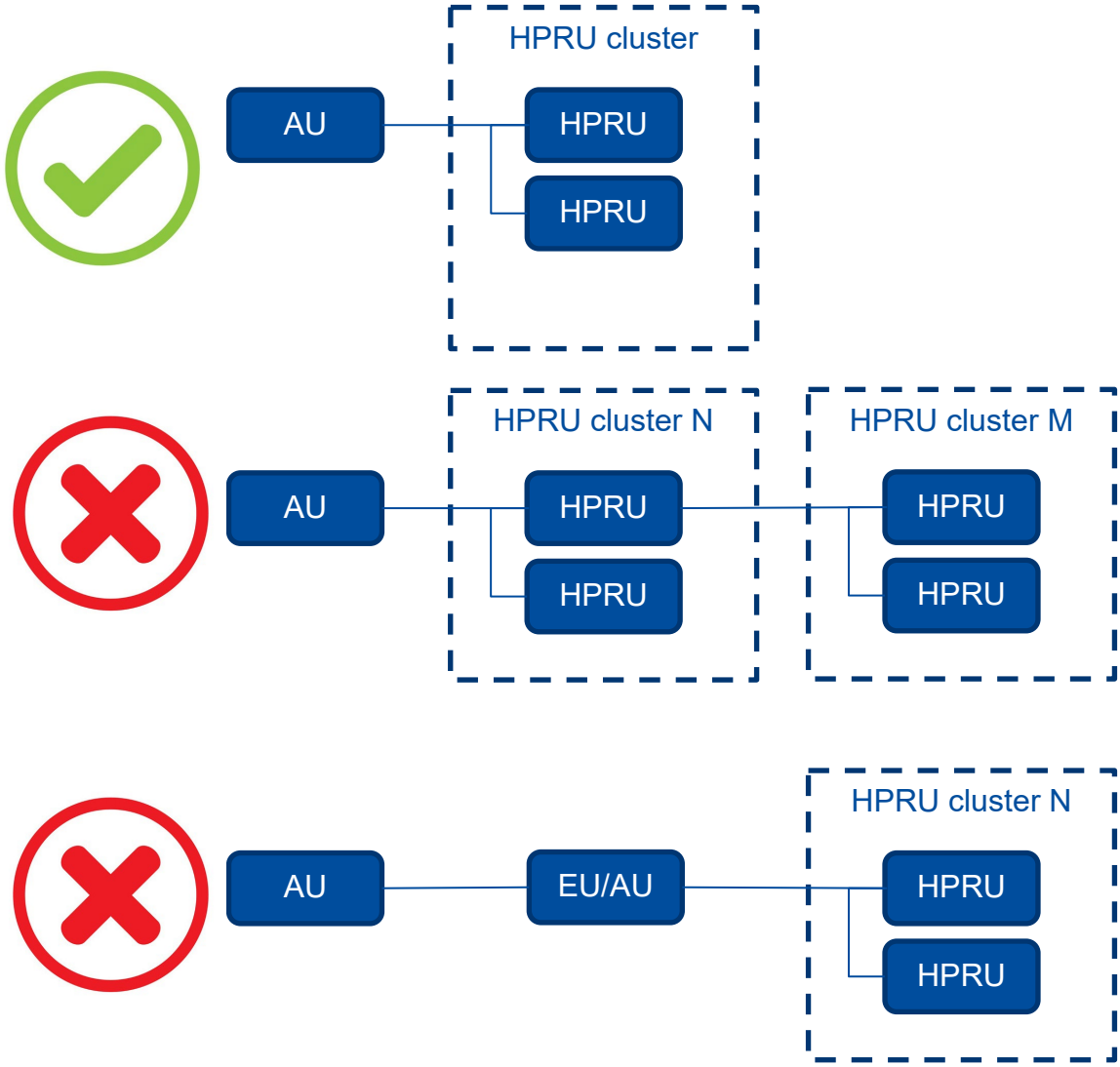
(LEGACY, For Reference Only) Telstra Supported Mavenir Crossfire AU+HPRU Configurations

Telstra will only support the Mavenir Crossfire AU+HPRU solution with the following conditions:

- 1 x AU can serve up to 6 x HPRU clusters simulcast from a single Sector using OP 1-6
- Only HPRUs in the same cluster associated with same AU may be daisy chained
- Daisy chaining of HPRU associated with a different cluster or different AU is not supported
- Daisy chaining of Slave AUs and EUs is not supported
- It is recommended to use dedicated duplex/simplex fibre & SFPs from AU (OP1-6) to RU
- Single Mode fibre and SFPs only
- Where Telstra is nominated as lead, consult with Telstra PM for head end rack layouts
- Kerem KT-PDP-A100 must be used

- Where dual power planes are available, interleave planes between devices
- Where single plane power is available, a single plane kit is available from Kerem to service more than 8 x devices from PDP

The basic supported building blocks are summarised in the following figures and detailed in Appendix 5.2



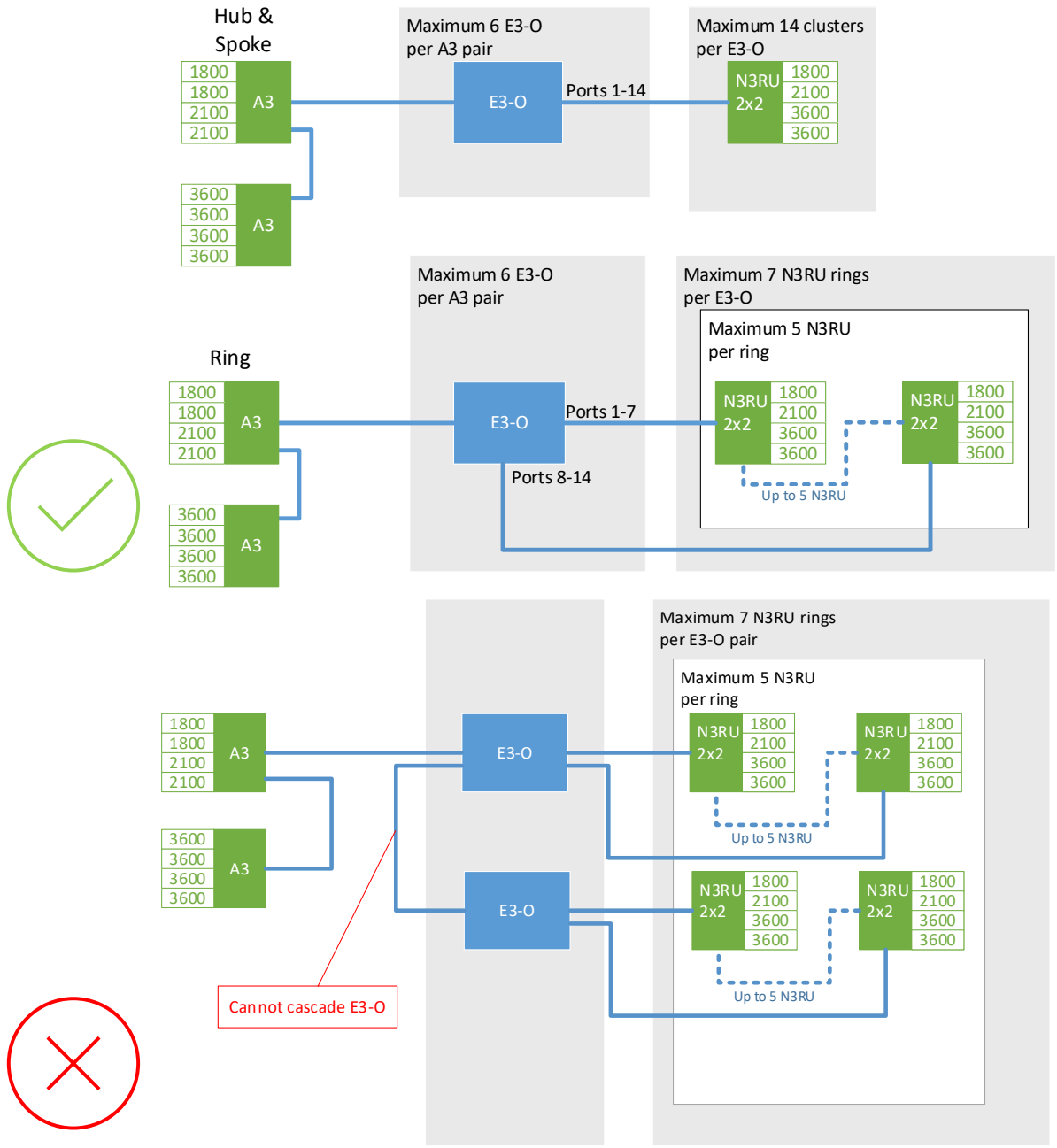
4.5.2. Telstra Supported Mavenir Crossfire A3+E3+N3RU Configurations

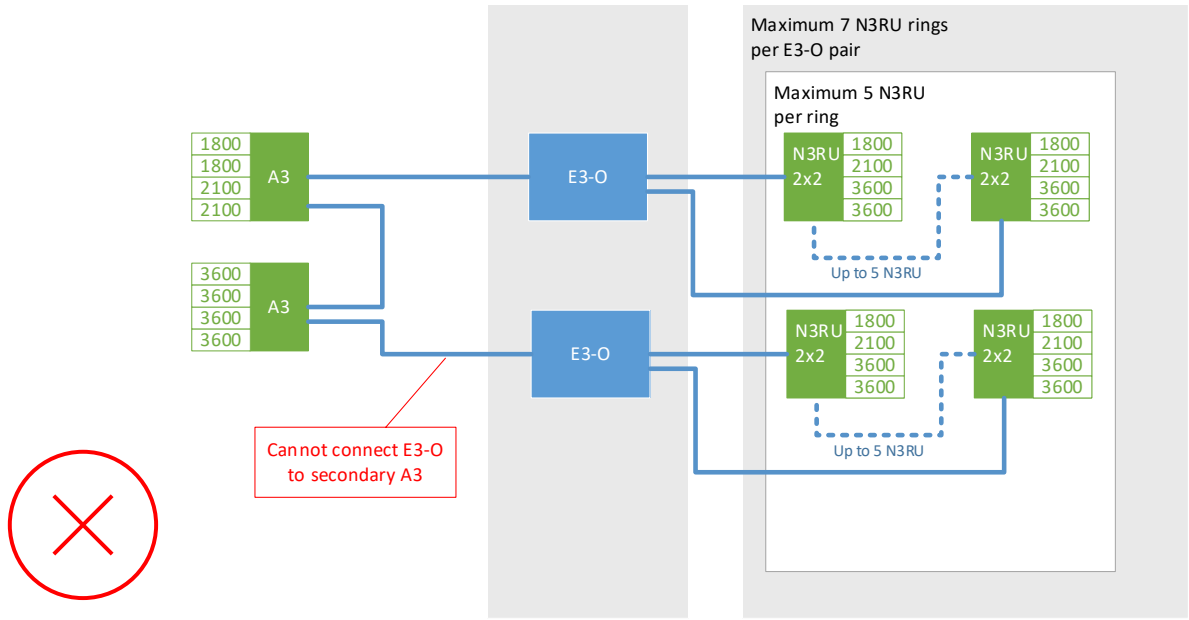
Telstra will only support the Mavenir Crossfire A3+E3-O+N3RU solution with the following conditions:

- **A3+E3-O+N3RU solution must comply with CIP0038a01 Mavenir N3RU Design Guidelines which provides additional detail on approved architectures and design rules.**

- 1 pair of A3 units can serve up to 90 x N3RU units simulcast from a single sector using OP 1-6
- Up to 6 E3-O units can be connected per A3 pair
- Either a ring or hub & spoke architecture can be used
    - Up to 5 N3RU units can be cascaded in a ring
    - Up to 7 N3RU rings can be connected per E3-O unit in a ring architecture
    - Up to 14 N3RU units can be connected to an E3-O in a hub & spoke architecture
- No direct connection from N3RU to A3 pair
- Daisy chaining of E3-O units is not supported
- Single Mode fibre and SFPs only
- Where Telstra is nominated as lead, consult with Telstra PM for head end rack layouts
- Kerem KT-PDP-A100 must be used
    - Where dual power planes are available, interleave planes between devices
    - Where single plane power is available, a single plane kit is available from Kerem to service more than 8 x devices from PDP

The basic supported building blocks are summarised in the following figures:




Maximum 7 N3RU rings
per E3-O pair
Maximum 5 N3RU
per ring
1800
1800
2100
2100
A3
3600
3600
3600
3600
A3
E3-O
E3-O
N3RU
2x2
1800
2100
3600
3600
Up to 5 N3RU
Cannot connect E3-O
to secondary A3

4.6. Approved Components Not Covered

The listed components have been tested for compliance with Telstra's technical requirements but are NOT covered by any Telstra Product Supply Agreements, nor alternative arrangements.

These are approved for use in cases where Telstra is not the sponsor of an IBC project, is not the lead carrier and the lead carrier has approved usage of these components.

Manufacturer	Solution	Description	Status
BTI (Bravotech)	msBSC-C	Multi-band, multi-technology, multi-Operator optical RF distribution system. Tested and approved for Telstra's 850, 900, 1800, and 2100 MHz bands only.	Legacy
Huawei	SingleDAS	Medium power, multi-band, multi-technology, multi-Operator optical RF distribution system. Tested and approved for Telstra's 850, 900, 1800 and 2100 bands only.	Replace
Zinwave	3000	Low power broadband.	Replace

5. Appendix

5.1. Telstra Supported ERA Classic CAN Configurations

5.1.1. SISO

1 x SISO Segment -RFD Card Port Assignments

2 + Sector, 7 Band SISO 700-2600MHz						
CAN 01	Sector 1 & 2	RFD R8 - HB	O2300-S1	O2300-S2	O2600-S1	O2600-S2
		RFD R7	O1800-S1	O1800-S2	O2100-S1	O2100-S2
		RFD R6	O700-S1	O700-S2	O900-S1	O900-S2
		RFD R5	TPG1800-S1	TPG1800-S2	TPG2100-S1	TPG2100-S2
		RFD R4	TPG700-S1	TPG700-S2	TPG850-S1	TPG850-S2
		RFD R3	T2600-S1	T2600-S2		
		RFD R2	T1800-S1	T1800-S2	T2100-S1	T2100-S2
		RFD R1	T700-S1	T700-S2	T850-S1	T850-S2

1 x SISO Segment -RFD Card Port Assignments

1 Sector, 8 Band SISO 700-3500MHz						
CAN 1	Sector 1	RFD R8				
		RFD R7				
		RFD R6- HB	TPG3500			
		RFD R5	TPG700	TPG850	TPG1800	TPG2100
		RFD R4- HB	O3500	O2600	O2300	
		RFD R3	O700	O900	O1800	O2100
		RFD R2- HB	T3500	T2600	T3700	
		RFD R1	T700	T850	T1800	T2100

1 x SISO Segment -RFD Card Port Assignments

4 Sector, 8 Band SISO 700-3500MHz						
CAN 1	Sector 1 & 2	**RFD R8 - HB**	O2300-S1	O2300-S2	O2600-S1	O2600-S2
		RFD R7	O1800-S1	O1800-S2	O2100-S1	O2100-S2
		RFD R6	O700-S1	O700-S2	O900-S1	O900-S2
		RFD R5	TPG1800-S1	TPG1800-S2	TPG2100-S1	TPG2100-S2
		RFD R4	TPG700-S1	TPG700-S2	TPG850-S1	TPG850-S2
		RFD R3	T2600-S1	T2600-S2		
		RFD R2	T1800-S1	T1800-S2	T2100-S1	T2100-S2
		RFD R1	T700-S1	T700-S2	T850-S1	T850-S2

CAN 2	Sector 3 & 4	**RFD R8 - HB**	O2300-S3	O2300-S4	O2600-S3	O2600-S4
		RFD R7	O1800-S3	O1800-S4	O2100-S3	O2100-S4
		RFD R6	O700-S3	O700-S4	O900-S3	O900-S4
		RFD R5	TPG1800-S3	TPG1800-S4	TPG2100-S3	TPG2100-S4
		RFD R4	TPG700-S3	TPG700-S4	TPG850-S3	TPG850-S4
		RFD R3	T2600-S3	T2600-S4		
		RFD R2	T1800-S3	T1800-S4	T2100-S3	T2100-S4
		RFD R1	T700-S3	T700-S4	T850-S3	T850-S4

CAN 3	Sector 1, 2, 3 & 4	**RFD R8**				
		RFD R7-HB	TPG3500-S3A	TPG3500-S4A		
		RFD R6- HB	O3500-S3A	O3500-S4A		
		RFD R5- HB	T3500-S3A	T3500-S4A	T3700-S3A	T3700-S4A
		RFD R4				
		RFD R3- HB	TPG3500-S1A	TPG3500-S2A		
		RFD R2- HB	O3500-S1A	O3500-S2A		
		RFD R1- HB	T3500-S1A	T3500-S2A	T3700-S1A	T3700-S2A

5.1.2. MIMO

1 x MIMO Segment - RFD Card Port Assignments

1 Sector, 7 Band MIMO 700-2600MHz						
CAN 1	Sector 1	RFD R8 - HB	O2300-S1A	O2300-S1B	O2600-S1A	O2600-S1B
		RFD R7	O1800-S1A	O1800-S1B	O2100-S1A	O2100-S1B
		RFD R6	O700-S1A	O700-S1B	O900-S1A	O900-S1B
		RFD R5	TPG1800-S1A	TPG1800-S1B	TPG2100-S1A	TPG2100-S1B
		RFD R4	TPG700-S1A	TPG700-S1B	TPG850-S1A	TPG850-S1B
		RFD R3	T2600-S1A	T2600-S1B		
		RFD R2	T1800-S1A	T1800-S1B	T2100-S1A	T2100-S1B
		RFD R1	T700-S1A	T700-S1B	T850-S1A	T850-S1B

1 x MIMO Segment - 18/21/35 RFD Card Port Assignments

1 Sector, 3 Band MIMO 1800, 2100, 3500MHz						
CAN 1	Sector 1	RFD R8				
		RFD R7				
		RFD R6 - HB	TPG3500-S1A	TPG3500-S1B		
		RFD R5	TPG1800-S1A	TPG1800-S1B	TPG2100-S1A	TPG2100-S1B
		RFD R4 - HB	O3500-S1A	O3500-S1B		
		RFD R3	O1800-S1A	O1800-S1B	O2100-S1A	O2100-S1B
		RFD R2 - HB	T3500-S1A	T3500-S1B	T3700-S1A	T3700-S1B
		RFD R1	T1800-S1A	T1800-S1B	T2100-S1A	T2100-S1B

1 x MIMO Segment - RFD Card Port Assignments

2 Sector, 8 Band MIMO 700-3500MHz						
CAN 1	Sector 1	**RFD R8 - HB**	O2300-S1A	O2300-S1B	O2600-S1A	O2600-S1B
		RFD R7	O1800-S1A	O1800-S1B	O2100-S1A	O2100-S1B
		RFD R6	O700-S1A	O700-S1B	O900-S1A	O900-S1B
		RFD R5	TPG1800-S1A	TPG1800-S1B	TPG2100-S1A	TPG2100-S1B
		RFD R4	TPG700-S1A	TPG700-S1B	TPG850-S1A	TPG850-S1B
		RFD R3	T2600-S1A	T2600-S1B		
		RFD R2	T1800-S1A	T1800-S1B	T2100-S1A	T2100-S1B
		RFD R1	T700-S1A	T700-S1B	T850-S1A	T850-S1B

CAN 2	Sector 2	**RFD R8 - HB**	O2300-S2A	O2300-S2B	O2600-S2A	O2600-S2B
		RFD R7	O1800-S2A	O1800-S2B	O2100-S2A	O2100-S2B
		RFD R6	O700-S2A	O700-S2B	O900-S2A	O900-S2B
		RFD R5	TPG1800-S2A	TPG1800-S2B	TPG2100-S2A	TPG2100-S2B
		RFD R4	TPG700-S2A	TPG700-S2B	TPG850-S2A	TPG850-S2B
		RFD R3	T2600-S2A	T2600-S2B		
		RFD R2	T1800-S2A	T1800-S2B	T2100-S2A	T2100-S2B
		RFD R1	T700-S2A	T700-S2B	T850-S2A	T850-S2B

CAN 3	Sector 1 & 2	**RFD R8**				
		RFD R7 - HB	TPG3500-S2A	TPG3500-S2B		
		RFD R6 - HB	O3500-S2A	O3500-S2B		
		RFD R5 - HB	T3500-S2A	T3500-S2B	T3700-S2A	T3700-S2B
		RFD R4				
		RFD R3 - HB	TPG3500-S1A	TPG3500-S1B		
		RFD R2 - HB	O3500-S1A	O3500-S1B		
		RFD R1 - HB	T3500-S1A	T3500-S1B	T3700-S1A	T3700-S1B

5.2. (LEGACY, For Reference only) Telstra Supported Mavenir Crossfire HPRU Configurations

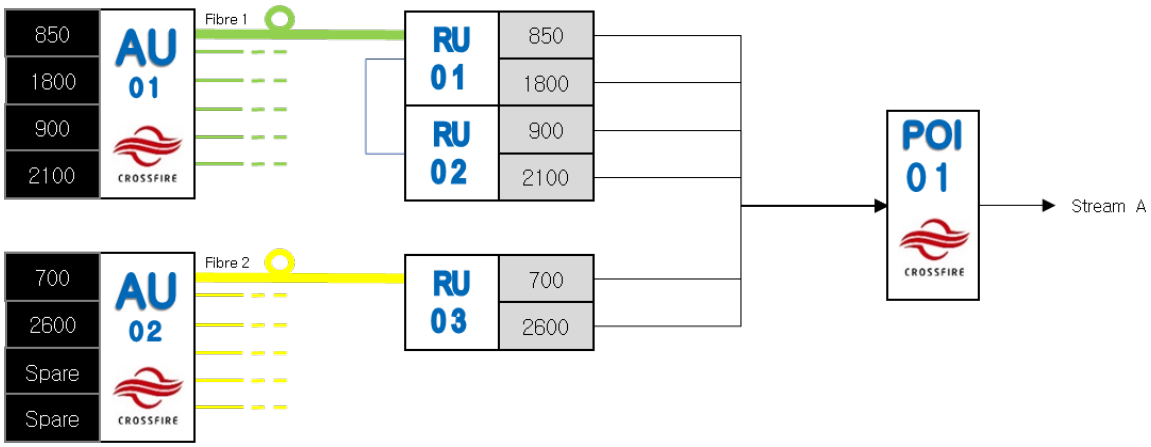


Figure 2: Crossfire High Power - 6 Band SISO

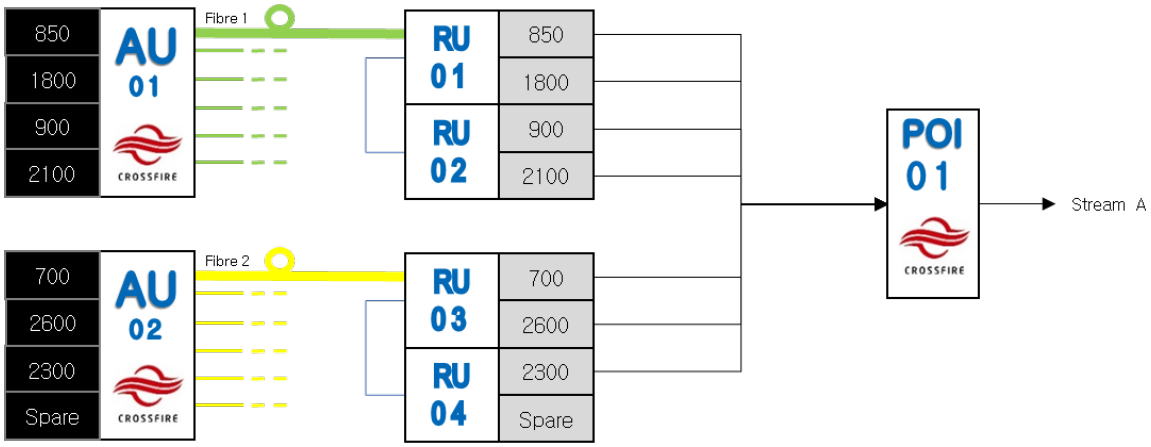


Figure 3:Crossfire High Power - 7 Band SISO

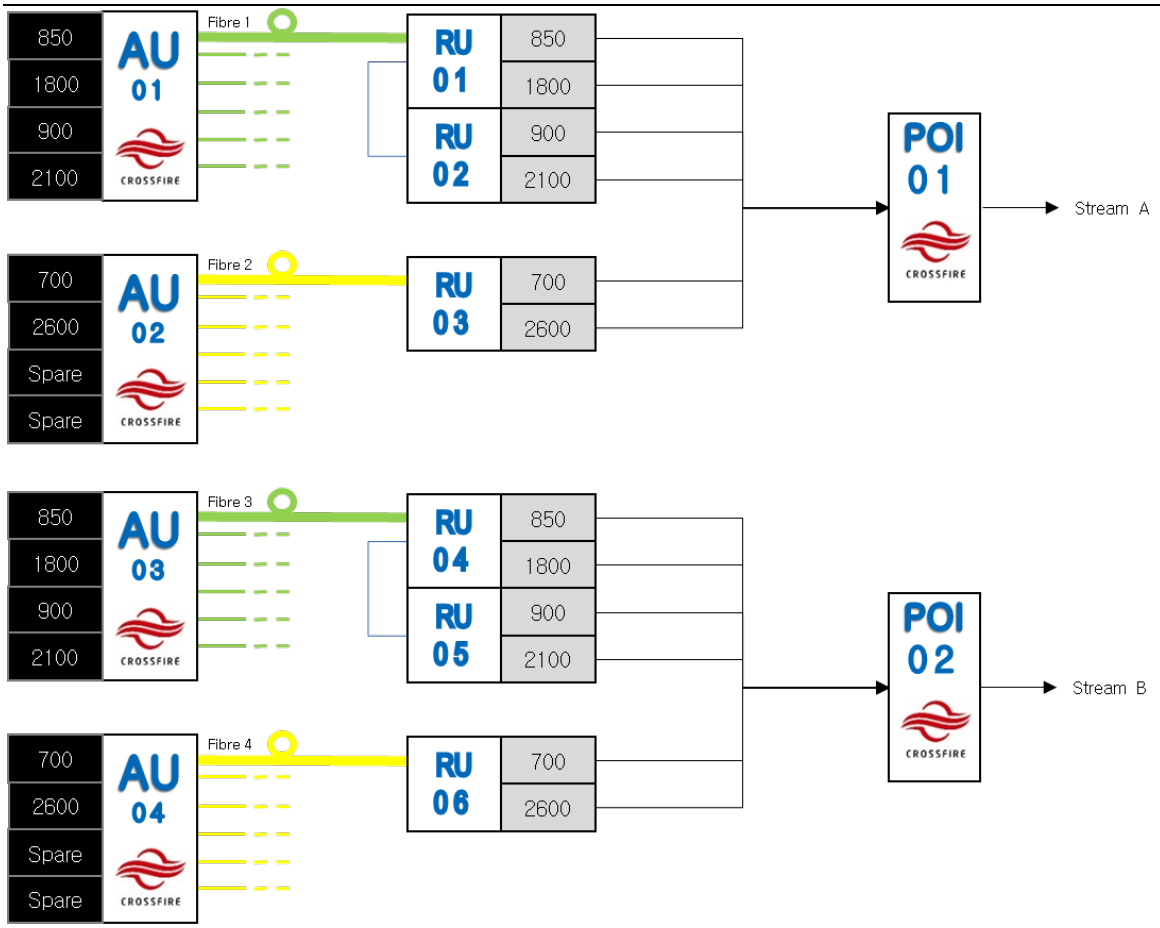


Figure 4: Crossfire High Power - 6 Band MIMO

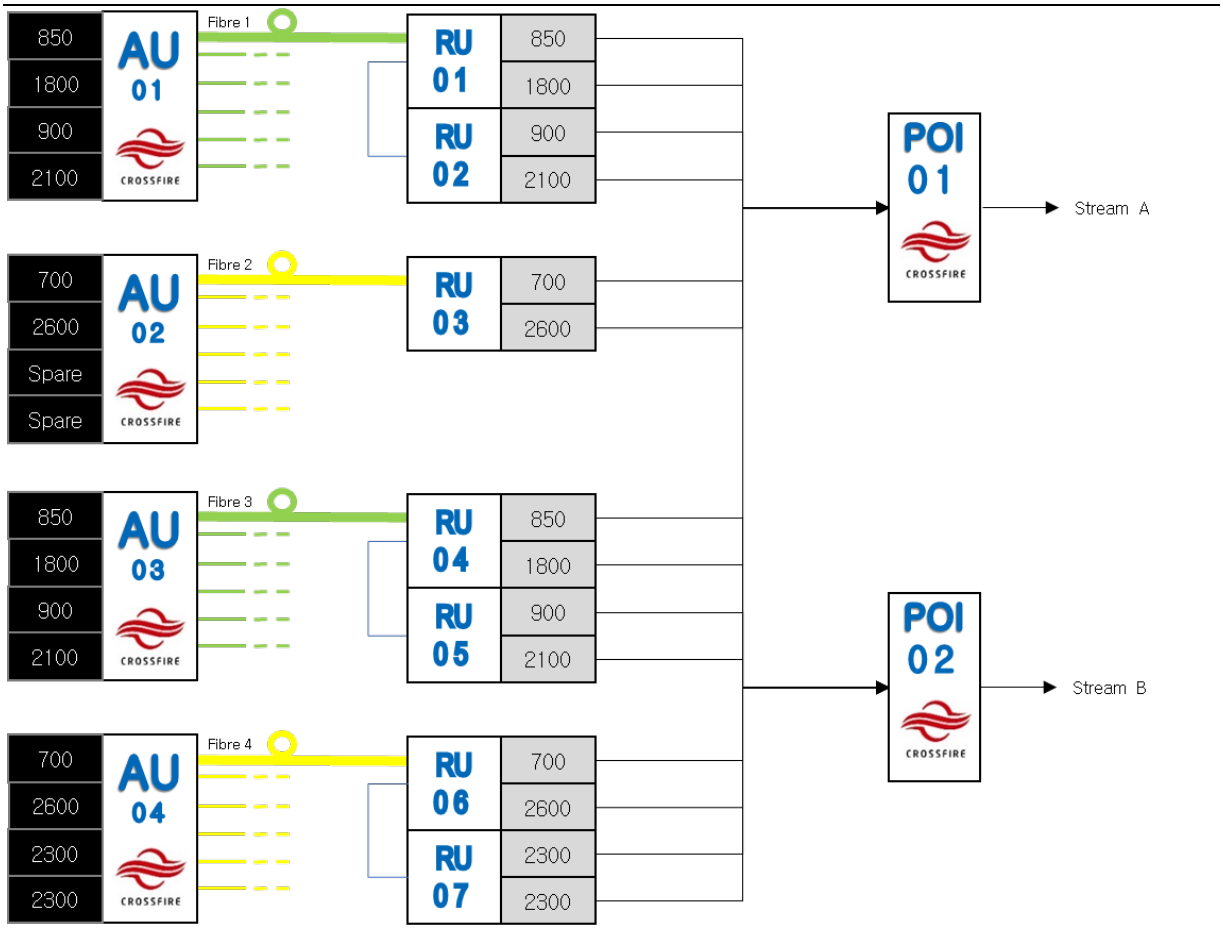


Figure 5: Crossfire High Power - 7 Band MIMO

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6. References

Document number	Title
N/A	MCF DAS Design Specifications
CIP0038a01	Mavenir N3RU Design Guidelines
CIP0038a02	N3RU Cascade Power Calculator
CIP0038a03	A3-E3-N3RU Mapping Template

7. Definitions

Term	Definition
IBC	In-building coverage
DAS	Distributed antenna system
ICS	Interference cancelling system
MCF	Mobile Carriers Forum
PIM	Passive intermodulation
RF	Radio frequency

8. Document control sheet

Who to reach out to if you have any queries, questions, changes or concerns?

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Position	Senior Network Engineer
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If you have a suggestion for improving this document, please contact the person listed above.

Issue number	Issue date	Details on the change
1	09/10/2008	Initial Release
2	12/12/2008	Add Andrew WXL-5-50 Cable and Connectors
3	18/12/2008	Add Andrew PSA Components (4830000204)
4	25/03/2009	Add Enersus Passive Components
5	04/08/2009	Add RFI Yagi YB815-81 for 3G850
6	10/09/2009	Add Outdoor Enersus Panels
6a	13/11/2009	Add MR8518D
6b	18/11/2009	Add Jaybeam 7478000 Log Periodic Antenna
6c	19/11/2009	Add Rojone AI-460-D-NF
6d	24/11/2009	Add Andrew Node-G938
6e	05/01/2010	Add RFI YB806-94 for GSM
6f	06/01/2010	Add Andrew ION-M 85P/18P/21P
6g	16/08/2010	Add Argus CNPA303U
6h	11/03/2011	Replace the CY076F1V triplexer with the newer version TBC0076F5V
7a	14/03/2011	Replace 800-2500MHz Rojone components with LTE Compatible 700-2700MHz components
8a	23/04/2013	Update of CommScope (Andrew) components. Add a new section on superseded components so that the history of updates is kept.
9	17/07/2013	Added Andrew DM-30 and DM-60 MIMO panel antennas
10	04/06/2014	Added Section 7 – Approved Components without a PSA Updates roles and responsibilities
11	15/07/2015	Updates to Approved Components List(definitions)
12	08/02/2016	Huawei SingleDAS and Zinwave added to Section 6
13	09/02/2016	Update to 4.2 noting that Telstra must approve components. Section 7 updated
14	05/03/2016	Update section 4.3, 5 and 6
15	18/04/2017	Update to approved material list, cables and connectors, deployment application
16	19/12/2019	Updates roles and responsibilities Updated business rules Sunwave Crossfire marked as legacy Added Commscope UW couplers

Issue number	Issue date	Details on the change
17	09/03/2020	Clarified approved connector and cable combinations: only connectors on approved list may be used Clarified escalation process for new components: contact author for review if a new component is necessary to deliver project **Additions** **Rojone Load**:AMA-5257CL-100W-45A, AMA-5257CL-30W-45A **Innovatel Couplers/Splitters:** IN-MCPE-MD7038B-10-155, IN-MCPE-MD7038B-13-155, IN-MCPE-MD7038B-15-155, IN-MCPE-MD7038B-20-155, IN-MCPE-MD7038B-30-155, IN-MCPE-MD7038B-5-155, IN-MCPE-MD7038B-6-155, IN-MCPE-MD7038B-7-155, IN-MCPE-MD7038B-8-155, IN-MHSE-MD7038B-155 **Innovatel Combiner:** IN-HMSE-MD7038B-155 **Galtronics Antennas:** Extent D5501i, Extent D5778i, Extent D5944i, GI0801-06971, GI0802-06835, Pear M5277i, Pear M5542i, Pear S5379i Pigtail, Pear S5490i, Pear S5606i Pigtail **RFS Antennas:** I-ATO5-43-698/2700, I-ATO5-43-698/2700M, I-ATP5-43-698/2700, I-ATP5-43-698/2700M
18	12/05/2020	Simplified language of business rules and approved component policy **Additions** **JMA:** UXP N type connectors for legacy and non-compliant equipment **RFS:** Various 7/16 and 4.3-10 multifit and rapidfit connectors; Various jumper cable combinations including 1/4” and 3/8” **Kaelus:** BSF0020F1V1 band stop filter **Ericsson:** Radio Dot system ; IRU 2242: RD 4442 B3+B7 or RD 4442 B1+B7; IRU 8846: RD 4479 B78L
19	26/05/2020	**Additions** **Commscope:** Various tail combinations **JMA:** Various tail combinations **RFS:** Various tail combinations and JFN series cables **W&B**: Various tail combinations
20	01/06/2020	Removed embedded documents for publication as a PDF Added key describing component usage Added radiating cable requirements
21	03/06/2020	Lens antenna requirements added Added remarks covering supported and tested Telstra bands for active products Marked DDF0035F1V1 as Legacy, BSF0020F1V1 as Current Corrected Supplier for JMA Wireless components JMA Wireless – Teko Systems Group Sirius Teko Telecom approved for third party lead DAS only
22	04/06/2020	Mavenir HPRU Crossfire added, Sunwave Crossfire marked as replace with Mavenir Software
23	26/06/2020	Added: Selected JMA CXP connectors T-2-UW-43-F, T-2-UW-43-M, T-10-UW-43-M-i6, T-30-UW-43-M-i6, T-50-UW-43-M-i6, T-100-UW-43-M-i6
24	07/09/2020	**Changed:**

Issue number	Issue date	Details on the change
		Approved list moved to Excel spreadsheet and Locked document from editing **Added:** Section detailing supported Crosfire HPRU configurations ION-M approved components list Crossfire approved components list Amphenol tails as listed CMAX-DM60-43-UWI53 SJH-100 E14F55P89, E14F20P05 CDS5-43-617/3800, CDS6-43-617/3800, CDS8-43-617/3800, CDS10-43-617/3800, CDS13-43-617/3800, CDS15-43-617/3800, CDS20-43-617/3800, CDS30-43-617/3800 PDS2-43-698/3800-01S, PDS3-43-698/3800-01S, PDS4-43-698/3800-01S
25	11/11/2020	**Changed:** Corrected description for RFS FRLSZH cable **Added:** F2A Commscope Tails L5-40-MM CMAX-DM30-43-UWI53
26	24/11/2020	**Changed:** Added Telstra S/I to E14F55P89 Marked as legacy I-ATO5-43-698/2700, I-ATO5-43-698/2700M, I-ATP5-43-698/2700, I-ATP5-43-698/2700M **Added:** I-ATO5-43-698/3800, I-ATO5-43-698/3800M, I-ATO5-43-698/4000, I-ATP5-43-698/3800, I-ATP5-43-698/3800M PDS2-43-617/3800, PDS3-43-617/3800, PDS4-43-617/3800 43M43MS12-0100FFP, 43M43MS12-0200FFP, 43M43MS12-0300FFP, 43M43MS12-0400FFP, 43M43MS12-0500FFP 7M43MS12-0100FFP, 7M43MS12-0300FFP, 7M43MS12-0500FFP
27	01/02/2021	**Changed:** Clarification of business rules and legacy/existing feeders use Marked as legacy CMAX-D-43-V53, CMAX-OMF1-43-V53, CMAX-DM60-43-V53, QBC0003F1V5, CMAX-3030S-43-V53, CMAX-DMF-43-V53 **Added:** QBC0017F1V1-1, F1A-HPHMHM-1M, F1A-HPHMHM-2M, F1A-HPHMHM-3M, F1A-HPHMHM-M5
28	24/05/2021	**Added:** CMAX-3030S1-43-V53 AFK640-7 0.5M, AFK640-7 1M, AFK640-7 2M, AFK640-7 3M, AFK599-3 0.5M, AFK599-3 1M, AFK1049-2 1M, AFK599-3 2M, AFK599-3 3M **Changed:** Added various Commscope product Telstra S/I Added Mavenir Crossfre SW version
29	13/07/2021	**Changed:** Clarified supported versions of Crossfire SW

Issue number	Issue date	Details on the change
		Added: H-4X4-UW-43-AI6, various RFS FFP jumpers, Commscope ERA CAP-H **Marked as Legacy:** H-4X4-CPUSE-43-AI6, S-2-CPUSE-L-43-I53, S-3-CPUSE-L-43-I53, S-4-CPUSE-L-43-I53, ROJ-074-4-4-716-I **Updated RFS parts:** Added Telstra S/I **Marked as Replaced:** Commscope ION-M, various RFS jumpers
30	16/08/2021	Clarified supported PDP for ERA and Crossfire Updated ERA CAN layouts, maximum configurations and supported configurations Updated status of third party managed hybrid DAS
31	16/11/2021	Added E14F05P11, H-4X4-UW-43-Ai6 Added Rojone custom cables section
32	11/08/2022	**Added** S-2-UW-L-43I53, S-3-UW-L-43I53, S-4-UW-L-43I53, GI1001-B5490 Commscope NEX10 to 4.3-10 jumpers
33	21/06/2023	Corrected RFS FRLSZH tails designator to “Special” Re-added FRLSZH feeder cable Added NEX10 connector to Custom Tails approved list Adjusted SMA Connector Series to 18 (low PIM) from 17 on Rojone advice **Added** Galtronics GI1002-07234 antenna RFS FFS, Innovatel, H & S, Legend NEX10 to 4.3-10 jumpers **Marked as Legacy** Galtronics Pear M5277i
34	14/12/2023	Added note that micro radios with NEX10 connectors use ¼ inch cable **Added** CMAX-DMF4-43-WI53 antenna Approved CommScope ERA 3500MHz RFD & CAP-H configuration CommScope ERA Fibre protective kit. Ericsson IRU 8848 & Dot 4453 **Updated** IRU 2242 and RD 4422 marked as legacy ***ERA approved components*** RFD replaced with new part number CAP-H 7/23/26 F-AC-F1-APE replaced with non-APE variant CAP-H 7/23/26 F-AC-F1-APE replaced with 100MHz 2300 variant (23T) AC power cable and filler panel marked as legacy Braided cable marked as legacy Various part numbers added
35	10/05/2024	Added that ERA channels must be manually configured. Added note that RFD input pre-combining is not supported for greenfield sites. Added Misc sheet to Approved Component Excel

Issue number	Issue date	Details on the change
		Added Galtronics GI604-06837 CommScope CMAX-LHM2-60-i53 CommScope CMAX-LHM2-30-i53 CommScope CMAX-LHM2-3030-i53 CommScope CMAX-LHM2-22-i53 Innovatel 6228G-4F-2DC switch **Marked as Legacy** CMAX-3030S1-43-V53 CMAX-DM22S-43-V53 CMAX-DM30-43-UWI53 CMAX-DM30-43-V53 CMAX-DM60-43-UWI53 Innovatel 5428G-2 DC switch
36	12/09/2024	**Added** KA-6035 quad tuneable filter **Marked as Legacy** All ION-M equipment
37	07/11/2024	**Added** Mavenir Crossfire A3+E3-O+N3RU Attachment CIP0038a01 Mavenir N3RU Design Guidelines Attachment CIP0038a02 N3RU Cascade Power Calculator **Marked as Legacy** Mavenir AU+HPRU
38	25/02/2025	Adjusted Section 3 naming to remove duplicate section naming Added section “4.1. CommScope to Andrew Rebrand” Updated ERA SW version 5.50 Updated RFD allocation to accommodate second Telstra n78 carrier **Added** WCS-4DC new variant with DCDC converter SDX3340Q-DH-43 | E14F06P80 Combiner