Baseband Connections

Baseband 6648, Baseband 6641, Baseband 6631, Baseband 6621, RAN Processor 6647, RAN Processor 6651

Description

272/1551-LZA 701 6001/1 Uen V

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Contents

1 Introduction

This document describes the cabling for 19-inch units in the Ericsson Radio System (ERS). The document is to be used for planning purposes by on-site personnel.

The colors of the cables in the illustrations are used for visual separation, they do not indicate function. See example in Figure 1. Dotted lines show the alternative or optional connections.

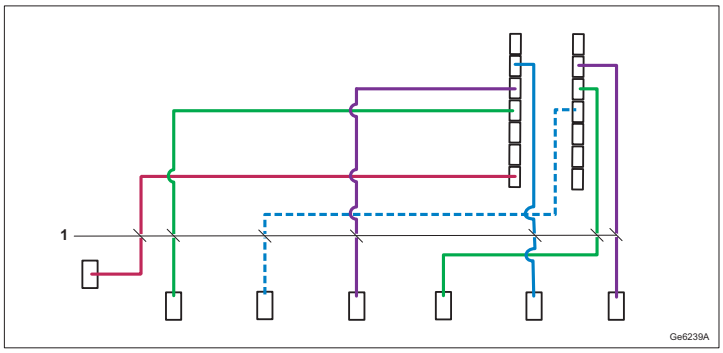


Figure 1 Colors in Illustrations Do Not Indicate Function

L represents the last five digits of the cable product number. The last five digits of the product number represents the length of the cable in mm.

2 Allocations

19-inch units can be placed in any of the following locations:

— Any 19-inch rack or cabinet, such as the Ericsson Enclosures. Refer to Enclosure Description, in the Enclosure CPI library, for the applicable enclosure.

— The 19-inch space for optional equipment in the RBS. Refer to RBS Description for the applicable RBS.

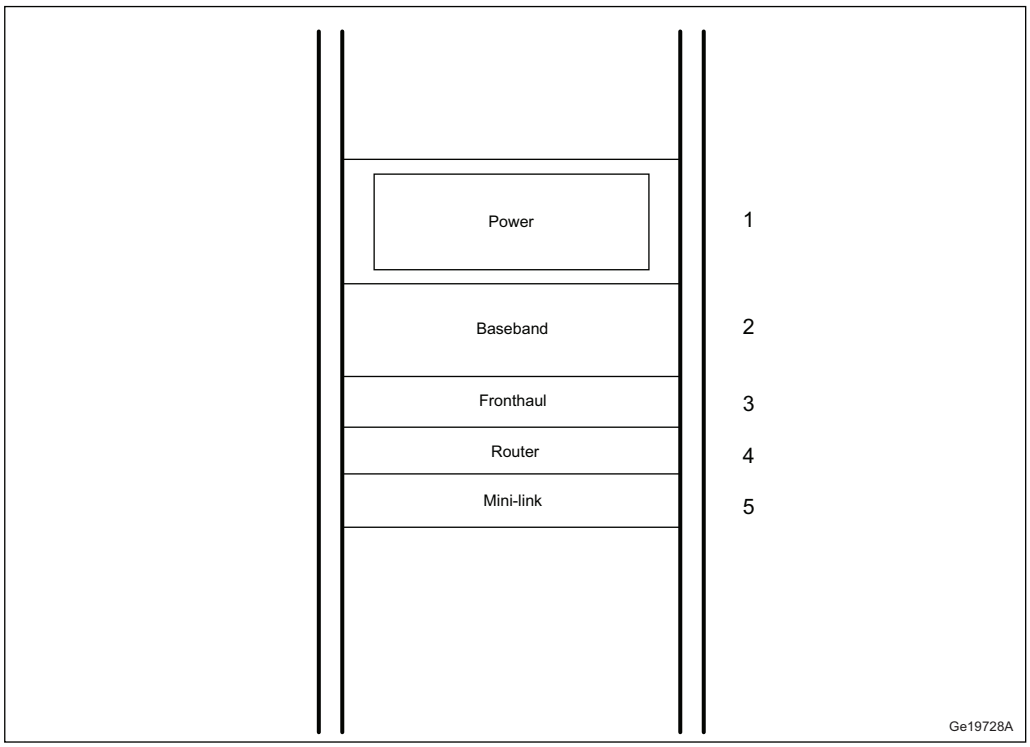


Figure 2 Allocation Order

The allocation order is the recommended way to install the 19-inch modules to make installation and cable routing easier. Depending on the current configuration, the units can be spread out in the rack or cabinet, but the placement in the allocation order still applies. It is not recommended to install a unit with a lower number below a unit with a higher number.

3 Strapping Points and Cable Routing

This chapter shows the strapping points and the cable routing in each cabinet.

3.1 Stand Alone

In standalone 19-inch racks, make sure to strap power and grounding cables on the left hand side and signal cables on the right hand side of the rack.

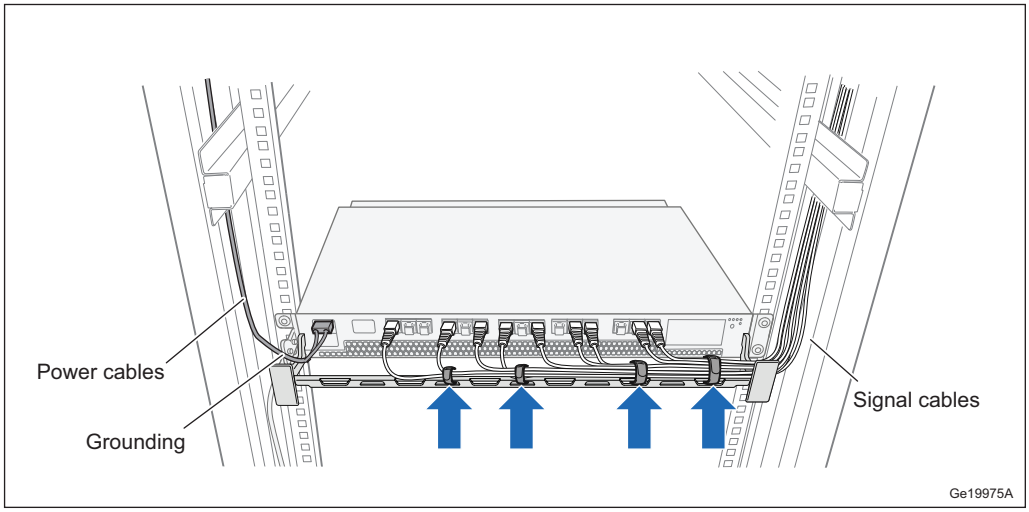


Figure 3 Strapping Points and Cable Routing in Standalone 19-Inch Rack

4 Power Cables

Note: All products share the same connection scenarios and same cables.

4.1 Standalone

Figure 4 shows and Table 1 describes the power cabling to 19-inch baseband units for standalone installation.

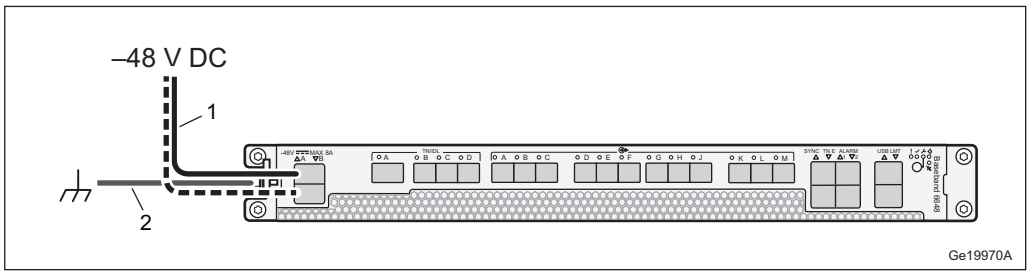


Figure 4 19-Inch Baseband Standalone Power Cabling

Table 1 19-Inch Baseband Standalone Power Cabling

Pos.	Connections	Qty	Product No	Max Fuse Rating
1(1) (2)	–48 V DC – 19-inch baseband: Power A	1	RPM 777 526/L(3) RPM 777 527/L(4)(5) RPM 777 528/L(4)(6)	16 A. 15 A in the US according to NEC.
	–48 V DC – 19-inch baseband: Power B	1		
2	Earth – 19-Inch Baseband: Earthing screw	1	RPM 777 567/L(4)(7)	

(1) The 19-inch Baseband units have a built-in 10 ms hold-up function.
(2) The unit supports power redundancy. Connect power sources to both power ports. If the power to one port goes down, a failover will occur automatically to the other power source.
(3) 2-wire ET connector to 3-wire ET connector used for Power 6610.
(4) Lengths 01000, 02500, 05000, 10000.
(5) 3-wire with open end.
(6) 3-wire with loop to 2-wire open end.
(7) Flag style cable lug.

4.2 Enclosure

Figure 5 shows and Table 2 describes the power cabling to 19-inch baseband units for enclosure installation.

Enclosures have different versions and different number of DC distribution circuit breakers. Choose the breakers based on availability.

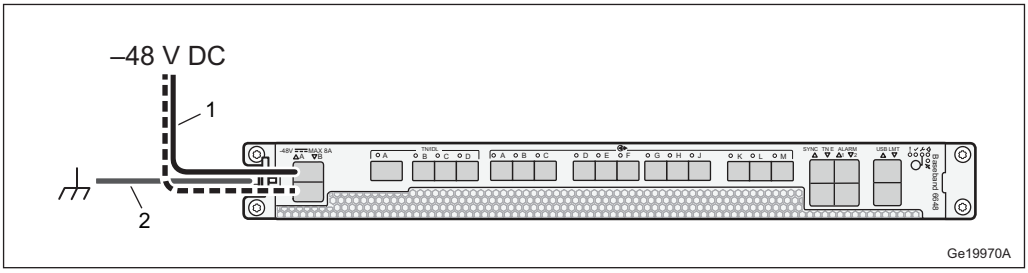


Figure 5 19-Inch Baseband Enclosure Power Cabling

Table 2 19-Inch Baseband Enclosure Power Cabling

Pos.	Connections	Qty	Product No	Max Fuse Rating
1(1) (2)	−48 V DC – 19-inch baseband: Power A–B	1	RPM 777 528/L(3)	25 A(4)
			RPM 777 050/L(5)	16 A
2	Earth – 19-Inch Baseband: Earthing screw	1	RPM 777 567/L(6)	

(1) The 19-inch Baseband units have a built-in 10 ms hold-up function.
(2) The unit supports power redundancy. Connect power sources to both power ports. If the power to one port goes down, a failover will occur automatically to the other power source.
(3) 3-wire with loop to 2-wire open end.
(4) Installed in an Ericsson Enclosure
(5) 2 Wire, 3 pos ET 20 - Dual lug (2x), for Enclosure 6160 and 6360.
(6) Flag style cable lug.

4.3 RBS

Figure 6 and Figure 7 show and Table 3 describes an example of the power cabling to a 19-inch baseband unit.

RBSs have different versions of the Power Distribution Unit (PDU). The PDUs can be horizontally or vertically installed, and have different number of Circuit Breaker (CB) ports. Choose the port on the PDU depending on availability.

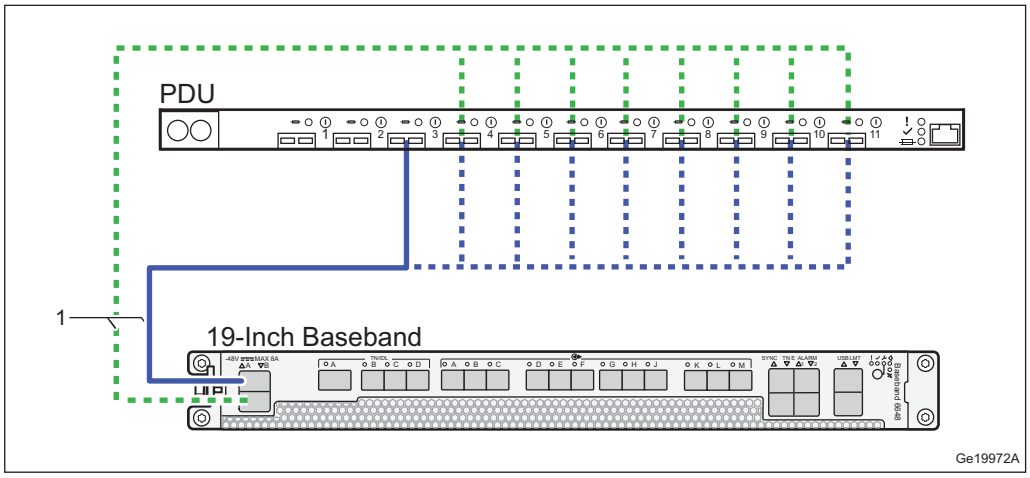


Figure 6 Power Cabling Example, PDU – 19-Inch Baseband

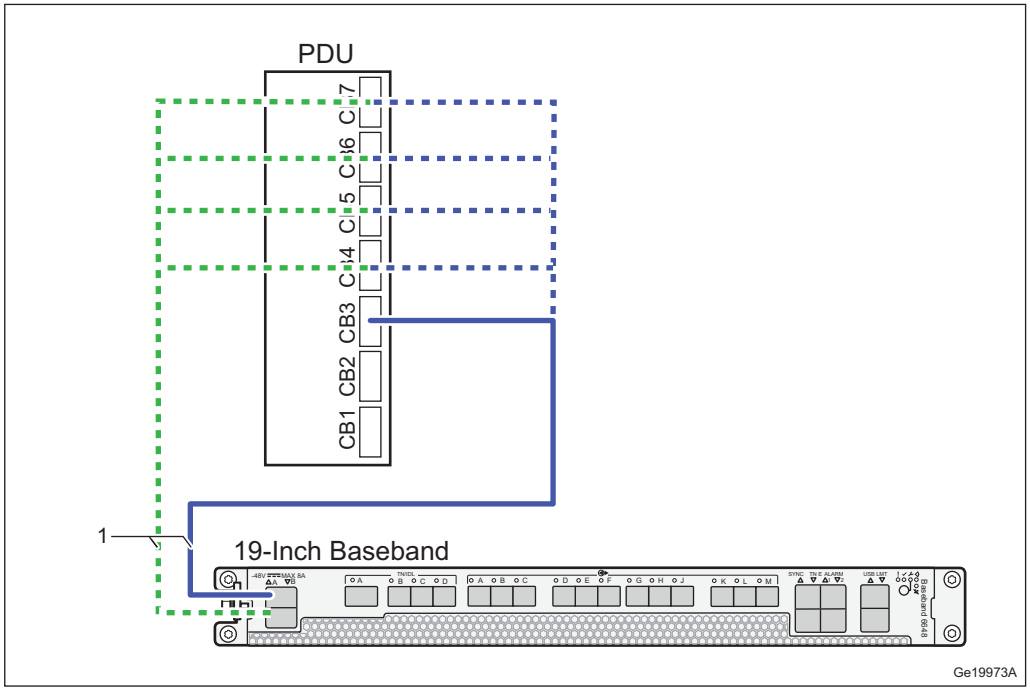


Figure 7 Power Cabling Example, PDU – 19-Inch Baseband

Table 3 Power Cabling PDU – 19-Inch Baseband

Pos	Connections	Qty	Value of L for RPM 777 526/L per RBS				Max Fuse Rating
			6101	6102	6120	6201	
1(1)	PDU: CB 3 to 7 – 19-inch baseband Power A	1	01500	01000 01500 02000	00800 01000 01500 02000	-	20 A
	PDU: CB 3 to 7 – 19-inch baseband Power B	1	01500	01000 01500 02000	00800 01000 01500 02000	-	
	PDU: CB 3 to 11 – 19-inch baseband Power A	1	-	-	-	02000	
	PDU: CB 3 to 11 – 19-inch baseband Power B	1	-	-	-	02000	

(1) The 19-inch Baseband units have a built-in 10 ms hold-up function.

5 Backhaul Cables

5.1 Elastic RAN and Advanced RAN Coordination Cabling including Units with Combined TN/IDL Ports

This section describes the Elastic RAN and Advanced RAN Coordination cabling.

For more information about Elastic RAN, see Elastic RAN.

For more information about Advanced RAN Coordination, see Advanced RAN Coordination.

For more information about supported configurations and capacity for Elastic RAN and Advanced RAN Coordination, see Radio Node Configurations.

Table 4 Elastic RAN and Advanced RAN Coordination Cabling

From	To	Product	Product No.	Length	Comments	Connectors
RAN Compute unit (for example Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN/IDL A	RAN Compute unit (for example Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN/IDL A	Electrical cable	RPM 777 053[(1)]	2.5 m max	Elastic RAN and Advanced RAN Coordination Cabling - Recommended.	QSFP28 to QSFP28
		Active Optical Cable (AOC) cable	RDH 104 02	10 m		QSFP28 to 4 × SFP 28
			RDH 104 03	10 m		QSFP28 to QSFP 28
RAN Compute unit (for example Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN/IDL A	RAN Compute unit (for example Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN/IDL A	Optical cable	RPM 253 3512/L	5000 m max	Elastic RAN and Advanced RAN Coordination Cabling	LC to LC QSFP28 modules needed

From	To	Product	Product No.	Length	Comments	Connectors
RAN Compute unit (for example Baseband 6621 or Baseband 6630) IDLA A or B	RAN Compute unit (for example Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN/IDL B, C, or D	Electrical cable	RPM 777 544	2 m max	Elastic RAN and Advanced RAN Coordination Cabling	Xcede to 2 × SFP+
RAN Compute unit (for example Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN /IDL A	RAN Compute unit (for example Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN /IDL B, C, or D	Electrical cable	RPM 777 054[(1)]	2.5 m max	Elastic RAN and Advanced RAN Coordination Cabling	QSFP28 to 4 × SFP28
RAN Compute unit (for example Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN /IDL B, C, or D	RAN Compute unit (for example Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN/IDL A	Electrical cable	RPM 777 054[(1)]	2.5 m max	Elastic RAN and Advanced RAN Coordination Cabling	SFP28 to 4 × QSFP28
RAN Compute unit (for example	RAN Compute unit (for example	Electrical cable	RPM 777 052	2.5 m max	Elastic RAN and Advanced RAN	SFP28 to 4 × SFP28

From	To	Product	Product No.	Length	Comments	Connectors
Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN B, C, or D	Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN B, C, or D				Coordination Cabling	
RAN Compute unit (for example Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN B, C, or D	RAN Compute unit (for example Baseband 6648, Baseband 6631, RAN Processor 6647, or RAN Processor 6651) TN B, C, or D	Electrical cable	RPM 777 579	3 m max	Elastic RAN and Advanced RAN Coordination Cabling	SFP+ to SFP+
			RPM 777 052	2.5 m max		SFP28 to SFP28

(1) Support connection up to 10G.

5.2 Backhaul Cascading

The backhaul connection can be cascaded for up to three units, as shown in the example.

For more information about cascading the backhaul connections, see Baseband Native Transport Cell Site Connectivity Guidelines, Manage Transport Network and Manage Routing Features.

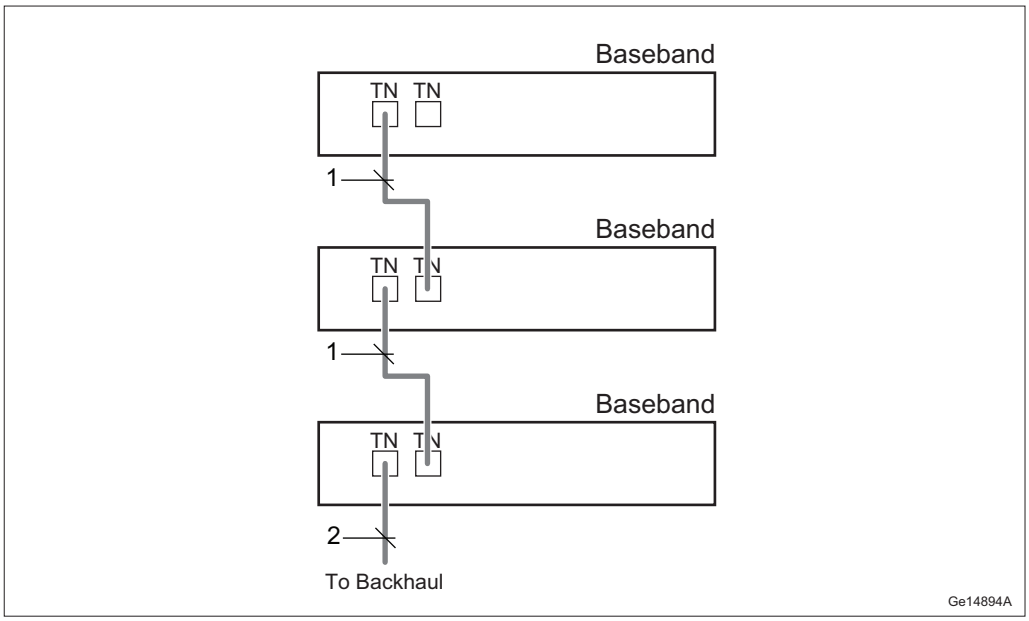


Figure 8 Backhaul Cascading

Table 5 Backhaul Cascading

Pos	Connections		Product	Product No.	L (m)	Comments	Connectors
	From	To					
1	Baseband 6648, Baseband 6641, Baseband 6631, Baseband 6621, RAN Processor 6647, or RAN Processor 6651 TN/IDL A	Corresponding ports on the Backhaul unit	Electrical cable	RPM 777 053/L(1)(2)	0.5, 1, 1.5, 2 and 2.5	Local backhaul connection	QSFP28 – QSFP 28
				RPM 777 054/L(1)(3)	0.5, 1, 1.5, 2 and 2.5		QSFP28 – 4 × SFP 28
			AOC cable	RDH 104 02	10		QSFP28 – 4 × SFP 28
				RDH 104 03	10		QSFP28 – QSFP 28
	Baseband 6648, Baseband 6641, RAN Processor 6647, or RAN Processor 6651 TN/IDL B – TN/IDL D	Corresponding ports on the Backhaul unit	Electrical cable	RPM 777 052/L(3)	0.5, 1, 1.5, 2 and 2.5	Local backhaul connection	SFP28 – SFP28
				RPM 777 579/L(3)	0.8, 1, 1.5, 2, or 3		SFP+ – SFP+
	Baseband 6631 or Baseband 6621 TN/IDL B – TN/IDL D			RPM 777 052/L RPM 777 579/L(3)	0.8, 1, 1.5, 2, or 3		SFP+ – SFP+
	Baseband 6648, Baseband 6641, Baseband 6631, Baseband 6621, RAN Processor 6647, or RAN Processor 6651 TN/IDL E	Corresponding ports on the Backhaul unit	Electrical cable	RPM 777 341/L (4)	0.65, 1.1, 1.4, 1.8, or 2.6		RJ45 – RJ45
2	Baseband 6648, Baseband 6641, Baseband 6631, Baseband 6621, RAN Processor 6647, or RAN Processor 6651 TN/IDL A – TN/IDL D	Corresponding ports on the Backhaul unit	Optical cable, single mode	RPM 253 3512/L(5)	Up to 5000 m	Remote backhaul connection	LC to LC SFP modules needed

(1) Support connection up to 10G.
(2) Minimum bending radius is 65 mm.
(3) Minimum bending radius is 40 mm.
(4) Minimum bending radius is 30 mm.
(5) Minimum bending radius is 20 mm for main cable and 10 mm for split cable.

For information on which SFP module to use and secure handling of the SFP modules, see SFP Module Selector Guide and Handling SFP Modules and Optical Cables.

6 Radio Cables

For information on radio connections and cables, see Radio Connections.

7 Baseband Connections

This section describes the configuration examples.

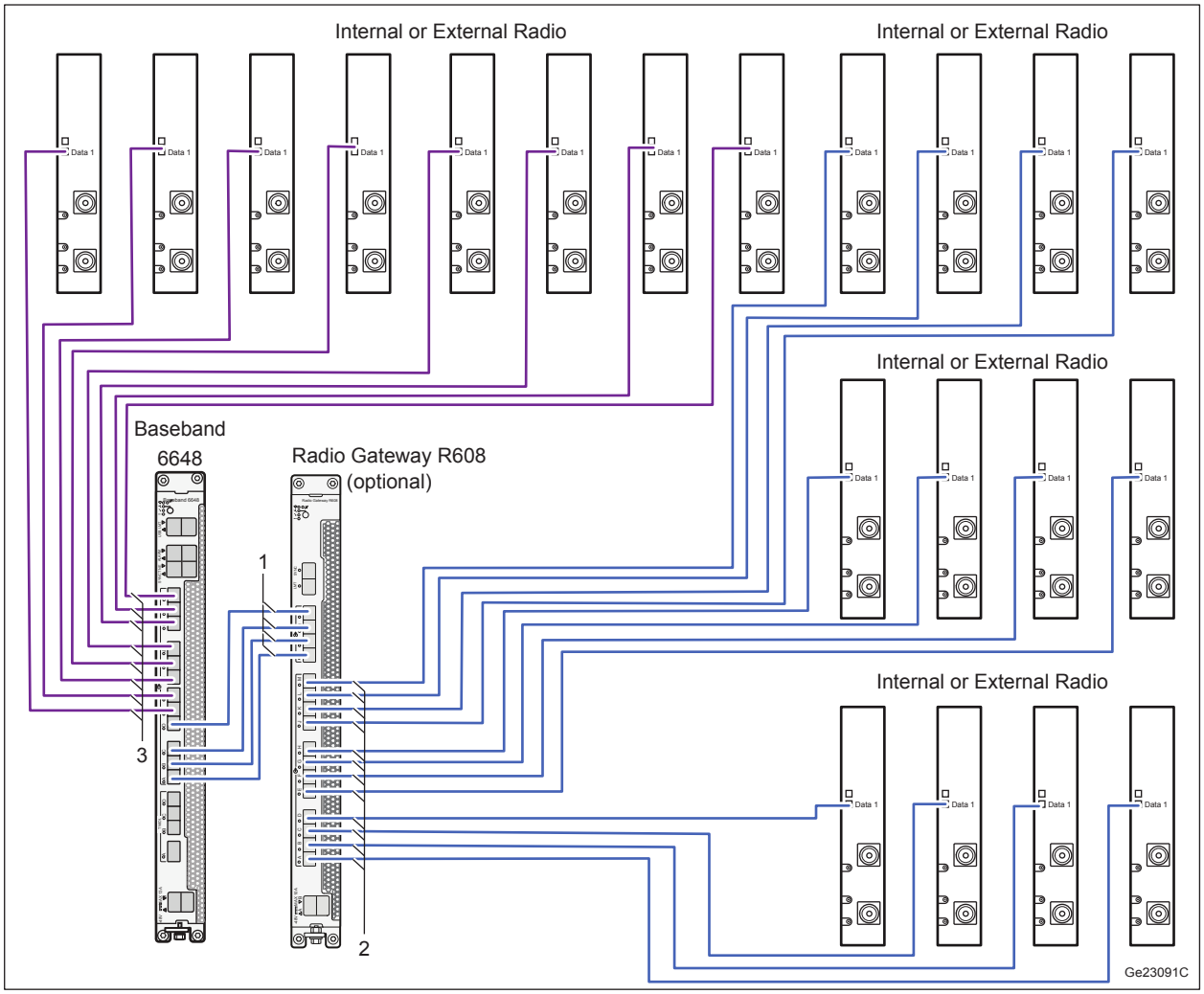


Figure 9 Configuration Example with One Baseband 6648, One Indoor Radio Gateway, and Internal or External Radios

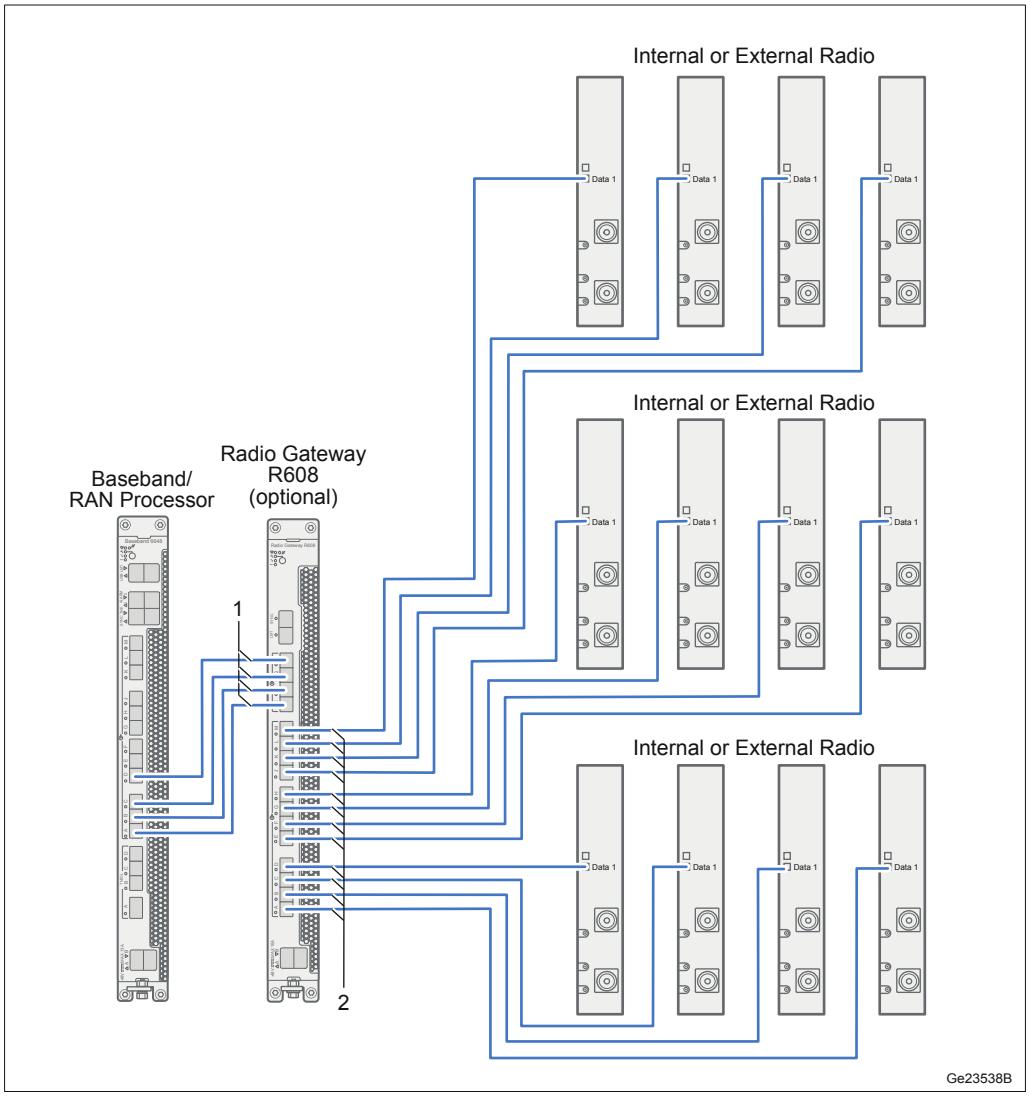


Figure 10 Configuration Example with One Baseband 6641, Baseband 6648, RAN Processor 6647, or RAN Processor 6651 and One Radio Gateway

Table 6 Connections with One Baseband or RAN Processor and One Radio Gateway

Position	Routing: From	Routing: To	Cable Type	Product No.
1	Radio Gateway, port N – R	Baseband or RAN Processor	Optical or copper	RPM 777 579/L (1) , RPM 253 3512/L (2)
2	Radio Gateway, port A – M	Internal or external radio, data 1 ⊕ 1	Optical	RPM 253 3512/L (for indoor/ outdoor radios) RPM 253 1610/L (for outdoor radios and Hatch solution/ Enclosures)
3	Baseband 6648, E – M	Radio unit 1-8, data 1		See Radio Connections.

(1) For connection up to 10G.

(2) For connection up to 25G.

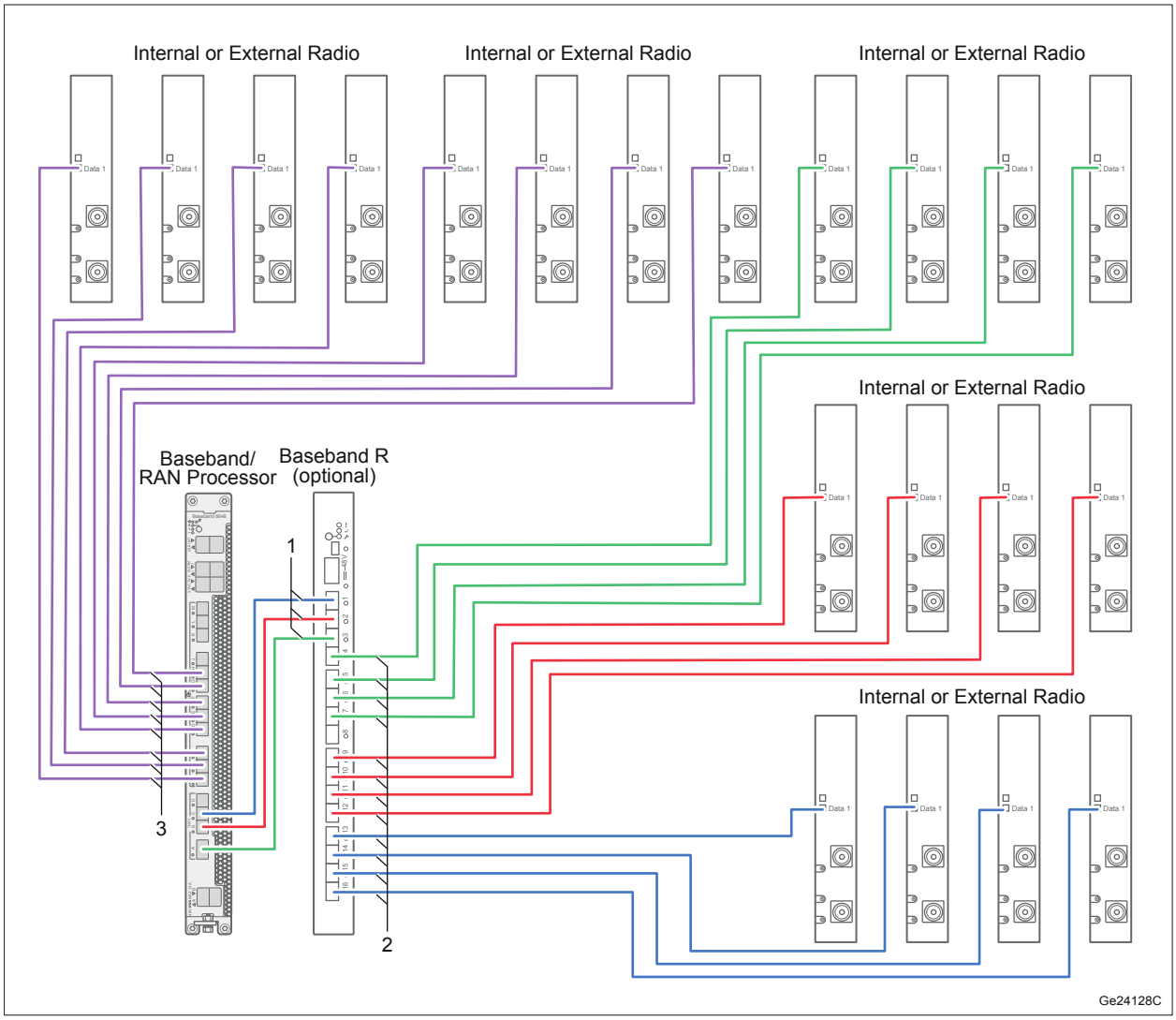


Figure 11 Configuration Example with One Baseband or RAN Processor, One Baseband R503, and Internal or External Radios

Table 7 Connections Example with One Baseband and One Baseband R503

Position	Routing: From	Routing: To	Cable Type	Product No.
1	Baseband 6641 or Baseband 6648 (Baseband 6631, Baseband 6621, or RAN Processor 6651), port TN/IDL A – D.	Baseband R503, port 1 – 3.	Optical or copper	RPM 777 579/L
2	Baseband R503, port 4 – 16	Internal or external radio, data 1 ⊕→ 1	Optical	RPM 253 3512/L (for indoor/ outdoor radios) RPM 253 1610/L (for outdoor radios and Hatch solution/ Enclosures)

Position	Routing: From	Routing: To	Cable Type	Product No.
3	Baseband 6641 or Baseband 6648 (Baseband 6631, Baseband 6621, or RAN Processor 6651), port RI A – RI M	Radio units, data 1		See Radio Connections.

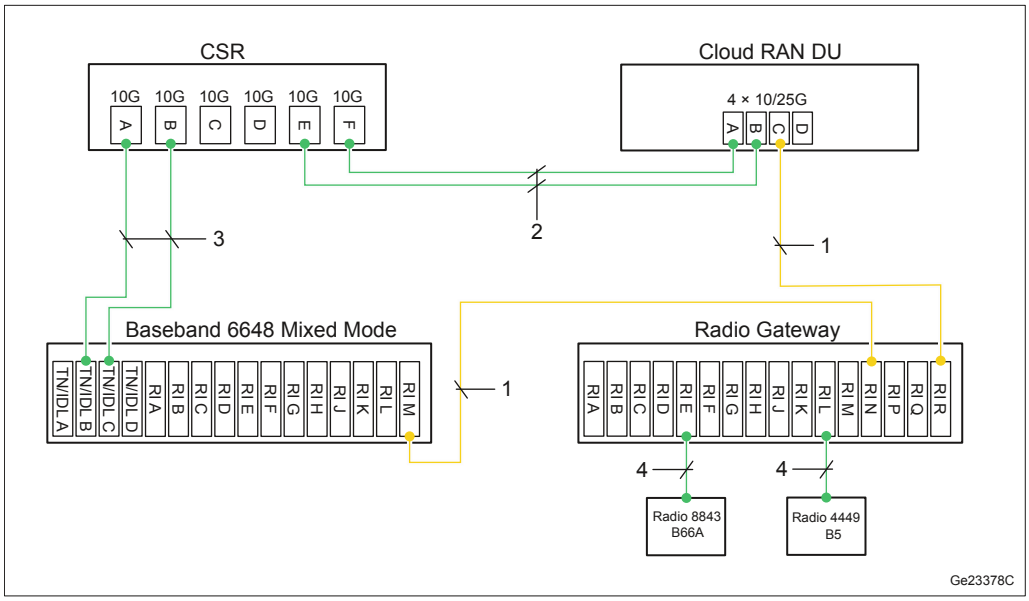


Figure 12 Configuration Example with Cloud RAN DU, Radio Gateway, and Baseband

Table 8 Connections Example with Cloud RAN DU, Radio Gateway, and Baseband

Position	Routing: From	Routing: To	Cable Type	Product No.
1	Radio Gateway, port N – R	Cloud RAN DU	Optical or copper	RPM 777 052, RPM 253 3512/L
	Radio Gateway, port N – R	Baseband 6648 (Baseband 6631, RAN Processor 6647, or RAN Processor 6651) Mixed Mode, port A – M		
2	Cloud RAN DU	Cell Site Router (CSR)	Optical or copper (depends on the CSR)	RPM 253 3512/L
3	Baseband 6648 Mixed Mode (Baseband 6631, RAN Processor 6647, or RAN Processor 6651), port A – D	Cell Site Router (CSR)	Optical or copper (depends on the CSR)	RPM 253 3512/L
4	Radio Gateway, port A – M	Radio 8843 or Radio 4449	Optical or copper	RPM 253 3512/L (for indoor/ outdoor radios) RPM 253 1610/L (for outdoor radios and Hatch solution/ Enclosures)

8 Alarm Cables

8.1 19-Inch Baseband

This section describes how to connect external alarms to the built-in ports for external alarms.

Do!

This product contains components sensitive to ESD. Use an approved ESD wrist strap, connected to the product grounding point, to avoid damaging these components.

The alarm port is marked on the 19-inch Baseband front panel.

There are two types of alarm cables:

— RPM 777 143/L with RJ-45 to RJ 45 for connection to alarm OVP

— RPM 919 727/L with RJ-45 to open end for connection to screw terminals

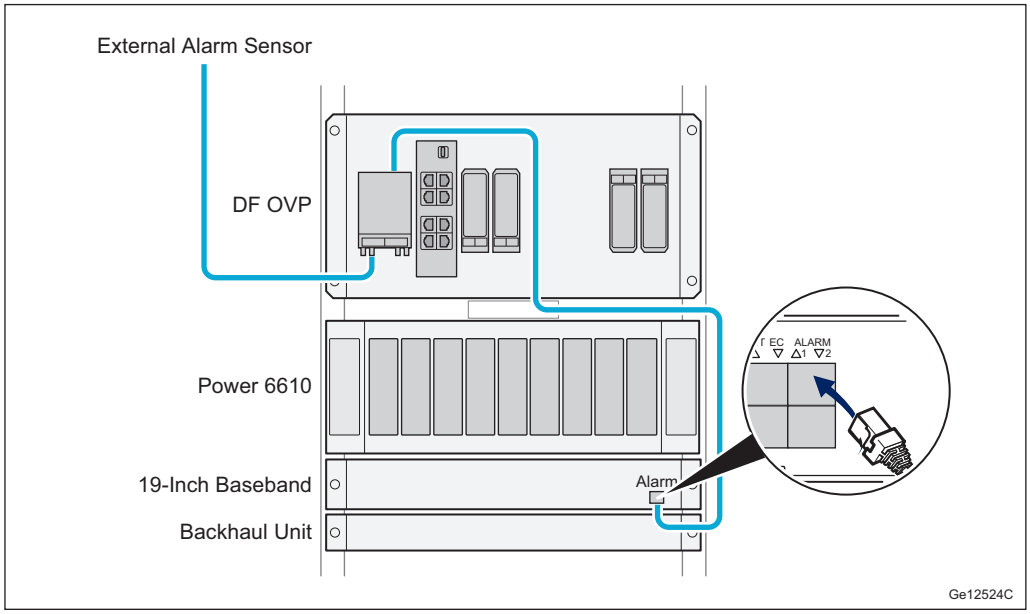
Table 9 RPM 919 727 Pin Out

RJ-45 Pin Out	Signal	Function	Open End
1	A2+	Alarm 2	White
2	A2-	Alarm 2	Orange
3	A3+	Alarm 3	White
4	A1+	Alarm 1	White
5	A1-	Alarm 1	Blue
6	A3-	Alarm 3	Green
7	A4+	Alarm 4	White
8	A4-	Alarm 4	Brown

Steps

1. Put on the ESD wrist strap and connect it to a suitable unpainted ground in the rack.

2. Connect the cable between the built-in alarm port on the 19-inch Baseband and the corresponding Alarm-OVP or screw terminals.



3. Connect the external alarm cable to the Alarm-OVP or screw terminals.

   For more information, refer to Install DF-OVP, Installing External Alarm Kit for RBS 6601, Site Installation Products Overview, and *Customer Site Documentation*.

9 Synchronization Cables

9.1 Baseband 6621, Baseband 6631, Baseband 6641, Baseband 6648, RAN Processor 6647, and RAN Processor 6651

Note: All products share the same connection port and same cable. The image is for sampling purposes.

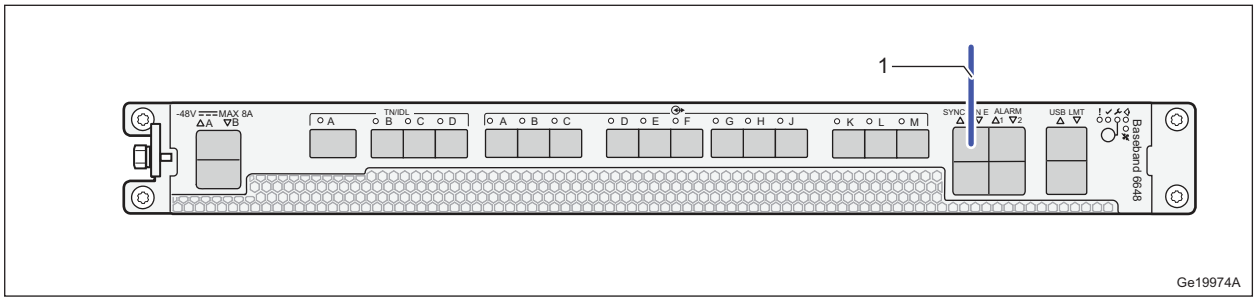


Figure 13 Synchronization Cable

Table 10

Pos	Connections	Qty	Product No	Connectore
1	Baseband SYNC – GNSS Receiver	1	RPM 777 382/L	RJ45 – RJ45

10 Other Cables

10.1 LMT Cable

The client is connected to the LMT port on the DU or Baseband unit for configuration and service purposes.

For information on connecting a client to the RBS, see Connect Client.