ERICSSON

Baseband Description

Baseband 6648

Description

271/1551-LZA 701 6001/1 Uen A

Contents

1 Product Overview

This document describes the 19-inch baseband units for Ericsson Radio Systems.

1.1 Main Features

This section describes the main features of the baseband.

Not all features are supported by all equipment configurations. For a description of the current equipment configurations, see RBS Configurations.

The main features of the baseband are the following:

— NR, LTE, and NR + LTE Mixed Mode

— Elastic RAN

— Backhaul cascading

1.2 Purpose

Baseband 6648 provides switching, traffic management, timing, baseband processing, and radio interfacing. The baseband unit is in the 19-inch format, with 12 Common Public Radio Interface (CPRI or eCPRI) ports, enabling increased connectivity for radio units.

1.3 Variants

— Baseband 6648:

- R2C and R2D versions have an operating temperature of 0 to +45°C.
- R2C and R2D versions have approximately 10% higher power consumption across the temperature range.

For information about supported configurations and capacity, refer to RBS Configurations

1.4 Overview

This section provides an overview of the 19-inch baseband units, see Figure 1.

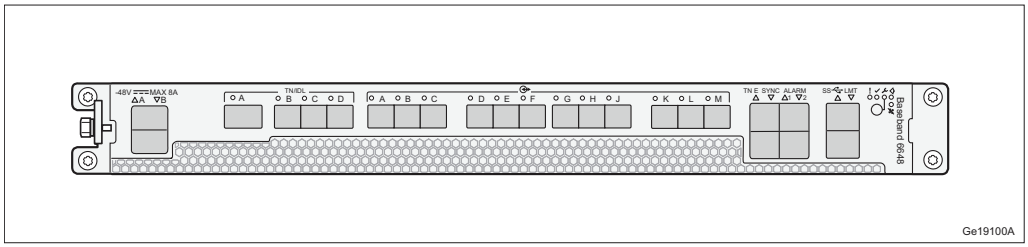

Figure 1 Overview Baseband 6648

Baseband 6648 is a self-contained 19-inch unit with an easily removable fan tray unit. Each unit can be installed standalone in any 19-inch rack or enclosure or in an RBS.

Baseband 6648 facilitates a scalable, modular system with one or more indoor 19-inch baseband units and a number of external radios.

For information about 19-inch baseband unit placement in an enclosure or an RBS, refer to Enclosure Description or RBS Description.

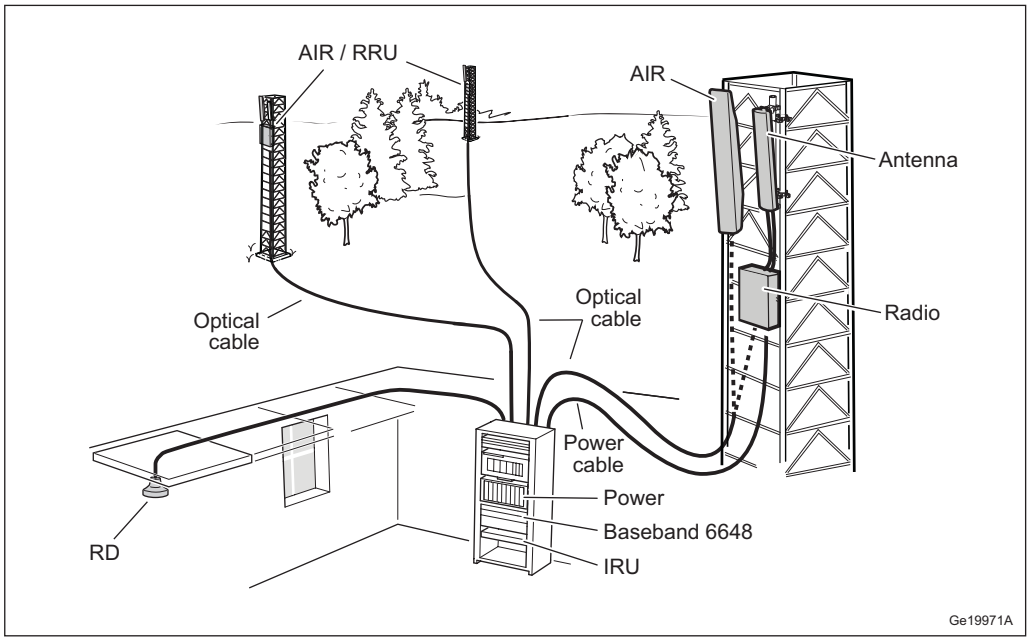

Figure 2 19-Inch Baseband Connected to External Radios

1.5 Warranty Seal

The product is equipped with a warranty seal sticker.

Note: Seals that have been implemented by Ericsson must not be broken or removed, as it otherwise voids warranty.

2 Function Description

The Baseband has the following functions:

- Timing function
- Loadable software
- Downlink (DL) baseband processing
- Uplink (UL) baseband processing
- IP traffic management
- Radio interface
- Backhaul handling
- External synchronization

For the block diagram of the Baseband, see Figure 3.

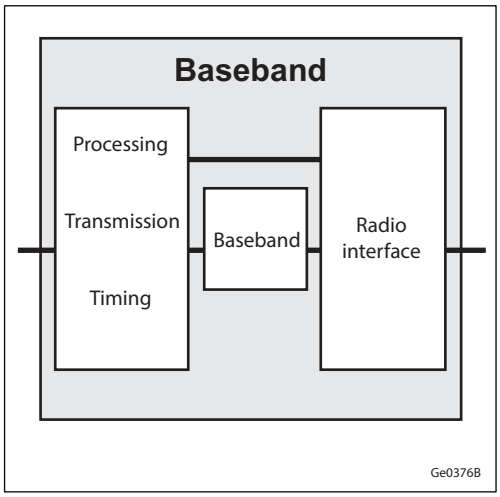

Figure 3 Baseband Block Diagram

For more information about the external synchronization, see the following documents:

- GNSS Receiver System Description
- GNSS Receiver System User Guide
- Manage Network Synchronization
- Manage Node Group Synchronization

— Manage LTE RAN Synchronization

3 Technical Data

3.1 Dimensions

Dimensions and weight for the 19-inch Baseband unit are listed in Table 1, and .

Table 1 Dimensions and Weight

Baseband	Height	Width	Depth	Weight
Baseband 6648	1 U (44.45 mm)	19-inch	352 mm	≈ 7.5 kg

3.2 Environmental Characteristics

Values for the normal operating environment of the baseband unit are shown in Table 2.

Table 2 Environmental Data

Description	Value
Temperature	0 to +55°C
Relative humidity	5–95%
Absolute humidity	1–29 g/m^3
Maximum temperature change	0.5°C/min

Note: The operating environment of the unit must be a temperature-controlled enclosed location suitable for sensitive data and telecommunication equipment, with very low levels of airborne particles. For example Network Telecommunication Facilities or inside an Outside Plant (OSP) cabinet.

3.3 Power Characteristics

The power supply voltage for the baseband unit is −48 V DC. The power supply requirements are shown in Table 3.

Table 3 DC Power Supply Requirements

Condition	Value
Nominal voltage	−48 V DC

Condition	Value
Operating voltage range	−38.0 to −58.5 V DC
Non-destructive range	0 to −60 V DC

Fuse and Circuit Breaker Recommendations

The external fuse and circuit breaker recommendation for the baseband unit is shown in Table 4.

The recommendations in this section are based on peak power consumption and give no information on power consumption during normal operation.

The recommended melting fuse type is gG-gL-gD in accordance with IEC 60269-1. Circuit breakers must comply with at least Curve 3 tripping characteristics in accordance with IEC 60934.

Table 4 Fuse and Circuit Breaker Recommendations

DC Power	Minimum Fuse Rating for Reliable Operation (A)(1)	Maximum Fuse Rating (A)(2)
Baseband unit	16	20

(1) The recommended fuse rating corresponds to peak load and depends on the configuration.

(2) This value is the internal maximum fuse rating for the unit. General fuse dimensioning have to take all external factors into account, such as local regulations and cable dimensioning.

3.3.1 Power Consumption

The power consumption values are presented as typical and maximum values, for a unit with fan. The typical values are based on an air temperature of 20 °C for the air entering the unit and a typical traffic load. The maximum values are based on an air temperature of 40 °C for the air entering the unit and a maximum traffic load.

Note: The power consumption for SFPs or GPS is not included.

Table 5 Power Consumption

Unit	Typical	Maximum
Baseband 6648	≈ 310 W	≈ 340 W

For information on power consumption values see Power Consumption Data and Power Consumption Calculations.

4 Hardware Architecture

This section contains an overview of the hardware units of the 19-inch baseband unit.

Figure 4 Baseband 6648 Hardware Architecture

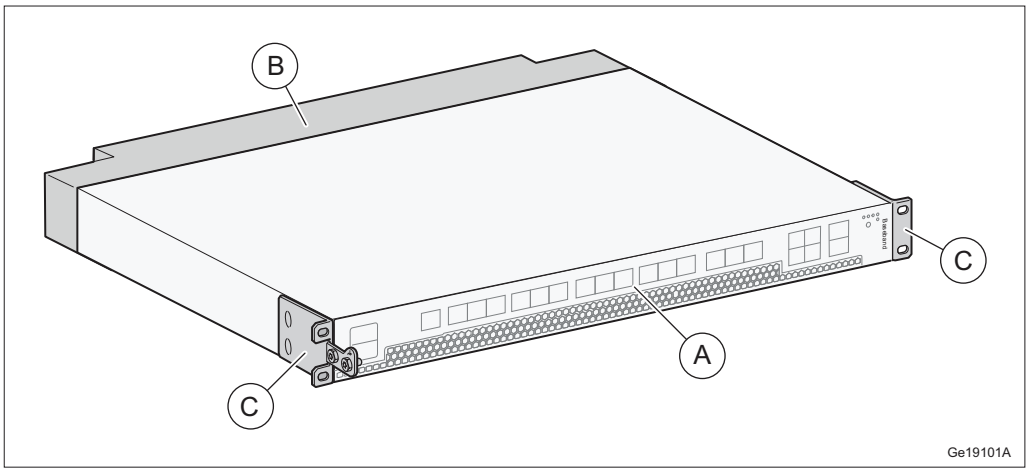

Table 6 19-Inch Baseband Hardware Units

Position	Name of Units	Number of Units
A	19-inch baseband unit	1
B	Fan module	1
C	Movable Brackets	2

5 Baseband Interfaces

The interfaces for the baseband units are described in Table 7.

Table 7 Baseband 6648 Interfaces

Marking	Connector	Description	Optical Indicator(1)	Channels	FEC
-48V ⎓ A -48V ⎓ B	ET20 A(2)(3)(4)	−48 V DC Power	Yes	-	-
TN/IDL A(5) (6)	QSFP+/QSFP28	4×10 Gbps/4×25 Gbps Ethernet transmission External interface; electrical/ optical	Yes	4	RS(7)(8) BASE-R(9) (8)
TN/IDL B(6) TN/IDL C(6) TN/IDL D (6)	SFP/SFP+/SFP28 (10)(11)	1 Gbps/10 Gbps/25Gbps Ethernet transmission External interface; electrical/ optical	Yes	1	RS(7)(8) BASE-R(9)(8)
A–M	SFP/SFP+/SFP28(12) (13)	Radio interface × 12 Interface between baseband and external radios, optical All the ports support CPRI and eCPRI Line rates: — CPRI: 2.5 Gbps, 4.9 Gbps, 9.8 Gbps, 10.1 Gbps and 24.3 Gbps — eCPRI: 10.3 Gbps and 25 Gbps (14)	Yes	-	RS(7)(8)
TN E	RJ-45	100 Mbps/1 Gbps Ethernet transmission External interface; electrical	Yes	N/A	N/A
SYNC	RJ-45	Synchronization interface for connection of a GNSS receiver unit, for example, GRU 04 01 External interface	Yes	-	-
ALARM 1 ALARM 2	RJ-45	External alarm interface × 2 . The unit supports eight external alarms, four per port.	No	-	-
SS	USB3.1 Type-C	for downloading UP from a memory stick(15)	No	-	-
LMT	RJ-45	LMT A interface(16)(17) LMT B Interface(17)(18) Synchronization test interface(19)(20) Internal and external interfaces	Yes(21)	-	-
!	-	Fault Optical indicator, red	Yes	-	-
✓	-	Operation Optical indicator, green	Yes	-	-
🔧	-	Maintenance Optical indicator, blue For information about the maintenance button, refer to	Yes	-	-

Marking	Connector	Description	Optical Indicator(1)	Channels	FEC
		Indicators, Buttons, and Switches.			
	-	Status Optical indicator, yellow	Yes	-	-
	-	Fan unit fault Optical indicator, yellow	Yes	-	-

(1) For more information about optical indicators, refer to Indicators, Buttons, and Switches

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

(3) 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.

(4) The unit supports 3-wire (DC-I) power feed. It can also support 2-wire (DC-C) power feed by making a jumper connection in the power cable. Refer to Install 19-Inch Baseband for more information about the power cable pin out, and Power Cables 2- and 3-Wire.

(5) Auto-negotiation not supported for 25G electrical interface (25GBASE-CR)

(6) Supports synchronization over the transport network.

(7) IEEE802.3 clause 108

(8) Only supported in 25G link speed

(9) IEEE802.3 clause 74

(10) SFP+ is needed for rates higher than 2.5 Gbps.

(11) SFP28 is needed for rates higher than 10 Gbps.

(12) SFP+ is needed for CPRI rates higher than 2.5 Gbps.

(13) SFP28 is needed for CPRI rates higher than 10 Gbps

(14) Depending on the Software Package

(15) Only available when unit is in network loader state

(16) RS-232 interface. Accessed with the LMT splitter cable.

(17) For more information about the LMT interfaces, see Connect Client.

(18) 100 Mbps electrical Ethernet interface.

(19) Compliant with 1PPS 50 Ω phase synchronization measurement interface. Accessed with an adapter.

(20) For more information about the sync test interface, see Manage Network Synchronization.

(21) The optical indicator indicates the status of the LMT B interface.

Do not remove dust plugs from unused ports. Always insert dust plugs into ports that are not in use by a cable connector.

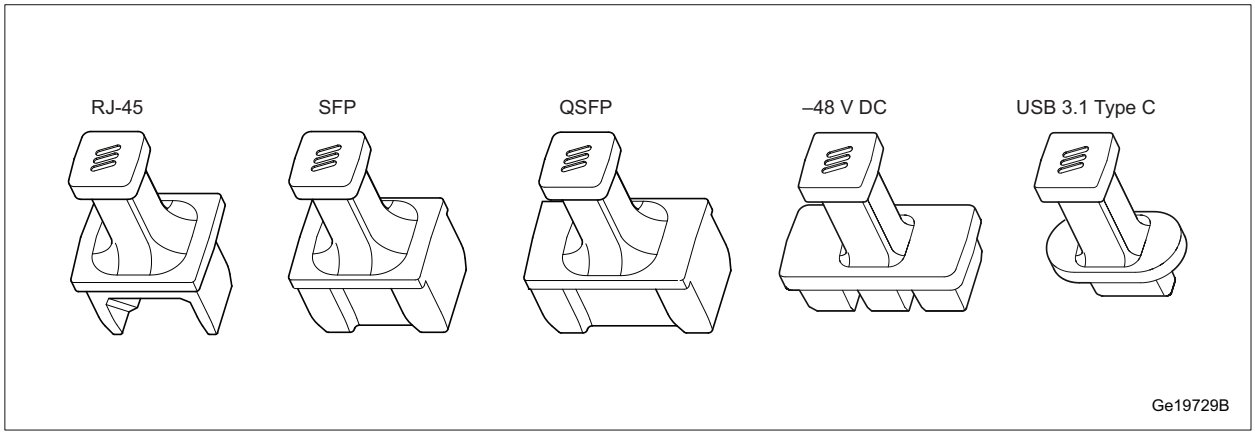

Figure 6 Dust Plugs for RJ-45, SFP28, QSFP, USB, and Power Interfaces

6 Standards and Regulations

This section presents a brief overview of standards, regulatory product approval, and declaration of conformity.

Declaration of Conformity

"*Hereby, Ericsson AB, declares that this Product is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU and 2011/65/EU.*"

6.1 Regulatory Approval

The product complies with the following market requirements:

— European Community (EC) market requirements, Radio Equipment Directive 2014/53/EU and Directive 2011/65/EU.

— Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive (2011/65/EU).

— North American market requirements.

— Products containing Radio Equipment outside North America and in countries not recognizing the CE-mark may be labeled according to national requirements or standards.

6.1.1 Environmental Standards Compliance

The product complies with the following environmental standard:

Europe

— EN 50581 (RoHS)

6.1.2 Safety Standards Compliance

In accordance with market requirements, the product complies with the following product safety standards and directives:

International

— IEC 60 529 (IP20)

— IEC 62368-1

Europe

— EN 60 529 (IP20)

— EN 62368-1

North America

— UL/CSA 62368-1

6.1.3 EMC Standards Compliance

The product complies with the following Electromagnetic Compatibility (EMC) standards:

International

— 3GPP TS37.113

Europe

— ETSI EN 301 489-1

— ETSI EN 301 489-50

North America

— FCC CFR 47 Part 15 B

— IC ICES-003 B

6.1.4 Radio Standards Compliance

The product complies with the following radio standards:

International

— 3GPP TS37.141

Europe

— ETSI EN 301 908-1

— ETSI EN 301 908-18

6.1.5 Marking

To show compliance with legal requirements the product is marked with the following labels:

Europe

— CE mark

— WEEE

North America

— usETL/cETL

— FCC CFR 47 Part 15 Statement

— IC ICES-003 Statement

China

— Logo2 marking (according to the Ericsson marking instruction 102 01-3086)

6.2 Preventive Maintenance

The product is designed for a technical lifetime of 10 years (24-hour operation).

The following preventive maintenance conditions must be fulfilled to guarantee the availability:

— Air Intake

  The air intake must be inspected (and cleaned if necessary) every year.

6.3 Spare Parts

The product adheres to the Ericsson Serviceability and Spare Part Strategy.

6.4 Transportation and Storage

For information about transportation and storage of the product, see Transportation and Storage.