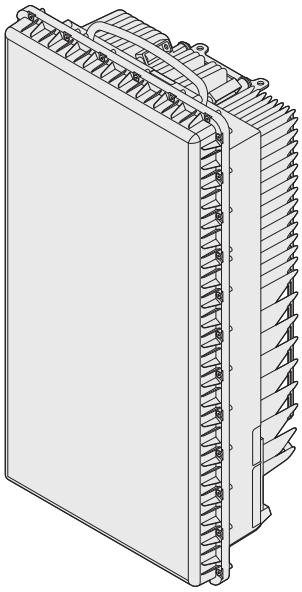
Antenna Integrated Radio Unit Description

AIR 3284



Contents

1 Product Overview

AIR 3284 has the following main features:

- Designed for outdoor use, for wall, pole, or mast mounting
- NR FDD and LTE FDD support, see Supported Radio Capabilities
- Up to 32TX/32RX branches, see Supported Radio Capabilities
- Supports Triple band operation
- Mixed mode support, see Supported Radio Capabilities
- Support for Massive MIMO, see Supported Radio Capabilities
- Vertical and horizontal beamforming
- Supports both RET and digital tilts with embedded RET. For detailed configurations, see Manage Hardware Equipment.
- EC light
- The power connection supports 2-wire (DC-C)/3-wire (DC-I)
- Two eCPRI up to 25.78 Gbps per port
- Basic Stand-alone Radio Installation Check support
- Complies with 3GPP base station class Wide Area. For a list of relevant standards, see Radio Standards Compliance.

The product is equipped with one or more warranty seal stickers.

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

1.1 Variants

- AIR 3284 B1 B3 B7

2 Technical Data

2.1 Radio Capabilities

For supported number of carriers, carrier bandwidth, operating bandwidth, IBW, frequency range, detailed RAT support, and mixed mode configurations, see Supported Radio Capabilities.

2.2 Output Power

For maximum nominal output power, see Supported Radio Capabilities.

Table 1 AIR 3284 Minimum Output Power

Product	Radio Part	Minimum Output Power (W)(1)
AIR 3284 B1 B3 B7	B1	20
	B3	20
	B1 B3	20
	B7	20

(1) Minimum configured output power without degradation in product performance.

Hardware Activation Codes (HWAC) are required for total output power over 20 W.

For detailed information about output power hardware activation codes, see Hardware-Related Capabilities in the Radio Node libraries.

For information about maximum output power per carrier type, see Radio Node Configurations.

2.3 EIRP Data

AIR 3284 can be configured in the following sector carrier types:

- NORMAL_SECTOR
- LEFT_DIGITAL_SECTOR
- RIGHT_DIGITAL_SECTOR
- LEFT_DIGITAL_SECTOR_3DS
- MIDDLE_DIGITAL_SECTOR_3DS
- RIGHT_DIGITAL_SECTOR_3DS

The sector carrier type NORMAL_SECTOR has the following four sector shapes:

- Macro
- Macro Narrow
- Macro Wide
- Hotspot

Broadcast Beams

Table 2 AIR 3284 Typical Antenna Performance Data for Broadcast Beams in NORMAL_SECTOR

Product	Radio Part	Sector Carrier Type	NORMAL_SECTOR				
		Sector Shape	Macro		Macro Narrow	Macro Wide	Hotspot
		Beam	NR	LTE	LTE	LTE	NR
		Parameters	MACRO_1	CRS0[(1)], CRS1[(2)], CRS2[(3)], CRS3[(4)]	CRS0[(1)], CRS1[(2)], CRS2[(3)], CRS3[(4)]	CRS0[(1)], CRS1[(2)], CRS2[(3)], CRS3[(4)]	BrHS1[(5)]
AIR 3284 B1 B3 B7	B1	Vertical beamwidth (°)	8 ± 1.5	8 ± 1.5	8 ± 1.5	8 ± 1.5	15 ± 3
		Horizontal beamwidth (°)	65 ± 5	65 ± 5	55 ± 5	90 ± 10	65 ± 5
		Digital downtilt (°)	2 to 12	2 to 12	2 to 12	2 to 12	7
		Vertical Beam Pointing Error (°)	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
		Horizontal Beam Pointing (°)	0 ± 5	0 ± 5	0 ± 5	0 ± 5	0 ± 5
		Vertical Side Lobe Suppression (dB)	≥ 12	≥ 12	≥ 12	≥ 12	10
		Front to back ratio	25	25	25	19	25
		EIRP (typical) (dBm)	1 X 70.5	4 X 64.5	4 X 65.0	4 X 63.0	1 X 67.5
	B3	Vertical beamwidth (°)	9 ± 1.5	9 ± 1.5	9 ± 1.5	9 ± 1.5	17.5 ± 3
		Horizontal beamwidth (°)	65 ± 5	65 ± 5	55 ± 5	90 ± 10	65 ± 5
		Digital downtilt (°)	2 to 12	2 to 12	2 to 12	2 to 12	7
		Vertical Beam Pointing Error (°)	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
		Horizontal Beam Pointing (°)	0 ± 5	0 ± 5	0 ± 5	0 ± 5	0 ± 5
		Vertical Side Lobe Suppression (dB)	≥ 12	≥ 12	≥ 12	≥ 12	10
		Front to back ratio	25	25	25	19	25
		EIRP (typical) (dBm)	1 X 69.5	4 X 63.5	4 X 64.0	4 X 62.0	1 X 66.5
	B7	Vertical beamwidth (°)	6.5 ± 1.5	6.5 ± 1.5	6.5 ± 1.5	6.5 ± 1.5	12 ± 3
		Horizontal beamwidth (°)	65 ± 5	65 ± 5	55 ± 5	90 ± 10	65 ± 5
		Digital downtilt (°)	2 to 12	2 to 12	2 to 12	2 to 12	7
		Vertical Beam Pointing Error (°)	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
		Horizontal Beam Pointing (°)	0 ± 5	0 ± 5	0 ± 5	0 ± 5	0 ± 5
		Vertical Side Lobe Suppression (dB)	≥ 12	≥ 12	≥ 12	≥ 12	10

Product	Radio Part	Sector Carrier Type	NORMAL_SECTOR				
		Sector Shape	Macro		Macro Narrow	Macro Wide	Hotspot
		Beam	NR	LTE	LTE	LTE	NR
		Parameters	MACRO_1	CRS0[(1)], CRS1[(2)], CRS2[(3)], CRS3[(4)]	CRS0[(1)], CRS1[(2)], CRS2[(3)], CRS3[(4)]	CRS0[(1)], CRS1[(2)], CRS2[(3)], CRS3[(4)]	BrHS1[(5)]
		Front to back ratio	25	25	25	19	25
		EIRP (typical) (dBm)	1 X 70.5	4 X 64.5	4 X 65.0	4 X 63.0	1 X 67.5

(1) Cell Reference Signal 0
(2) Cell Reference Signal 1
(3) Cell Reference Signal 2
(4) Cell Reference Signal 3
(5) Broadcast Beam Hotspot 1

Table 3 AIR 3284 Typical Antenna Performance Data for Broadcast Beams in Digital Sectors

Product	Radio Part	Sector Carrier Type	2DS Left	2DS Right	3DS Left	3DS Right	3DS Middle
		Beam	LTE	LTE	LTE	LTE	LTE
		Parameters	CRS0[(6)], CRS1[(7)], CRS2[(8)], CRS3[(9)]	CRS0[(6)], CRS1[(7)], CRS2[(8)], CRS3[(9)]	CRS0[(6)], CRS1[(7)], CRS2[(8)], CRS3[(9)]	CRS0[(6)], CRS1[(7)], CRS2[(8)], CRS3[(9)]	CRS0[(6)], CRS1[(7)], CRS2[(8)], CRS3[(9)]
AIR 3284 B1 B3 B7	B1	Vertical beamwidth (°)	8 ± 1.5	8 ± 1.5	8 ± 1.5	8 ± 1.5	8 ± 1.5
		Horizontal beamwidth (°)	34.5 ± 3	34.5 ± 3	24.5 ± 3	24.5 ± 3	20.5 ± 3
		Digital downtilt (°)	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12
		Vertical Beam Pointing Error (°)	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
		Horizontal Beam Pointing(°)	26 ± 4	−26 ± 4	37 ± 3	−37 ± 3	0 ± 3
		Vertical Side Lobe Suppression (dB)	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12
		Front to back ratio	25	25	25	25	25
		EIRP (typical) (dBm)	4 X 63.5	4 X 63.5	4 X 62.5	4 X 62.5	4 X 64.0
	B3	Vertical beamwidth (°)	9 ± 1.5	9 ± 1.5	9 ± 1.5	9 ± 1.5	9 ± 1.5
		Horizontal beamwidth (°)	31.5 ± 3	31.5 ± 3	24.5 ± 3	24.5 ± 3	20.5 ± 3
		Digital downtilt (°)	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12
		Vertical Beam Pointing Error (°)	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
		Horizontal Beam Pointing(°)	26 ± 4	−26 ± 4	37 ± 3	−37 ± 3	0 ± 3
		Vertical Side Lobe Suppression (dB)	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12
		Front to back ratio	25	25	25	25	25

Product	Radio Part	Sector Carrier Type	2DS Left	2DS Right	3DS Left	3DS Right	3DS Middle
		Beam	LTE	LTE	LTE	LTE	LTE
		Parameters	CRS0[6], CRS1[7], CRS2[8], CRS3[9]	CRS0[6], CRS1[7], CRS2[8], CRS3[9]	CRS0[6], CRS1[7], CRS2[8], CRS3[9]	CRS0[6], CRS1[7], CRS2[8], CRS3[9]	CRS0[6], CRS1[7], CRS2[8], CRS3[9]
		EIRP (typical) (dBm)	4 X 63.0	4 X 63.0	4 X 61.5	4 X 61.5	4 X 63.0
	B7	Vertical beamwidth (°)	6.5 ± 1.5	6.5 ± 1.5	6.5 ± 1.5	6.5 ± 1.5	6.5 ± 1.5
		Horizontal beamwidth (°)	38.5 ± 3	38.5 ± 3	24.5 ± 3	24.5 ± 3	25.5 ± 3
		Digital downtilt (°)	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12
		Vertical Beam Pointing Error (°)	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
		Horizontal Beam Pointing (°)	26 ± 4	−26 ± 4	37 ± 3	−37 ± 3	0 ± 3
		Vertical Side Lobe Suppression (dB)	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12
		Front to back ratio	25	25	25	25	25
		EIRP (typical) (dBm)	4 X 63.5	4 X 63.5	4 X 62.0	4 X 62.0	4 X 63.5

(6) Cell Reference Signal 0
(7) Cell Reference Signal 1
(8) Cell Reference Signal 2
(9) Cell Reference Signal 3

Traffic Beams

Table 4 AIR 3284 Typical Antenna Performance Data for Traffic Beams in NORMAL_SECTOR

Product	Radio Part	Sector Carrier Type	NORMAL_SECTOR			
		Sector Shape	Macro	Macro Narrow	Macro Wide	Hotspot
		Uniform Traffic Beams[10]	Main Beam Peak EIRP[11][12]			
AIR 3284 B1 B3 B7	B1	NR (Based on 32 Port CSI-RS) (dBm)	1 x 76.5	–	–	1 x 76.5
		LTE (TM4) (dBm)	1 x 73.0	1 x 73.5	1 x 72.5	–
		LTE (TM9) (dBm)	1 x 76.5	1 x 76.5	1 x 76.5	–
	B3	NR (Based on 32 Port CSI-RS) (dBm)	1 x 75.0	–	–	1 x 75.0
		LTE (TM4) (dBm)	1 x 72.0	1 x 72.0	1 x 71.5	–
		LTE (TM9) (dBm)	1 x 75.0	1 x 75.0	1 x 75.0	–
	B7	NR (Based on 32 Port CSI-RS) (dBm)	1 x 77.5	–	–	1 x 77.5
		LTE (TM4) (dBm)	1 x 73.0	1 x 73.5	1 x 72.0	–
		LTE (TM9) (dBm)	1 x 77.5	1 x 77.5	1 x 77.5	–

(10) The traffic beamforming of this product is not limited to the uniform beamshapes and directions given in the table. The beams are dynamically optimized.
(11) The main beam peak EIRP in the table is calculated for two simultaneous orthogonal beams.
(12) This value can be limited by the activation of certain features.

Table 5 AIR 3284 Typical Antenna Performance Data for Traffic Beams in Digital Sectors

Product	Radio Part	Sector Carrier Type	2DS Left	2DS Right	3DS Left	3DS Right	3DS Middle
		UniformTraffic Beams[13]	Peak EIRP of all PMI				
AIR 3284 B1 B3 B7	B1	LTE (TM4) (dBm)	1 × 71.5	1 × 71.5	1 × 69.0	1 × 69.0	1 × 71.0
	B3	LTE (TM4) (dBm)	1 × 70.0	1 × 70.0	1 × 67.5	1 × 67.5	1 × 69.5
	B7	LTE (TM4) (dBm)	1 × 72.5	1 × 72.5	1 × 70.0	1 × 70.0	1 × 72.0

(13) The traffic beamforming of this product is not limited to the uniform beamshapes and directions given in the table. The beams are dynamically optimized.

2.4 Physical Characteristics

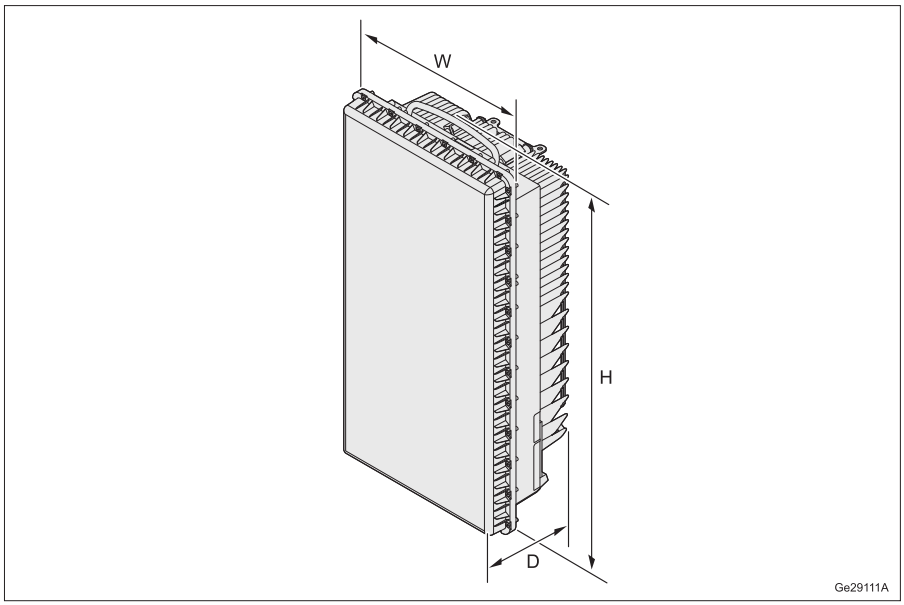


Figure 1 AIR 3284 Dimensions

Table 6 AIR 3284 Dimensions

Product		Height, H (mm)	Width, W (mm)	Depth, D (mm)
AIR 3284 B1 B3 B7	With protrusions	1022	508	341
	Without protrusions	1000	508	278

Table 7 AIR 3284 Weight

Product	Weight (kg)[1]
AIR 3284 B1 B3 B7	45.0

(1) The weight is given with ±5% accuracy.

Table 8 AIR 3284 Color

Color	Color Code
Gray	NCS S 1002-B

2.5 Operating Environment

Table 9 AIR 3284 Normal Operating Environment Values

Condition	Value
Temperature[1]	−40°C to +55°C
Solar radiation	≤ 1,120 W/m²
Relative humidity	2% to 100%
Absolute humidity	0.26 to 40 g/m³

(1) Depending on installation scenario, traffic load, ambient temperature and configuration, the internal heat can cause temporary reduction of output power.

2.6 Wind Load

Table 10 AIR 3284 Maximum Wind Load at 42 m/s

Product	Front (N)(1)	Side (N)(1)
AIR 3284 B1 B3 B7	503	274

(1) According to the CFD simulation result.

2.7 Heat Dissipation

AIR 3284 is convection cooled and designed for outdoor installation.

Max heat dissipation is calculated using the following formula:

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Max Heat Dissipation = Max Power Consumption – Configured Output Power
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Heat dissipation can be calculated for different traffic loads using values from Power Consumption Data. For more information, see Power Consumption Calculations.

2.8 Vibration

For information on which standards the product meets, see Vibration and Shock.

2.9 Acoustic Noise

AIR 3284 does not have active cooling components. However, it can emit low levels of acoustic noise when operating on low capacity. The sound pressure level when operating on low capacity is lower than 28 dBA at 1-meter distance for hemispherical distribution, and 25 dBA for spherical distribution.

2.10 Power Supply Characteristics

This section describes the power supply characteristics, circuit breaker (CB) recommendations and power consumption.

2.10.1 DC Power Supply Characteristics

The following DC power supply characteristics apply:

Table 11 DC Power Supply Characteristics

Conditions	Values and Ranges
Rated Voltage	−48 V DC
Operating Voltage Range	−36.0 to −58.5 V DC
Startup Voltage(1)	Above −39 V DC

(1) For AIR 3284 B1 B3 B7, startup voltage is −39 V DC, and the startup voltage with carriers setup support is above −46 V DC.

Circuit Breaker Specifications

The product must be preceded by a protection device. The protection device is recommended to be an external circuit breaker that fulfills the following general characteristics:

- Provides protection for DC circuits
- Has a working voltage of at least 80 V DC
- Has short time-delay tripping characteristics, according to the curve shown in Figure 2
- Complies with local regulations.

The other characteristics of the circuit breaker must be according to IEC 60947-2, UL 489A, or both.

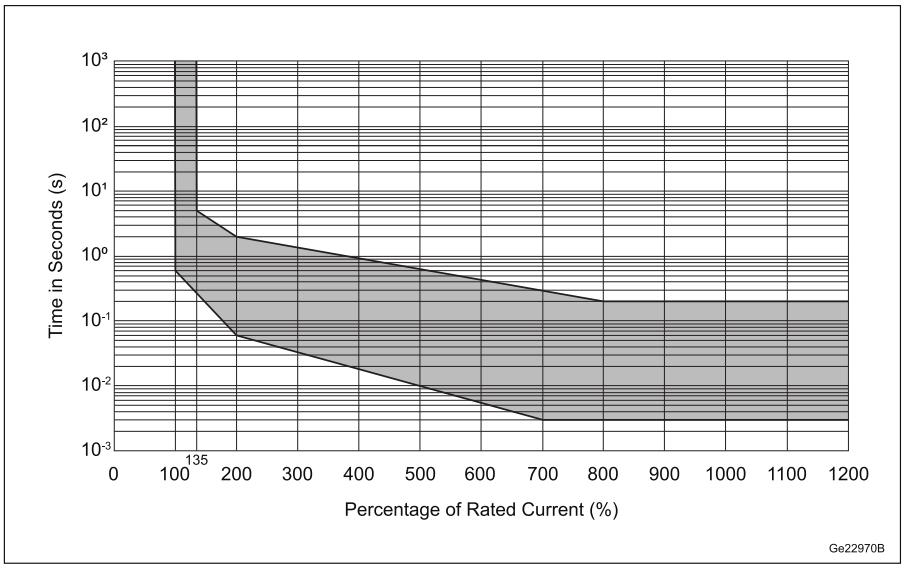


Figure 2 DC Circuit Breaker Tripping Curve

The gray area represents the acceptable tolerance range of the tripping curve of a circuit breaker with short-time delay tripping characteristics. The tripping curve of the chosen circuit breaker, including its tolerances, must fall fully within the gray area.

As seen in Figure 2, the circuit breaker only trips fast in circumstances where the short-circuit current is greater than 135% of the rated current of the circuit breaker. To ensure effective protection, it is recommended that the available short-circuit current is equal to or greater than 150% of the rated current of the circuit breaker.

Table 12 Circuit Breaker Recommendations

Product	Power Port	Recommended CB Rating(2)	Maximum Allowed CB Rating(3)
AIR 3284 B1 B3 B7	A	50 A	50 A
	B	20 A	25 A

(2) At 100% output RF power.
(3) Product Safety Certification is valid up to this value.

2.10.2 Power Consumption

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

2.11 RF Electromagnetic Field Exposure

For general information on RF EMF exposure, see Radio Frequency Electromagnetic Fields.

The tables list the compliance boundaries (exclusion zones), outside of which the RF EMF exposure from AIR 3284 is below the limits specified by the ICNIRP, and the limits applicable in:

- EU (1999/519/EC, 2013/35/EU, EN 50385)
- Australia (ARPANSA RPS S-1)

Information is provided for the theoretical maximum exposure condition and for the actual maximum exposure condition (see EN/IEC 62232). The theoretical maximum exposure condition does not consider how the time-averaged power is distributed within the scan range of the product and is very conservative. The actual maximum exposure condition takes into account the effects of beam scanning on the time-averaged power that contributes to the RF exposure. A Power Reduction Factor (PRF) of 0.32 was used to represent realistic deployment scenarios (see IEC TR 62669).

Note: National regulations can prescribe requirements on the use of actual maximum exposure conditions for RF EMF compliance assessments.

Table 13 Dimensions of the box-shaped compliance boundary for general public (GP) and occupational (O) exposure applicable in the EU and markets employing the ICNIRP RF exposure limits.

Mode and Output Power									Dimensions of the box-shaped compliance boundary[1][2] (m)							
Product	Band	Standard	IEC 62232 Installation Class	Power Tolerance	Maximum Nominal Output Power from the Radio	Exposure Condition	Sector Shape [3]	Electrical Tilt (deg)	Distance in Front of EUT		Width		Height		Distance Behind EUT	
									GP	O	GP	O	GP	O	GP	O
AIR 3284 B1 B3 B7	B1 + B3 + B7	LTE [4]	E+	1 dB	80 W (B1) + 240 W (B3) + 200 W (B7)	Theoretical maximum	2DS Left, 2DS Right	2	17.6	7.9	19.3	8.7	3.5	1.6	1.1	0.4
								7	18.3	8.2	20.1	9	5.2	2.4	1.1	0.4
								12	17.2	7.7	19.4	8.7	7.6	3.4	1	0.3
							3DS Left, 3DS Right	2	16.4	7.3	20	9	3.1	1.4	1.1	0.4
								7	16.9	7.6	20.9	9.4	4.8	2.2	1.2	0.4
								12	15.9	7.2	20.2	9	7	3.2	1.1	0.4
							3DS Middle	2	17.4	7.8	5.4	2.5	3.5	1.6	0.4	0.1
								7	18.2	8.2	5.8	2.6	5.2	2.4	0.3	0
								12	17.1	7.7	5.6	2.5	7.6	3.4	0.3	0
							Macro in Transmission Mode 4	2	18.4	8.2	14.7	6.6	3.8	1.7	0.9	0.3
								7	19.1	8.6	15.4	6.9	5.5	2.5	0.9	0.3
								12	18	8.1	14.9	6.7	8	3.6	0.8	0.3
							Macro in Transmission Mode 9	2	28.5	12.8	19.8	8.9	6	2.7	1.3	0.5
								7	29.8	13.3	20.6	9.2	8.5	3.8	1.7	0.6
								12	28	12.5	20	9	12.3	5.6	1.6	0.6
							Macro Narrow	2	20.2	9.1	14.7	6.6	4.1	1.8	0.9	0.3
								7	21	9.4	15.4	6.9	6	2.7	0.9	0.3
								12	19.8	8.9	15	6.7	8.8	3.9	0.8	0.2
							Macro Wide	2	17.6	7.9	16.6	7.4	3.4	1.5	1	0.3
								7	18.1	8.1	17.3	7.8	5.2	2.4	1	0.3
								12	17.2	7.7	16.7	7.5	7.6	3.4	1	0.3
						Actual maximum	2DS Left, 2DS Right	2	11.7	5.3	12.6	5.7	2.3	1.1	0.6	0.2
								7	12.2	5.5	13.1	5.9	3.5	1.6	0.6	0.2
								12	11.5	5.2	12.7	5.7	5.1	2.3	0.6	0.1
							3DS Left, 3DS Right	2	11	5	13.4	6	2.1	1	0.7	0.2
								7	11.4	5.1	13.9	6.2	3.3	1.5	0.7	0.2
								12	10.7	4.8	13.4	6	4.8	2.2	0.7	0.2
							3DS Middle	2	11.7	5.3	3.6	1.6	2.3	1.1	0.2	0
								7	12.2	5.5	3.8	1.7	3.5	1.6	0.2	0
								12	11.5	5.2	3.6	1.7	5.1	2.3	0.1	0
							Macro in Transmission Mode 4	2	12.1	5.5	9.6	4.3	2.5	1.1	0.5	0.1
								7	12.6	5.7	10	4.5	3.6	1.6	0.5	0.1
								12	11.9	5.3	9.7	4.4	5.3	2.4	0.5	0.1
							Macro in Transmission Mode 9	2	17.3	7.8	12.1	5.5	3.6	1.7	0.7	0.2
								7	18	8.1	12.7	5.7	5.2	2.3	0.9	0.3
								12	17	7.6	12.3	5.5	7.5	3.4	0.8	0.2
							Macro Narrow	2	13.4	6	9.5	4.3	2.7	1.2	0.5	0.1
								7	13.9	6.2	9.9	4.4	4	1.8	0.5	0.1
								12	13.1	5.9	9.6	4.3	5.8	2.6	0.4	0.1
							Macro Wide	2	11.3	5.1	10.8	4.9	2.2	1	0.6	0.1
								7	11.6	5.2	11.3	5.1	3.4	1.5	0.6	0.1
								12	11.1	5	10.9	4.9	4.9	2.2	0.6	0.1
					160 W (B1) + 160 W (B3) + 200 W (B7)	Theoretical maximum	2DS Left, 2DS Right	2	17.8	8	19.6	8.8	3.5	1.6	0.9	0.3
								7	18.5	8.3	20.5	9.2	5.3	2.4	1	0.3
								12	17.4	7.8	19.8	8.9	7.7	3.5	0.9	0.3
							3DS Left, 3DS Right	2	16.6	7.4	20.4	9.1	3.1	1.4	1	0.3
								7	17.1	7.7	21.2	9.5	4.9	2.2	1	0.3
								12	16.1	7.2	20.5	9.2	7.1	3.2	1	0.3
							3DS Middle	2	17.6	7.9	5.5	2.5	3.5	1.6	0.4	0
								7	18.4	8.3	5.8	2.6	5.2	2.4	0.4	0

Mode and Output Power									Dimensions of the box-shaped compliance boundary[1][2] (m)							
Product	Band	Standard	IEC 62232 Installation Class	Power Tolerance	Maximum Nominal Output Power from the Radio	Exposure Condition	Sector Shape [3]	Electrical Tilt (deg)	Distance in Front of EUT		Width		Height		Distance Behind EUT	
									GP	O	GP	O	GP	O	GP	O
								12	17.3	7.8	5.6	2.5	7.6	3.4	0.3	0
							Macro in Transmission Mode 4	2	18.5	8.3	14.8	6.6	3.8	1.7	0.8	0.2
								7	19.3	8.7	15.5	6.9	5.5	2.5	0.8	0.2
								12	18.2	8.2	15	6.7	8	3.6	0.7	0.2
							Macro in Transmission Mode 9	2	28.8	12.9	19.9	8.9	6	2.7	1.1	0.4
								7	30.1	13.5	20.8	9.3	8.6	3.9	1.4	0.5
								12	28.3	12.7	20.2	9	12.5	5.6	1.4	0.5
							Macro Narrow	2	20.5	9.2	14.7	6.6	4.1	1.8	0.8	0.2
								7	21.3	9.6	15.3	6.9	6.1	2.8	0.8	0.2
								12	20.1	9	14.9	6.7	8.9	4	0.7	0.2
							Macro Wide	2	17.6	7.9	16.8	7.5	3.4	1.5	0.9	0.3
								7	18.2	8.2	17.5	7.9	5.2	2.4	1	0.3
								12	17.3	7.8	16.9	7.6	7.6	3.4	0.9	0.3
						Actual maximum	2DS Left, 2DS Right	2	11.8	5.3	12.8	5.7	2.3	1.1	0.5	0.1
								7	12.3	5.5	13.3	6	3.5	1.6	0.6	0.1
								12	11.6	5.2	12.9	5.8	5.1	2.3	0.5	0.1
							3DS Left, 3DS Right	2	11.2	5	13.5	6.1	2.1	1	0.6	0.1
								7	11.5	5.2	14.1	6.3	3.3	1.5	0.6	0.2
								12	10.8	4.9	13.6	6.1	4.8	2.2	0.6	0.1
							3DS Middle	2	11.8	4.9	13.6	6.1	4.8	2.2	0.6	0.1
								7	12.3	5.5	3.8	1.7	3.5	1.6	0.2	0
								12	11.6	5.2	3.7	1.7	5.1	2.3	0.1	0
							Macro in Transmission Mode 4	2	12.2	5.5	9.6	4.3	2.5	1.1	0.4	0.1
								7	12.7	5.7	10.1	4.5	3.6	1.7	0.4	0.1
								12	12	5.4	9.7	4.4	5.3	2.4	0.4	0
							Macro in Transmission Mode 9	2	17.5	7.9	12.2	5.5	3.6	1.7	0.6	0.1
								7	18.3	8.2	12.8	5.7	5.2	2.4	0.7	0.2
								12	17.2	7.7	12.4	5.6	7.6	3.4	0.7	0.2
							Macro Narrow	2	13.5	6.1	9.4	4.2	2.7	1.2	0.4	0.1
								7	14	6.3	9.9	4.4	4	1.8	0.4	0.1
								12	13.2	5.9	9.6	4.3	5.8	2.6	0.4	0
							Macro Wide	2	11.3	5.1	10.9	4.9	2.2	1	0.5	0.1
								7	11.7	5.3	11.4	5.1	3.4	1.5	0.5	0.1
								12	11.1	5	11	5	4.9	2.2	0.5	0.1
					240 W (B1) + 80 W (B3) + 200 W (B7)	Theoretical maximum	2DS Left, 2DS Right	2	18	8.1	19.9	8.9	3.6	1.6	0.8	0.2
								7	18.7	8.4	20.8	9.3	5.3	2.4	0.8	0.2
								12	17.6	7.9	20.1	9	7.8	3.5	0.8	0.2
							3DS Left, 3DS Right	2	16.7	7.5	20.7	9.3	3.1	1.4	0.9	0.3
								7	17.3	7.8	21.6	9.7	4.9	2.2	0.9	0.3
								12	16.3	7.3	20.8	9.3	7.2	3.2	0.9	0.3
							3DS Middle	2	17.8	8	5.6	2.5	3.6	1.6	0.4	0
								7	18.6	8.3	5.9	2.7	5.3	2.4	0.4	0
								12	17.5	7.8	5.7	2.6	7.7	3.5	0.3	0
							Macro in Transmission Mode 4	2	18.7	8.4	14.8	6.7	3.8	1.7	0.6	0.1
								7	19.5	8.7	15.5	7	5.5	2.5	0.6	0.1
								12	18.3	8.2	15.1	6.8	8.1	3.6	0.6	0.1
							Macro in Transmission Mode 9	2	29.2	13.1	20.1	9	6	2.7	0.9	0.3
								7	30.5	13.7	21	9.4	8.7	3.9	1.2	0.4
								12	28.7	12.8	20.3	9.1	12.6	5.7	1.1	0.4
							Macro Narrow	2	20.8	9.3	14.6	6.6	4.2	1.9	0.6	0.1

Mode and Output Power									Dimensions of the box-shaped compliance boundary[1][2] (m)							
Product	Band	Standard	IEC 62232 Installation Class	Power Tolerance	Maximum Nominal Output Power from the Radio	Exposure Condition	Sector Shape [3]	Electrical Tilt (deg)	Distance in Front of EUT		Width		Height		Distance Behind EUT	
									GP	O	GP	O	GP	O	GP	O
						Actual maximum	Macro Wide	7	21.6	9.7	15.3	6.9	6.2	2.8	0.6	0.2
								12	20.3	9.1	14.8	6.7	9	4	0.6	0.1
								2	17.6	7.9	16.9	7.6	3.6	1.6	0.8	0.2
								7	18.2	8.2	17.7	8	5.2	2.4	0.9	0.3
								12	17.3	7.8	17.1	7.7	7.7	3.5	0.8	0.2
							2DS Left, 2DS Right	2	11.9	5.4	12.9	5.8	2.4	1.1	0.4	0.1
								7	12.4	5.6	13.5	6.1	3.5	1.6	0.5	0.1
								12	11.7	5.2	13	5.9	5.2	2.3	0.5	0.1
							3DS Left, 3DS Right	2	11.3	5.1	13.7	6.2	2.1	1	0.5	0.1
								7	11.6	5.2	14.3	6.4	3.3	1.5	0.5	0.1
								12	10.9	4.9	13.8	6.2	4.8	2.2	0.5	0.1
							3DS Middle	2	11.9	5.3	3.6	1.6	2.4	1.1	0.2	0
								7	12.4	5.6	3.8	1.7	3.5	1.6	0.2	0
								12	11.6	5.2	3.7	1.7	5.2	2.3	0.2	0
							Macro in Transmission Mode 4	2	12.3	5.5	9.6	4.3	2.5	1.2	0.3	0
								7	12.8	5.8	10.1	4.6	3.7	1.7	0.3	0
								12	12.1	5.4	9.8	4.4	5.3	2.4	0.3	0
							Macro in Transmission Mode 9	2	17.7	7.9	12.3	5.5	3.6	1.7	0.4	0.1
								7	18.5	8.3	12.9	5.8	5.3	2.4	0.6	0.1
								12	17.4	7.8	12.5	5.6	7.7	3.5	0.6	0.1
							Macro Narrow	2	13.6	6.1	9.4	4.2	2.8	1.3	0.3	0
								7	14.2	6.4	9.9	4.4	4.1	1.8	0.3	0
								12	13.4	6	9.6	4.3	5.9	2.7	0.3	0
							Macro Wide	2	11.3	5.1	11	5	2.3	1.1	0.5	0.1
								7	11.7	5.3	11.5	5.2	3.4	1.5	0.5	0.1
								12	11.1	5	11.1	5	4.9	2.2	0.5	0.1

(1) The compliance boundaries are determined for maximum output power with power tolerance included, and for theoretical maximum and actual maximum exposure conditions.
(2) For LTE, the compliance boundaries are determined for 75% of the power allocated to traffic beams and 25% to the broadcast beam. For actual maximum power conditions, the PRF of 0.32 was applied only to the power fraction allocated to traffic beams.
(3) The sector shapes 2DS Left and 2DS Right operate with half of the maximum nominal output power from the radio, and the sector shapes 3DS Left, 3DS Middle and 3DS Right operate with one third of the maximum nominal power. EMF compliance distances for the sector shape 2DS are obtained as the maximum of those obtained for 2DS Left and 2DS Right, and EMF compliance distances for the sector shape 3DS are obtained as the maximum of those obtained for 3DS Left, 3DS Middle and 3DS Right.
(4) For NR+LTE mixed mode, the results for NR apply.

Table 14 Dimensions of the box-shaped compliance boundary for general public (GP) and occupational (O) exposure applicable in the EU and markets employing the ICNIRP RF exposure limits.

Mode and Output Power									Dimensions of the box-shaped compliance boundary[5] (m)							
Product	Band	Standard	IEC 62232 Installation Class	Power Tolerance	Maximum Nominal Output Power from the Radio	Exposure Condition	Sector Shape	Electrical Tilt (deg)	Distance in Front of EUT		Width		Height		Distance Behind EUT	
									GP	O	GP	O	GP	O	GP	O
AIR 3284 B1 B3 B7	B1 + B3 + B7	NR[6]	E+	1 dB	80 W (B1) + 240 W (B3) + 200 W (B7)	Theoretical maximum	Macro	2	32.0	14.3	37.9	17.0	9.5	4.3	2.5	1.0
							Macro, Hotspot	7	33.0	14.8	39.0	17.5	11.5	5.2	2.5	1.0
							Macro	12	31.5	14.1	37.9	17.0	14.6	6.6	2.5	1.0
						Actual maximum	Macro	2	18.1	8.1	21.5	9.6	5.4	2.4	1.3	0.5
							Macro, Hotspot	7	18.7	8.4	22.1	9.9	6.5	3.0	1.3	0.5
							Macro	12	17.9	8.0	21.5	9.6	8.3	3.7	1.3	0.5
					160 W (B1) + 160 W (B3) +	Theoretical maximum	Macro	2	32.4	14.5	38.4	17.2	9.9	4.5	2.3	0.9
							Macro, Hotspot	7	33.4	14.9	39.6	17.7	11.6	5.2	2.4	0.9
							Macro	12	32.0	14.3	38.5	17.2	14.8	6.6	2.3	0.9

Mode and Output Power									Dimensions of the box-shaped compliance boundary[5] (m)							
Product	Band	Standard	IEC 62232 Installation Class	Power Tolerance	Maximum Nominal Output Power from the Radio	Exposure Condition	Sector Shape	Electrical Tilt (deg)	Distance in Front of EUT		Width		Height		Distance Behind EUT	
									GP	O	GP	O	GP	O	GP	O
					200 W (B7)	Actual maximum	Macro	2	18.3	8.2	21.8	9.8	5.6	2.5	1.2	0.4
							Macro, Hotspot	7	18.9	8.5	22.4	10.0	6.6	3.0	1.2	0.4
							Macro	12	18.1	8.1	21.8	9.8	8.4	3.8	1.2	0.4
					240 W (B1) + 80 W (B3) + 200 W (B7)	Theoretical maximum	Macro	2	32.7	14.7	39.0	17.4	10.3	4.6	2.2	0.8
							Macro, Hotspot	7	33.7	15.1	40.1	18.0	11.7	5.3	2.2	0.9
							Macro	12	32.4	14.5	39.0	17.5	14.9	6.7	2.2	0.8
						Actual maximum	Macro	2	18.5	8.3	22.1	9.9	5.9	2.6	1.1	0.4
							Macro, Hotspot	7	19.1	8.6	22.7	10.2	6.6	3.0	1.2	0.4
							Macro	12	18.3	8.2	22.1	9.9	8.5	3.8	1.1	0.4

(5) The compliance boundaries are determined for maximum output power with power tolerance included, and for theoretical maximum and actual maximum exposure conditions.
(6) For NR+LTE mixed mode, the results for NR apply.

2.12 Software

For information on software dependencies, see Supported Radio Capabilities.

2.13 Radio Configurations

For information about available radio configurations, see Radio Node Configurations.

2.14 Cooling Fluid

This unit has hermetically sealed compartments containing fluorinated greenhouse gases with the characteristics shown in Table 15.

To avoid the emission of the fluorinated greenhouse gases into the atmosphere during recovering, follow the instructions in Cooling Fluid Recovery for Radio Units.

Table 15 Cooling Fluid Characteristics

Item	Value
Refrigerant type	R1233zd
Quantity	0.55 kg
Global Warning Potential (GWP)	4.5

3 Hardware Architecture

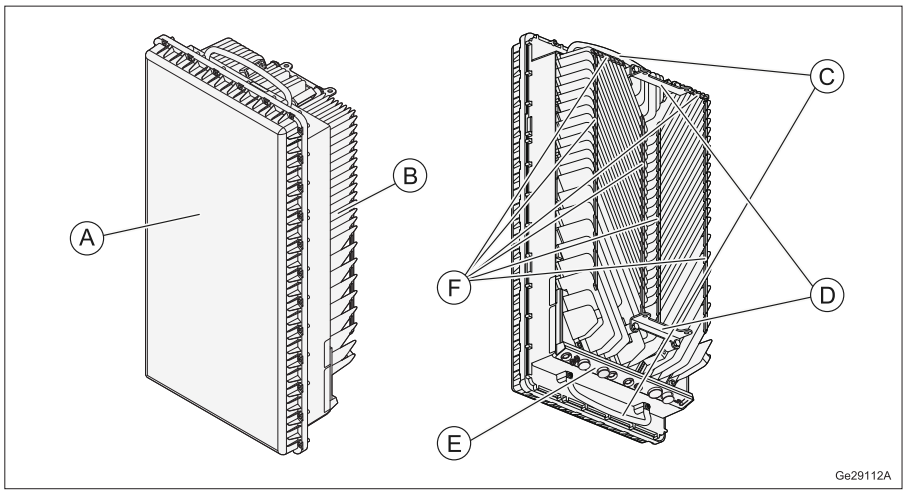


Figure 3 AIR 3284 Parts

Table 16 AIR 3284 Parts

Position	Component
A	Radome
B	Cooling fins
C	Handles
D	L-shape brackets
E	Connection interfaces
F	Crossing bars

4 Installation Requirements

AIR 3284 is designed for outdoor use, and it can be installed either on a pole, on a wall, or on a mast.

Pole clamps, brackets, mounting accessories and other installation material or equipment specified by Ericsson must be used and Ericsson installation instructions be complied with.

4.1 Outdoor Installation Environments to Avoid

To ensure optimal operation, avoid the following:

- Hot microclimates caused by, for example, heat radiated or reflected from dark, metallic or glass surfaces
- Chimney mouths or ventilation system outlets

Avoid radio interference by keeping the area in front of the antenna clear of the following:

- Metal surfaces or objects such as ladders, cabinets, enclosures
- Equipment generating electromagnetic fields, for example, electric motors in air conditioners or diesel generators

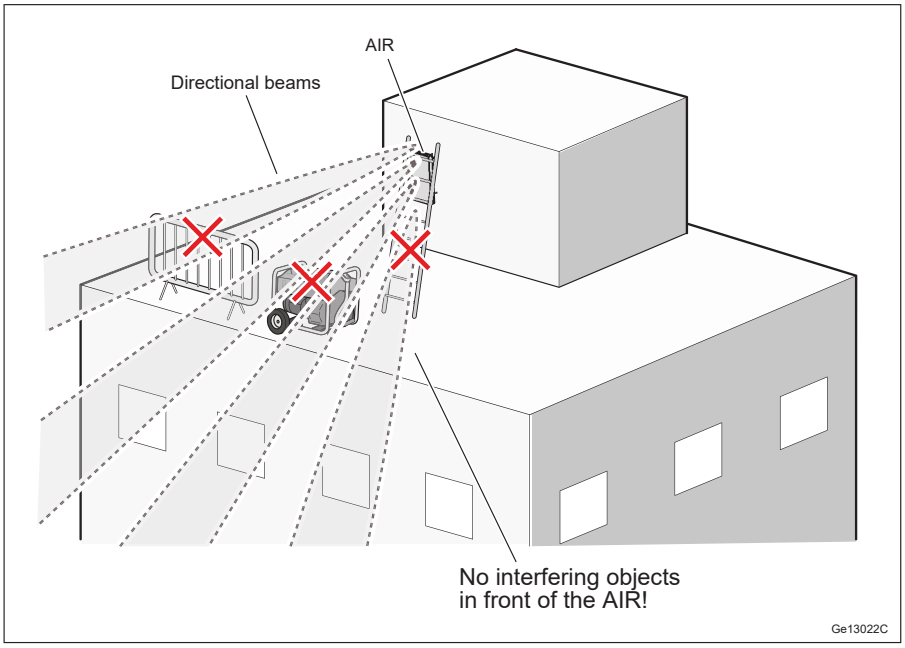


Figure 4 Objects to Avoid in Front of AIR 3284

4.2 Installation Alternatives

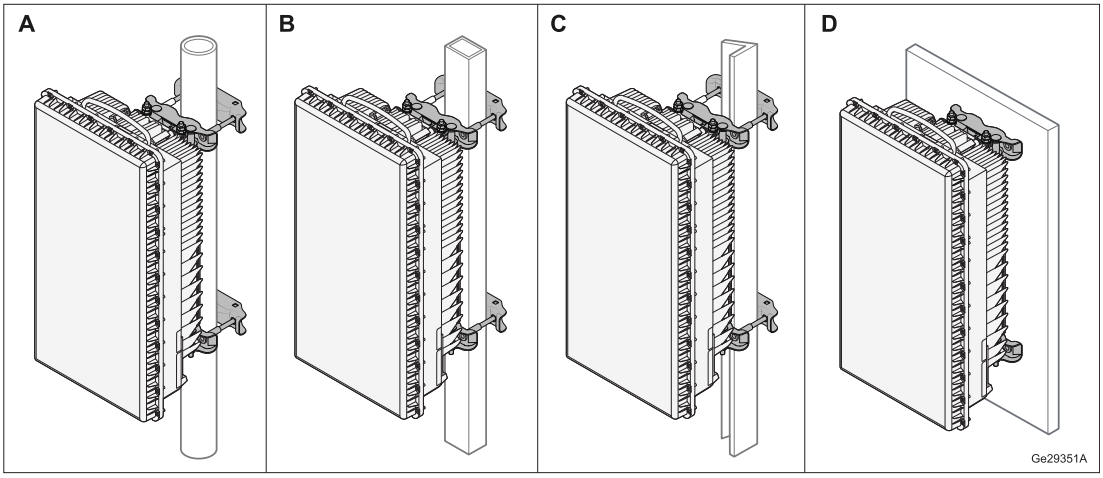


Figure 5 AIR 3284 Installation Alternatives

Table 17 AIR 3284 Installation Alternatives

Installation Method	Description
A	Pole installation (pole with circular cross section)
B	Pole installation (pole with square cross section)
C	Pole installation (pole with 90° angle cross section)
D	Wall installation

Tilt and swivel are supported depending on mounting bracket.

For information on valid mounting brackets, see Site Installation Products Overview.

4.3 Space Requirements

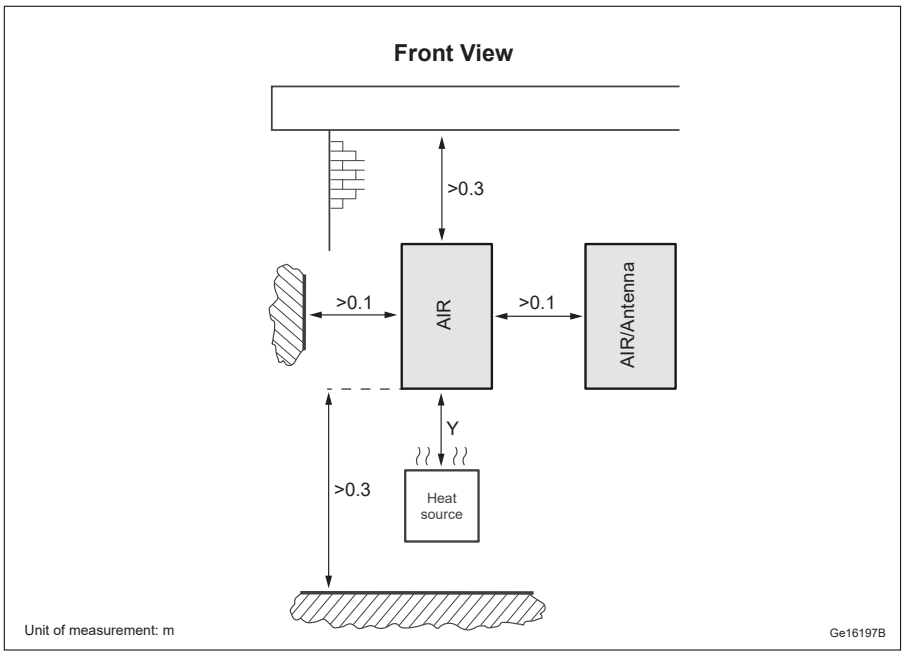


Figure 6 Space Requirements for AIR 3284

Distance Y depends on the heat dissipation from the source below AIR 3284 and the surrounding temperature. The distance must be large enough so that the maximum operating temperature limit is not exceeded.

Table 18 Temperature Increase Due to Heat Source Below AIR 3284 at Different Distances

Distance Y	Heat Dissipation from Source Below AIR 3284			
	350 W	500 W	950 W	1200 W
0.2 m	1°C	3°C	5°C	6°C
0.3 m	0°C	1°C	3°C	4°C
0.5 m	0°C	0°C	2°C	3°C

To ensure adequate airflow, do not enclose AIR 3284 in a box-like environment.

AIR 3284 is installed with the cable connections facing down. Allow enough free space below AIR 3284 to ensure sufficient working space.

4.4 Painting Disclaimer

Ericsson recommends to not paint the product as it can affect performance of the product.

Ericsson applies limitations to the warranty and service contract if the product is painted.

If the product is painted, the following commercial limitations apply:

- Failure modes directly related to overheating because of painting are not valid for repair within the scope of the warranty or standard service contract.
- Product failures related to paint contamination of components of the unit are not valid for repair within the scope of warranty or standard service contract.
-

When a painted unit is repaired, it might be restored to the standard color before being returned to the market. It is not possible to guarantee that the same unit is sent back to the same place. This is also valid for units repaired under a service contract.

- For repairs within the warranty period or a standard service contract, the customer is charged the additional costs for replacing all painted parts of the unit or the complete unit.

If adaptations are required, contact Ericsson for information.

5 Interfaces

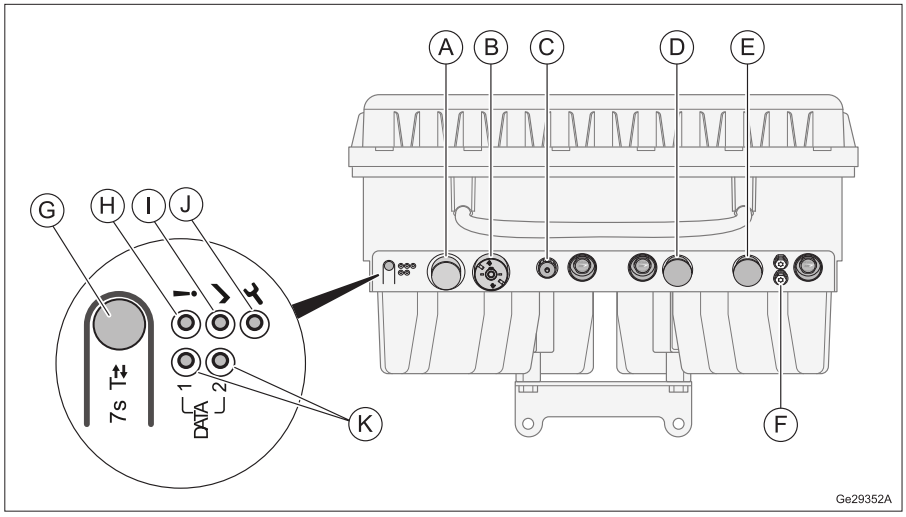
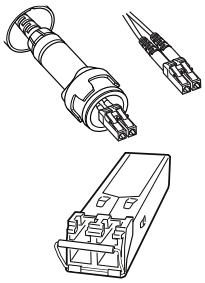
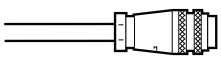
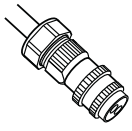
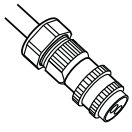


Figure 7 AIR 3284 Connection Interfaces, Optical Indicators, and Buttons

Table 19 AIR 3284 Connection Interfaces

Position	Description	Marking	Connector Type	Illustration
A	eCPRI 1	DATA 1	LC (On SFP) with support for FullAXS	
B	eCPRI 2	DATA 2		
C	DIN 14 pin, following functions supported: – EC light – External alarms – AMD Note: If using more than one function, a Y-cable must be connected to the DIN 14 connector for each added function.	ALARM/AISG/EC	DIN 14 female connector	
D[(1)]	−48 V DC power supply	−48V ⎓ (B)	Power connector	
E[(1)]	−48 V DC power supply	−48V ⎓ (A)	Power connector	
F	Grounding	⏚	2 × 6 mm dual lug	

(1) The radio operates with B1 and B3 only when power port A is connected, but both ports A and B are required for B7 to function.

Note: After the radio power is switched on, it takes 20 to 30 seconds before the slow flashing (0.5 Hz) starts. The operational indicator only flashes once during this period.

Table 20 AIR 3284 Optical Indicators

Position	Marking	Indicator Name
H	!	Fault
I	✔	Operational
J	🔧	Maintenance
K	DATA 1, DATA 2	Interface

Table 21 AIR 3284 Button

Position	Function	Description	Marking
G	Site test button	Controls site test operation before radio is connected to a baseband unit. For more information, see Perform Basic Stand-alone Radio Installation Check.	7s T⇄

5.1 Optical Cable Interfaces

The optical cable interfaces provide connections to optical cables for traffic and timing signals between AIR 3284 and a Baseband unit. An SFP is used to connect the optical cable to AIR 3284.

Note: There are different SFP modules for different products.

Only use SFP modules approved and supplied by Ericsson.

For recommended SFP modules, see SFP Module Selector Guide.

5.1.1 eCPRI Interface

AIR 3284 sets up connection with Baseband through eCPRI interface, an up to 25.78 Gbps Ethernet port.

5.2 DIN 14-Pin Interface

The DIN 14-pin interface supports the following functions:

- EC light
- External alarms
- AMD

5.2.1 EC Light

The EC light function delivers communication signals and alarms between the optional PSU and AIR 3284.

5.2.2 External Alarms

The external alarms function can be used to monitor alarms from sensors on external equipment, for example doors, lights, and others.

Each alarm can be configured to be raised by the following two alarm conditions:

- Closed loop condition

  An alarm is raised when an open switch is closed.

- Open loop condition

  An alarm is raised when a closed switch is opened (default alarm condition).

Table 22 External Alarms and Output Characteristics

Alarm Input Port Details	Characteristics
Number of alarm inputs	2
Maximum sensed impedance for a closed loop condition	Closed (less than 5 kΩ)
Minimum sensed impedance for an open loop condition	Open (greater than 60 kΩ)
Maximum current sourced from port interface	6.0 mA
Maximum voltage sourced from port interface	5.5 V

5.2.3 AMD

For future use.

5.3 −48 V DC Power Supply Interface

The −48 V DC power connection is made through a connector with a 3-wire (DC-I) connection or a connector with a 2-wire (DC-C) connection.

For power cable dimensioning, see Site Installation Products Overview.

For determining which connector or junction box to use, see Table 23.

Table 23 −48 V DC Power Supply Connector or Junction Box

Cross-Sectional Area of Each Conductor (mm^2)	Connector or Junction Box
10–16	For 3-wire (DC-I), used with connector RNT 447 36/01. For 2-wire (DC-C), used with connector RNT 447 37/01.
25	Used with junction box NTB 101 75/1

The power cable conductor has a wire for both the 0 V conductor and a wire for the −48 V DC conductor.

All cables must be shielded. The shielding must be properly connected both to the power connector and to the grounding in the power supply equipment. If the shielding is not connected, the AIR 3283 overvoltage and lightning protection do not function properly.

5.4 Grounding Interface

AIR 3284 must be grounded to protect it from overvoltage and lightning strikes.

For more information about grounding principles, see Grounding Guidelines for RBS Sites and Lightning Protection Guidelines.

5.4.1 Optical Indicators

Optical indicators show the system status.

For more information about the optical indicators, see Indicators, Buttons, and Switches.

6 Standards and Regulations

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

Declaration of Conformity

"Hereby, Ericsson AB, declares that this product is in compliance with the essential requirements and other relevant provisions of Radio Equipment Directive 2014/53/EU and RoHS Directive 2011/65/EU. The full text of the declaration of conformity is available at the following internet address: https://portfolio.ericsson.net/c/FGB1010529."

6.1 Regulatory Approval

The product complies with the following market requirements:

- European Union (EU) market requirements, Radio Equipment Directive (RED) 2014/53/EU

The apparatus may include radio transceivers with support for frequency bands not allowed or not harmonized within the EU.

6.1.1 Environmental Standards Compliance

The product complies with the following environmental standard:

EU

- RoHS Directive 2011/65/EU

6.1.2 Safety Standards Compliance

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

International

- IEC 62368-1

EU

- EN 50385
- EN 62368-1

6.1.2.1 Outdoor Specific Requirements

The product complies with the following outdoor specific requirements:

International

- IEC 60529

EU

- EN 60529

6.1.3 EMC Standards Compliance

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

International

- 3GPP TS 37.114

EU

- ETSI EN 301 489-1
- ETSI EN 301 489-50

6.1.4 Radio Standards Compliance

The product complies with the following radio standards:

International

- 3GPP TS 37.145-1
- 3GPP TS 37.145-2

EU

- ETSI EN 301 908-1
- ETSI EN 301 908-23

6.1.5 Marking

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

EU

- CE mark
- WEEE symbol

6.2 Other Standards and Regulations

The standards and regulations in this section are not regulatory approved.

6.2.1 Spare Parts

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

6.2.2 Surface Quality

The surface quality of AIR 3284 is according to Ericsson standard class A5 for the radome, top, front, side covers, and the heat-sink.

6.2.3 Vandal Resistance

Unauthorized access is not possible without damaging the tamper proof warranty seal.

6.2.4 Vibration and Shock

The product fulfills the following standards, assuming proper installation and use of approved accessories only:

- Random vibration and shock: ETSI EN 300 019-2-4, Telcordia GR-3178-CORE, and ETSI EN 300 019-2-4, Severity Class 1
- Seismic: Telcordia GR-63-CORE

6.2.5 Materials

All Ericsson products fulfill the legal, market, and Ericsson requirements regarding the following:

- Material declaration
- Materials' fire resistance, components, wires, and cables
- Recycling
- Restricted and banned material use