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# Functional description

## General description

The 2 x 40W 700MHz RRH specified here supports 3GPP E-UTRAN Upper Band 13 (List 1). The RRH includes an amplifier with two transmitters, four receivers, and filter all within one chassis. The RRH supports 2 x 2 MIMO and 2 x 4 MIMO within one module. RRH units can be combined to support 4 x 4 MIMO. The nominal transmit power is 40 Watts at the filter output for each of the two transmit paths. The RRH supports one carrier at up to 10 MHz instantaneous bandwidth. The RRH is a zero footprint, weatherized, self-contained module that relies on natural convection cooling (no fans). The RRH is light weight, with high power efficiency. The interfaces to the RRH include DC power, two antenna connections, two CPRI interface ports, two auxiliary RX input/output ports, two TX monitor ports, one Ethernet port for on-site configuration, an ALD port to support Antenna Line Devices, two user alarm ports, and a serial port for troubleshooting purposes. The two CPRI connections can be configured to support either metallic or optical interfaces. Up to 6 RRH units can be daisy chained. The RRH requires no field calibration, and supports antenna sharing applications. The RRH is field replaceable, but not field repairable. The RRH shall be compliant with all applicable 3GPP, 3GPP2, FCC, and regional requirements.

## Product capabilities

The product capabilities in this release are:

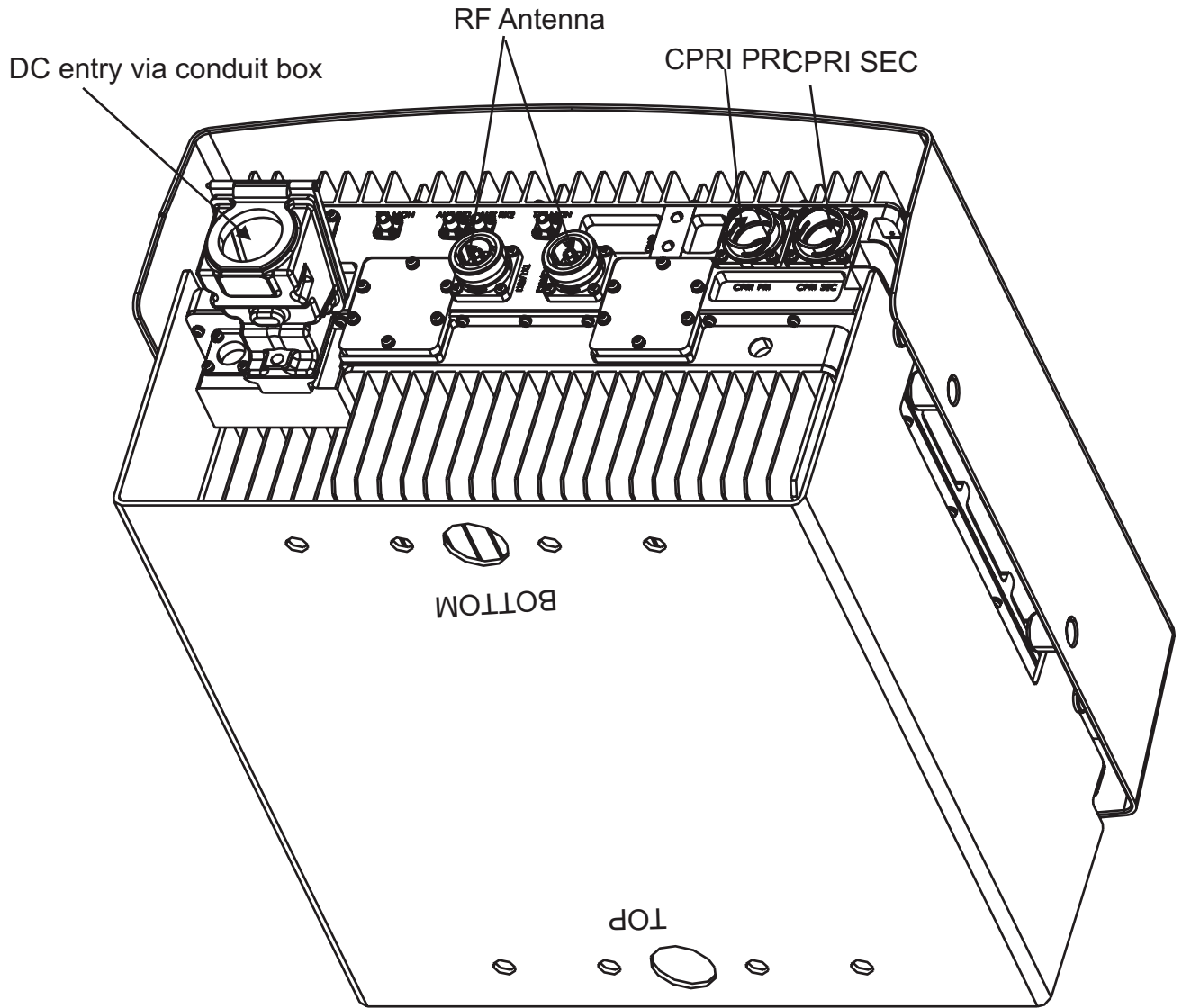
- Outdoor, -48 V DC
- Transmit Power 2 Tx at 40W each
- 700 MHz
- 1 sector, 2x2 MIMO per RRH
- Supports up to six user alarms for each RRH
- Support one LTE carrier at 10 MHz bandwidth
- RRH Mounting:
  - pole
  - wall
  - Floor stand
- Front access installation and service
- Bottom I/O panel access

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# RRH description

## RRH bottom-view (external)

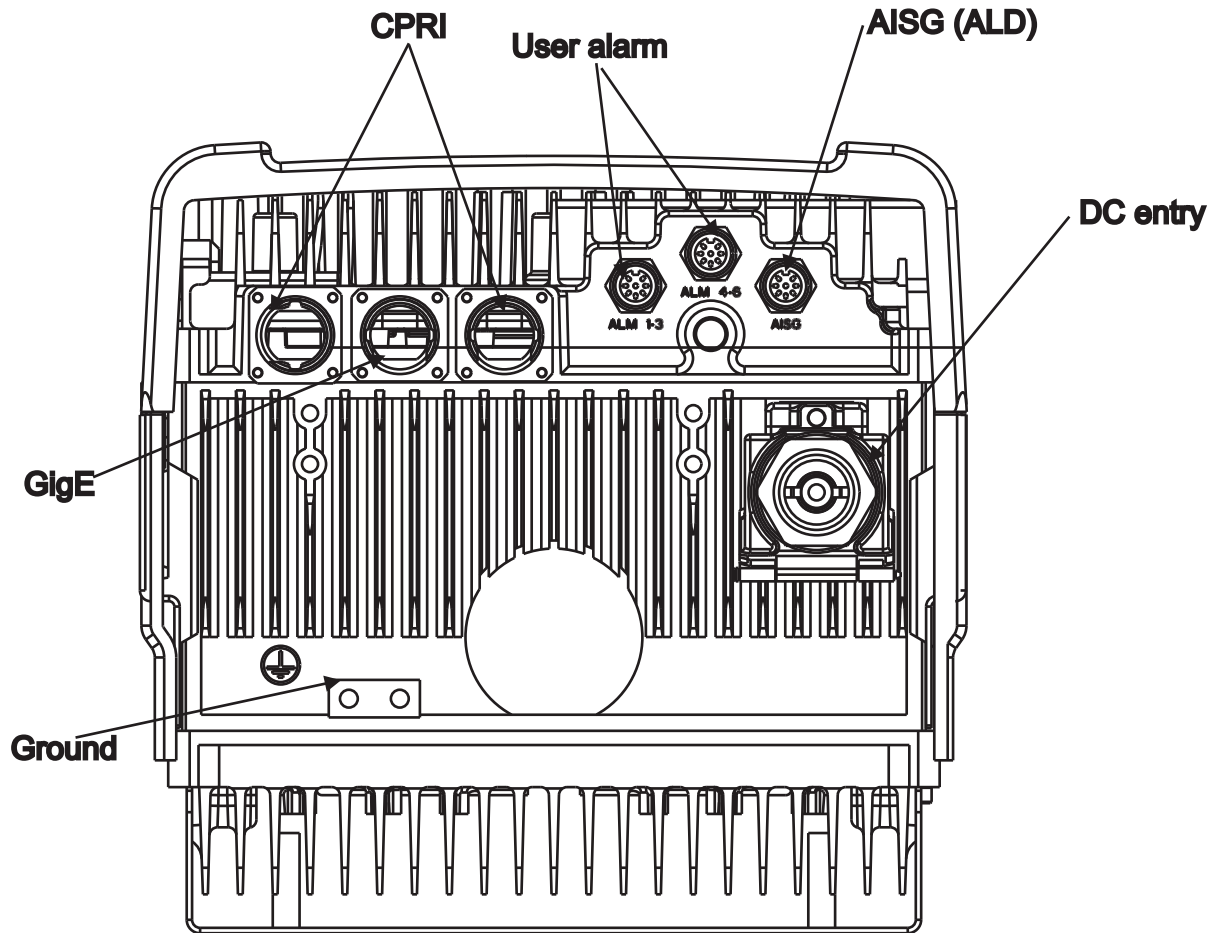
The following figure shows the bottom external view of the 700 MHz RRH.



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**RRH cable interfaces (bottom view)**

The following figure shows the cable interfaces on the bottom of the RRH.


**Cable interfaces**

At the bottom of the RRH, the following cable interface points are found:

- *-48V DC power connector:*
- *Two (2) Optical connectors:* One optical interface to connect the RRH and the second optical interface to support daisy-chain
- *Two (2) External Alarm Connectors:* (8-pin Circular Male connector)
- *One ALD (RS485) Connector:* (8-pin Circular Din Female connector)
- *Two (2) RF Antennas* (7/16 DIN coaxial female connector)
- *Two (2) SMA connectors:* (For testing TX main and TX Diversity)

The top of the RRH allows access for connecting RF cables.

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## RRH weights and dimensions

### Weights and dimensions

This topic covers the RRH weights and dimensions.

### RRH weights and dimensions

The following table provides weights and dimensions for the RRHs.

RRH configuration	Estimated maximum installed weight, kg (lb)	Overall dimensions height x width x depth, mm (inches)
RRH 2x40 700 MHz Upper	23 (50.7)	498 x 426 x 257 (19.6 x 16.8 x 10.1)

### Miscellaneous hardware weights

The following table provides approximate weights for other miscellaneous hardware.

Item	Weight kg (lb.)
Shipping box	5 (11)
Wall bracket (RRH)	4.1 (9)
Pole brackets (2) (standard)	2.73 (6)
Pole Bands (2)	1.8 (4)

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## RRH overall dimensions

The following figure shows the overall dimensions for the RRH.

