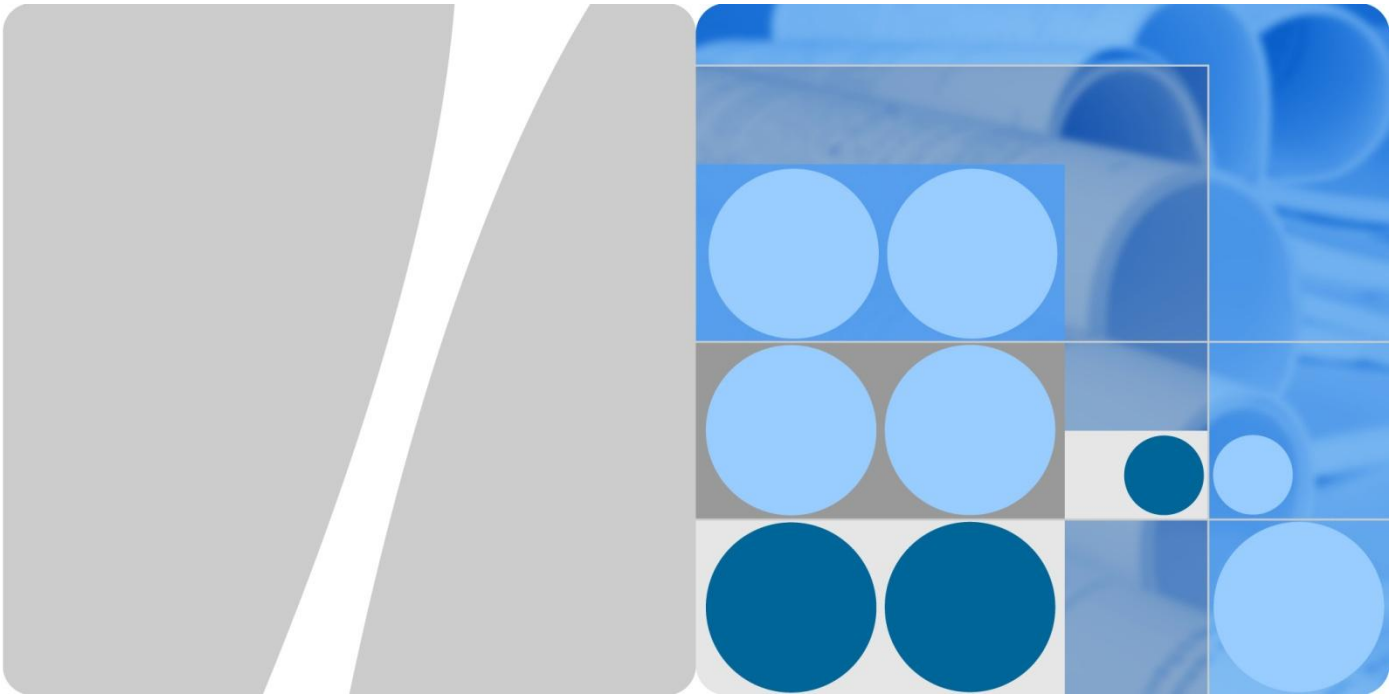

# RRU3808 Description

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# Contents

# 1 Introduction

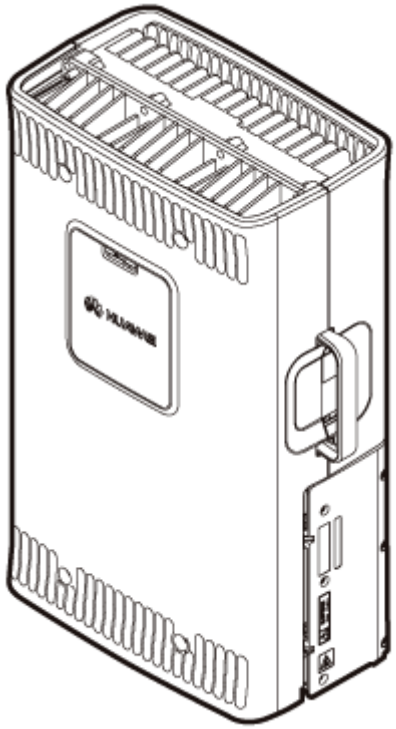
The RRU3808 is the outdoor remote radio unit. It is the RF module of the distributed NodeB and is installed close to the antenna.

The RRU3808 performs modulation, demodulation, data processing, and combination and division of baseband signals and RF signals.

## 1.1 Appearance

Figure 1-1 shows an RRU3808.

**Figure 1-1** RRU3808



# 1.2 Physical Ports

RRUs have a modular design. Its external ports are located in the cabling cavity or at the bottom of the module.

**Table 1-1** Physical ports on the RRU3808

| Port | Connector | Quantity | Function |
|---|---|---|---|
| Power supply port | OT terminal | 1 | –48 V DC power supply port |
| Optical port | DLC connector | 2 | Transport ports |
| Communication port for the RET antenna | DB9 connector | 1 | Other ports |
| Main TX and RX port | DIN waterproof female connector | 1 | RF ports |
| Diversity TX and RX port | DIN waterproof female connector | 1 | |
| Commissioning port | RJ45 connector | 1 | Other ports |

# 2 Technical Specifications

## 2.1 Frequency Band

**Table 2-1** RRU3808 frequency band

| Mode | Frequency Band (MHz) | RX Frequency Band (MHz) | TX Frequency Band (MHz) |
|---|---|---|---|
| UMTS | 2100 | 1920 to 1980 | 2110 to 2170 |
| UO, LO, UL | AWS | 1710 to 1755 | 2110 to 2155 |

## 2.2 Capacity

**Table 2-2** RRU3808 Capacity

| Mode | Capacity |
|---|---|
| UMTS | It supports four carriers. |
| LTE | It supports one carrier. |

## 2.3 Receiver Sensitivity

**Table 2-3** RRU3808 receiver sensitivity

| Mode | Frequency Band (MHz) | 1-Way Receiver Sensitivity (dBm) | 2-Way Receiver Sensitivity (dBm) | 4-Way Receiver Sensitivity (dBm) |
|---|---|---|---|---|
| UMTS | AWS / 2100 | –125.8 | –128.6 | –131.3 |
| LTE | AWS | -106.3 | -109.1 | N/A |

NOTE

- The receiver sensitivity of UMTS is measured, as recommended in 3GPP TS 25.104, at the antenna connector over the full band on condition that the channel rate reaches 12.2 kbit/s and the bit error rate (BER) does not exceed 0.001.
- The LTE receiver sensitivity is measured, as recommended in 3GPP TS 36.104, under a 5 MHz channel bandwidth based on the FRC A1-3 in Annex A.1 (QPSK, R = 1/3, 25 RBs) standard.

# 2.4 Output Power

NOTE

- The RRU3808 supports one TX channel, MIMO, and combination of one TX channel and MIMO.
- The RRU3808 supports differentiated power configured for each carrier.

- One TX channel: maximum output power of a TX channel reaching 40 W
- MIMO: maximum output power reaching 40 W + 40 W
- Combination of one TX channel and MIMO: maximum output power of a TX channel reaching 40 W

**Table 2-4** Typical RRU3808 configuration output power (UMTS, AWS/ 2100MHz)

| Mode | Configuration | Output Power |
|---|---|---|
| UMTS | One TX channel | maximum output power of a TX channel reaching 40 W |
| | MIMO | maximum output power reaching 40 W + 40 W |
| | Combination of one TX channel and MIMO | maximum output power of a TX channel reaching 40 W |
| NOTE<br>• Maximum output power = Maximum output power of the PA - Internal losses. The maximum output power is measured at the antenna connector of the RF module. | | |

**Table 2-5** Typical RRU3808 configuration output power (LTE, AWS)

| Mode | Number of LTE Carriers | Maximum Output Power (W) |
|---|---|---|
| LTE | 1(MIMO) | 2 x 40 |

**Table 2-6** Typical RRU3808 configuration output power (UL, AWS)

| Number of UMTS Carriers | Number of LTE Carriers | Output power per UMTS Carriers (W) | Output power per LTE Carriers (W) | Bandwidth of LTE Carrier (MHz) |
|---|---|---|---|---|
| 1 (MIMO) | 1 (MIMO) | 2x20 | 2x20 | 5, 10, 15 |

| Number of UMTS Carriers | Number of LTE Carriers | Output power per UMTS Carriers (W) | Output power per LTE Carriers (W) | Bandwidth of LTE Carrier (MHz) |
|---|---|---|---|---|
| 1 | 1 (MIMO) | 20 | 2x20 | 5, 10, 15 |
| 2 | 1 (MIMO) | Configured in two Pas: 20 | 2x20 | 5, 10, 15 |
| 3 | 1 (MIMO) | Configured in two Pas: 10 | 2x20 | 5, 10 |
| 4 | 1 (MIMO) | Configured in two Pas: 10 | 2x20 | 5, 10 |

# 2.5 Power Consumption

NOTE

- The typical power consumption is measured with the equipment 40% loaded at a temperature of 25 ℃.
- The maximum power consumption is measured with the equipment 100% loaded at a temperature of 25 ℃.

**Table 2-7** DBS3900 non-MIMO (UMTS, 2100MHz) power consumption

| Configu-ration | Output Power per Carrier (W) | Typical Power Consumption (W) | Maximum Power Consumption (W) | Power backup duration based on new batteries and typical power consumption (hour) | |
|---|---|---|---|---|---|
| | | | | 50Ah | 92Ah |
| 3 x 1 | 20 | 410 | 490 | 5.2 | 10.7 |
| 3 x 2 | 20 | 510 | 640 | 4.0 | 8.5 |
| 3 x 3 | 20 | 740 | 950 | 2.6 | 5.5 |
| 3 x 4 | 20 | 800 | 1060 | 2.4 | 4.9 |

NOTE

- In the 3x1 or 3x2 configuration, one WBBPb4 and one WMPT are configured.
- In the 3x3 or 3x4 configuration, two WBBPb4 units and one WMPT are configured.

**Table 2-8** DBS3900 MIMO (UMTS, 2100MHz) power consumption

| Configu-ration | Output Power per Carrier (W) | Typical Power Consumption (W) | Maximum Power Consumption (W) | Power backup duration based on new batteries and typical power consumption (hour) | |
|---|---|---|---|---|---|
| | | | | 50Ah | 92Ah |
| 3 x 1 | 10 + 10 | 460 | 570 | 4.5 | 9.4 |
| 3 x 2 | 10 + 10 | 580 | 730 | 3.6 | 7.2 |
| 3 x 3 | 10 + 10 | 730 | 950 | 2.6 | 5.6 |
| 3 x 4 | 10 + 10 | 800 | 1060 | 2.4 | 4.9 |

NOTE

- In the 3x1 configuration, one WBBPb4 and one WMPT are configured.
- In the 3x2 configuration, two WBBPb4 units and one WMPT are configured.
- In the 3x3 configuration, three WBBPb4 units and one WMPT are configured.
- In the 3x4 configuration, four WBBPb4 units and one WMPT are configured.

**Table 2-9** DBS3900 non-MIMO (UMTS, AWS) power consumption

| Configu-ration | Output Power per Carrier (W) | Typical Power Consumption (W) | Maximum Power Consumption (W) | Power backup duration based on new batteries and typical power consumption (hour) | |
|---|---|---|---|---|---|
| | | | | 50Ah | 92Ah |
| 3 x 1 | 20 | 410 | 482 | 5.2 | 10.8 |
| 3 x 2 | 20 | 518 | 632 | 4.0 | 8.4 |
| 3 x 3 | 20 | 721 | 931 | 2.7 | 5.6 |
| 3 x 4 | 20 | 835 | 1051 | 2.3 | 4.7 |

NOTE

- In the 3x1 or 3x2 configuration, one WBBPb4 and one WMPT are configured.
- In the 3x3 or 3x4 configuration, two WBBPb4 units and one WMPT are configured.

**Table 2-10** DBS3900 MIMO (UMTS, AWS) power consumption

| Configu-ration | Output Power per Carrier (W) | Typical Power Consumption (W) | Maximum Power Consumption (W) | Power backup duration based on new batteries and typical power consumption (hour) | |
|---|---|---|---|---|---|
| | | | | 50Ah | 92Ah |

| Configu-ration | Output Power per Carrier (W) | Typical Power Consumption (W) | Maximum Power Consumption (W) | Power backup duration based on new batteries and typical power consumption (hour) | |
|---|---|---|---|---|---|
| | | | | 50Ah | 92Ah |
| 3 x 1 | 10 + 10 | 470 | 572 | 4.4 | 9.2 |
| 3 x 2 | 10 + 10 | 628 | 766 | 3.2 | 6.7 |
| 3 x 3 | 10 + 10 | 774 | 975 | 2.5 | 5.1 |
| 3 x 4 | 10 + 10 | 890 | 1109 | 2.1 | 4.3 |

NOTE

- In the 3x1 configuration, one WBBPb4 and one WMPT are configured.
- In the 3x2 configuration, two WBBPb4 units and one WMPT are configured.
- In the 3x3 configuration, three WBBPb4 units and one WMPT are configured.
- In the 3x4 configuration, four WBBPb4 units and one WMPT are configured.

# 2.6 Input Power

**Table 2-11** Input power

| Item | Specification |
|---|---|
| Input power | –48 V DC; voltage range: –36 V DC to –57 V DC |

# 2.7 Equipment Specifications

**Table 2-12** Equipment specifications

| Item | Specification |
|---|---|
| Dimensions (H x W x D) | 480 mm x 270 mm x 140 mm (without the housing)<br>485 mm x 285 mm x 170 mm (with the housing) |
| Weight | 17 kg (without the housing)<br>19 kg (with the housing) |

# 2.8 Environment Specifications

**Table 2-13** Environment specifications

| Item | Specification | |
|---|---|---|
| Operating temperature | RRU3808 | –40℃ to +55℃ (without solar radiation)<br>–40℃ to +50℃ (with solar radiation) |
| Relative humidity | 5% RH to 100% RH | |
| Absolute humidity | 1 g/$m^3$ to 30 g/$m^3$ | |
| Atmospheric pressure | 70 kPa to 106 kPa | |
| Operating environment | Compliance standards:<br>• 3GPP TS 25.141<br>• ETSI EN 300019-1-4 V2.1.2 (2003-04) Class 4.1: "Non-weather protected locations" | |
| Shockproof protection | NEBS GR63 zone4 | |
| Ingress Protection (IP) rating | IP65 | |

# 3 Acronyms and Abbreviations

**Table 3-1** Acronyms and abbreviations

| Acronym and Abbreviation | Full Name |
|---|---|
| BBU | Baseband control Unit |
| BER | Bit Error Ratio |
| RRU | Radio Remote Unit |
| WBBP | WCDMA Baseband Process unit |
| WMPT | WCDMA Main Processing and Transmission unit |