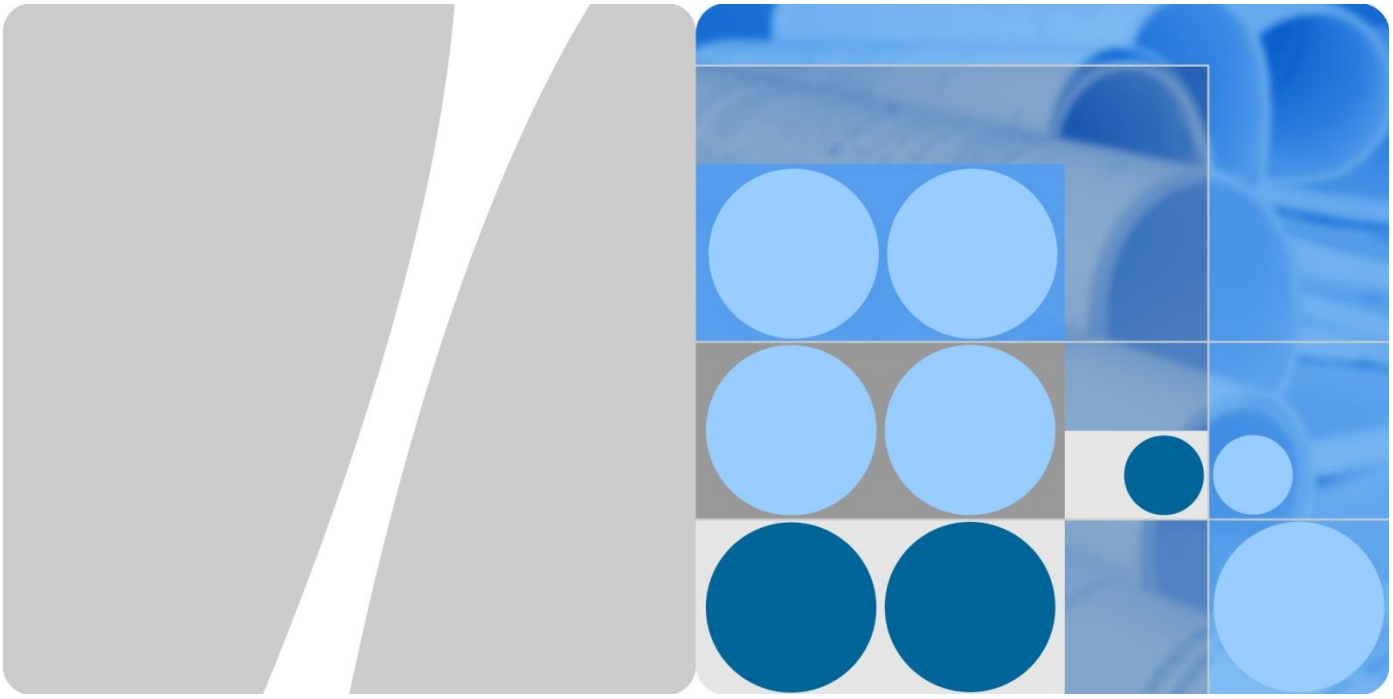

RRU3828 Description

Issue V1.1

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Contents

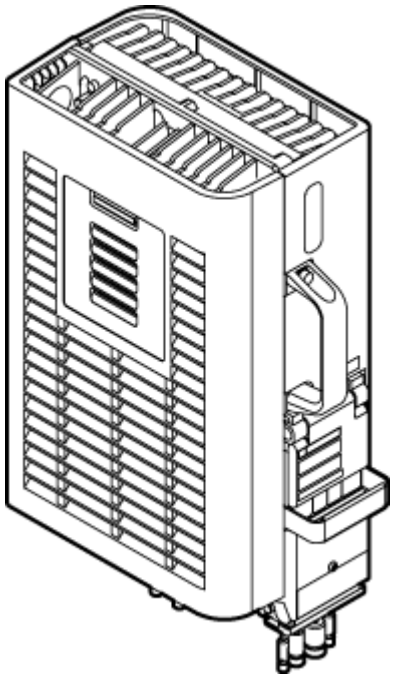
1 Introduction

The RRU3828 is the outdoor remote radio unit which is powered by a power cabinet. It is the RF module of the distributed NodeB and is installed close to the antenna. The RRU3828 performs modulation, demodulation, data processing, and combination and division of baseband signals and RF signals.

1.1 Appearance

Figure 1-1 shows an RRU3828.

Figure 1-1 RRU3828



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 RRU3828

Port	Connector	Quantity	Function
Power supply port	Pressfit type connector	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 RX port	DIN waterproof female connector	1	
Alarm port	DB15 connector, shared with the fan port	1	Port for dry contact alarm signals

2 Technical Description

2.1 Frequency Band

Table 2-1 RRU3828 frequency band

Frequency Band	RX Frequency Band (MHz)	TX Frequency Band (MHz)
2100 MHz	1920 to 1980	2110 to 2170

2.2 Capacity

One RRU3828 supports six carriers in non-MIMO configuration.

One RRU3828 supports four carriers in MIMO configuration.

2.3 Receiver Sensitivity

Table 2-2 RRU3828 receiver sensitivity

Frequency Band	1-Way Receiver Sensitivity (dBm)	2-Way Receiver Sensitivity (dBm)	4-Way Receiver Sensitivity (dBm)
2100 MHz	–126.1	–128.9	–131.6

NOTE

As recommended in 3GPP TS25.104, the receiver sensitivity (full band) is measured at the antenna connector provided that the channel rate reaches 12.2 kbit/s and the Bit Error Rate (BER) is within 0.001.

2.4 Output Power

NOTE

- The RRU3828 supports one TX channel, MIMO, and combination of one TX channel and MIMO.
- The RRU3828 supports differentiated power configured for each carrier.

One RRU3828 supports six carriers in non-MIMO configuration, and supports four carriers in MIMO configuration, its output power at the antenna connector reaches 2 x 40 W.

Table 2-3 Non-MIMO RRU3828 output power

Number of PA1 Carriers	Number of PA2 Carriers	Output Power per Carrier (W)
1	0	40
2	0	20
3	0	13
4	0	10
1	1	40
2	2	20
3	3	13

Table 2-4 MIMO RRU3828 output power

Number of Carriers	Output Power per Carrier (W)
1	40+40
2	20+20
3	13+13
4	10+10

Table 2-5 RRU3828 (in hybrid configuration) output power

Number of Carriers	Output Power per Carrier (W)
1	5
2	4
3	2
NOTE In hybrid configurations, each TX channel supports a maximum of four carriers, with maximum output power of 40 W.	

2.5 Power Consumption

NOTE

- The typical power consumption is the DBS3900 works with a 40% load at 25℃ ambient temperature.
- The maximum power consumption is the DBS3900 works with a 100% load at 25℃ ambient temperature.

Table 2-6 DBS3900 non-MIMO (RRU3828) power consumption

Configuration	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	421	493	5.1	10.5
3 x 2	20	520	658	4.0	8.3
3 x 3	20	785	977	2.5	5.0
3 x 4	20	854	1109	2.2	4.5

NOTE

- In the 3x1 or 3x2 configuration, one WBBPd2 and one WMPT are configured.
- In the 3x3 or 3x4 configuration, two WBBPd2 units and one WMPT are configured.

Table 2-7 DBS3900 MIMO (RRU3828) power consumption

Configuration	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	535	604	3.9	8.1
3 x 2	10 + 10	689	824	2.9	5.9
3 x 3	10 + 10	864	1053	2.1	4.4
3 x 4	10 + 10	1011	1266	1.7	3.8

NOTE

- In the 3x1 configuration, one WBBPd2 and one WMPT are configured.
- In the 3x2 configuration, two WBBPd2 units and one WMPT are configured.
- In the 3x3 configuration, three WBBPd2 units and one WMPT are configured.
- In the 3x4 configuration, four WBBPd2 units and one WMPT are configured.

2.6 Input Power

Table 2-8 Input power

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

2.7 Equipment Specifications

Table 2-9 Equipment specifications

Item	Specification
Dimensions (H x W x D)	400 mm x 220 mm x 140 mm (without the connectors and housing) 400 mm x 240 mm x 160 mm (with the housing)
Weight	14 kg (without the housing) 15 kg (with the housing)

2.8 Environment Specifications

Table 2-10 Environment specifications

Item	Specification	
Operating temperature	RRU3828	–40℃ to +55℃ (without solar radiation) –40℃ to +50℃ (with solar radiation)
Relative humidity	5% RH to 100% RH	
Absolute humidity	1–30 g/m^3	
Atmospheric pressure	70 kPa to 106 kPa	
Operating environment	Compliance standards: 3G TS25.141 V3.0.0 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