

RRU3929 Description

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Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129
People's Republic of China

Website: <http://www.huawei.com>

Email: support@huawei.com

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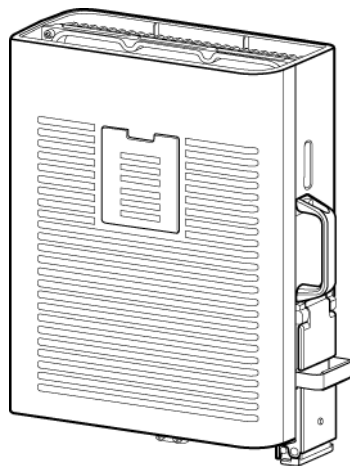
1 Introduction

The RRU3929 is an outdoor remote radio unit which is powered by an enhanced APM30H. It is the RF part of a distributed base station and can be located near the antenna. The RRU3929 performs modulation, demodulation, data processing, and combination and division of baseband signals and RF signals. With the Software Defined Radio (SDR) technology, the RRU3929 can support the dual-mode operation of either two modes of GSM/UMTS/LTE through software configuration modification.

The RRU3929 has a dual-transmitter and dual-receiver structure, which supports higher output power and carrier capacity.

Figure 1-1 shows the appearance of the RRU3929

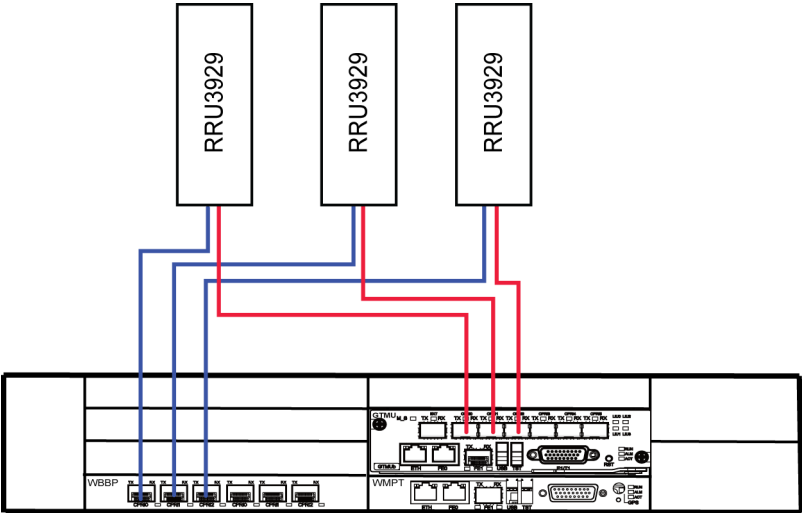
Figure 1-1 Appearance of the RRU3929



To meet the requirements for radio network deployment, the BBU3900 and RRU3929 are connected through a CPRI interface that uses an electrical or optical cable to transmit CPRI signals.

The BBU3900 and the RRU3929 are connected in dual-star topology. That is, the CPRI port on the GTMU is connected to CPRI0 on the RRU3929, and the CPRI port on the WBBP or LBBP is connected to CPRI1 on the RRU3929, as shown in Figure 1-2.

Figure 1-2 Dual-star topology



2 Technical Specifications

2.1 Frequency Band

Table 2-1 RRU3929 frequency band

Frequency Band	RX Frequency Band (MHz)	TX Frequency Band (MHz)
900MHz	880~915	925~960
1,800MHz	1,710~1,785	1,805~1,880

2.2 Capacity

Table 2-2 Capacity

Mode	Capacity
GSM	Each RRU3929 supports 8 TRXs
UMTS	Each RRU3929 supports 6 TRXs, and also supports 4 TRXs in MIMO configuration
GSM+UMTS	RRU3929: G1U1, G2U1, G1U2, G2U2
LTE	RRU3929: 1× (1.4, 3, 5, 10, 15, 20MHz) per PA 2× (1.4, 3, 5, 10, 15, 20MHz) per PA
GSM+LTE	G1L1、G2L1、G3L1、G4L1、G5L1、G6L1 The bandwidth of LTE could be 1.4, 3, 5, 10, 15, 20MHz

2.3 Receiver Sensitivity

Table 2-3 Receiver sensitivity

Mode	Receiver Sensitivity	
UMTS	-125.5 dBm	<ul style="list-style-type: none">As recommended in 3GPP TS25.104, the receiver sensitivity (full band) is measured at the antenna connector on condition that the channel rate reaches 12.2 kbit/s and the Bit Error Rate (BER) does not exceed 0.001.Frequency band (MHz): 880 to 915, 925 to 960, 1800
GSM	-113.7 dBm	Frequency band (MHz): 880 to 915, 925 to 960
	-114 dBm	Frequency band (MHz): 1800
LTE	-105.8 dBm	Frequency band (MHz): 900/1800 (BW > 5 MHz)

2.4 Input Power

Table 2-4 Input power

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

2.5 Equipment Specifications

Table 2-5 Equipment specifications

Item	Specification
Dimension (H x W x D)	485 mm × 380 mm × 170 mm (with the housing)
Weight	23 kg (with the housing)

2.6 Output Power



NOTE

- The output power is 1 dB lesser than the standard power when the RRU3929 is located at a height of 3500 m to 4500m; and is 2 dB lesser than the standard power when the RRU3929 is located at a height of 4500 m to 6000m.
- Factors such as the site-to-site distance, frequency-reuse factor, power control algorithm, and traffic model affect the gain achieved by dynamic power allocation. Therefore, in most cases, the network planning can be based on the power specification achieved by dynamic power allocation.
- Power sharing cannot be used together with RAN sharing between BSS and RAN, concentric cell, Co-BCCH, and IBCA.
- In power sharing mode, the power control and DTX must be set to ON.
- Power sharing assumes a random distribution of UEs in the cell.

Table 2-6 lists the typical configurations of the RRU3929 900 MHz, 1800 MHz in compliance with the specifications for multi-carrier base station in EN 301 502 V9.2.1.

Table 2-6 Typical configuration of the RRU3929 (900MHz/1800MHz)

Number of GSM Carriers	Number of UMTS Carriers	Number of LTE Carriers	Output Power per GSM Carrier (W)	Output Sharing Power per GSM Carrier (W)	Output Power per UMTS Carrier (W)	Output Power per LTE Carrier (W)
1	0	0	60	60	-	-
2	0	0	60	60	-	-
3	0	0	30	30	-	-
4	0	0	30	30	-	-
5	0	0	20	25	-	-
6	0	0	20	25	-	-
7	0	0	15	20	-	-
8	0	0	15	20	-	-
0	1	0	-	-	60	-
0	2	0	-	-	60	-
0	3	0	-	-	30	-
0	4	0	-	-	30	-
0	5	0	-	-	20	-
0	6	0	-	-	20	-
0	1(MIMO)	0	-	-	2×60	-
0	2(MIMO)	0	-	-	2×30	-

Number of GSM Carriers	Number of UMTS Carriers	Number of LTE Carriers	Output Power per GSM Carrier (W)	Output Sharing Power per GSM Carrier (W)	Output Power per UMTS Carrier (W)	Output Power per LTE Carrier (W)
0	3(MIMO)	0	-	-	2×20	-
0	4(MIMO)	0	-	-	2×15	-
0	0	1	-	-	-	2×60
0	0	2	-	-	-	Carrier1: 2×30 Carrier2: 2×30
0	0	2	-	-	-	Carrier1: 2×20 Carrier2: $2 \times 40^*$
1	1	0	60	-	60	-
2	1	0	30	-	60	-
1	2	0	60	-	30	-
2	2	0	30	-	30	-
1	0	1	40	-	-	2×20
2	0	1	40	-	-	2×20
3	0	1	20	-	-	2×20
4	0	1	20	-	-	2×20
5	0	1	12	-	-	2×20
6	0	1	12	-	-	2×20

2.7 Power Consumption



NOTE

- The typical power consumption for GSM is reached when the base station works with 30% load and power control and DTX are enabled. The maximum power consumption for GSM is reached when the base station works with 100% load.
- The typical power consumption for UMTS is reached when the base station works with 40% load. The maximum power consumption for UMTS is reached when the base station works with 100% load.
- The typical power consumption for LTE is reached when the base station works with 50% load. The maximum power consumption for LTE is reached when the base station works with 100% load.
- The power consumption listed in Table 2-7 is based on the condition that the enhanced cabinet is used.

Table 2-7 Power consumption(BBU3900+RRU3929)

Item	Specification				
Power consumption	RRU3929,900MHz/1800MHz	Configuration	Output Power per Carrier (W)	Typical Power Consumption (W)	Maximum Power Consumption (W)
	GSM	3 × 2	20	675	795
		3 × 4	20	915	1,260
		3 × 6	20	1,005	1,530
	GSM+UMTS	GSM 3 × 2 + UMTS 3 × 1	20/20	850	1,030
		GSM 3 × 3 + UMTS 3 × 1	20/20	1,060	1,360
		GSM 3 × 4 + UMTS 3 × 1	20/20	1,105	1,495
	GSM+LTE	GSM 3 × 2 + LTE 3 × 1	20/40	1,305	1,660
		GSM 3 × 3 + LTE 3 × 1	20/20	1,155	1,525
		GSM 3 × 4 + LTE 3 × 1	20/20	1,215	1,660
	UMTS	3 × 1	20	585	675
		3 × 2	20	660	840
	LTE	3 × 1	40	990	1,290

2.8 Environment Specifications

Table 2-8 Environment specifications

Item	Specification
Operating temperature	–40 °C to +50 °C (with solar radiation) –40 °C to +55 °C (without solar radiation)
Relative humidity	5% RH to 100% RH
Protection level	IP65

3

Acronyms and Abbreviations

Abbreviation	Full Name
3GPP	3rd Generation Partnership Project
CE	Channel Elements
CPRI	Common Public Radio Interface
DL	Downlink
FE	Fast Ethernet
MSR	Multi-Standard Radio
OM	Operation and Maintenance
RF	Radio Frequency
RFC	Radio Frequency Cabinet
RRU	Remote Radio Unit
RX	Receive
SDR	Software Defined Radio
TX	Transmit
UL	Uplink
UMTS	Universal Mobile Telecommunications System
UTRP	Universal Transmission Processing unit