The RTN 910 is the new-generation of IP radio transmission equipment developed by Huawei. The equipment, 1U high, supports a maximum of two RF directions. With various service interfaces, the RTN 910 can be configured flexibly and installed easily. The equipment can be applied not only in the 3G/WiMAX/LTE backhaul but also in the radio access of private network services and private line services for VIP customers.

**IP Radio Transmission with AM**
- Supports adaptive modulation (AM) and QoS, improving the efficiency of bandwidth usage and quality of services.
- Supports the pseudo wire emulation edge to edge (PWE3) technology, and adopts high-performance and unified pure packet switching.
- Provides a variety of OAM functions and fast fault-isolation methods, simplifying packet network maintenance.
- Supports end-to-end service configuration, improving the flexibility of radio network planning and reducing the OPEX.

**Robust IP Service-Processing Capability**
- Provides 4.4 Gbit/s switching capacity, and supports the VLAN, flow control, and MPLS functions.
- Supports basic MPLS functions and service forwarding, and supports static LSPs.
- Adopts the LSP tunnel technology and the PWE3 technology to form an MPLS network where access of multiple services is allowed.
- The advanced header compression technology achieves maximum capacity of 1 Gbps backhaul.
- Supports 8-class QoS, provides a wide range of services, and ensures the quality of services with high priorities.
- Supports MPLS OAM features, making management and maintenance in IP networks similar to those in SONET networks.
- Provides packet-based IEEE 1588V2 synchronization, facilitating cost-effective clock solutions for 3G/WiMAX/LTE base stations.

**Excellent Protection Schemes**
- Protection schemes for radio links
  - 1+1 HSB/SD/FD protection
  - LAG protection for Ethernet services
- Network-level protection schemes
  - Ethernet ring protection switching (ERPS)
  - MPLS tunnel 1:1 protection
  - PW 1:1 protection
- Equipment-level protection schemes
  - 1+1 hot backup for the input power supply

**ATPC**
The automatic transmit power control (ATPC) technology enables the RTN 910 to automatically change the output power of the transmitter within the ATPC control range according to the received signal level. As a result, the interference to the neighboring system and the residual error rate are reduced.

**XPIC**
The RTN 910 supports Cross-Polarization Interference Cancellation (XPIC) technology, which helps to double the service capacity of a microwave channel at the same spectrum and bandwidth.

**Easy Maintenance**
- Supports different types of loopbacks at the service ports and the IF ports.
- Supports RMON performance events.
- Supports MPLS OAM, PW OAM, and Ethernet OAM functions.
- Provides a built-in test system to perform the pseudo-random binary sequence (PRBS) error test at the IF port.
- Supports remote data and software loading by using the NMS. Thus, the entire network can be upgraded rapidly.
- Supports in-service software upgrades.

**Multiple Methods for Network Management**
- Uses the iManager U2000 to manage the RTN devices and Huawei optical transport devices. Hence, quick fault isolation, quick service provisioning, visual IP service management, and the OPEX is reduced.
- Uses the Web LCT to manage a single RTN NE or multiple RTN NEs in a centralized manner.
- Enables users to query alarms and performance events through the simple network management protocol (SNMP).
- Supports the in band DCN scheme. Hence, dedicated DCN channels are not required, and the network construction cost is reduced.

**Clock and Synchronization**
- Supports the radio link clock and synchronous Ethernet clock.
- Supports the sync source message (SSM) protocol.
- Supports IEEE 1588v2 synchronization.
## Technical Specifications

### RF Specifications

<table>
<thead>
<tr>
<th>Frequency Band</th>
<th>6GHz</th>
<th>11 GHz</th>
<th>18 GHz</th>
<th>23 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel Spacing (MHz)</td>
<td>30</td>
<td>40</td>
<td>40/50</td>
<td>40/50</td>
</tr>
<tr>
<td>Maximum Transmit Power (dBm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QPSK</td>
<td>28</td>
<td>24</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>16QAM</td>
<td>28</td>
<td>24</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>32QAM</td>
<td>25</td>
<td>22</td>
<td>19.5</td>
<td>19.5</td>
</tr>
<tr>
<td>64QAM/128QAM</td>
<td>23</td>
<td>20</td>
<td>16.5</td>
<td>17.5</td>
</tr>
<tr>
<td>256QAM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Typical Receiver Sensitivity (RSLeBER=10⁻⁶)

<table>
<thead>
<tr>
<th>Channel Modulation</th>
<th>30 MHz</th>
<th>40 MHz</th>
<th>50 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPSK</td>
<td>-89</td>
<td>-87.5</td>
<td>-77.5</td>
</tr>
<tr>
<td>16QAM</td>
<td>-81</td>
<td>-80.5</td>
<td>-79.0</td>
</tr>
<tr>
<td>32QAM</td>
<td>-77.5</td>
<td>-77.5</td>
<td>-75</td>
</tr>
<tr>
<td>64QAM</td>
<td>-75</td>
<td>-74.5</td>
<td>-74.0</td>
</tr>
<tr>
<td>128QAM</td>
<td>-72</td>
<td>-71.5</td>
<td>-70.0</td>
</tr>
<tr>
<td>256QAM</td>
<td>-69</td>
<td>-68.5</td>
<td>-67.0</td>
</tr>
</tbody>
</table>

### RF Direction
- A maximum of two RF directions
- 1+0 non-protection
- 2+0 non-protection
- 1+1 HSB/SDP protection
- XPIC configuration

### Equalization
- Adaptive time domain equalization

### Service Specifications

<table>
<thead>
<tr>
<th>Traffic Interface</th>
<th>FE electrical interface: 10/100BASE-T(X)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GE optical interface: 1000base-SX and 1000base-LX</td>
</tr>
<tr>
<td></td>
<td>GE electrical interface: 10/100/1000BASE-T(X)</td>
</tr>
<tr>
<td>Switching Capacity</td>
<td>4.4 Gbit/s</td>
</tr>
</tbody>
</table>

### Ethernet Function
- Ethernet II, IEEE 802.3, and IEEE 802.1q/p service frame formats
- E-Line and E-LAN Ethernet services
- Ethernet ring protection switching (ERPS)
- Adding, deletion, and exchange of IEEE 802.1q- or IEEE 802.1p-compliant VLAN tags
- Flow control that complies with IEEE 802.3x
- Link aggregation group (LAG)
- IETF RFC 2819-compliant RMON performance monitoring
- STP protocol and MSTP protocol (generating only the CIST, equivalent to RSTP)

### MPLS/PWE3
- Encapsulation of Ethernet services and transmission over an LSP tunnel to implement E-Line services
- Static tunnels and PWs
- MPLS tunnel 1:1 protection
- PW 1:1 protection

### QoS
- DiffServ and standard B-level PHB
- Traffic classification based on the Port, C-VLAN ID, S-VLAN ID, 802.1p priority of the C-VLAN/S-VLAN packet, or DSCP
- CAR and traffic policing
- Eight classes for queue scheduling over an Ethernet interface

### System Parameters

| Dimension and Weight | IDU (Dimensions: width x depth x height): 17.4 inch x 8.66 inch x 1.73 inch, (442 mm x 220 mm x 44 mm) | | ODU (Dimensions: width x depth x height): < 11 inch x 3.62 inch x 11 inch, (280 mm x 92 mm x 280 mm) | | Weight of IDU: < 12.1 lbs (5.5 kg) | | Weight of ODU: 9.9 lbs (4.5 kg) |
|----------------------|-------------------------------------------------|------------------------|--------------------------------|----------------------|---------------------------------|
| Working Temperature  | IDU (Long-term: +23°F to +140°F (-5°C to +60°C) Short-term: -4°F to +149°F (-20°C to +65°C) ) | | ODU (Long-term: -27.4°F to +131°F (-33°C to +65°C) Short-term: -40°F to +140°F (-40°C to +60°C) ) | | Power Supply: -38.4 V to -72 V DC | | Heat Dissipation: Fan cooling |
| Relative Humidity   | IDU: 5% to 95% | | ODU: 5% to 100% | | | |