



This application will illustrate how to transport Common Public Radio Interface (CPRI) or Open Base Station Architecture Initiative (OBSAI) channels over one fiber fronthaul link using Coarse Wavelength Multiplexing (CWDM) then integrating into IP Ethernet based carrier network as mobile backhaul transportation solution for mobile operator.

The CTC Union FRM220 CWDM MUX/DEMUX, OADM and 3R Transponder enable CWDM connectivity in a C-RAN (Cloud-Radio Access Network) over a fronthaul fiber link between Base Band Units (BBU) and Remote Radio Heads (RRH) located at two different cell towers.

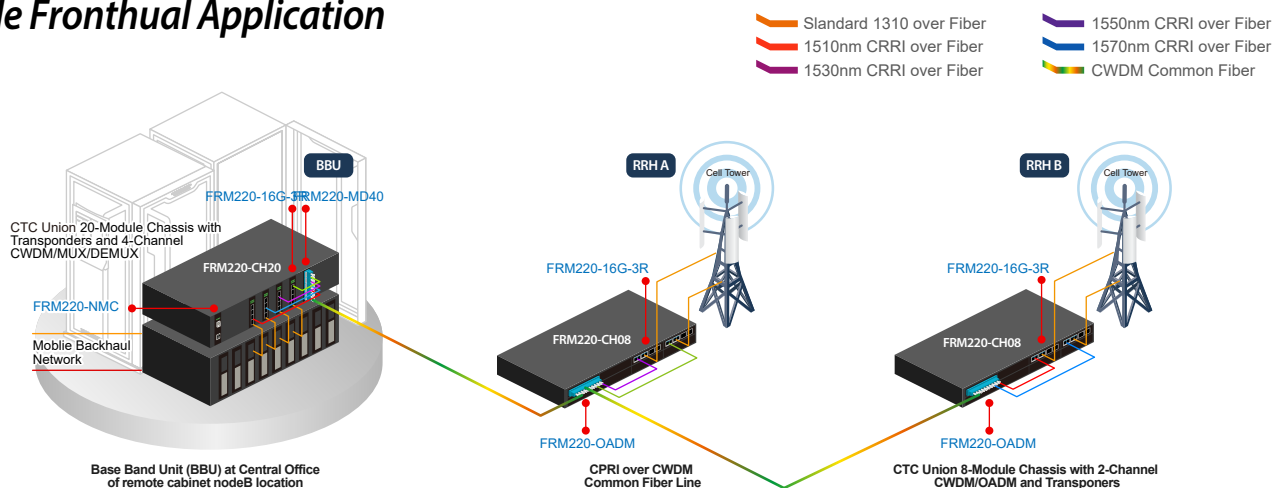
The BBU is located at a BBU hotel or at a Central Office location. The fiber ports on line cards in the BBU support standard 1310 wavelengths. Fiber patch cables connect the BBU line cards to FRM220 3R transponders installed in a high-density FRM220-CH20 chassis. The four FRM220 3R transponders convert the fiber with standard wavelengths to CWDM wavelengths (channels) with Small Form Pluggable (SFP) transceivers. Standard wavelength SFP and CWDM wavelength SFP are installed in each of the FRM220 3R transponders. The CWDM SFP support specific wavelengths to enable connectivity to the matching channel ports on the FRM220 CWDM MUX/DEMUX with fiber patch cables (shown in different colors to represent the CWDM wavelengths). CTC Union CWDM transceivers have color-coded latch handles for easy identification. The CWDM MUX/DEMUX multiplexes the wavelengths that transport the four CPRI channels over the CWDM Common Fiber Line (fronthaul).

At the first cell tower, a FRM220-CH08 chassis with a two-channel FRM220 CWDM Add/Drop Multiplexer and FRM220 3R Transponders is deployed. The FRM220 CWDM/AD Add/Drop Multiplexer filters out the 1550nm and 1570nm CWDM channels to connect the CPRI data to the Remote Radio Heads in the cell tower. Fiber patch cables (shown in purple and green to represent the CWDM wavelengths) connect the channel ports on the FRM220 CWDM add/drop multiplexer to FRM220 3R Transponders that convert the fiber with CWDM wavelengths back to standard 1310 wavelengths. The standard wavelength fiber connects to the two Remote Radio Heads at the cell tower.

The 1510nm and 1530nm CWDM channels pass through the Add/Drop MUX and travel over the CWDM Common Line to the second cell tower.

At the second cell tower, another FRM220-CH08 chassis with FRM220 two-channel CWDM add/drop Multiplexer and FRM220 3R Transponders is deployed. The FRM220 CWDM add/drop Multiplexer filters out the 1510nm and 1530nm CWDM channels to connect the CPRI data to the Remote Radio Heads at the cell tower.

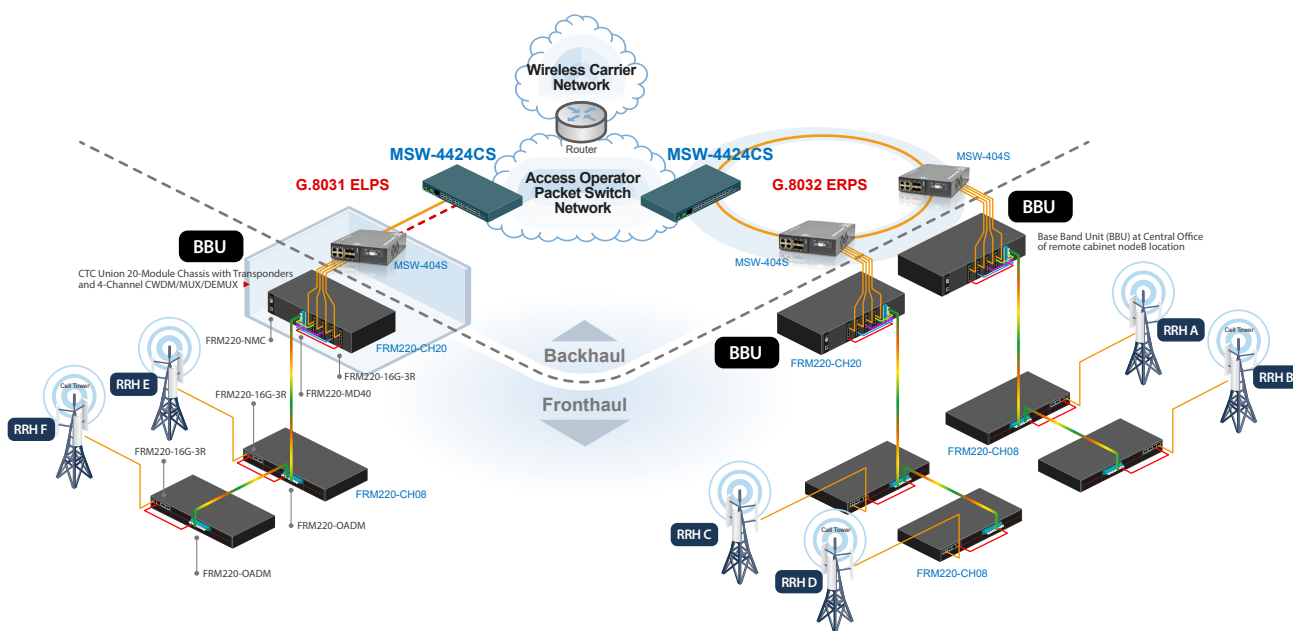
## Mobile Fronthaul Application



When the mobile traffic from each cell tower are concentrated into BBU at central office sites, the CTC Union Carrier Ethernet switch & Network Interface Device (NID) are deployed to interconnect with the 3R transponders installed on the high-density FRM220-CH20 chassis by using standard wavelength SFP on both sides equipment then aggregate all traffic on the IP Ethernet based carrier network as the mobile backhaul solution of 4G LTE service proposed by Metro Ethernet Forum (MEF).

The CTC Union Carrier Ethernet switch & NID fully comply to Carrier Ethernet 2.0 (CE 2.0) standards to enable delivering SLA (Service Level Agreement) for end-to-end performance characteristics as well as carrier grade service OAM management to rapidly detect and recover network fault in real time. Also, featuring advanced timing synchronization such as Sync. Ethernet and IEEE 1588v2 to allow the mobile operators delivering time-sensitive service for mobile subscribers with optimal stability and continuity in the end-to-end connectivity.

## Mobile Fronthaul & Backhaul Application



- Carrier Ethernet with multiple class of service
- Traffic Synchronization
- Precisely delivery of time-sensitive service

## Products



iAccess Multi-Service Platform  
FRM220-CH20 & CH08 & CH04A



Carrier Ethernet Switch (NID)  
MSW-404S



4 and 8 Channel CWDM Mux/DeMUX  
CWDM (FRM220 Mux/DeMux)



L2+ Gigabit Carrier Ethernet Switch  
MSW-4424CS



16Gbps 3R Multi-rate Transponder  
FRM220-16G-3R



Optical Add-Drop Multiplexer  
FRM220-OADM

• The specification and pictures are subject to change without notice.



CTC UNION TECHNOLOGIES CO., LTD.

8F, No.60, Zhouzi St. Neihu, Taipei 114, Taiwan TEL : +886 2 2659-1021 FAX : +886 2 2659-0237 sales@ctcu.com

www.ctcu.com

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